TCR folder

A twisted cord roulette is a tool that is made from round fibres (pulped bark, grass, cotton…), twisted together and then doubled over to form a small length of cord, creating a series of parallel diagonal rows of oval or rounded concave impressions. Twisted cords can subsequently be knotted creating lines of distinctive wave-like impressions, or looped, combining two or more twisted cords with the same angle of orientation or twisted cords with opposing angles of orientation.

1. TCR1
This fine example from Windé Koroji Ouest, Mali, shows the variety of uses and manipulations to which twisted fibres can be put. The lip of the vessel, at the top, was left undecorated. Below it, decorating just the uppermost rim, is a narrow band of rolled twisted cord roulette impressions, while underneath is another band of rolled twisted cord roulette impressions, running this time in the opposite direction. At the junction between these two bands of impressions, a faint line of horizontal impressions is visible, representing either a tight knot at the extremity of the second roulette or its end trailing along the clay. Below this is a band of wavy impressions which are underlain by twisted cord impressions: this results from a twisted cord with a pronounced knot at one end. From the direction of the rows, we can infer the direction on which the roulette had been twisted, since its impression is a mirror image of it (Hurley 1979). Twisted cord roulettes occur frequently at Windé Koroji Ouest, a site dated to about 2100 BC-1100 BC (MacDonald 1996). This particular rim sherd is from an early excavation context, dated to 2200-1700 BC.
Image: Kevin MacDonald, University College London

2. TCR2
This fine example from Ebelelit, in the Lower Tilemsi Valley in Mali, shows the variety of uses and manipulations to which twisted fibres can be put. The lip of the vessel, at the top, was left undecorated. Below it is a zone marked by rolled impressions of a twisted cord roulette, creating a series of parallel diagonal rows of oval or rounded concave impressions. Because this tool tends, given the materials used, to be flexible, the rows impressed can seem quite sinuous: this sherd is large enough to show this feature. Below this is a zone marked by a rolled twisted cord roulette which has been knotted at both extremities, creating two lines of distinctive wave-like impressions. Ebelelit is a large occupation mound dating to about 2000 BC, which yielded some of the earliest evidence for pearl millet cultivation (Manning 2008; Manning et al in press).
Image: Katie Manning, University of East Anglia

3. TCR3
Sherd from Walaldé, Senegal, excavated in 1999. This rim sherd has been decorated by using a twisted cord roulette, which on this case, was knotted over itself five or six times along its length: this creates the wave-like features visible here, underlying which one can see the diagonal, parallel rows of impressions that are the hallmark of this type of tool.

Walaldé, occupied in the first millennium BC, is a site in the Middle Senegal Valley. Its initial occupation around 2500 years ago was by iron-using agro-pastoral peoples, who may have been transhumant and had wide networks for movement and exchange. Certainly items of copper originating from Akjoujt in Mauritania, at least 400 kilometres away, were recovered at Walaldé in deposits dated to a time just a few centuries after initial settlement, testifying to interactions over long distances (Deme & McIntosh 2006).
Image: Susan McIntosh, Rice University

4. TCR4
Sherd from Garumele, Niger, excavated in 2005. This body sherd has been decorated with impressions of a rolled twisted cord roulette. The roulette used seems to have involved very fine twisted fibres, which have left clearly marked impressions. This sherd came from a relatively recent layer at this site which is thought to have been occupied between about 700 and 200 years ago and is alleged to have served as a capital of the Kanem-Borno 'empire', one of the longest-lived in sub-Saharan Africa. Twisted cord rouletting was the most common decoration technique in the assemblage recovered (Haour 2008; Haour & Gado 2009), but it can be seen by comparing with the other images provided in this archive that considerable variability exists even within this single category.
Image: Anne Haour, University of East Anglia

5. TCR5
Sherd from Garumele, Niger, excavated 2005. This body sherd has been decorated with impressions of a rolled twisted cord roulette. The impressions here are deep, and rather angular, pointing perhaps to the use of thick fibres in manufacturing the roulette. This sherd came from a relatively recent layer at Garumele, which is thought to have been occupied between about 700 and 200 years ago and is alleged to have served as a capital of the Kanem-Borno 'empire', one of the longest-lived in sub-Saharan Africa. Twisted cord rouletting was the most common decoration technique in the assemblage recovered (Haour 2008; Haour & Gado 2009).
Image: Anne Haour, University of East Anglia

6. TCR6
Sherd from Garumele, Niger, excavated 2005. This body sherd has been decorated with impressions of a rolled twisted cord roulette. Towards the middle of the image one can guess at an area where two planes of rouletting overlapped. The impressions here are rather shallow, and difficult to render graphically, a common problem with archaeological material. This sherd came from the earliest occupation at the site and is probably 600 - 700 years old. Twisted cord rouletting was the most common decoration technique in the assemblage recovered (Haour 2008; Haour & Gado 2009).
Image: Anne Haour, University of East Anglia

7. TCR7
Sherd from Cubalel, Senegal, showing the impression of a rolled twisted cord roulette. Because this tool tends to be flexible (given the materials used), the rows impressed can seem relatively sinuous: this sherd is large enough to show this feature. The decoration

seems to have been applied to the outside of the vessel, right up to, but not including, the lip. The roulette used in this instance seems to have involved very fine twisted fibres. Twisted cord roulettes were called 'Twine 6' by the excavator of the site, Susan McIntosh.
Cubalel consists of a group of eight occupation mounds over an area of one square kilometre in the Middle Senegal Valley. The excavated levels stretch over much of the first millennium AD, based on ceramic analysis and radiocarbon dates, but more recent material also occurs on the surface (Bocoum & McIntosh 2002).
Image: Susan McIntosh, Rice University

8. TCR8
Sherd from Siwré, in the Middle Senegal Valley, Senegal. The uppermost part of the sherd, the rim lip, has been left undecorated. Below it is a zone marked by impressions of a rolled twisted cord roulette. Because this tool tends, given the materials used, to be flexible, the rows impressed can seem quite sinuous: this sherd is large enough to show this feature. Finally, right at the bottom of the sherd, one can distinguish another impression type, which appears to result from a rolled cord-wrapped roulette, that is to say a cord or stick around which strands of cord are wrapped and then rolled across the surface of the clay. However, this identification can only be tentative due to the small area of the impression.
Siwré is a tall mound site about 10 ha in extent, 30 km downriver from Cubalel. As is the case at Cubalel, excavated levels stretch over much of the first millennium AD, based on ceramic analysis and radiocarbon dates (Bocoum & McIntosh 2002).
Image: Susan McIntosh, Rice University

9. TCR9
Sherd from Jenné-jeno, Mali, showing the impressions of a rolled twisted multiple-cord roulette. It is evident that multiple strands have been used here, as we can see at least three subdivisions within each segment. The impressions here are also fairly deep, and rather angular, pointing perhaps to the use of thick fibres in manufacturing the roulette. This sherd illustrates well the advantages of using experimental literature to supplement the archaeological record, as Hurley's (1979) Cord 38 provides a comparable impression.
Jenné-jeno is considered to be among the oldest urbanised centres in sub-Saharan Africa. First settled in the third century BC, it reached its largest extent – 33 hectares – by the ninth century AD (McIntosh & McIntosh 1993).
Image: Susan McIntosh, Rice University

10. TCR10
Sherd from Jsmagamag-2, Mali, decorated using a twisted cord roulette and impressed twisted cord. Jsmagamag is a site in the Lower Tilemsi Valley and it was occupied c. 2000 BC (Manning 2008). Three distinct things are happening here: a twisted cord roulette has been rolled over the lower part of the vessel, while above it the rolled impressions of a twisted cord roulette – presumably the same one as used underneath – have been overlaid with simple impressions of twisted cord.
Image: Katie Manning, University of East Anglia

11. TCR11
Sherd from Karkarichinkat Nord, Mali, excavated in 2005/2006, showing on the rim of the vessel the impression of a rolled twisted cord roulette. Karkarichinkat Nord is a site in the Lower Tilemsi Valley and it was occupied for around 100 years between 2550 and 2450 BC. A variety of subsistence strategies were practiced, including some of the earliest known cultivation of millet and the keeping of cattle. The complex of sites in the Lower Tilemsi Valley has also produced some of the earliest impressions of twisted cord roulettes known so far, dating from the mid- to late third millennium BC (Manning 2008; Arazi & Manning in press).
Image: Katie Manning, University of East Anglia

12. TCR12
Sherd from Karkarichinkat Nord, Mali, excavated in 2005/2006, showing the impression of a rolled twisted cord roulette. The impressions are rather difficult to see, which is typical of the situation on most archaeological material (in stark contrast with some of the literature, based on experimental techniques). Karkarichinkat Nord is a site in the Lower Tilemsi Valley occupied for around 100 years between 2550 and 2450 BC. A variety of subsistence strategies were practiced, including some of the earliest known cultivation of millet and the keeping of cattle. The complex of sites in the Lower Tilemsi Valley has also produced some of the earliest impressions of twisted cord roulettes known so far, dating from the mid- to late third millennium BC (Manning 2008; Arazi & Manning in press).
Image: Katie Manning, University of East Anglia

13. TCR13
Sherd from Labe Kanuri, Nigeria, showing the impression of a rolled twisted cord roulette. Here, the decoration seems to have been applied to the outside of the vessel, right up to, but not including, the lip. Labe Kanuri is a low mound near Maiduguri in Borno state, Nigeria, dated by means of two radiocarbon dates to between the end of the 1st century BC and the middle of the 6th century AD. Twisted cord rouletting is a relatively common decorative technique in the region during the 1st millennium AD, occurring on 24% of all decorated sherds recovered from the site's deposits (Magnavita 2008).
Image: Carlos Magnavita, Frankfurt University

BSR folder

Braided strip roulettes are made of five or more lengths of a flexible flat fibre, which are folded in their middle and braided to form a helix-like structure. Sherds bearing impressions of braided strip roulette generally display parallel rows of convex impressions of which the edges form a sawtooth, in the manner of the steps of a staircase. Because braided strip roulettes occur only rarely in West Africa today (see Langlois 2004; Mayor in press), and are considered to be very difficult to make by artisans, they

have almost never been recognised correctly in the archaeological record. Often they have been confused with other types of strip roulettes (that is to say roulettes made from lengths of flat-sectioned fibres, such as a palm leaf).

1. BSR1
This near-complete vessel is issued from the excavation of the rockshelter of Dangandouloun (Bandiagara Plateau, Mali), conducted in 1998. The body of the pot has been fully decorated with rolled braided strip roulette impressions. They run in alternate directions, with a compelling visual effect. This alternate arrangement have been achieved with a single tool, in which a change of direction occurred during braiding, so that the resulting impression forms a chevron pattern. Such tools are known as 'alternately-braided strip roulettes on a continuous core'. The distribution of braided strip roulettes in West Africa is quite circumscribed nowadays (Livingstone Smith *et al. in press*), but locally this tool is still commonly used by Bwa potters, formerly settled in this area, and Dogon potters belonging to one of the blacksmith clans (Mayor *in press*). At Dangandouloun, braided strip rouletting is attested from the seventh to twelfth centuries AD (Mayor 2005; Mayor *et al.* 2005). It was also recognised in several other protohistorical sites of the Dogon Country, recently excavated by the Ounjougou team, at least from the 2nd century AD onwards.
Image: Anne Mayor, University of Geneva

2. BSR2
This sherd, large but difficult to read, is typical of the confusing sorts of material one obtains from archaeological sites. It comes from Birifoh (SiLayiri), northern Ghana. Several planes of roulette decoration can be seen running in different directions. It is likely that the roulette used was a braided strip roulette; in the areas between the raised rows, the characteristic sawtooth pattern made by the succession of the edges of the individual convex impressions is visible.
Birifoh is a hilltop settlement, probably dating to around 1400-1000 years ago based on the features and ceramics recovered. Excavation revealed plaster floors and potsherd pavements (Saako, 2010).
Image: Malik Saako Mahmoud, University of Ghana-Legon

3. BSR3
This sherd from Birifoh (SiLayiri), northern Ghana, shows a complicated combination of decorative designs. The main decorative tool that has been used is the braided strip roulette, a tool made by braiding together lengths of flat fibres. Several contiguous planes of rouletting can be seen on this sherd, meeting at various angles. Two deep grooves, presumably made intentionally, run across this decoration, at either end of the sherd, and some red pigment (slip or paint) appears also to have been applied. At the top on this image is a narrow band of rolled decoration; it is too faint to determine with certainty whether it was made using a braided strip or a twisted cord roulette, but the rows have a stepped appearance which, combined with the fact that braided strip rouletting was used underneath, would suggest that same tool was responsible here. Finally, some appliqué decoration, that is to say a series of raised applied pellets, appears visible at the upper edge.

Birifoh is a hilltop settlement, probably dating to around 1400-1000 years ago based on the features and ceramics recovered. Excavation revealed plaster floors and potsherd pavements (Saako, 2010).
Image: Malik Saako Mahmoud, University of Ghana-Legon

4. BSR4
This sherd is from Birifoh (SiLayiri), northern Ghana and is a good example of a rolled braided strip roulette-decorated sherd. The sherd shows clearly the parallel rows of convex impressions, of which the edges form a sawtooth in the manner of the steps of a staircase. This is a characteristic of the braided strip roulette distinguishing it from other sorts of strip roulette. Birifoh is a hilltop settlement, probably dating to around 1400-1000 years ago based on the features and ceramics recovered. Excavation revealed plaster floors and potsherd pavements (Saako, 2010).
Image: Malik Saako Mahmoud, University of Ghana-Legon

5. BSR5
This sherd from Birifoh (SiLayiri), northern Ghana, is a very clearly impressed example of a rolled braided strip roulette. This example shows clearly the parallel rows of convex impressions of which the edges form a sawtooth, in the manner of the steps of a staircase, which is a characteristic of the braided strip roulette not usually shared by other sorts of strip roulette.
Birifoh is a hilltop settlement, probably dating to around 1400-1000 years ago based on the features and ceramics recovered. Excavation revealed plaster floors and potsherd pavements (Saako, 2010).
Image: Malik Saako Mahmoud, University of Ghana-Legon

6. BSR6
This sherd from Birifoh (SiLayiri), northern Ghana, is a very clearly impressed example of a rolled braided strip roulette. This example shows clearly the parallel rows of convex impressions of which the edges form a sawtooth, in the manner of the steps of a staircase, which is a characteristic of the braided strip roulette not usually shared by other sorts of strip roulette.
Birifoh is a hilltop settlement, probably dating to around 1400-1000 years ago based on the features and ceramics recovered. Excavation revealed plaster floors and potsherd pavements (Saako, 2010).
Image: Malik Saako Mahmoud, University of Ghana-Legon

7. BSR7
This sherd from Birifoh (SiLayiri), northern Ghana, is a very clearly impressed example of a rolled braided strip roulette. This example shows clearly the parallel rows of convex impressions of which the edges form a sawtooth, in the manner of the steps of a staircase, which is a characteristic of the braided strip roulette not usually shared by other sorts of strip roulette. Slightly off-centre is a sequence of uneven impressions, the place where two planes of rouletting merged.

Birifoh is a hilltop settlement, probably dating to around 1400-1000 years ago based on the features and ceramics recovered. Excavation revealed plaster floors and potsherd pavements (Saako, 2009).
Image: Malik Saako Mahmoud, University of Ghana-Legon

FSR folder

A folded strip roulette is a tool made from several flat fibres folded over one another. Sherds bearing impressions of a folded strip roulette generally display rows of convex impressions in the shape of grains of rice, separated in places by grooves running perpendicular to the rows, giving the appearance of a ladder.

1. FSR1
The body of this sherd, from Akumbu in Mali, has been decorated using a folded strip roulette, while the rim has been treated with red slip. The rows of convex impressions are rather disordered and the impressions themselves linked by faint lines - this may indicate that the roulette used was clogged with clay.
Akumbu is a cluster of three large settlement mounds in the Mema region of Mali, with occupation evidence spanning the 4th through 14th centuries AD (Togola 2008). Earlier deposits at Mound B are as of yet undated, but may extend back into the first millennium BC (MacDonald *pers.comm*.)
Image: Susan McIntosh, Rice University

2. FSR2
From the well-known site of Jenné Jeno in Mali, this is a very clear example of a sherd decorated with a rolled folded strip roulette, showing clear, regular, rows of convex impressions in the shape of grains of rice. Because this tool is flexible, its rolled impressions can create rows with a relatively curved appearance, as is the case here.
Jenné-jeno is considered to be among the oldest urbanised centres in sub-Saharan Africa. First settled in the third century BC, it reached its largest extent – 33 hectares – by the ninth century AD (McIntosh & McIntosh 1993).
Image: Susan McIntosh, Rice University

3. FSR3
This rather faintly impressed sherd, from Garumele in eastern Niger, highlights some of the difficulties in identifying roulettes. Taking an imaginary diagonal line running from top left to bottom right, the part of the sherd to the right of the line shows relatively clear, regular, rows of convex impressions in the shape of grains of rice; identification as a rolled folded strip roulette is thus uncontroversial. On the left part, though, it is not so much convex impressions that can be seen, but rather faint furrows. It is only by taking plasticine impressions, and by comparison with the other portion of the sherd, that we can identify this as rolled folded strip roulette decoration, where the depressions between

rows of impressions are clearer than the impressions themselves: this is typical of a tool that has been lightly impressed, or a sherd that has been eroded.
Garumele is a site in eastern Niger, near Lake Chad, linked by oral tradition with the famous Kanem-Borno polity, and where occupation likely spanned the period between 700 and 200 years ago. Folded strip rouletting is a relatively common type of decoration there, accounting for about 12% of the decorated sherds recovered (Haour 2008; but note that in that publication, the decoration is called 'pleated strip rouletting').
Image: Anne Haour, University of East Anglia

4. FSR4
This is a very clear example, from Garumele in eastern Niger, of a sherd decorated with a rolled folded strip roulette. Regular rows of convex impressions in the shape of grains of rice, separated in places by grooves running perpendicular to the rows, point to the tool used. As can be seen here, the rows of impressions have a slightly curved appearance, showing these to be flexible tools. The upper part of this sherd has been left unrouletted, but red slip was applied and burnished to a fine sheen.
Garumele is a site in eastern Niger, near Lake Chad, linked by oral tradition with the famous Kanem-Borno polity, and where occupation likely spanned 700 to 200 years ago. Folded strip rouletting is a relatively common type of decoration there, accounting for about 12% of the decorated sherds recovered (Haour 2008; where the decoration is called 'pleated strip rouletting').
Image: Anne Haour, University of East Anglia

5. FSR5
This is a relatively blurry image of a sherd from the site of Songona 2 in Mali,but it has the merit of showing an example of folded strip roulette decoration over a large area. It shows the rows of regular convex impressions in the shape of grains of rice characteristic of this type of tool. Because this is a large sherd, it would in theory be possible to seek out regularities or regularly-occurring anomalies between impressed rows; these should occur in every third impressed element given that folded strip roulettes are triangular in section (Livingstone Smith in press). However, this is difficult to do in this case, because - as often happens with archaeological material - the surface of the sherd is quite obscured by adhesions.
This sherd was found in 2006 in the excavation of the site of Songona 2 in sand dunes at the foot of the Bandiagara cliff, Mali. Songona 2 is dated to the fifth to eleventh centuries AD and folded strip roulette characterises over ninety percent of this assemblage.
Image: Anne Mayor, University of Geneva

6. FSR6
The body of this sherd, from Sincu Bara in Senegal, which has been decorated using a folded strip roulette, illustrates some of the difficulties in identifying the various roulettes belonging to the family of strip roulettes. The rows of convex impressions are rather disordered and the shape of the impressions themselves is quite square, suggesting the use of a knotted strip roulette. The identification is complicated by the fact that the area to be examined is small; a larger one would have helped detect repetitions in the impressed rows (see Livingstone Smith in press: 175 and 181-2). Nonetheless, the

relative regularity in pattern visible on the left of the sherd, the deep grooves running perpendicular to the rows, and the character of the rest of the assemblage, suggest an identification as a folded strip roulette. The rim and lip were left undecorated, though carefully smoothed.
The first-millennium AD site of Sincu Bara is one of the best-known sites in Senegal, due to the recovery there of iron and copper artefacts and the fact it demonstrates the beginnings of both metallurgy and sedentary agriculture. Its interpretation - tumulus or settlement site? - has also been hotly debated (Bocoum & McIntosh 2002 and references therein).
Image: Susan McIntosh, Rice University

7. FSR7
This crisp example of folded strip rouletting comes from a surface survey near Timbuktu, Mali. Folded strip roulette decoation can be clearly seen here. There are two separate planes of rolled impressions, each covering about half the surface visible. Such relatively small planes of rouletting are commonly encountered, since roulettes tend only to be a few centimetres long.
Image: Susan McIntosh, Rice University

8. FSR8
This sherd, from Tongo Maaré Diabel, has been decorated using a folded strip roulette. The relatively curved appearance of the rows stems from the fact that folded strip roulettes are flexible, because of the material of which they are made.
Tongo Maaré Diabal is a 9 hectare settlement mound, near the modern town of Douentza, Mali, in the northern Bandiagara. Its occupation dates to between c. AD 400 and AD 1100 (Walicka Zeh & MacDonald 2004).
Image: Kevin MacDonald, University College London

CWR folder

Cord-wrapped roulettes are composite tools (following Soper 1985, 39), which consist of a central core (which can be either flexible or rigid) around which are wrapped one or more cords (either twisted or untwisted). Sherds bearing impressions of rolled cord-wrapped roulettes generally display parallel rows of concave segments resembling rounded grains of rice. The space between each row of segments varies greatly: they can be flush with one another, or up to a centimetre apart. This is a function of how tightly the cord was wrapped around the core of the roulette.

1. CWR1
This very clearly impressed sherd from Windé Koroji Est in Mali, shows an example of decoration using a cord-wrapped stick roulette. The impressions are clear here, and the

angle of individual concave impressions relative to rows of impressions is narrow, indicating the angle at which the cord was wrapped. Also visible are the vertical impressions of the core stick, running perpendicular to the rows of impressed cord. It is worth noting that the depth of these stick impressions is not uniform, but instead appears deeper in every other set of cord impressions. This may mean the roulette was not perfectly cylindrical and it may have been difficult to roll it smoothly across the surface of the clay, so that it was instead flipped in stages (MacDonald & Manning in press). This sherd is from Windé Koroji Est, which is a site just 200 metres away from Windé Koroji Ouest and which, on the basis of similarities in pottery and lithics, probably falls in the same age range (c.2200-1700 BC) (MacDonald, *pers. comm.*).
Image: Kevin MacDonald, University College London

2. CWR2
This very clear picture shows an example of a sherd, from Ebelelit in Mali, decorated using a cord-wrapped roulette. Although we cannot conclusively say whether the central core was flexible (a cord) or rigid (a stick), the rather sinuous nature and irregular linearity of the fibre impressions suggest it may have been a cord-wrapped cord roulette. The tool seems to have been rather haphazardly impressed, or even rocked/pivoted, across the vessel. Cord-wrapped cord roulettes seem to have been quite commonly used in West Africa in the past; examples known today, which are relatively rare, seem to involve the use of a single, continuous cord, doubled back on itself to serve both as core and as wrap, with numerous variants in existence (Livingstone Smith et al in press). This distinction is however not detectable archaeologically.
This sherd was excavated at Ebelelit in the Lower Tilemsi Valley in 2007. Ebelelit is a large occupation mound dating to c. 2000 BC which yielded some of the earliest known evidence for pearl millet cultivation (Manning 2008, Manning et al. in press). The complex of sites in the Lower Tilemsi Valley has also produced some of the earliest impressions of conclusive cord-wrapped roulettes known so far, dating from the mid- to late third millennium BC (Manning 2008; MacDonald & Manning in press)
Image: Katie Manning, University of East Anglia

3. CWR3
This very clearly impressed sherd, from Karkarichinkat Nord in Mali, shows an example of decoration using a cord-wrapped cord or stick roulette. The impressions are so clear that a plasticine cast of the sherd would probably show the fibres used in the wrap, providing information on the number and orientation of the strands. This type of analysis is important, because there exists a huge variety of cord-wrapped roulettes, and they have been poorly described. As a result, conflicting hypotheses exist regarding the time-depth of this type of tool. They could be amongst the first cord-based pottery-decoration tools used in Africa, perhaps as early as ten thousand years ago. Alternatively, they could, as suggested by Livingstone Smith (2007), represent a much later phenomenon, part of a flowering of cord-based roulettes centred on the Middle Niger Basin from the third millennium BC onwards (MacDonald & Manning in press).
This sherd was excavated at Karkarichinkat Nord in 2005. Karkarichinkat Nord is a site in the Lower Tilemsi Valley which was occupied for around 100 years between 2550 and 2450 BC. A variety of subsistence strategies were practiced, including some of the

earliest known cultivation of millet and the keeping of cattle. The complex of sites in the Lower Tilemsi Valley has also produced some of the earliest impressions of conclusive cord-wrapped roulettes known so far, dating from the mid- to late third millennium BC (Manning 2008; MacDonald & Manning in press).
Image: Katie Manning, University of East Anglia

4. CWR4
This sherd, from Waladé in Senegal, was most probably decorated using a roulette made of several sticks around which were wrapped one of more strands of cord. The marks of these sticks can be seen, running perpendicular to the run of the cord impressions.
This sherd was excavated at Walaldé, Senegal, in 1999, and is probably about 2500 years old. Walaldé, occupied in the first millennium BC, is a site in the Middle Senegal Valley. Its initial occupation around 2500 years ago was by iron-using agro-pastoral peoples, who may have been transhumant and had wide networks for movement and exchange. Certainly items of copper originating from Akjoujt in Mauritania, at least 400 kilometres away, were recovered at Walaldé in deposits dated to a time just a few centuries after initial settlement, testifying to interactions over long distances (Deme & McIntosh 2006).
Image: Susan McIntosh, Rice University

BCR

Braided cord roulettes are made from three, four, eight or twelve cords braided together, with or without a central core. Sherds bearing impressions of a rolled braided cord roulette generally display a repeating succession of broken zigzags resembling rows of offset chevrons.

1. BCR1
This image shows a sherd, from Jenné-jeno in Mali, which has been decorated using a rolled braided cord roulette. The pattern here appears to result from the use of a braid made with four cords that have been doubled over. The resulting motif is closely spaced and looks like woven cloth with a double weave, with segments meeting at near-right angles (McIntosh & Ndèye Guèye, in press, based on experimental work by S. McIntosh).
This sherd is from the urban site of Jenné-jeno, Mali, where it was recovered in 1980 in Late Phase II/early Phase III deposits (around 1700 years ago). Jenné-jeno is considered to be among the oldest urbanised centres in sub-Saharan Africa. First settled in the third century BC, it reached its largest extent – 33 hectares – by the ninth century AD (McIntosh & McIntosh 1993).
Image: Susan McIntosh, Rice University

7. BCR2
This image shows a sherd from Cubalel in Senegal, decorated using a braided cord roulette. Here a series of short, rounded concave impressions make a chevron pattern across the vessel - resembling heads of wheat. The tool involved was most probably a

simple four-cord braided roulette (see McIntosh & Ndèye Guèye, in press, based on experimental work by S. McIntosh; this sherd features there as Fig. 3.33).
This sherd was excavated at Cubalel, Senegal, in contexts dated to AD 200-500. Cubalel consists of a group of eight occupation mounds over an area of one square kilometre in the Middle Senegal Valley. The excavated levels stretch over much of the first millennium AD, based on ceramic analysis and radiocarbon dates, but more recent material too occurs on the surface (Bocoum & McIntosh 2002).
Image: Susan McIntosh, Rice University

5. BCR3
This image shows a sherd from Jenné-jeno in Mali, decorated using a braided cord roulette. Here a series of deep, long chevrons can be seen. This results from the use of a braided cord roulette that had a cord or stick running through its centre, and it is likely that twelve cords were used in the braid (McIntosh & Ndèye Guèye, in press, based on experimental work by S. McIntosh; see there especially Fig. 3.30).
This sherd is from the urban site of Jenné-jeno, Mali, where it was recovered in 1980 in Phase IV deposits (approx. AD 1200-1400). Jenné-jeno is considered to be among the oldest urbanised centres in sub-Saharan Africa. First settled in the third century BC, it reached its largest extent – 33 hectares – by the ninth century AD (McIntosh & McIntosh 1993).
Image: Susan McIntosh, Rice University

4. BCR4
This image shows a sherd from Jenné-jeno in Mali, decorated using a braided cord roulette. Here a series of chevrons can be seen, forming a continuous zig-zag line. This results from the use of a roulette made up of either four or eight cords, with or without a central core (McIntosh & Ndèye Guèye, in press, based on experimental work by S. McIntosh).
This sherd is from the urban site of Jenné-jeno, Mali, where it was recovered in 1980 in Phase IV deposits (approx. AD 1200-1400). This type of decoration was uncommon there. Jenné-jeno is considered to be among the oldest urbanised centres in sub-Saharan Africa. First settled in the third century BC, it reached its largest extent – 33 hectares – by the ninth century AD (McIntosh & McIntosh 1993).
Image: Susan McIntosh, Rice University

6. BCR5
This image shows a sherd, from Jenné-jeno in Mali, decorated using a braided cord roulette. Here a series of short, rounded concave impressions appear in a chevron pattern across the bottom in this picture. This probably results from the use of a doubled-up braid made up of four cords - comparable to Cord 211 of Hurley (1979, 85) - of which it is a fine example (McIntosh & Ndèye Guèye, in press, based on experimental work by S. McIntosh).
This sherd is from the urban site of Jenné-jeno, Mali, where it was recovered in 1980 in Phase III deposits (approximately AD 300-800). Jenné-jeno is considered to be among the oldest urbanised centres in sub-Saharan Africa. First settled in the third century BC, it

reached its largest extent – 33 hectares – by the ninth century AD (McIntosh & McIntosh 1993).
Image: Susan McIntosh, Rice University

1. BCR6
This striking image shows a sherd from Akumbu in Mali, that was decorated using a braided cord roulette. Here a series of impressions in the shape of chevrons, resembling a woven net or textile, can be seen radiating out from the centre of the sherd. The roulette was pinned to the base (the holes are still visible) and rolled around it; it was probably a doubled-up braided roulette made of four cords (McIntosh & Ndèye Guèye, in press, based on experimental work by S. McIntosh). Today, braided cord roulettes seem to be in use only in the Inland Niger Delta of Mali (Livingstone Smith et al in press).
This sherd was excavated in 2000 at Akumbu Mound B (Méma, Mali).
Akumbu is a cluster of three large settlement mounds in the Mema region of Mali, with occupation evidence spanning the 4th through 14th centuries AD (Togola 2008). Earlier deposits at Mound B are as of yet undated, but may extend back into the first millennium BC (MacDonald *pers.comm*.)
Image: Susan McIntosh, Rice University

2. BCR7
This image shows a sherd, from Kolima in Mali, which has been decorated, in the part at the bottom of the image, with a rolled braided cord roulette. The pattern appears to result from a braid that doubles two cords while the other two remain single: here doubled cords run from left to right, and single cords from top to bottom (S. K. McIntosh pers. comm.). The part of the sherd shown uppermost on this image has been treated with a red slip and probably burnished. Between the slipped and the rouletted parts of the sherd is a deep channel.
This sherd was excavated in 2000 at the site of Kolima, in the Méma of Mali.
Image: Susan McIntosh, Rice University