

Pottery *Chaîne Opératoire* among the Mbeere People of Mt. Kenya Region: Continuity and Change

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ABSTRACT: The Mbeere potters of the Mount Kenya Region are amongst the few traditional pottery makers left in Kenya. While some of the long standing pottery forms, such as ritual pots, have disappeared in the Mbeere repertoire, cooking pots as well as clay containers for honey, water and cereals have remained in production. Since 2006, Mbeere pottery has been undergoing visible changes which are inherent in the forming technique and pottery forms. These changes are necessitated by the need for the potters to remain relevant in the current market and within the society that they serve. We argue that the resilience of Mbeere potters is an outcome of their willingness and adaptive capacity to absorb change by integrating new techniques in their pottery *chaîne opératoire* while continuing with their long standing pottery traditions. This has created a new demand for their products, hence securing their relevance in their society. Here, we highlight the points of change, continuity and their agency.

RESEARCH BACKGROUND

This research was conducted between 2013 and 2017 with the aim of studying and documenting pottery *chaîne opératoires* and the history of the partial diffusion of a new pottery making technique among the potters of Mbeere region of Tharaka Niihi County (fig. 1) as a contribution to our understanding of archaeological material culture.

A comparison between the diffusion of pottery firing kilns in India, and the diffusion of this new pottery making technique in Mbeere, showed that while weak social ties are sufficient to initiate diffusion, strong ties such as family and religion are needed to sustain it (Manzo et al. 2018). It is against this background that we are investigating the changes and discussing them in relation to the Mbeere pottery making technical tradition in order to understand points of change and continuity within the craft.

Mbeere region is one of the few places in Kenya where potters maintain pottery making techniques that have been passed down through generations via kinship ties. The forms too have persisted for as long as the potters can remember. In other places within Kenya pottery making techniques and forms have undergone remarkable changes, including the use of the turning wheel and the production of decorative clay products such as flower-pots and vases.

Moreover, it has ceased to be an engendered craft. Within the Mbeere region, however, production technique and pottery forms have remained largely the same, and it remains a woman's occupation. However, use of clay pots for food preparation, cooking and storage has declined due to the introduction of metallic and plastic products which are cheaper and more durable. This has threatened the continuity of pottery making, with several potters turning to farming and other economic activities instead.

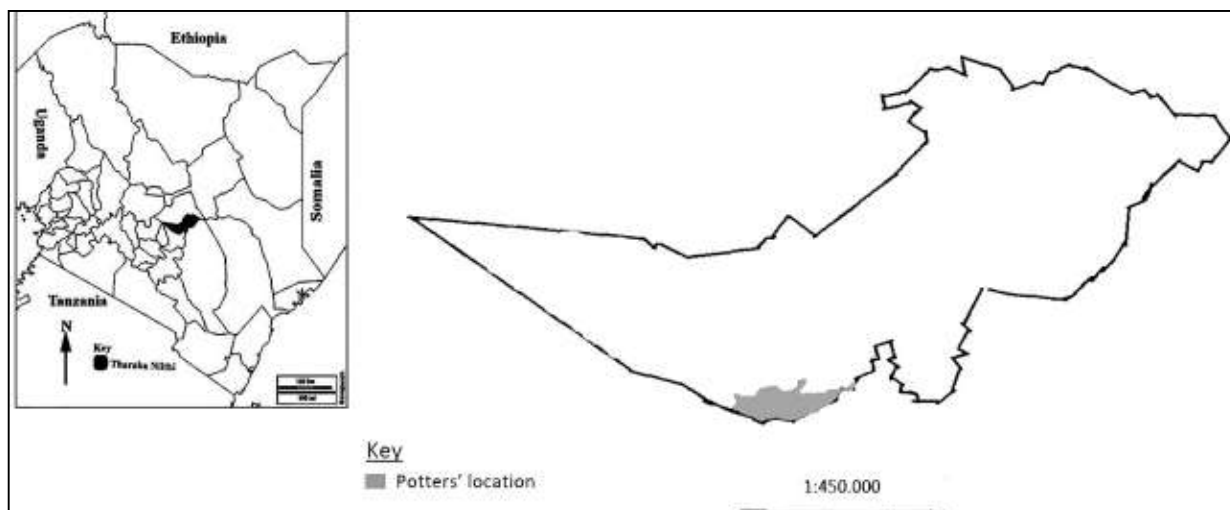


Figure 1: Location of study (reproduced from free internet resourced-maps.com).

This notwithstanding, a number of Mbeere potters have adopted new ways of making pots to satisfy emerging market demands and create a renewed demand for their craft.

This change from the ‘purely’ inherited ways of making pottery to incorporate new techniques, questions the notion that technique is the most stable and unchangeable part of the pottery making *chaîne opératoire* (e.g. Arnold 1989; Gosselain 2000; Livingstone Smith 2000; Roux and Rosen 2007; Stark 1998). This research also validates Gosselain’s (2008: 170) later observation that shaping techniques should not be conceived as closed technical units rather, they are as liable to be slightly or more deeply altered and even merged as any other procedures in the *chaînes opératoires*.

Since the introduction of the concept of the *chaîne opératoire* by French anthropologist Leroi-Gourhan (Lemonnier 1993; Roux and Rosen 2009) several studies have used the methodology to understand pottery making processes and their applicability to past archaeological societies (e.g. Mayor 2010; M’Mbogori 2015). Creswell (1976: 13 cited in Roux and Rosen 2009) defines the *chaîne opératoire* as “a series of operations that transform raw material into finished products”. Pottery *chaîne opératoires* therefore, include clay sourcing, preparation, forming/fashioning, finishing and firing.

As pottery making techniques are learnt through apprenticeship from childhood, they were hitherto believed to gain an attribute of a motor skill which gives it the ability to resist change (e.g. Roux 2011). Indeed, by using the *chaîne opératoire* method to study archaeological pottery, one can distinguish borrowed aspects from the originally learnt techniques, hence recognising continuity and changing trajectories within an assemblage (e.g. Mayor 2010). This also makes it possible for one to determine social boundaries of archaeological material culture and different stages of social interactions (Gelbert 2003; Gosselain 1998, 2000; Mayor 2010; Roux 2007; Stark 1998).

While other aspects of the pottery making *chaîne opératoire*, e.g. clay sourcing, preparation and firing are executed in the open or communally, making it possible for practitioners to share or borrow aspects, Gosselain (2000) points out that pots of the same size, form and decoration can be formed in different ways which are not visible on the finished product. Therefore, forming techniques can only be shared by bounded individuals (Gosselain 1998, 2000; Roux 2011).

That pottery forming techniques are resistant to change is further demonstrated by Gelbert's (2003) study of borrowing phenomena in the Senegal River Valley. She points out that whilst decorations and forms were shared by ethnically and linguistically distinct groups after a few years of contact, forming techniques were adopted or borrowed only after generations of settling amongst a foreign community. This work by Gelbert contributed significantly to the already existing premise that, if a pottery making technique is detected in the archaeological record, it is possible to associate the pots in question with the contemporary populations who use the same forming techniques (Arnold 1989; Djordjevic 2003; M'Mbogori 2015; Roux 2007, citing Bril 2002). While discussing Luo pottery making practices in Kenya, Dietler and Herbich (2008) further argue that, among this community, if a woman is married into a potter's family she learns potting from her mother in law. In their observations they note that she is only able to make changes while decorating and not shaping, thus highlighting the importance and maintenance of the 'roughing out' stage of pottery forming.

Gosselain (2008) points out that the connection of the shaping stage with various social strategies helps to explain the temporal stability of shaping techniques and their frequent coinciding within social boundaries more convincingly than factors like motor habits and matrimonial networks. Furthermore, he asserts that the notion of unchanging shaping techniques is a research construct, since the artisans do not make a record of changes and situations that have enabled change over the years. Rather, they only mention their encounter with the tutor although learning takes place in various settings throughout the potter's lifetime.

Furthermore, Lemonnier (1993) sees technique as a social product and not something to which meaning is simply added. He argues that it is a complex phenomenon in which wide symbolic considerations are involved from the start. It is therefore true that pottery making *chaînes opératoires* are heterogeneous cultural aggregates articulating raw materials, tools, knowledge, representations and agents (Gosselain 2018: 1). Langenkamp (2000) demonstrates this by pointing out how efforts by the Kenyan government and non-governmental organisations failed when they tried to improve efficiency and mass production of pottery through the provision of potters' wheels. Evidently, such radical changes, which can be seen as interfering with the interdependencies of the social and technical processes would have required a complete reorganisation of the craft. Such changes were largely rejected by potters, especially as they were not driving the change themselves.

This paper builds on the above observations, focusing on ethnographic technological changes and continuity in pottery making among the Mbeere in order to contribute new knowledge to our interpretation of archaeological pottery assemblages and the societies that made them. We argue that while techniques may endure longer

than any other aspect of the pottery making *chaîne opératoire*, and although it can be used to identify archaeological populations and their social boundaries, they do not remain completely unaffected by socio-cultural dynamics. The paper explores the complex ways in which continuities of skill, knowledge, adaptive capacity etc. find expression in change, emphasising the need for archaeological assemblages not to be rendered in simplistic, definitive or homogenous terms.

Our methodology involved conducting personal interviews, participant observation, video recording and questionnaires for our data collection. We worked with 33 potters from the Mbeere region in two villages—Kiriri and Ngararigeri (fig. 1). Participants were selected using a referral method as the craft is learnt by apprenticeship. We recorded information on the socioeconomic status of the potters and how these relate to the pottery making *chaîne opératoire*; that is, clay acquisition, clay preparation, forming, fashioning, finishing, decorating, tools and distribution.

MBEERE POTTERY MAKING

Pottery making in this region is only practiced by women. It is practiced more intensely during the driest months of the year (February and August). They are reported to make between six and ten pots a day. The most commonly made pots are for cooking, water and grain storage. The traditional Mbeere pottery forms include spherical bases, short necks with everted round rims. The method, which Roux (2019) defines as the sequence of functional operations, entails making the pot in two parts, starting from the maximum diameter towards the rim after which the second part is made (fig. 2).

As at the time of this research, Mbeere potters utilise two different pottery making *chaînes opératoires*. The pottery produced with the first of these different *chaînes* (here referred to as the traditional *chaîne opératoire* due to its long standing character) features vessels with a spherical base. The second of these *chaînes* (here referred to as the new *chaîne opératoire* due to its more recent introduction), in contrast, features vessels with a notably flat base. The body shapes of all the vessels may vary, however it is the base shape which differ.

THE TRADITIONAL CHAÎNE OPÉRATOIRE AMONGST THE MBEERE

The potters mostly use a communal clay source, known as *Kamuturi*, which is located about 2-3km from their villages. The area that contains the clay source was donated by the government as communal land and, therefore, it is a free resource (M'Mbogori 2018). Once the clay has been obtained, it is soaked overnight to make it ready for next day's usage. No temper is added.

To start the forming process, the potter rolls one or two pieces of clay on a plank and then flattens them using the palm of her right hand to make a slab. She then places the slab(s) on a piece of polyethylene paper or leaves on the ground, curving them to make a large collar. She joins the ends of the slabs by pulling clay from both ends. Once the slabs are joined, she starts drawing with the fingers of her right hand while supporting and bulging it with the left hand from inside. She then uses a piece of calabash or plastic to smooth both inside and outside, shaping it

further and curving it to make the shoulder, the neck and the rim. This process takes about 15 minutes.

Once the forming of the upper body is complete, she decorates the pot with a stick, covers the lower side to preserve the unused clay, and puts it aside for about three hours to dry. Later, she turns the pot and makes the lower part and the base. First, she uses a wet piece of calabash or plastic to draw the previously covered clay and then rolls a large piece of clay which she joins to the pot from the exterior wall. She continues to pull the clay using the fingers of her right hand until the base is formed. To complete the spherical base, she pulls the clay from the exterior into the middle and forms a tuft which she cuts and flattens. She then uses a wet calabash or plastic to smooth the whole pot (fig. 2). This takes 15 minutes to complete. She then puts it aside for three to four days before firing. Firing of the vessels is performed in an open bonfire using wood and grass.

THE NEW FORMING CHAÎNE OPÉRATOIRE AMONGST THE MBEERE

Clay acquisition and preparation have remained the same in both villages of potters. However, contrary to their traditional method, potters do not start from the maximum diameter of the pot, but from the base when using the 'new forming' technique. A potter makes a clay disk, equivalent to the size of the pot she plans to make, by placing a lump of clay on a plastic paper or leaves, and beating it with



Figure 2: Traditional pottery making technique (photos by F.N. M'Mbogori).

the palm of her right hand until it becomes flat. Then, she rolls one or two pieces of clay (depending on the potter), flattens it on a stone or plank to make a slab, which is then curved to make a huge collar before attaching it on the disk. She leaves a space of about five cm between the edge of the disk and the slab. She then joins the ends of the slab by drawing clay from both the interior and exterior.

Different potters have different ways of joining the slab to the disk. Some join the inner wall to the base by horizontal discontinuous pressures drawing from the disk and pinching, while others add extra clay to the interior walls to seal the joints instead of drawing from the disk itself. She then draws the traditional way to complete the body, shoulder, neck and the rim (this process takes about 20 minutes), after which she puts it aside for three hours to dry. She then puts the pot on her lap and folds the outer edges of the disk against the outer wall of the body using a piece of a wet calabash in order to shape the base (fig. 3). To finish, she smooths the whole pot using a wet calabash. This takes five to ten minutes. The pot rests for three days before firing in an open bonfire in the same way as highlighted above.

POTTERY DISTRIBUTION

Mbeere potters mostly sell their pots to their neighbours and traders who come to collect them from the potters' homesteads. The traders then sell them in the neighbouring markets and counties. Every Tuesday, potters carry the pots on their backs to sell them at Ishiara market, which is the most accessible and practical venue due to the pots' fragility and transportation costs. In the past, about 20 years before our research, potters exchanged a pot for an equivalent volume of cereals. This system died out with time, when the value of pots declined and today they are sold for cash.

INTRODUCTION OF THE NEW FORMING TECHNIQUE

The making of flat-based pots was introduced in 2006 by a trader—Mukuru and his son Kimathi, from the neighbouring Meru County (whose population is ethnically different from that of the Mbeere potters). Mukuru discovered the potters at Kanyombora market, which is about five km away from their regular market. Having come from a technical school where he had learnt pottery making, Kimathi was looking for experienced potters to pass his skills on to in the region where he himself had learned the craft. He used his father's contacts (since his father was working with clay stove artisans in the same area) to get to Kanyombora market where he met a local potter called Janet (pers. comm.).

He came and taught Janet, together with a few other potters, how to make flat based pots. Among all the 33 potters interviewed, only four potters from Kiriri village were directly introduced to the new technique by Kimathi. The rest of the potters in Kiriri taught themselves, while the Ngararigeri potters claim not to have had an opportunity to learn the new technique because it was done in secret. However, as shown by Manzo et al. (2018) the learning process seems to have taken place at different times with different potters employing a fusion of their own innovations, traditional techniques, and the newly introduced technique.



Figure 3: New pottery making technique (photos by F.N. M'Mbogori).

It is important to note that all the potters in this case are experienced, making them more adaptable than novices would be.

Three generations of adopters can be discerned here. The first generation learned directly from the tutors, the second learnt from the first, while the third generation learnt from the second (see fig. 4).

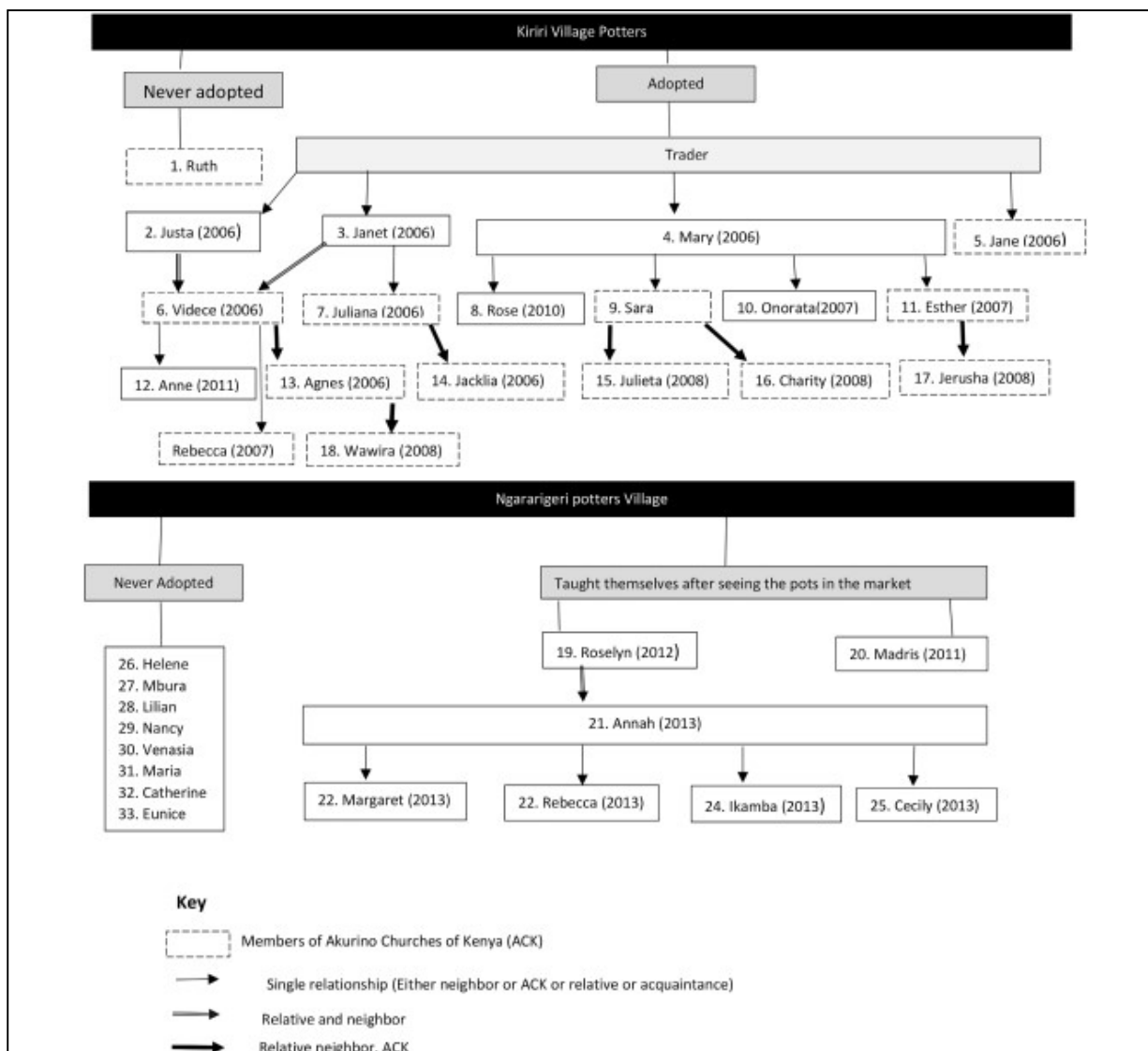


Figure 4: Adoption and potters' relationships (illustration by F.N. M'Mbogori).

SOCIAL AND ECONOMIC REASONS FOR THE CHANGE

To understand the adoption patterns of the new technique, and the reasons for it, we interviewed the participants regarding their social networks and possible interactions which would provide the agency for learning. Among the social aspects that we sought to understand was how the potters were related in terms of social groupings—e.g. pottery making groups, women self-help groups locally known as *chamas*,¹ religion, family ties, market, neighbourhood and any other spaces that affords them the opportunity to meet.

Our data shows that adoption of the flat base by the first generation of potters was influenced by both kinship and neighbour relations, their adoptive capabilities and most importantly, by their willingness to produce a new pottery repertoire for emerging markets. Learning from the tutor was facilitated by the proximity of

1: This is where women come together weekly or monthly, to pull together resources for a given personal or communal project.

the potter to the first trainee's home. This provided a platform for them to see and to either join the tuition sessions by accident, or through curiosity, incorporating aspects of their long standing pottery making skills and experiences into what they saw as an opportunity to improve their economic status. The second and the third generation of learners, whether related as neighbours, through kinship, *chama*, or having had free will and economic motivation to learn, etc., had religion as a common factor (Manzo et al. 2018). They all belong to the *Akurinu* Churches of Kenya (ACK) (*Mukurinu* singular, *Akurinu* plural). The study shows that relatives of ACK adherents who were not ACK themselves did not learn. The potters from Ngararigeri village (who did not adopt the flat base technique until 2013 when this project began) belong to different Christian churches, including Apostolic, Pentecostal and the Presbyterian Church of East Africa (PCEA) (Manzo et al. 2018). Belonging to the same religious group acted as the unifying factor or a platform for these adopters. Their final success incorporated their long standing pottery making skills, aspects of original training by the tutors, and aspects of successful experiments by their colleagues from the ACK. Therefore, change and continuity complemented each other to produce a new technical tradition. Potters from both Kiriri and Ngararigeri villages were aware of the profitability of flat-based pots, since they pointed out that they fetched more than double the price of traditionally made pots. The potters who made the flat-based pots pointed out that their income had increased by 50%-200% since they started making them (Manzo et al. 2018).

Various reasons were given for the adoption of the new forming technique: flat-based pots are more profitable; in higher demand; took lesser time to make; easier to make/less tedious and were more beautiful. Besides the aesthetic aspect, customers prefer flat-based pots for two practical reasons: first, the spherical bases are no longer suited for modern day hard kitchen floors made of concrete and cement/tiles. This is in contrast with the earthen floors of earlier houses, which were basically compacted mud and were fashioned to hold the spherical base pots. Secondly, spherical pots were best suited for cooking over traditional fire places, which were constructed using a set of three stones arranged in a triangular formation. They fitted well on the stones and directed fire over the entire pot surface hence distributing heat evenly and consequently conserving firewood. In contemporary society, people use stoves and cookers which are designed for flat based cookware. Therefore, spherical pots are poorly suited for the purpose. By adopting flat-based pots, these potters made a calculated move to identify the infrastructural changes in their environment, and used their creativity and adaptability to create stability in an uncertain economic environment.

The potters who chose not to adopt the new pottery making techniques featuring flat bases had various reasons, however the underlying factor was the lack of willingness. The reasons included the fact that: a) they were not aware of the tutor's presence; b) it was very difficult to make the flat-based pots since they collapsed easily and c) it was too time consuming to start learning a new method since they now have piped water for farming. The latter therefore shows that they preferred to stick to a stable livelihood (farming) where they could control production rather than to venture into new pottery making techniques which they were unsure about.

DISCUSSION

According to the Mbeere potters, their pottery making techniques have been undergoing changes which have had visible implications on the social and economic conditions of both potters and pot users since 2006 when the flat-based pottery vessels were introduced. While it may be argued that the reported changes and continuity may not have been abrupt and linear, the potters saw these as having redefined their practice in a major way. These technical changes, though minor, were not only prompted by the presence of an outsider who introduced the new technique to them, but it took the potters' willingness and creativity to find ways of incorporating the new technique into their traditional practices so as to achieve what they thought would be economically beneficial to them.

As opposed to previous studies that showed structures as being responsible for the persistence of pottery making techniques through generations, these actions by the Mbeere potters demonstrate that it is out of choice that artisans decide whether or not to adopt a new technique. The choice is guided, however, by the need to create new ways for a better life. Faced with the challenge of redundancy, they adopted the new technique only where the traditional technique could not achieve the desired results. For example, the people who adopted the flat base opted to learn only how to make the disk (as a means to achieve an attractive shape), but used their own innovation and long-standing techniques to make the rest of the pot.

Freedom of choice is further demonstrated by the division between adopters and non-adopters. While the benefits of making flat-based pots were clear to all of them, other reasons such as available learning time, the complexities of the technique, and the presence of more profitable alternative livelihoods (such as the easy availability of water for farming), influenced the choice of the non-adopters. In this case, the resistance to change did not depend on the technique being a motor skill (cf. Roux 2007), but the practical reasons outlined above. They continued to work through the processes of their traditional *chaîne opératoire* and to produce the same pottery repertoire, only changing a few aspects eight years later to create new forms to meet the demands of their customers.

In both cases therefore, the incentive to change any part of the *chaîne opératoire* was more of a survival tactic, which the potters may have been ready for even before the appearance of the outsider, who only served as a facilitator. The motivation was therefore of an economic nature, rather than adaptation to a technological change. We, therefore, argue that it was not until the potters decided to switch to the more profitable forms, that they made use of interpersonal ties, e.g. family and religion, to learn the new processes while innovating, experimenting and using their own long-standing skills.

CONCLUSION

This research has used Mbeere pottery making to show how technical change can be incorporated into existing pottery making *chaînes opératoires*, and some of the circumstances under which it may occur. When studying archaeological pottery *chaîne opératoires*, one is likely to encounter change at any stage of the

process without obvious visible reasons for its occurrence. Since changes might be embedded in long-standing practices (continuity), they might seem minute but the implications may be enormous. It must also be noted that pottery shaping techniques—as seen in this case, where different potters incorporated the change on their own terms and at their own pace—may evolve in linear or cyclical scales and at a slow rate, thus making it very difficult to make distinctions between inherited technical traits and potters' innovations over time and space. Therefore, evident change might emanate from trial and error, through a series of actions that incorporate potters' innovation, environment of learning, and longstanding practices.

Ethnographic investigations into pottery making by the Mbeere potters has demonstrated change which was caused by potters' willingness to respond to new socio-economic dynamics within their society. The change was triggered by an outside facilitator who had identified points of incompatibility between the long-standing pottery forms and the emerging pottery usages—a situation the potters were already aware of but had not yet acted on until the appearance of the facilitator. Although the facilitator acted as the catalyst, the potters' adaptive capability helped them to appreciate and to try new ways of making pottery even if the learning process was difficult and tedious. Making it evident that aspects of the pottery making *chaîne opératoire* such as forming techniques do not endure only because they are a motor skill but because the change must be artisan-driven and have either economic, social or both benefits.

It is also clear that since pottery making is an art, the potters enjoy making it on their own terms: therefore, mass production or 'efficiency' (as seen above with the introduction of a wheel) do not constitute the motivation for change. This is also demonstrated by Ngararigeri potters and Kiriri potters who did not attempt to adopt the new form/techniques, although they fully understood the economic benefits. This therefore confirms the observations by Gosselain (2008, 2019) and Lemonnier (1993) that technique cannot be separated from social settings. The fact that ACK adherents adopted and continued using the new form also raises the question as to whether the change was actually triggered by economic benefits or was an act of unity of purpose by a people who shared a common interest and belief outside of potting itself.

Thus, while studying archaeological pottery *chaîne opératoires* and especially shaping techniques, any change should be studied in conjunction with other aspects of the society such as social and economic change, so as not to limit the apparent change to immigrants or inter-ethnic interactions, as has been the case in some instances.

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