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Reports

Studies

Front cover. Cattle and two goats\gazelle from Site GRD-14 in the Wadi Gorgod (photo Hamad Mohamed Hamdeen).

Angareeb-bed production in modern Nubia: Documenting a dying craft tradition

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Figure 1. Two beds and a stool made by Mustafa. Ernetta 2019.

Angareeb beds: past and present

Excavations in the cemeteries of Amara West, a town founded by the pharaonic state *c.* 1300 BC (Spencer 2017), upstream of the Dal Cataract, recovered around 120 fragments of legs from so-called *angareeb* beds. The modern Nubian term *angareeb* ((عنقريب) plural *anagreeb*) was used by Reisner to describe ancient beds found at Kerma constructed in a similar style to the modern examples (Reisner 1923, 210). Wooden frames for beds, albeit without feet, can be traced back to the A-Group in Nubia (*c.* 3800-3100 BC; Gratien 1978, 167) and the Early Dynastic Period in Egypt (Killen 2017a, 33). The examples excavated at Amara West were found in tombs dating from the Ramesside to the Napatan period. The construction technique of these ancient wooden beds remained largely consistent for five millennia, with a string webbing of plant rope (Figures 1-2a) across a wooden frame made from two long and two short interlocking beams with four legs, until the widespread introduction of modern materials – metal frames and nylon stringing (Figure 2b). These modern materials offer durability and protection from termite infestation.

Angareeb beds are used for sleeping, but also for sitting, resting, as a place to eat and work, or to lay out objects and materials such as textiles, plants and crops. In general, these are the only items of furniture in houses, other than wooden cabinets for storage and small stools (also used as tables). Their importance is

Left: Figure 2a. Traditional wooden *angareeb* bed with plant stringing. Magasir 2018.
Right: Figure 2b. Modern bed with metal frame and nylon stringing. Abri 2018.

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reflected in the large number of beds within each household, often between 8 and 12, but with one house on Ernetta island having 17 beds for a household of three people. The beds are used to accommodate visitors.

Several different types of beds are known in modern Nubia, the *angareeb* bed being used in daily life in the houses and streets. A wedding bed, called *jirtik* (جرتك) or *huq* (حق) after the ritual of the henna night, is a larger type of *angareeb* suitable for two adults. A smaller bed variant is the *hababa* (هبابة), a portable bed that allows the removal of the legs to roll up the stringing (Figure 1, left). Another type of bed is the *mayit* (ميت) or *sutra mayit* (سوترة ميت) used to carry a deceased person to the grave. After the funeral, this is kept outside the house for two weeks, set upright on its long edge against a wall with the lying surface facing the wall, thought to ward off the threat of another death. A small stool, *banbar* (بنبر), is made in the same style and is sometimes referred to as an *angareeb* (Figure 1). The parts of the bed have different names: the legs are called *rigl* in arabic or *ossi* (اوسي) in Dongolawi Nubian, and *angareh noi* (انقرى نوي) in the Mahassi dialect. The long plank of the frame is called *meriq* (مرق) in both dialects and the short plank *jigir* (جيقر) in Mahassi and *jigid* (جيقيد) in Dongolawi. The stringing is called *nisaga* (نساجة).

Ethnoarchaeological research

As study of the extremely fragmentary ancient fragments (Figure 3; Lehmann 2021b) progressed, it became clear how informative more recent beds, specifically those made with wooden frames, could be for our understanding of the construction techniques and possible uses. While modern Nubian *angareeb* beds are ubiquitous in and around houses in Nubian villages (Figure 4), this important item of furniture, and its production and use, has been little researched. Therefore, an ethnoarchaeological research project was instigated in 2018. Of course, the social, cultural and religious context of the bed's meaning and use probably differed enormously between late 2nd millennium BC Kush and present-day northern Sudan, but as with other ethnoarchaeological research, continuities of material use and production technique, within a similar environmental context, can prove informative (Wendrich 1999, 18). The principal difference was the use of iron tools by modern carpenters. Ethnoarchaeological research has also provided insight into other strands of the Amara West Research Project (Dalton 2017; Ryan 2016).

Figure 3. From the ancient fragments (darker brown) to a modern reproduction. Amara West Research Project house, Ernetta 2018.

Figure 4. *Angareeb* bed outside a house. Ernetta 2019.

The *angareeb* project had two strands: (1) to document the process of *angareeb* production in modern Nubia, and (2) to better understand the ancient fragments, raw materials and production process (Lehmann 2021b). This article focuses on the first aspect, whilst drawing on comparisons

with ancient beds. The research employed interviews and informal conversations, in Nubian and Arabic, with six carpenters and others with perspectives on bed production, use and meaning. This craft tradition is rapidly dying out, and considerable research was needed to find carpenters working with *angareeb*; indeed only one was found who made new beds rather than just repairing existing ones. Mohamed Hassan, director of the Kerma Museum, was employed to facilitate the conversations, and provided interviewees with the context of the research and intended use of the information (including photographs), as well as seeking verbal consent prior to interviews. A written consent form was signed by Mustafa to approve the use of his interviews and images depicting him. All mentioned individuals were without exception keen to participate, but here only their first names and ages are used. This research was undertaken as part of the archaeological permission provided by the National Corporation for Antiquities and Museums (NCAM) to the British Museum for the Amara West Research Project, and with the support of Mohamed Saad, NCAM bioarchaeologist and inspector assigned to the project. Saad translated some of the recordings.

The carpenters, their workshops and materials

The Nubian term for carpenter is *najjaar* (نجار), which can be qualified to *najjaar anagreeb* (نجار عناقريب) if referring to bed makers only. The carpenters all spoke the northern *Mahas* dialect of the Nubian language, and Arabic, but I have also indicated, where possible, the *Dongolawi* terms. Some of the terms are Arabic loan words. Six carpenters were interviewed in October 2018 and February 2019, living in a 200km stretch of the Nile Valley, between Sarkamatto in the north to Kerma, Tabo, Dom, Selem and Magasir in the south (Figure 5): Daud from Sabo (85 years old, Figure 6a), Ibrahim from Dom (66 years old, Figure 6b), Mohamed and his son Farkhradin from Selem (66 years old, Figure 6c), Mounir from Tabo (43 years old, Figure 6d) and Mustafa from Magasir Island (60 years old, Figure 6e). They all work mainly on creating furniture such as household cabinets and repairing old *angareeb* beds, reflecting the shift to modern metal-framed beds but also for households wanting to maintain examples of the traditional type. A short interview was also conducted at Omdurman, but the beds produced there are quite different in style to the handmade Nubian type discussed here, mostly with cylindrical machine-made turned legs (Figure 13b), a type that was also imported to the north of the country.

Figure 5. Map of Northern Sudan showing locations mentioned in the text.

Mustafa was the only one of the six carpenters who still produced *angareeb* beds. In his village people still order wooden beds instead of buying beds made of metal, perhaps reflecting the persistence of traditional practices in isolated places such as islands or mountainous areas. As a result of this, Mustafa had considerably more in-depth knowledge about the beds, their raw materials and the production process. We commissioned him to produce replicas of the ancient beds, based on the evidence from preserved fragments, and documented the process.

The carpenters' workshops were usually located directly outside their houses, laid out to

From top left: Figure 6a. Daud, Sabo 2018; Figure 6b. Ibrahim, Dom 2018; Figure 6c. Mohamed and son Farkhradin, Selem 2018; Figure 6d. Mounir, Tabo 2018; Figure 6e. Mustafa with Mohamed Hassan, Magasir 2018.

Left: Figure 7a. Wood workshop with a side building. Dom 2018. Right: Figure 7b. Wood workshop under a *neem*-tree. Magasir 2018.

suit their needs and the local built and natural environment. Sometimes a small side building created a shady work space but also somewhere for securing tools and unworked wood (Figures 6c, 7a-b) if necessary. When trees were available locally, a workshop was created directly underneath, offering a shaded working environment. In Magasir, Mustafa fenced off a larger area enclosing the tree (Figure 7b). Finished and unfinished furniture was placed in the area.

The raw wood is usually brought by the customer, a practice also documented in a text from Deir el-Medina (*c.* 1200 BC; Killen 2017b, 27). Nowadays material can be purchased from professional wood sellers. Different types of wood are used for *angareeb* beds. One of the most commonly used material recently is the wood of the *neem*-tree (*Azadirachta indica*), originating from India and reportedly introduced by the British. The *neem* (نيم) grows straight, producing strong wood that is easy to work; it is also valued for resistance to termites, due to its bitter taste. An indigenous tree commonly used for beds is *sunut*

Figure 8. Red-brown *sunut* wood, *Acacia nilotica*, Dom 2018.

(*Acacia nilotica*), the red-brown colour of its interior allowing interesting patterns and contrasts in the finished *angareeb* (Figure 8). The wood from this tree has few long straight elements, and as it is harder than *neem* is sometimes softened in water before it is worked, or is worked green. When the wood dries, the surface often cracks. To avoid this the wood is buried in sand to slow the drying process, which can take up to three months. Another acacia used is *haraz* or *hurug* (*Faidherbia*, formerly *Acacia albida*). This wood (Arabic: حراز; Nubian: هوروج) is similar to *sunut*, rarely offering straight lengths but also strong and easy to shape. However, it is hard to find. Occasionally taleh (طلح) wood can be used for bed production, and a scented wood (*Vachellia seyal*) is used for medical reasons. Tamarisk (*Tamarix*) is also sometimes used; in Mahas it is called *ittil* (ايتيل), in Dongolawi *shireh* (شيرى) and in Arabic *tarfa* (طرفة). The most ubiquitous wood in the area, the date palm, is not used for *angareeb* production, as it is not considered hard enough.

Several wooden bed fragments excavated in Amara West were analysed to provide species identification: the samples included acacia (*Acacia sp.*) and tamarisk (*Tamarix sp.*), but sycamore (*Ficus sycomorus*) and *doum*-palm (*Hyphaene thebaica*) were also identified by Caroline Cartwright (Lehmann 2021a; Cartwright and Ryan 2017).

The webbing was usually made of plant fibre string, using the date- or *doum*-palm, or halfa grass (*Desmostachya bipinnata*). Grass makes a thinner rope than those made from palm fibres. Either material has to be soaked in water for one or two days and is sometimes beaten before twisted into string or rope. The twisting is done loosely using both hands, while one foot holds the finished end (Figures 9a-b).

When the string is long enough, one end is tied around a tree or pole and the rope is laid out across its entire length. A tool called *malwena* (ملوينا), either a purpose-made wooden tool or a piece of palm rib, is then attached to the other end to tighten the twist (Figure 10a). This process shortens the rope and creates tension; the end of the rope is then pinned in the ground, allowing the sun to dry out the fibres in their tightly wound form. At this point, the rope remains rough with loose ends of grass protruding, so it is smoothed by running it back and forth over a palm trunk (Figure 10b). The finished string or rope is

Left: Figure 9a. Making the stringing from halfa grass fibres with *liffa* bundles in the background. Ernetta 2019.
Right: Figure 9b. Twisting the fibres with both hands. Ernetta 2019.

Left: Figure 10a. Twisting the string with a *malwena*-tool. Ernetta 2019. Right: Figure 10b. Smoothing of the rope around a palm tree. Ernetta 2019.

then rolled up into bundles (Figure 9a) called *liffa* (لفة). String is measured in *ba'a* (باع), a length equivalent to both arms being fully extended, so around 2m; each *liffa* comprises about 10 *ba'a* (*c.* 20m) length. For a small bed of the *hababa*-type, about two bundles (*c.* 40m) are needed. The length, thickness and density of the rope varies with the maker and the raw material.

The ancient fragments from Amara West all showed webbing made of plant stringing. The fibres have not yet been analysed. However, the stringing has a width of 20-30mm and was clearly thinner than the plant string made by Mustafa. The ancient stringing was closer in form and thickness to the nylon stringing on modern beds, but was probably also made from grass and palm leaves, based on evidence from other sites (Wendrich 1999, 236-238).

Making the *angareeb* bed

The production of the bed usually starts with the legs, before the frame is made, the bed is assembled and then the sitting/sleeping surface is strung. For the legs, the raw wood is cut with a saw into four pieces of the same length, the bark and outer layer of wood are taken off with a hand axe (*gadduum*) and their roughly cuboid shape is created from the cylindrical form. This takes about five to seven minutes per leg; for all four legs about half an hour is needed, with short breaks. In the second stage, the top of the leg (Figure 11) is measured as one handspan (*shibr* شبر) – the distance between the thumb and the finger tip of the smallest finger when spread apart as far as possible - marked with a line cut into the wood with a saw. Next the width of the panels along the top are marked by cut lines, so that the width of the interior is known and the top part can be cut away (Figure 12a). Then, the area of the base is marked out, this time with the distance of four fingers (*gawarit* قواريط) placed next to each other. The base is then roughly shaped with a hand axe, while the middle cylindrical part is subsequently shaped with the hand axe. The shafts above and below the middle are worked with a rasp to thin them down carefully. Then the decoration of the leg is added, in our case based on the pattern of horizontal incised lines found on ancient fragments (Figure 11). Doing this for the top, middle and base part of four legs, with a saw, took around five minutes each. Only at the very end of leg

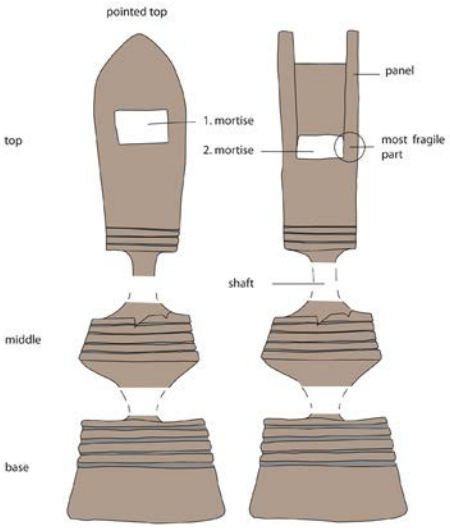

Figure 11. Drawing of an ancient bed leg, used for reproduction. Amara West Research Project.

Left: Figure 12a. Steps in leg manufacture. Ernetta 2019.
Right: Figure 12b. Chiselling out the tenon hole. Ernetta 2019.

From top left: Figures 13 a-e.
Different modern leg decoration found in Nubian villages Sabo, Selem, and Magasir 2018.

Left: Figure 14a. *Banbar* legs with workmen's marks. Dom 2018.
Right: Figure 14b. Detail of workmen's marks.

production are tenon holes chiselled into the top (Figure 12b). This can lead to breakage of the surface on the edges of the tenon hole, which we also see on some ancient fragments. This whole process takes around 45 minutes to one hour for one leg, though the modern *banbar* stool was much quicker given the simpler form and lack of decoration. Throughout, Mustafa worked in a seated position, using his feet to keep the object in position while his hands worked the bed with the tools.

The modern wooden legs are decorated with patterns called *tariga* (طريقة), created by a saw and small chisel. The most common decorative motifs consist of simple horizontal lines, criss-cross lines, diamonds or zig-zag lines (Figure 13). Sometimes only the two outer sides of the legs are decorated, the sides where beams are not inserted, which are more visible when the bed is in use. This is also found on some of the ancient fragments excavated at Amara West. Ibrahim and his son, working in Dom, added two small signs on the finished legs in the shape of a reverse V and two angled parallel lines to mark the product as their work (Figure 14). Similar signs used by specific workmen can be observed on different objects (clothes, vessels, furniture) from ancient Deir el-Medina to indicate ownership (Haring 2017). None of the other carpenters we interviewed used signs to mark their work.

The frame is then made: the raw wood has its bark removed by holding the wood vertically and working it from top to bottom with the hand axe (Figure 15a). The part for the tenon is marked by a saw line, and then the tenon is shaped with a hand axe. Each beam is then inserted into the legs one by one (Figure 15b) with manual adjustments until the parts fit together. The shorter planks are inserted into the upper tenon holes, while the longer planks are set into the lower tenon holes due to their heavier weight. To

Left: Figure 15a. Creating a *meriq*-plank for the bed frame. Ernetta 2019.
Right: Figure 15b. Assembling the bed frame. Ernetta 2019.


Left: Figure 16a. Starting the warp on the normal bed. Ernetta 2019.
Right: Figure 16b. Finishing the warp for the travel bed. Ernetta 2019.

secure the joints small wooden wedges (*takki* تكى) are inserted and hammered into the gaps. In total, the frame, legs and assembly took around one and a half days, a total of about 12 hours.

The final stage is stringing the bed, now described as weaving (*nisaga*, نساجة) – in ancient times the Egyptian verb to string a bed was *mḥ*, 'to fill' the bed frame (Wendrich 1999, 377). The head-end is used to set up warp threads in double strands. For the foot-end a small part of the bed (*c.* 200mm) is divided by a strand of rope parallel to the short end (Figure 16a). This second part can later be used to tension the woven surface. For the portable version both ends of the bed are divided by a strand of rope (Figure 16b) and weaving is only performed in the area between the two strands, preventing the woven part from unravelling when the frame is dismantled. Again, the ends are used to tighten the lying surface.

For our small bed, a total of 44 warp threads (22 double strands) were used. Each is looped around the frame or strand of rope and temporarily held in place by a wedge (Figure 17a). While working the weft Mustafa first sat at the head of the bed and later used a plank laid on the slightly raised frame of the bed, to avoid loosening the stringing (Figure 17b).

Four main patterns are still commonly used today, in different combinations. The simplest is called local or rural style (*baladi*, بلدى), a tabby-weave with each weft thread crossing alternatively over and under the warp threads. Several variations of this pattern are known (Figure 18). Another simple pattern


Left: Figure 17a. The warp attached around the frame. Ernetta 2019.
Right: Figure 17b. Working position while weaving the lying surface. Ernetta 2019.




From top left: Figures 18a-d. Different stringing patterns:
a. Loose tabby weave. Tabo 2018.
b. Diagonal lines and *sab'a-tamanya* pattern on the beds made by Mustafa. Ernetta 2019.
c. Diamond pattern. Tabo 2019.
d. Several smaller diamond shapes. Tabo 2018.

consists of diagonal lines, leading the weft over three and then under three warp threads, shifting each row by one warp thread (Figures 18b-d). The finished pattern is called crocodile's back (*dahar al-timsah*, ظهر التمساح) and the same technique can be used to create zig-zag lines, called *sab'a-tamanya* after the shape of the Arabic numerals seven and eight (٧٨), Figure 18b) or diamond shaped rectangles (Figures 18c-d) in different arrangements, called *sigada* (سجادة) meaning carpet or rug. Mustafa strung one bed in about half a day; the production of a complete bed therefore takes two working days.

In addition to plant stringing, leather thongs or palm ribs (Figure 19a) can be used to create the lying surface. In modern times, brightly coloured nylon stringing is favoured (Figures 2b and 19b), or the use of wider textile bands (Figure 19c).

The stringing of a bed (*serir bil habl*) was recorded in detail at Daraw (New Nubia, Egypt), by Wendrich (1999, 374-388), although several differences can be observed, for example in the body position of the standing worker as well as in the tightening of the stringing at the foot-end (Wendrich 1999, pls 16-19).

Summary

Witnessing the whole production process considerably informed our understanding of the manufacture of an *angareeb* bed, including the use of raw materials, preparation, production processes, work spaces, tools and their names, patterns and the time and effort it takes to produce such a bed. A lot of the problems faced during the production are similar to those in ancient times, as can be seen on the ancient fragments, such as cracking of the wood or surface, and the damage to decoration when the tenon hole was chiselled out. The tradition of using body parts for measurements can be traced back to ancient times, at least in

From left: Figure 19a. Bed with surface made of palm ribs, Sarkamatto 2017. Figure 19b. Modern nylon stringing, Magasir 2018. Figure 19c. Textile band as stringing material, Kerma 2018.

Egypt, with fingers, handspans, cubits and arm spans as units of measurement.

This project also underlined the limitations of the archaeological record. The work itself took place outside the project house at the village of Ernetta, chosen by Mustafa on the basis of weather conditions (wind, temperature, sun/shade), though a new location could be found if conditions changed. Work in the street immediately attracted the attention of passers-by, who would stop to observe and discuss the work. During filming in an abandoned house and the project house's outer courtyard, we noted how the production of the legs damaged the carefully plastered mud floor (Figure 12b), so perhaps in ancient times more appropriate spaces were selected (without laid floor, or brick paving, and perhaps outside). In general, Mustafa only needed a floor space of a few square metres, using an old wooden plank or stone as a hard working surface that he would move with his working space. After each step of the production process the wood chippings would be taken by us or other locals to be used as fuel for fire. After that no traces were visible of the production, with the exception of the stone working surface. The latter was easily transportable and would have been moved again for the next production. Similar stones were found in the houses at ancient Amara West and show traces of work. The lack of traces of production underlines how identifying the location for such activities within the archaeological record is probably impossible, although micromorphological techniques can identify possible spaces for woodworking (Dalton 2020).

Some of the old wooden beds found in the houses of Nubian villages had their legs placed into either metal or plastic containers (Figures 18a and c) to protect them from termites, endemic in this region.

Left: Figure 20a. Sandstone balls, Amara West Research Project.
Right: Figure 20b. Sandstone balls used to smooth the wooden surface, Amara West Research Project.

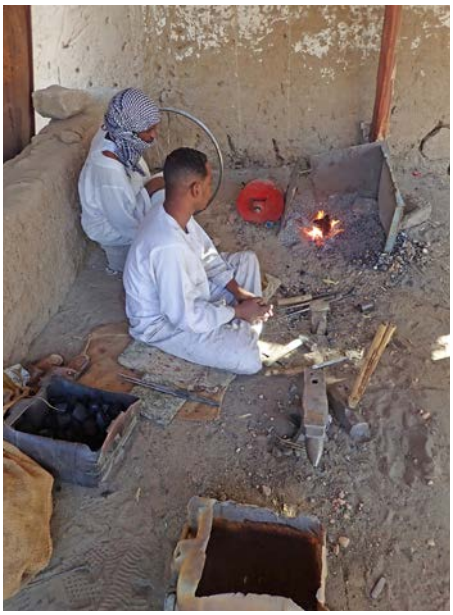

Figure 21. Repair and sharpening of tools. Abri 2019.

Figure 22. Transportation of the bed. Ernetta 2019.

Figure 23. Rolled up bed in the DHL branch in Khartoum, 2019.

Ancient bed legs were sometimes placed on stone cones to lift them off the floor for the same reasons (Peet and Woolley 1923, pl. 14, no. 2). Local schist stone might have been used for the same purpose in the houses of Amara West; in Tomb G301 wooden coffins were placed on schist slabs to raise them off the burial chamber floor (Binder *et al.* 2010).

Among the most ubiquitous objects found in the houses at Amara West were 250 roughly worked sandstone spheres or balls, with a diameter of 20-30mm. They are often found with several facetted surfaces (Figure 20a). These were found separately, as well as in clusters of up to 50. A few of these were recovered from the 1930s spoil heaps and tested as tools for smoothing the surface of the reproduction legs. It was found that these objects had the same effect on the wood as modern sandpaper (Figure 20b) and might have been used for similar purposes on wood, and perhaps on other materials to smooth the surface.

The modern tools used by Mustafa were all made of iron in contrast to the ancient tools, which would probably have been made of copper alloy – a number of copper alloy chisel blades were found in the ancient town. Mustafa owned his own tool set but if necessary he would visit neighbours and borrow tools from them. To sharpen the tools, he would go to the market where once a week two workmen repaired and sharpened tools (Figure 21). The finished bed was easily transportable by one person (Figure 22).

One of the beds created by Mustafa is now on display in *Beit Abri lil-Turath* (Abri House of Heritage, see Spencer 2019), and the second portable bed was rolled up (Figure 23) and shipped to the British Museum with the permission of NCAM, where it has been accessioned (Department of Egypt and Sudan, EA 90819).

It is hoped that this article about the long-lasting tradition of *angareeb* bed making in northern Nubia will contribute to the documentation, understanding and memory of this craft tradition. A short video on the creation of the bed is available online (https://www.youtube.com/watch?v=LKWl9pwQZfY).

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