Knowledge in Motion
Constellations of Learning Across Time and Place

Edited by Andrew P. Roddick and Ann B. Stahl

Amerind Studies in Anthropology
KNOWLEDGE IN MOTION
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ANDREW P. RODDICK and ANN B. STAHL
This volume is warmly dedicated to Jean Lave, who animated and enriched our conversations, even when she wasn’t there. While she may not agree with all the directions taken herein, we hope her perspectives on relationality and practice equally inspire others.
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The conceptual framing of this volume had a long gestation, and we have benefited substantively from interactions and assistance from many colleagues over the course of its development. The journey began with a session entitled “Situating Prehistoric Communities of Practice” organized by Andy Roddick and Alex Bauer for the 2011 meetings of the Theoretical Archaeology Group held at the University of California, Berkeley, in which several of our contributors participated (Blair, Crown, Gosselain, Roddick, Stahl). Incisive commentary by session discussants Jean Lave and Rosemary Joyce provided us with considerable food for thought. Jean’s warm hospitality at a gathering hosted for session contributors in her home that evening created a space for follow-up conversation, during which the idea of an intensive seminar centered on issues of power and scale in communities of practice began to take shape.

Several years later, we organized a follow-up session entitled “Learning and Doing: Communities of Practice in Scalar Perspective” that brought together most of our contributors (Blair, Crown, Mills, Roddick, Sassaman, Schoenbrun, Stahl) at the 2014 Society for American Archaeology (SAA) meeting in Austin, Texas, where we were joined by two participants who unfortunately could not contribute to this volume (Alex Bauer and Eduardo Neves). Michael Dietler kindly agreed to serve as discussant for that session, and we benefited considerably from his careful advance reading of our papers and critical engagement with our arguments. Our selection as an SAA Amerind Seminar allowed our group to gather at the Amerind facilities in Dragoon, Arizona, in October 2015 for four days of intensive conversation centered on our pre-circulated “Learning and Doing” papers, punctuated by a memorable outing to the Chiricahua National Monument.

We had the pleasure of working with two Amerind executive directors. John Ware scheduled our Amerind Seminar prior to his retirement in summer 2014, and Christine Szuter was at the helm when we gathered in Dragoon in October 2014. Their enthusiasm for our project

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and the warm hospitality of the Amerind staff made for a memorable seminar experience. Debbie Mechigian, Amerind Seminar house coordinator and chef, and her staff flawlessly coordinated daily logistics and kept us exceptionally and deliciously well fed. We are grateful to the Wenner-Gren Foundation for Anthropological Research for a Workshop Support Grant, without which the participation of our international contributors would not have been possible. Allyson Carter and Scott De Herrera at the University of Arizona Press made the process of moving the volume through review and to print smooth and swift. The close reading and constructive suggestions offered by the Press’s two anonymous reviewers substantially improved the chapters. We also benefited from Pete Robertshaw’s incisive comments on our introduction. We’re grateful too to Sharon E. Hunt for careful and efficient copy editing, and to Daiana Rivas-Tello for help with the indexing of the manuscript.

Thanks too to our volume contributors. Their intellectual vibrance and exceptional collegiality made our time in Dragoon a rare pleasure. All cheerfully complied with our ambitious revision deadlines, ensuring the timely publication of our seminar proceedings. As editors we could not have asked for a finer group of scholars with whom to work. Last, but by no means least, we thank our families for putting up with their distracted spouses and parents as we moved this project to fruition. Their support is gratefully acknowledged.

—Andrew P. Roddick and Ann B. Stahl
Recent decades have seen growing attention in anthropology to the emergent character of social life and its grounding in location and materiality. For many cultural and archaeological anthropologists, this has directed attention to learning, intergenerational relations, and knowledge transmission as key sites through which social life is produced and reproduced. Many have found inspiration in Jean Lave and Etienne Wenger’s (1991) *Situated Learning: Legitimate Peripheral Participation*, which highlights the essential role of learning in daily activity and its material arena. For these scholars, learning—a process that Lave and Wenger term “legitimate peripheral participation”—involves embodied action and continuously renewed relations between understanding and experience, more and less skilled practitioners, and the objects and communities with which practitioners interact.

Lave and Wenger’s view that agent, activity, and world are mutually and relationally produced has inspired those interested in apprenticeship and enskilment in diverse fields. Their “communities of practice” concept has proven attractive as an alternative unit of analysis for archaeologists looking to surmount the homogenizing character of standard archaeological taxonomies (e.g., cultures, phases; Roddick 2009; Sassaman and Rudolphi 2001; Blair, Stahl, this volume). Archaeologists have focused particularly on craft production as a site of situated learning and embodied cultural transmission (Cordell and Habicht-Mauche 2012; Minar and Crown 2001; Wendrich 2013), with implications for archaeologies of childhood (Kamp 2001; Sofaer Derevenski 2000). Ethnographers have studied the embodied micro-processes of learning and how interaction between learners and their environments shapes identification, values, performances, and knowledge networks (Chakhlin and Lave 1993; Marchand 2001, 2010), particularly within crafting
communities (Gosselain 2011; Herbich 1987; Herbich and Dietler 2008; Kasfir and Förster 2013). This research suggests that even the most conservative craft skills are not fixed but rather change and develop within communities of practitioners and across larger “constellations of practice,” a concept we discuss below.

While such studies have yielded valuable insights into learning and doing, several key theoretical and methodological issues remain to be investigated. Lave and Wenger (1991:36, 42) acknowledged the need to more systematically account for power as a dimension of situated practice. Communities of practice relationally emerge through, shape, and are constrained by power relations (Fuller 2007:20). Social practice can be conflictual and competitive as well as consensual and cooperative (Lave and Wenger 1991:49, 57), and participation in a community of practice is affected by the variable “transparency of technology, social relations,” and activities (Lave and Wenger 1991:56). Power relations can both foster (“legitimate”) or impede participation within learning communities. Such varied operations of power may be missed if we concentrate attention on its more institutionalized forms (see Crown, Schoenbrun, this volume).

There is also need to address scalar aspects of practice communities—how they are produced, reproduced, transformed, and articulated through generations and across geographic distance. Here a focus on situated learning is key. This is compatible with the intimate, immediate arenas of practice and agency of recent anthropological focus. However, situated learning is also important to questions of “big history” (Robb and Pauketat 2013), for learning, knowledge production, and transmission just as surely reside at the core of the larger-scale and longer-term patterns that in turn situate learning (Harris, Sassaman, this volume). Particularly pertinent to studies in this volume are how they do so in contexts of turbulence (Guyer 2004, 2007)—inclusive of social, political, economic, and environmental flux—that produce both trauma and opportunity. Learners and doers respond to these contexts through situated practice in which knowledge is put “in motion” and improvisations are “made to stick” (Barber 2007:37) through learning networks. But questions of scale arise about how far and fully a community of practice analytic can be extended: is it limited to contexts of face-to-face
learning? Does it resonate across distances and through generations and, if so, within what scalar limits? What analytical frames might help expand our understanding of how learning and emergent knowledge produces—or alternately truncates—social connections across time and space?

These were among the questions that motivated discussion at an Amerind Seminar where scholars of diverse disciplinary backgrounds and geographical interests explored issues of power and scale in learning and doing, resulting in this volume’s chapters. Contributors explore learning and “knowledge in motion” across a variety of contexts: the American Southeast (Blair, Sassaman) and Southwest (Crown, Mills); South America (Harris, Roddick); and Africa (Gosselain, Schoenbrun, Stahl). Some address situated learning in relation to crafting communities (Crown, Gosselain, Roddick, Stahl) but push beyond a localized point-in-time analysis that has characterized many apprenticeship studies to explore their deeper historical and wider geographical entailments and complex intersections with other communities and constellations of practice. Other contributors move past the now-conventional focus on craft learning and communities of production to probe how learning and knowledge processes configure communities of consumption (Blair, Mills, Stahl), while others engage with landscape (Harris, Sassaman, Schoenbrun) and the contours of political geographies (Mills, Schoenbrun).

All highlight the centrality of nonhuman actors/actants (objects, locales, landscapes) in processes of situated learning and the topology of knowledge in motion. Whereas studies inspired by Lave and Wenger’s work often focus on continuities among learning communities, our geographically and temporally diverse case studies share a focus on turbulent conditions in which value, knowledge, and power were recalibrated as communities became bound up in changing spheres of interaction and/or coped with environmental and climatic change. They remind us that discontinuities are also part and parcel of the situations that shape learning. Contributors explore how participants in emergent and dynamic communities of practice engage opportunities and cope with change and how, through situated practice, they reproduce and transform themselves within broader landscapes and networks of power, possibility, and constraint. While contributors attend to the conventional
small-scale arenas of face-to-face learning and doing, they also grapple with the embeddedness of those intimate scales in broader arenas of action and knowledge across time and space.

After briefly contextualizing Lave and Wenger’s approach, we review key concepts, drawing particularly from Wenger’s (1998) *Communities of Practice*, which our contributors found useful in addressing issues of power and scale. We then discuss some issues in relation to power, processes of meaning-making, and knowledge in scalar perspective that emerged from our seminar discussions. Throughout, we highlight how the volume’s empirically rich case studies deepen our appreciation of how power and scale condition knowledge in motion.

**Situated Learning, Communities, and Constellations of Practice**

Lave and Wenger’s (1991) thin volume emerged out of a larger intellectual tradition that explores the relationship between learning and everyday life. They instigated a shift from thinking about learning as acquiring a finished “product” to appreciating learning as a process grounded in participation (Fuller 2007:18). This focus might be traced back to the philosophies of Rousseau and Dewey (Hughes et al. 2007:3), but it is part of a more specific intellectual tradition concerned with “situating” learning and cognition in the social world (Lave 1988). A focus on “situated cognition” initially developed in cognitive psychology but also draws from activity theory. Based on the early work of Marx, activity theory emerged in the 1920s and 1930s through the work of Russian scholars Lev Vygotsky, Alexander Luria, and Alexei Leont’ev. Vygotsky founded the school of cultural-historical psychology as a reaction against psychoanalysis and behaviorism and suggested the concept of artifact-mediated and object-oriented action (Vygotsky and Cole 1978:40). Vygotsky saw the interaction between social sources (others, artifacts, and symbols) as the basis for cognition, while Leont’ev’s work shifted focus from the individual to the collective activity system.

Those influenced by situated cognition and activity theory are critical both of perspectives that see cultural contexts as “containers” of behavior, untouched themselves by human action, and of behavior as a
domain of interpersonal interaction. As Lave (1988:150) puts it, “One has system without individual experience, the other experience without system.” Over time, scholars engaged in these debates have focused less on the social as a context for cognition (Rogoff and Lave 1984) and more on practice and sociality as formative of cognition (see Barton and Tusting 2005:4–6).

Building on this, Lave and Wenger characterize learning, apprenticeship, and knowledgeability as relational processes grounded in a “comprehensive understanding involving the whole person rather than ‘receiving’ a body of factual knowledge about the world; on activity in and with the world; . . . [such] that agent, activity, and the world mutually constitute each other” (1991:33). Like other practice theorists (Bourdieu 1977; Giddens 1979), Lave and Wenger stress the dialectical character of relations that constitute human experience and the significance of routine, day-to-day activity in producing and reproducing society. These approaches shift us away from a bird’s-eye perspective, grounding analysis in a dynamic lived landscape wherein identities “are something people make, and with which they do something” (Bourdieu 1977:35).

Lave and Wenger’s approach trained explicit attention on the sociality of learning processes, and they introduced a vocabulary, italicized here, that volume contributors have found useful in analyzing communities and broader constellations of practice, as discussed below. First and foremost Lave and Wenger (1991:49) challenged models of learning as “internalization,” confined to institutional teacher-learner relationships. They drew attention instead to situated learning as embedded in everyday life and occurring through legitimate peripheral participation—a process by which novices acquire skills and knowledge by engaging in practice and moving from peripheral involvement to full integration into a community of practice (Lave and Wenger 1991:29, 47; Minar and Crown 2001). Lave and Wenger (1991:42) left communities of practice as a largely “intuitive notion,” upon which Wenger (1998:72–85) later elaborated through an ethnographic case study of an insurance claims processing office (Fuller 2007:20–21; see also Habicht-Mauche et al. 2006). Some scholars see recent work that applies these ideas to management training as undermining the concept’s value (Barton and Tusting 2005:6; Duguid 2008; Hughes 2007:36–38). However, Wenger’s
analytical frame provides important insight into learning, power, and scale. It captures the processes through which situated learners come to belong to communities of practice that have independent histories yet are also woven into larger constellations, broader institutions, and structures that some characterize as “networks” (Collar et al. 2015; Jewson 2007; Knappett 2011; Mills, this volume) and others as “assemblages” (DeLanda 2006; McFarlane 2009).

Communities of practice emerge through “mutual engagement, a joint enterprise, and a shared repertoire” of doing (Wenger 1998:73). They are constituted through “shared histories of learning” (1998:86). Engagement entails participation (1998:55–57), the action of taking part in relation to others, thereby highlighting connections as well as action. Participation involves mutuality (with others) and is thus bound up in processes of identification. Mutuality need not imply equality, as relations can be conflictual and competitive as well as cooperative and harmonious.

Wenger does not include objects or things as “participants,” but our contributors demonstrate how the concept might be extended to do so. For example, Wenger considers reification as another dimension of mutual engagement and a process that operates in duality with participation. Reification congeals experience into “thingness,” whether through codification, naming, or the use of instruments and tools (Wenger 1998: 57–61). The inherent duality of participation and reification captures an ongoing tension between process and product similar to what Keane (2003, 2005) calls semiotic bundling (discussed below; also Schoenbrun, this volume). Woven together, participation and reification continuously make people and things through practice (Wenger 1998:70).

This relationship between reification and participation is not new to many social scientists, especially archaeologists, yet Wenger’s usage in relation to communities of practice offers processual leverage and directs attention to learning and the contextual emergence of knowledge. For instance, Schoenbrun (this volume) analyzes participation and reification in relation to the operations of metaphor in forging new relations among dispersed peoples around Lake Victoria in eastern Africa during the late first and early second millennium A.D. Drawing on linguistic and material sources, he explores practices of spirit mediums who engaged in an intentional process of reification. Sassaman investigates
how nonhuman forms shaped knowledge in motion as Indigenous peoples of the American Southeast calibrated practices in relation to long-term rises in sea levels. Both contributors illustrate how things (objects, caches, landscapes) participate in the configuration of knowledge, and how communities of practice emerge and transform in relation to broader power-laden processes.

Lave and Wenger (1991:36) assume that communities of practice are emergent and differentiated rather than fixed and homogeneous. Since knowledge is activated in specific sociohistorical contexts or “situations,” the shared repertoires within particular communities of practice are an inherently ambiguous legacy of mutual engagement open to negotiation through use (Wenger 1998:83–84). Moreover, people can belong simultaneously to multiple, sometimes overlapping communities of practice, an attractive notion to scholars seeking alternatives to homogenizing analytical frames like “cultures” or “traditions” (Joyce 2012; Roddick and Hastorf 2010; Blair, Roddick, Stahl, this volume). Though Wenger eschewed a prescriptive approach, he saw locality as a key dimension of communities of practice and considered communities a “level of analysis” (1998:122–123). We return to some implications below, but this scalar issue is at the heart of an anxiety that the community of practice concept has the potential to become like a youngster’s hammer for whom suddenly everything needs pounding (cf. Moore and Keene 1983), thereby “stretching the [concept’s] relevance . . . beyond recognition or usefulness” (Wenger 1998:123).

This concern led Wenger (1998:126–127) to coin the term constellations of practice to refer to configurations “too far removed from the scope of engagement of participants, too broad, too diverse, or too diffuse to be usefully treated as single communities of practice.” Communities of practice are connected—complexly and dynamically—into broader constellations that share historical roots through the actions and agency of brokers and boundary objects (below). Constellations of practice need not be overtly acknowledged or named, and they can form intentionally (Sassaman, Schoenbrun, this volume) or as an unintended consequence (Gosselain, Roddick, this volume; see Joyce 2004; Pauketat 2000; Wenger 1998:128). Their emergence is aided by boundary objects, a term borrowed from Star and Griesemer’s (1989:393) seminal work on scientific objects, abstract or concrete, that inhabit distinct social worlds
Andrew P. Roddick and Ann B. Stahl
(see Huvila 2011 for a summary of recent approaches). Wenger’s sense of boundary objects is not intuitive, for he does not mean by this term objects that produce boundaries. Rather, boundary objects link different communities of practice that may or may not share specific practices but that require some sort of coordination. Of course, the modern discipline of archaeology, with its focus on materiality and agency, focuses substantial attention on the role of objects in constituting communities and networks. Yet the boundary object concept provides some analytical purchase for archaeologists, highlighting how particular things can bridge, mediate, or form liminal spaces between communities (Lyons and Clark 2012). These objects—which can be artifacts, places, or, as Schoenbrun (this volume) argues, beings and histories—can be adapted to local needs. Although they bridge particular communities of practice, there may be distinct perspectives, meanings, and values associated with boundary objects (Wenger 1998:107). For instance, Roddick (this volume) discusses a modern clay quarry where highly prized tempers are accessed by a number of potters across a larger region. This place links varying communities of practice, several of which deploy the tempers slightly differently and have different values associated with the materials, yet as a boundary object the quarry serves a key role in constituting a larger constellation of practice. Roddick also explores decorated Late Formative vessels, a boundary object that connected regional producers and consumers, each with their own particular values attached to these objects. Similarly, Gosselain (this volume) discusses both places and things that serve as boundary objects: markets, where regional ceramics link distinct potting traditions, and circulating, decorated materials that aesthetically inspire unrelated communities. Both Roddick and Gosselain demonstrate that boundary objects are not neutral but are wrapped up in complex relations of power (Huvila 2011; Schoenbrun, this volume). Other contributors (Blair, Harris, Mills, Sassaman) show that archaeologists can bring a more nuanced and multitemporal focus to the understanding of boundary objects that link pasts, presents, and futures and, in Schoenbrun’s (this volume) words, “provide[e] material anchors for new historical knowledge attendant on constellation.”

Brokers structure and integrate new and revised practice into a community of practice. In Wenger’s characterization, brokers are members on the periphery who have enough status to introduce change but who
are not yet full participants within particular communities of practice. Brokers may participate in several communities of practice (although multimembership does not in itself result in a brokering role), and they may be participants with a high number of “weak ties” across a given social network (Granovetter 1973; Jewson 2007:75; Mills, this volume). As Wenger (1998:110) suggests, “Brokering . . . requires an ability to manage carefully the coexistence of membership and non-membership, yielding enough distance to bring a different perspective, but also enough legitimacy to be listened to.” He implies that full participants are likely more interested in maintaining the status quo, but the question is how such brokers maintain peripheral positions alongside an ability to initiate change (Davies 2005) or a “capacity to assemble” (McFarlane 2009:567, emphasis original). Here, Schoenbrun’s discussion (this volume) of how mediums and spirits brokered “constellating processes” offers insight and ultimately a new take on Wenger’s (1998:109) claim that “brokering is a common feature of the relation of a community of practice with the outside” (also Blair, Gosselain, Mills, this volume).

A concern with how social entities emerge through “relations of exteriority” (DeLanda 2006:10, emphasis original) has led some scholars to embrace the concept of “assemblages” as an alternative to totalities like “society” or “culture” (Bennett and Healy 2009). Assemblage theory focuses attention on an entity’s emergent qualities, which resonates with several case studies in this volume, including Schoenbrun’s exploration of the constellating practices of itinerant priests in the Lake Victoria area. Similarly, Harris’s use of life histories shows how the space-time of peasants in the Brazilian Amazon is a complex assembly of knowledge archived in the river and in body memory as people make themselves “amongst Others.” In both instances, the actions of brokers are key to the emergence of constellations or assemblages. While an “assemblage” perspective holds value for its attention to emergence, distributed agency, and the intersections and simultaneity of time and space (see below; McFarlane 2009), the focus on constellating practices by contributors to this volume highlights the importance of learning and knowledge in motion as key to understanding these emergent processes.

Although the role of brokers can be overestimated (non-brokers too can innovate), it is important to consider the individuals and collectives who may play such a role. Lyons and Clark (2012:28) considered
brokers in two potting communities of practice deploying similar (but not identical) raw materials and embodied knowledges. A migrant potter might be accepted into a village community of practice, with the raw materials serving as boundary objects, giving potters common ground upon which to begin sharing each other’s distinct practices (Gosselain, Mills, this volume). Harris (this volume) explores a similar scenario in his discussion of Sabina, an Indigenous shaman in Amazonian Brazil. She acted as a broker at a regional scale, with weak ties to a variety of people, bridging colonial and Indigenous healing practices. Similar brokers were likely involved in shaping consumption of beads in 17th-century Spanish colonial contexts in the American Southeast (Blair, this volume). Children too might be brokering agents. In the American Southwest, children may have learned occupational skills outside of household settings (Crown, this volume). Across Africa “kin fosterage” is common; youngsters sent to live in other households may learn part-time occupations through scaffolded participation (smithing, divining, weaving, etc.; Goody 1989:240–243). Back in their natal contexts, they potentially operate as brokers and conduits of innovation and transformative practice.

Wenger (1998:173–181) discusses imagination and alignment as “processes of belonging” that bridge time and space and therefore social relations that go beyond direct engagement. Imagination is a process through which “we can locate ourselves in the world and in history . . . we recognize our own experience as reflecting broader patterns, connections, and configurations”—seeing a tree when looking at an apple seed (1998:176, 178). “By bringing the exotic to our doorstep and carrying us into foreign lands, imagination can make us consider our own position with new eyes. By taking us into the past and carrying us into the future, it can recast the present and show it as holding unsuspected possibilities” (Wenger 1998:178). This resonates substantively with Gosselain’s (2008, this volume) insights on how “space of experience” and “space known” inflect potters’ practice, which Stahl (this volume) explores through an archaeological context. Harris considers the imagination of river dwellers in a new colonial context, where the river came to “embody knowledge—and imaginations—on the move.” Harris, Sassaman, and Schoenbrun (this volume) see imagination as key to the
“scaling up” processes through which constellations of practice emerge, processes that can usefully be termed constellating.

Such imaginations characterize scholarly practice. They lie at the heart of thinking about archaeologies of both deep pasts (in our own epistemologies) and potential futures (in our deployment of our knowledges). Sassaman (2012) explores such “alternative futures,” particularly in light of the radical future changes to Florida’s coastline. Here he explores constellations of practice and landscape learning over 15 centuries, or 75 generations, arguing that the mounds, caches, cemeteries, and settlements of the U.S. Gulf coast represent a form of futures planning that might—indeed ought to—be considered in light of our current climate crisis. Similarly, Roddick’s (this volume) “archaeology of the present” (González-Ruibal 2009) encourages us to consider how imaginaries surrounding recent histories may impact future potting practices.

Finally, Wenger develops the concept of alignment to capture processes through which we “come to belong” in ways not confined to mutual engagement but which potentially involve coordinated actions, energies, and practices. “Through alignment, we become part of something big because we do what it takes to play our part . . . a scope of action writ large, of coordinated enterprises on a large scale, not inherent in engagement or in imagination” (Wenger 1998:178). “Broad systems of styles and discourses” provide one avenue for alignment through which people can affect the world through their energies, amplifying effects by “coordinating multiple localities, competencies, and viewpoints” in ways that can be both empowering and disempowering (Wenger 1998:180). Stahl (this volume) examines the role that rare ceramic forms may have played in this process, while Schoenbrun’s exploration of metaphor provides an example of how communities surrounding Lake Victoria may have been persuaded to participate in emergent relations centered on this waterscape. Harris explores the Amazon River as an enduring alignment while Sassaman offers a provocative case for repeated alignments and realignments of ritually significant sites in the American Southeast. While volume contributors found this and other concepts drawn from Lave and Wenger’s work of value, they explicitly engage them in relation to issues of power, meaning, and scale, to which we now turn.
Power: Learning and Knowledge in Motion in Turbulent Times

Lave and Wenger’s early work on situated learning was paradigm shifting, but it also prompted critiques and calls for refinement (Barton and Tusting 2005; Contu and Willmott 2003; Hughes et al. 2007). Some questioned whether situated learning captured the full range of learning trajectories (Jewson 2007). Others highlighted the loose and fuzzy nature of key terms discussed above (Fuller 2007:23–24). Fuller (2007:20) observed that “community” as a colloquial concept “is far from neutral, as it carries connotations of harmony and togetherness,” grounded as it is in an organismic metaphor from which social sciences have struggled to break free. Within archaeology, “community” has its own particular set of baggage (see Canuto and Yaeger 2000), some of which resonates with the broader problem of how we identify the socio-spatial boundaries that shape learning processes and knowledge in motion (Fuller 2007:21).

A concern commonly raised centers on power, dimensions of which were not stressed in Lave and Wenger’s early case studies (Fuller 2007:20). Much like Bourdieu’s practice theory, Lave and Wenger’s model is commended for its attention to cultural reproduction but critiqued for its weak explanations of cultural transformation and power dynamics (Fuller 2007:22; Kristiansen and Rowlands 1998:15–22; Linehan and McCarthy 2000; cf. González-Ruibal 2013, who notes the social sciences’ privileging of change). Lave and Wenger’s original explorations of learning and the social relations within and between communities of practice has been called “benign” (Contu and Wilmott 2003) and open to corporate objectives in its elision of power (Barton and Tusting 2005:3; Hughes 2007). Yet their work arises from a Marxist approach to the complex relations of power that operate within the apparent shared values of particular knowledge regimes (Contu and Wilmott 2003:285–286; Hughes 2007:32). As Lave (2008:285) has recently stressed, any study of learning must keep central the “conflicts and tensions, the relations of mutual need and potential threat,” and broader relations of power that shape apprenticeship (Lave 2011:88–89). So too did Lave and Wenger (1991:35) stress heterogeneity within any community of practice; people possess different knowledge and different goals, and relations of power
will develop and be reinforced within a given community of practice as Crown (this volume) demonstrates for potting communities in the Prehispanic Southwest.

These power relations enable and constrain the process of “peripheral participation” (Lave and Wenger 1991:42). Ethnographers, particularly those exploring contexts of craft production, have noted how specific local-level power dynamics may be embedded within “scaffolding” processes or the small steps of assistance and legitimate peripheral participation necessary for novices to gradually integrate into a community of practice. Coherence and consensus are implicated from these very early stages. For instance, Gosselain (2011:2–3) finds that young participants learning the initial stages of potting (digging clays, preparing tempers, collecting fuel) quickly learn the “mutual—and often tacit—agreement between participants . . . [and] their participation hinges on a ‘moral’ . . . duty to play one’s part in communal activities.” He contrasts this with the more discursive and politicized elements of pottery choices, where forming choices may be linked to identity expressions within a broader constellation of practice. Similarly, scholars working with Amazonian potting communities have explored both the tensions produced as learners enter a community of practice and the power relations governing the structure and content of learning (Bowser 2000; Bowser and Patton 2008). Bowser (2000) found that women manipulate their products so as to maintain flexibility and an ability to mediate factions within shifting political contexts while learners differentially imitate styles within the communities in which their learning is situated.

Another issue regarding power and learning concerns ignorance. Dilley (2010:S179) suggests that knowledge and ignorance are mutually constitutive, and he queries the “social consequences of ignorance.” Ignorance defines and maintains the gulf between particular social statuses both within and between particular communities of practice (Gowlland 2012:360; Marchand 2001). It is here that secrecy, which develops around a particular politics of ignorance, becomes important. Exploring such questions in the deep past is difficult for archaeologists for whom traces for “not knowing” inhere in absences, which are quickly filled up by other traces. Yet Crown’s (this volume) study of potting and secrecy in Pueblo society demonstrates some possibilities. Her study
of learners’ products provides insight into concealment of knowledge and the epistemological boundaries of Pueblo potting communities in the American Southwest. She notes that secrecy can pervade a range of elements of Pueblo potting, from raw material locations to particular learned techniques to the concealment of particular designs. In her comparative study of White Mountain Redwares and Cibola Whites, she builds on her earlier, methodologically innovative work on learning to explore participants’ differential access to knowledge and implied social hierarchies.

Lave and Wenger (1991:35) suggest that there is probably “no such thing as an ‘illegitimate peripheral participant.’” Yet communities are defined as much by processes of exclusion as inclusion, what Gowlland (2012:368) calls “boundaries of practice.” The maintenance of such boundaries, ones that define a particular form of participation as legitimate or illegitimate, can be significant to the development of a community of practice. Harris and Shelswell (2005:68–170) have recently called such exclusionary processes “legitimation conflicts.” Roddick’s (this volume) discussion of Andean potting markets notes such legitimation conflicts in how particularly recognizable pots are sold and bartered.

Wider social and historical conditions also make particular forms of learning possible. It is these elements that make situated learning about more than apprenticeship and cultural transmission, as illuminated by recent studies of the small-scale learned practices during periods of great political change. Gowlland (2012) explores how collectivization in the 1950s and privatization in the 1970s affected apprenticeship among communities of Chinese handicraft producers and how particular embodied skills were differentially learned. Pairing Lave and Wenger with “forms of capital,” he traces the movement of particular knowledges and finds that collectivization in the 1950s created new kinds of communities of practice, redistributing practical knowledge from exclusive control of particular households into a new factory context. Social relations that emerged through earlier situated practice resonate today despite the return to private enterprise. Artisans continue to draw on social ties from this earlier period, creating what archaeologists recognize as a “genealogy of practice” (sensu Pauketat and Alt 2005). A similar case study is seen in Blair’s (this volume) examination of bead manufacture through the dynamics of complex change of the
17th century, which similarly evokes a genealogy of fine-grained situated practices.

Communities of practice can thus be quite heterogeneous, with some people having different knowledge and different goals. Although not developed by Lave and Wenger, embedded in their approach is a hierarchical notion of power dynamics, in that these relations will develop within, but also independently of, a range of different power relations. While participation is a way to belong, it can involve a certain degree of foot dragging and other “weapons of the weak” (Scott 1985). Such dynamics are particularly visible during periods of social and political turbulence, when particular forms of value may become pronounced (Guyer 2004:30). Tracking learning through material traces is therefore, as much as anything, about exploring the topology of valuation systems within dynamic communities and constellations of practice (Blair, Harris, Mills, Schoenbrun, this volume), which leads to a consideration of semiotic processes.

**Marking and Meaning: A Semiotic of Situated Learning**

Exploring signification work in ongoing learned practices, whether in the appearance of slag in pottery tempers (Stahl, this volume), the color red in pottery vessels (Crown, this volume), or the gathering of particular strings of beads (Blair, this volume), all require attention to semiosis. Semiosis is of increasing interest to archaeologists (Joyce 2007; Knappett 2002; Preucel 2006; Preucel and Bauer 2001) and has particular resonance with the situated learning literature. Indeed, “a semiotic, meditative view of culture as continually reenacted through practice” is consistent with perspectives on situated learning (Bauer 2013:20). Bauer (2013:6) and Gee (2005:216) argue that attention to processes of learning and meaning-making provide avenues for research beyond identifying in- and out-groups. Schoenbrun (this volume) demonstrates this in his exploration of how spirit mediums, through “python work,” employ semiotic mediation by building on extant meanings to produce new and unifying social relations among groups around Lake Victoria.

Webb Keane’s work provides a productive pathway to consider learning in relation to causality (Joyce 2011) and to explore how semiotic
processes shape learning in turbulent contexts. Keane offers two important ways to engage with processes of meaning and semiosis. His idea of bundling, or the “productive capacity of the materialization of signs in things” (Joyce 2011:167, after Keane 2003:414), is useful for considering how objects become entangled with each other. Keane (2003, 2005) suggests we think about the co-presence of particular qualities and their impact on particular relations of things. Anything that can be experienced might bind particular qualities to others in a process whereby various qualities and meaning possibilities are evoked simultaneously through objects, producing “indexical entailments” (Keane 2010:194), which in turn offer possibilities—or “affordances”—for future action. Attending to processes of bundling aids in tracking the social relations of particular communities of practice and the objects complicit in their formation (Pauketat 2013:39; see Arnold [1997] and Lau [2010] for similar explorations of “inter-textuality”). Bundles shape larger networks of social relations, constituting and reinforcing value systems and conditioning how particular communities were imagined (Ortman 2012; Mills, this volume). This is particularly well articulated by Gosselain (this volume), who explores the relations among aesthetics, bodily practices, and material deployments of potters across a range of media; by Schoenbrun’s exploration of the historically variable forms of “python work” through which communities in the Lake Victoria area became interconnected; and by Blair’s explorations of “bead work” in 17th-century Spanish missions.

Keane’s concept of marking explores how actors may take things previously ignored or unattended to—background aspects of people’s experience—and foreground them in particular historical contexts. In doing so, they shift the terms of debate (Schoenbrun, this volume). Multiple components of a particular bundle may be available to be marked. Analogous to “affordances” and to Ingold and Gibson’s discussion of “educations of attention” (Joyce 2011:161; also Knappett 2004 and below), Keane (2010:95) highlights the “continuum of attention and hierarchies of value that range from relatively unmarked to marked.” Like his bundles, the “marked end of the spectrum brings together a heterogeneous variety of practices, ideas and institutions” (2010:95), whether through combinations of attributes on objects (Crown, Stahl, this volume), dispositional practice (Blair, Sassaman, this volume), or other means that
are “provocative to the imagination” (Keane 2010:200), as explored by several volume contributors (Harris, Sassaman, Schoenbrun).

Such ideas are particularly ripe for exploration by ethnographers, historians, and archaeologists given that bundles and affordances have histories. But how might Lave, Wenger, and Keane “meet in meaning?” One possibility is that marking might be part of the “coming to the surface” when participants of distinct communities meet in practice and people learn new traditions (Roddick and Hastorf 2010; Mills, this volume). Brokers can play a key role in marking processes as they “make new connections across communities of practice, enable coordination, and—if they are good brokers—open new possibilities for meaning” (Wenger 1998:109). Schoenbrun’s itinerant spirit mediums marked new metaphors, whereas Harris’s 18th-century healers bundled technologies and skills in creative new ways. Clearly research into semiosis, communities of practice, and genealogies of practice are ripe for future explorations.

Knowledge in Motion in Scalar Perspective

A focus on the contextual, scalar dimensions of communities of practice over landscapes and generations provides another unifying volume theme. What is the tipping point at which the face-to-faceness, mutual engagement, and learning in communities of practice yield to constellations of practice and broader networks of varying scales (Fuller 2007:23)? Similarly, how might we grapple with communities and constellations of practice across temporal scales?

Here it is important to distinguish between questions of scale approached 1) retrospectively (as pattern extrapolated from the ongoing flows of life worlds); or 2) as enmeshed in life worlds and confronted by practitioners as they face the future (Barber 2007; Hallam and Ingold; also Blair, Sassaman, this volume). In the former, the problem of scale is typically approached by parsing a complex system into spatial or temporal units conceived as levels, as for example the “micro,” “meso,” and “macro” scales of network analysis (Fuller 2007:27; Knappett 2011) or the Annales event, conjuncture, and longue durée (Braudel 1995). While analysts may acknowledge the “multi-scalar character of human existence” and recognize the artifice of dividing “the continuity of lived experience into analytical categories” (Knappett 2011:10, 98), a “levels”
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approach nonetheless has implications for archaeological inference and narrative, in no small part because their a priori character is presumed (Ridges 2006:145–146; also Lucas 2005:49–56). Too often levels are treated as prefigured “bins” to be filled with case particulars rather than configurations that emerge through situated activity (Lave 1993:22–23; Lucas 2005:19; also Blair, Gosselain, this volume). A related challenge is that work informed by communities of practice perspectives has found it easier to account for continuity and reproduction than discontinuity and transformation (DeLanda 2006:10; Fuller 2007:22), a point of particular concern in the turbulent contexts foregrounded by our contributors.

Archaeologists of late have been drawn to networks as a metaphor for analyzing spatial scale (Collar et al. 2015; Knappett 2011; Mills et al. 2013; Blair, Mills, this volume). Another possibility for navigating scale comes from Wenger’s (1998:127–133, 168–169, 246–247, 256–260) framing of constellations of practice, discussed above. Boundary objects, practices, movements of people, and discourses provide the resources for connection and bring into view emergent geographies of practice, whether in Mills’s study of the communities and constellations of consumption in the American Southwest, Stahl’s explorations of interregional entanglements in a West African context, or Blair’s circulations of beads in the colonial American Southeast.

Metaphorically more challenging is how we grapple with temporality as a multiscalar phenomenon (Lucas 2005). Lakoff and Johnson (1980:41–45) observe that, for English speakers, TIME IS A MOVING OBJECT, a metaphor that leads us to treat time spatially: as “near,” “far,” “in front” or “behind” us (Gosden and Kirsanow 2006:27–28), more or less “out there.” Treating time as movement—something external that passes us or through which we pass (Lakoff and Johnson 1980:43–44)—we lack ready metaphors for conjuring its multidimensionality, the ways in which time is sedimented and carried within bodies, objects, sites, and landscapes. Lucas (2005:22–25), drawing on Husserl and others to conjure time’s multidimensionality, observes that time in its “flow” involves “succession and retention” (2005:23). Retention captures the “echo” of events that are uneven in duration and variously “impact on the present according to the length of their ‘echo,’” thereby yielding differential traces through time (2005:26). The Annales School tackles multiscalar temporality through
the varied temporal rhythms of events and durations. However, in favoring the broad tableau, an Annales approach arguably diverts attention from how multidimensional time is a context produced through activity (Munn 1990) as people craft their lives through the affordances of their worlds—inclusive of things, metaphors (Schoenbrun, this volume), and what Barber (2007:29–31) terms “entextualization.” The last is a process through which an instance becomes “detachable from its local context” (Barber 2007:30, quoting Silverstein and Urban [1996:21]) and thereby part of a corpus available for “mobilizing something believed to be of permanent worth” (Barber 2007:31; Schoenbrun, this volume; also Keane 2010:215). Context is thus emergent, relational, and weblike, with “ranges” rather than bounded limits (Laguens 2013:105), “never fixed but constantly crescent” (Barber 2007:26; see also Munn 1990). Gosselain’s (this volume) bottom-up exploration of how “space of experience” and “space known” constitute the context and shape the everyday practices of potters in southwest Niger is a rich empirical example of this process.

Regardless of our metaphors for multiscalar temporal relations—whether as connected through citations, genealogies, biographies, itineraries, or movements (below)—learning and knowledge are implicated in their making and therefore central to “context.” In other words, learning and knowledgeability—the accumulated experience of and facility with conceptual and embodied conventions and practices—are bound up in situated activity that is multitemporal, heterogeneous in scope, open-ended, and future-creating, yet embedded in the “lived social world” (Lave 1993:6, 17). The analytical challenge is how to deal with “all this motion” (Wobst 2006:56; cf. Baires et al. 2013) in ways that credibly capture its relationality and multidimensional qualities.

It is essential that we avoid what Fuller (2007:23) terms a “‘container notion’ of context” that forces arbitration of “what is inside or outside the container as well as how large it should be.” But such a mechanical parsing of context goes beyond methodological concerns; it is also unproductive in addressing the effects of turbulence on communities and constellations of practice and the knowledge in motion that produces them. Neither the sources nor the effects of turbulence—whether climatic or environmental, social or political-economic—can be neatly confined to a particular scale. Both the constraints and affordances they provide depend upon complex intersections of how time-space is
produced and experienced in specific settings, as explored by volume contributors. Blair investigates how 17th-century communities of practice linked to the itineraries of beads “unfold into each other, across lived pathways”; Harris examines how, through learning and doing along the river, Brazilian Amazonian peasants “adjusted their identities in line with demands from the state and formed alliances, without losing everything and starting over again”; and Roddick explores how potters of the ancient and contemporary Lake Titicaca Basin navigated shifting political economic conditions through engaged practice. While not all embrace the notion of “flat” or “scaleless” ontologies discussed by Blair (this volume; McFarlane 2009:562), these contributors and others analyze context as an emergent, multiplex phenomenon, which communities of practice simultaneously participate in and produce.

Contributors adopt several strategies aimed at more explicitly approaching scale as interwoven into and embedded within life’s daily practices rather than as analytically separable “levels.” Several (Gosselain, Harris, Roddick, Sassaman) start from the premise that practitioners (adults and children) draw on embodied experience-near and experience-far knowledge as they actively reproduce and improvise in relation to past practice, a perspective that resonates with Munn’s exploration of Gawan Kula exchange as a process that “infuses” events with other times and places to create a “spacetime of event relations in experience” (1990:13). They highlight how situated learning and knowledge circulation (Lave 1993:12) are characterized by a simultaneity and relationality of temporal and spatial elements. Here Costall’s (2006) revision of Gibson’s notion of “affordances” is useful. Affordances offer a conceptual counter to a mind/body dualism that diverts attention from the mutuality of humans and world. Costall (2006:23) pushes us to press beyond an analytical scale of the local “here and now” to consider how affordances are produced through broader social contexts and historical processes. The challenge is thus to grapple with how affordances—a critical component of learning—are constituted through durations and in relation to broader landscapes of power and connectivity, taking on what McFarlane (2009:562) characterizes as a “translocal” character.

Schoenbrun draws out such a process around Lake Victoria, where image-schemas allowed the dislodging of territorial spirits and enabled a new mobility for spirit mediums who forged interconnections among
diverse practice communities. In another example, Crown shows how
two ceramic wares from the American Southwest made in the same vil-
lages by the same skilled potters were nonetheless bound up in different
learning dynamics. She adduces evidence that making White Moun-
tain Redware involved greater collaboration between skilled potters and
learners than did Cibola Whiteware in which learners participated in
all aspects of production. In making White Mountain Redware bowls,
which were valued in ceremony and exchange, skilled potters limited
learners’ involvement in aspects of production that were associated with
protected knowledge, exclusionary rights, and perhaps danger. Crown
argues this learning boundary was associated with the historical reso-
nances of red slip. In this case, an affordance—constituted through the
power of pigment and perhaps associated with the rights and powers of
the initiated—had scalar implications for learners’ legitimate periph-
eral participation, setting limits on what should be known and when.
Harris (this volume) describes how children in contemporary commu-
nities of the Brazilian Amazon learn floodplain life skills through legiti-
mate peripheral participation in peer groups as they play and engage in
household duties centered on the river. By withholding opportunities
to participate in skilled tasks, parents in this case create boundaries on
children’s participation until they have mastered key skills for engaging
land and waterscape through their peer communities.

Rather than extrapolate patterns and “levels” from the flow of life
worlds, or engage typological dilemmas over whether outcomes consti-
tute “communities” or “constellations” of practice, contributors to this
volume adopt strategies that help us to see how scalar dimensions are
*entangled* in action and *embedded* in life worlds. They bring into focus the
multiscalar temporal and spatial processes that relationally and therefore
simultaneously form those communities, constellations, and broader
networks in ongoing fashion (cf. DeLanda 2006, whose assemblage per-
spective retains a sense of scalar hierarchy; McFarlane 2009:562). By
framing *processes of constellating* as his analytical object, Schoenbrun re-
veals the ineluctably multiscalar dimensions of divination and python
work that, through operations of brokers, boundary objects, and cir-
culations of knowledgeability, provide a frame for *imagine*ing and *align-
ing* practice across a vast waterscape centered on Lake Victoria in East
Africa. Blair too helps us to appreciate the emergent and multiscalar
character of communities and constellations of practice in 17th-century Spanish mission communities in the American Southeast, while Sasse­
saman explores constellating knowledge among Indigenous peoples of
the American Southeast across broad spatial expanses and many genera­tions, facilitated by relations with celestial bodies.

In each of these examples, particular places play a key role in such sit­uated practices. In this regard, Gee suggests we shift attention from the concept of communities, with its attendant problems of defining “which people are in and which are out of the group,” to focus more on the processes and elements of their associated “semiotic social spaces” (Gee 2005:15, and see above). In a similar vein, Gosselain (this volume) focuses on a range of particular spaces that produce meanings. He demonstrates the simultaneity of scales in situated practice by showing how, through a variety of “practice settings” (the clay source, workshop, firing site, or market), “space of experience” is inflected by “spaces known.” The latter encompass what practitioners “know” indirectly—through the mediation of hearsay, the circulation of objects, or other means. Gosselain’s analysis reminds us that knowing is a process shaped by multiscalar inter­actions that in turn configure emergent communities and constella­tions of practice.

Notably, the settings through which communities of crafting practice and their “semiotic spaces” form are not confined to those of crafting alone. Communities of Senufo carvers in Côte d’Ivoire (Förster 2013:331–332) are distinguished by ritual practices centered on sacred groves and by funerary ritual that brings carvers from substantial distances (several hundred kilometers) to perform with their masks in funeral celebrations. As such, their relations vary across distances and in discontinuous fash­ion. Carvers’ “space of experience” (Gosselain 2008:168) differs substan­tively from that of their farmer neighbors, and their knowledge of what a mask should look like is “neither linked to the local settlement nor to its immediate environment” (Förster 2013:332). Scale here might better be approximated as rhizome-like (McFarlane 2009:566), with knowledge and learning shared but discontinuously across space and time and in relation to space “experienced” and “known” (Gosselain, this volume; also MacEachern 1994).

While analytically the communities of practice concept invites us to think about “groupness” from the bottom up—from so-called smaller to
larger scales—Blair (this volume), citing Latour (2005), reminds us that there is no such given as “group.” Harris in his work in the Brazilian Amazon reminds us that not everyone knows the same thing and that people mix the novel and the deeply rooted as they “reconstitute” communities of practice in unfamiliar settings. This resonates with Guyer and Belinga’s (1995) exploration of the “compositional principles” that underwrote African political strategies grounded in “wealth in people.” Where land was not a constraining factor and people could thus (more or less) freely “vote with their feet,” a leader’s power depended less on accumulation than on his ability to attract followers possessed of diverse knowledge (wealth in people). In such settings, people, practices, and knowledge were itinerant, as Harris (this volume) demonstrates through the juxtaposed life histories of skilled “peasant” practitioners from the turn of the 21st and the later 18th centuries. As brokers, these mobile individuals reassembled knowledge and innovated in a context deeply emplaced in a riverine setting indelibly marked by past communities of practice, at the same time as it drew on the “larger, chaotic global setting” and its attendant struggles over labor and control of material wealth, underscoring again the inadequacy of approaching context as container-like.

Embracing a relational perspective, Harris and other contributors develop analytical tools that capture the ongoing tension among scalar “levels” and how practice emerges in relation to them. This trains attention on how actors and actants produce proximities in relation to both precedent and ongoing circumstances, and to the choices and constraints that configure learning and knowledge. These approaches remind us that knowledge is always dynamic and relational, a perspective that holds potential to enrich understanding of “wealth in knowledge” (Guyer and Belinga 1995) by highlighting its dynamic relationality.

Juxtaposition is an analytical strategy that proves useful for several of our contributors as they explore continuities that may surprise—ones interrupted by seeming “gaps” of time or perceived discontinuities in group composition. Harris and Roddick (this volume) use a strategy of “time bending” to highlight recurrence of practice and reemergent knowledge in an Andean and Amazonian context, respectively. Both are locations sedimented with history: the fertile floodplain earths of the Brazilian Amazon on which so-called 20th-century peasants dwelled and the highland settings in Bolivia in which the ash mounds produced
by craft workers of the past constitute place and temporal affordance for 21st-century potters.

A number of contributors capture the multiscalar dimensions of knowledge in motion using a strategy that Lave (1993:20–21) characterizes as “following projects across interrelated interactional events.” This resonates with now well-established approaches in anthropological archaeology of studying object biographies (Kopytoff 1986) or itineraries (Hahn and Weiss 2013; Joyce and Gillespie 2015), genealogies of practice (Pauketat and Alt 2005), and what Joyce and Lopiparo (2005) characterize as “doing agency” in archaeology (Stahl 2010:155–157). Blair’s exploration through bead itineraries of the multiple, emergent communities of practice formed through processes of production and consumption as beads moved from Venetian workshops to consumption contexts in a Spanish mission pursues this through a single object category. Mills and Stahl also trace objects as they moved from contexts of production through consumption, generating insights into social relations at multiple scales in contexts of social change in the American Southwest and Ghana, respectively. Following polychrome bowls and discerning the consumption preferences that developed as highly skilled migrant potters introduced new decorated forms, Mills explores implications for the situated learning of related cuisines and the differential ties produced between communities and across social networks through their circulation and use. Stahl aims to further conjure the complexity of communities and constellations of practice by following multiple projects and practices through a focus on multiple object categories (ceramics, metals) and domains (crafting and ritual).

In sum, contributors to this volume explore the making of communities, constellations, and broader networks through diverse practices grounded in contingent life worlds, paying particular attention to what Lave (2011:174) terms “knowledge on the move.” A focus on process is key, whether through practices centered on face-to-face situated learning, as in Crown’s exploration of the “epistemological limits” on learning associated with production of more and less ritually laden pottery in the late Prehispanic Southwest; Schoenbrun’s probing of how conceptual metaphor aided production of (reconfigured) affinity among dispersed communities in the Lake Victoria Basin; or Sassaman’s interweaving of how mounds, caches, cemeteries, and settlements from a time of an-
cient climatic variation in the American Southeast provide resources for imagining socially responsible action in confronting contemporary climate change. In each instance, contributors shift their analytical lens from communities and constellations to community-making and constellating as a practice, the intentionality of which varied.

**Back to the Future of Learning**

What is the future of archaeologists engaging with learning? A number of scholars today consider situated learning in their research areas, and if this volume is any indication, there is a surprisingly broad array of research programs that might benefit from further exploration of this emerging literature, which Michael Dietler (2014) reminded us should attend to earlier anthropological work on learning (Coy 1989; Hayden and Cannon 1984; Herbich 1987). But the future of learning also figures into the kinds of work we might imagine. For instance, Sassaman considers the difficulties of contemporary Floridians in navigating future turbulence, an area where learning is a key area of concern. Lave in her own research stresses the importance of praxis: apprenticeship is not only a mode of intellectual engagement but also part and parcel of the research enterprise. As such, we are all brokers in our fieldwork. Neither Gosselain nor Roddick (this volume) sit “outside” in discussions with contemporary potters; rather, they are brokers, at times producing and circulating boundary objects (Plaza and Roddick 2014) across broader constellations of potting practice and deeper genealogies of practice that hold possibility for affecting future practice.

As the empirically rich case studies collected here demonstrate, the conceptual frame summarized above can be used to address the concern that studies of communities of practice elide power by assuming “coherence and consensus” (Contu and Willmott 2003) or are insufficiently attentive to how intimate scales of learning and social life (Lave 2011) relate to broader networks and their durations. Through a shared concern with learning and knowledge in motion in turbulent times, contributors to this volume grapple with questions of power and scale by training analytical attention on processes—of brokering, constellating, imagining, aligning—and on the things or objects that participate in those processes, foregrounding how power-laden and “larger-scale”
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processes enfold within the intimate scales that have so fruitfully been explored in earlier literatures. As such, we hope that readers will take inspiration to more fully grapple with the complexities and consequences of knowledge in motion in its multiscalar and power-inflected forms.

References


Dietler, Michael. 2014. Discussant Comments on “Learning and Doing: Communities of Practice in Scalar Perspective.” 79th Annual Meeting of the Society for American Archaeology, April 23–27, Austin, TX.


Andrew P. Roddick and Ann B. Stahl


Harris, Steven Robert, and Nicola Shelswell. 2005. Moving Beyond Communities of Practice in Adult Basic Education. In Beyond Communities of Practice.


Introduction


The World Is Like a Beanstalk

Historicizing Potting Practice and Social Relations in the Niger River Area

Olivier P. Gosselain

In the first monograph ever devoted to Nigerien arts and crafts, Yves Urvoy (1955:figs. 54–55) provided two black-and-white drawings of pottery vessels from southwest Niger. Respectively attributed to “Zarma” and “Fulbe” potters, they have nearly identical shapes and painted décors. “In the whole Djerma [Zarma] area,” Urvoy wrote, “only this particular type may be found.” He added, “The absence of other types among Djerma is puzzling” (1955:53; my translation). This laconic comment was based on field observations made between 1926 and 1932.¹ Barring the random appearance of photographs and postal cards in the following decades, it was our sole information on southwest Nigerien pottery traditions until the end of the 1970s (Anquetil 1977; Etienne-Nugue and Saley 1987).

I have always been puzzled by Urvoy’s puzzlement. Granted, the illustrated pots look familiar and their siblings are still commonly found in southwest Niger and northern Benin. But they hardly epitomize “Zarma”—let alone “Fulbe”—pottery. Similar vessels are produced or used by other groups in the area, and more importantly, the illustrated vessels occupy a marginal position in the regional pottery repertoire. In recent decades, the bulk of the vessels produced have been large and medium water jars, with long everted necks, globular or ovoid bodies, complex polychrome décors, and, often, vertical handles and indented lips. These jars count among the most prized pottery objects in markets. Called tallam—from the Zarma word tala (to decorate)—they herald the technical and aesthetic skills of local potters and stand prominently in courtyards and women’s rooms.

How could Urvoy miss them? Failures in field observations and sampling strategies cannot be excluded. However, his work proves generally reliable for other areas of the country. Also, the vessels illustrated in his
monograph are probably cooking pots. Aluminum vessels gradually replaced them during the second half of the 20th century, making their marginal position in current assemblages understandable. But water jars were undoubtedly also in use in the early 20th century. Why not mention them? For years, I could not shake off the impression that local pottery traditions had been subjected to important changes throughout the 20th century, including perhaps revitalization and functional reorientation. It seems likely that many African artisans adapted rapidly and profitably to economic and material changes accompanying colonization (Byfield 2002; Gosselain 2015; Schildkrout et al. 1989; Wright 2002). For some, colonization was just another phase in a long series of transformations from which new opportunities could/had to be seized (Stahl, this volume).

My interest in the history of local pottery traditions was recently reactivated. As part of the “Crossroads of Empires” European Research Council project (Haour et al. 2011), I made a systematic study of craft activities along the Beninese bank of the Niger River and identified the southern boundary of the polychrome pottery production zone, as well as some two- or three-generations-old vessels whose shape and décor strongly evoked vessels illustrated in Y. Urvoy (1955). The history of local artisans revealed multiple relations with southwest Nigerien potting communities (many of which I had previously visited)—which explained the sharing of technical and aesthetical practices—but also distinct processes and trajectories that shaped different social and material environments. The time had come to reconsider the data collected in Niger between 2002 and 2010, and to confront them with those collected in Benin since 2011.

This chapter is an attempt to reconstruct the history of what I refer to as the “Niger River Polychrome Tradition” (NRPT). I explore the various contexts within which potters develop social relations, are exposed to other ways of doing, and may be led to transform practice. Such contexts delineate a “geography of practice” (Wenger 1998:130) that includes places directly connected to pottery making (the “practice settings”) as well as places situated within a larger space (the “social space”) shaped by historical, social, and ecological processes. We will see how the circulation of people, things, and ideas within and between these places channeled, for more than a century, the propagation of practices associated with the NRPT. But first of all, some contextual background is needed.
Contextualizing the Niger River Polychrome Tradition

The NRPT is mainly produced in southwest Niger, on the river’s eastern bank, with marginal extensions on the western bank, from the Say to northern Benin. It spreads over three geo-historical zones (Haour et al. 2011; Olivier de Sardan 1984): Zarmaganda, Zarmatarey, and Dendi (Fig. 1.1).

Several languages are spoken within the area: Zarma, Songhay, and Dendi (Songhay language grouping, Nilo-Saharan family); Tamasheq (Berber language grouping, Afro-Asiatic family); Hausa (Chadic language grouping, Afro-Asiatic family); and Fulfulde (Atlantic language grouping, Niger-Congo family). Most of the potters concerned speak Zarma, Dendi, or Tamasheq. The other languages are only marginally represented among NRPT producers.

Geographically, the NRPT spreads over three large fertile valleys: the Niger River to the west, the dallol3 Bosso in the middle, and the dallol Fogha to the east. The three areas have attracted farmers and pastoralists for centuries (Bako-Arifari 2000; Beauvilain 1977; Fuglestad 1983; Olivier de Sardan 1984; Séré de Rivière 1965). More densely peopled than adjacent areas, they stand as major communication axes (partially overlapping with national routes) along which people, animals, and goods travel together with technical knowledge and aesthetic representations.

The Potters

Along the northern portion of the Niger River and in part of Zarmatarey, pottery making is in the hands of “Bella” women. This name is an exo-appellation used by Zarma and Songhay to reference either former Tuareg slaves (iklan) or Tuaregs in general. It subsumes a variety of identities, historical trajectories, and life ways. For instance, most Tamasheq-speaking Bella are pastoralists, who range across Sahelian regions of Mali, Burkina Faso, and Niger and who never engage in pottery making. Potters are found among sedentary Bella, descendants of slaves settled along the river and the central dallol Bosso between the 18th and 19th centuries, when Tuaregs ruled the area (Bernus 1981; Olivier de Sardan 1984). This slave origin tends to be hidden nowadays, the emphasis placed instead on “Tuareg roots,” patronymic affiliations, and geographical origins. In
the Niamey area and central dallol Bosso, Bella are hardly distinguishable from their Zarma and Songhay neighbors, whose language they increasingly adopt. Besides Tuareg patronyms, all that remains from their former condition is the dismissive way in which non-Bella sometimes refer to them (especially along the river’s northwestern bank).

In Zarmatarey and Dendi, most of the female potters interviewed belong to the debey boro subgroup of “household captives.” Descending from slaves acquired through warfare or trade, these captives remained attached to the family that owned their ancestors who could neither be sold nor freed (Olivier de Sardan 1984:43–50). While they could carry on any activity (even warfare), and generally did so alongside those who owned them, they were exclusively in charge of craft activities. Their specialized technical knowledge contributed (and still contributes) to their social identity in both positive and negative ways. Technical skills demarcated debey boro from “inferior slaves,” commonly viewed as “slaves
without skills” who were reduced to the meanest tasks (Olivier de Sardan 1984:55–56). But possessing such skills also had its drawbacks, since craft practice heralded a captive status. This situation still resonates. In the Dendi area, for instance, I met a potter who had to fight with her husband to continue making pots after relocating to his home village. She saw economic opportunity in the fact that nobody practiced the craft locally; however, her husband feared that doing so would reveal her captive origin. The same applies to weavers, to the extent that their professional appellation—ćakey—is interchangeable with the term debey boro and univocally associated with a slave status (Smolderen 2013).

The social world of debey boro has internal divisions. One concerns the hierarchy between artisans who inherited their trade from parents and those who learned it from non-relatives. The former are viewed as more skillful, and they openly scorn the latter (Olivier de Sardan 1984:55; see Corniquet 2011:98–99). Second, blacksmiths tend to think of themselves as socially “higher” than other craft people. They generally enjoy a good economic position; they were formerly attached to chiefdoms rather than individual families; they transmit their knowledge within kin-based networks; and many claim to have been initially trained by a “blacksmith aristocracy” that possessed iron smelting skills as well as related esoteric knowledge and magical charms (Olivier de Sardan 1984:57).

In this context, potters’ identities and practices seem rather fluid. For instance, pottery making is not constitutive of any specific social category. Debey boro potters are, above all, members of the blacksmith, weaver, or woodcarver subgroup as wives and daughters of male artisans who possess unrelated technical knowledge. Their social world also seems more open to improvisation and reformulation than those of weavers or blacksmiths. In the southern part of the study area, for example, many potters herald themselves as “Bella” without being related to this group. This distances them from the pejorative “debey boro” in contexts where Bella, as relative newcomers in the social landscape (below), have a less salient captive status and are widely perceived as “masters of pottery” (Gosselain 2008a:157–158). This is particularly the case in village communities with large proportions of non-Zarma inhabitants, where Zarma-speaking potters are probably freer to reformulate social relationships and boundaries. Freeborn women have also increasingly appropriated pottery making within the study area. Usually sharing the same
clay sources and market places as “captive” potters, they stress that they only recently adopted the trade because, as put by an informant, “pottery is money. It’s not a slave issue anymore.” As noted above, this view is far from unanimously shared, as even the potters concerned maintain the distinction between “freeborn” and “captives” in other contexts. Yet it reveals a possible breach in the social circulation of knowledge and collective attribution of technical roles in Zarmatarey and Dendi. From the nobles’ point of view, the situation seems natural, as knowledge was acquired from “their own” captives—that is, from (albeit fictively) kin-affiliated persons. From the captives’ point of view, things can be more problematic. Some indeed speak of “stolen knowledge,” “competition,” or the “lower technical mastery” of their freeborn counterparts.

Potters’ social position differs in the Zarmaganda area. Here the craft is theoretically open to everyone—as is blacksmithing or weaving—and none of the artisans interviewed bore a specific social status. As in other areas of the African continent, family ties, friendship, and neighborly relations are the main structuring forces behind knowledge circulation. This peculiarity finds parallels in technical practices (see below) and confirms that the area witnessed a distinct history from other parts of the Zarma-speaking area (e.g., Gado 1980; Olivier de Sardan 1984).

Finally, a word on the existence of several Hausa and Fulbe women among NRPT potters. The former live in the northeast of the NRPT-producing zone, and although linguistically affiliated to communities from south-central Niger and northern Nigeria, they are socially and economically connected to Zarma-speaking populations of eastern Zarma-ganda. Fulbe potters are encountered around Say and Torodi. Motivated primarily by economic concerns, their role in the trade remains marginal.

**Potting Practices**

Considered from a morphological and ornamental point of view, the NRPT appears relatively homogeneous and spatially bounded (Fig. 1.2). However, several variations are witnessed among its producers, especially at the level of *chaînes opératoires*. These variations, ranging from minor (painting tools and recipes) to important (fashioning techniques), are summarized in Table 1.1. Comparison and mapping reveals that the NRPT comprises a “core” technical tradition that combines use of sorted grog\(^5\) (often in association with millet husk) as tempering materials; converging
pounding (Gosselain 2010:673) for fashioning the lower half of the vessels, and coiling and beating for the upper half; an iron blade (together with wooden sticks and millet ears and stalks) for applying mineral pigments; and firing of vessels in circular depressions with millet stalks and husk. This “core” tradition is distributed along the River Niger as well as across Zarmatarey and Dendi—that is, essentially within Bella and debey boro communities. Some of its constitutive elements are also recorded outside the NRPT distribution zone, especially on the western bank of the river, where the technical repertoire of Songhay blacksmiths/potters includes sorted grog and converging pounding. They produce similarly shaped pots, thus demarcating from the NRPT at the level of ornamental techniques and repertoires only (rolled impressions, grooving, and occasional application of monochrome painting). So too is there a more marginal tradition within the NRPT distribution zone, confined to the Zarmaganda area (where potters do not belong to any socio-professional subgroup). Here, raw clays are usually tempered
Table 1.1. Nature and distribution of technical variants associated with NRPT chaînes opératoires. In the case of clay processing and painting recipes, variants mainly stem from a combination of materials.

<table>
<thead>
<tr>
<th>Techniques/tools/materials</th>
<th>Number of variants</th>
<th>Spatial patterning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tempering materials</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Other clay(s)</td>
<td>16</td>
<td>Micro-regional (clusters of villages)/local (individual villages or districts)</td>
</tr>
<tr>
<td>- Grog (possible sorting according to vessel parts)</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>- Millet husk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Rice husk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Donkey dung</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fashioning techniques</td>
<td>2</td>
<td>Macro-regional</td>
</tr>
<tr>
<td>- Converging pounding + coiling &amp; beating</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>- Convex molding + coiling &amp; beating</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Painting materials</td>
<td>4</td>
<td>Micro-regional (clusters of villages)</td>
</tr>
<tr>
<td>- Ochers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Kaolin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Natron</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Gum arabic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Painting tools</td>
<td>2</td>
<td>Macro-regional</td>
</tr>
<tr>
<td>- Millet ear</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Millet stalk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Wooden stick</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Iron blade</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firing structures and fuels</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>Circular depression; millet stalks + millet husk</td>
<td>?</td>
<td>?</td>
</tr>
</tbody>
</table>
with additional clay(s) and/or unsorted grog; the lower part of the ves-
sel is fashioned by convex molding and the upper part by coiling and
beating; iron blades are never used for painting; and vessels are fired in
circular depressions with millet stalks and husk.

Among NRPT producers, social boundaries—and especially social
hierarchies—thus materialize in two distinct technical traditions. This
fact points toward the centrality of social affiliation in the “genealogies of
learned practices” (Roddick, this volume). Yet such technical materializa-
tion is only tangible in manufacturing contexts, and mainly in the potters’
workshops. Through the sharing of similar vessel shapes and ornamental
motifs, NRPT potters “mask” their various affiliations on finished
products and contribute—deliberately or not—to a homogeneous mate-
rial landscape. Moreover, micro-regional or local variations are liable to
appear in both traditions, depending on the manufacturing step or the
element considered (Table 1.1). The addition of gum arabic to mineral
pigments, for example, is only observed in four clusters of neighboring
villages situated along the northern portion of the river and the central
and southern dallol Bosso. Similarly, specific combinations of temper-
ing materials vary between pottery-producing villages at a micro-regional
level, with a spatial distribution that does not necessarily match that of
gum arabic. Sometimes, different clay-processing recipes are even used in
the various districts of a village (Gosselain 2008b:71–72).

Micro-regional and local variations are also recorded in pottery
forms and décors. Longer necks prevail in pottery-producing commu-
nities situated along the northern portion of the Niger River. Here, wa-
ter jars also tend to have two flat vertical handles that join the base of
the neck to the lip. Around Mehana, vertical handles cohabit with hori-
zontal ones, the latter placed on the vessel’s shoulder in frequent as-
sociation with a notched clay cordon. A “basic composition” of décor
(Fig. 1.3a–c) occurs across the zone, one enriched by (or substituted for)
two variants. The first occurs in potting communities along the river
north of Niamey. It is characterized by a combination of horizontal and
vertical ornamental zones, the main one containing various geometri-
cal—and occasionally figurative—motifs (Fig. 1.3d). The second occurs
within a handful of neighboring villages and is characterized by a higher
number of ornamental zones, a greater diversity in motifs and figures,
and an extension of the decorative zone over most, or all, of the vessel’s body (Fig. 1.3e–f).

In short, while NRPT vessels are stylistically distinct from those produced in neighboring regions, scratching their surface reveals a less homogeneous world than initially presented (also Stahl, this volume). We are faced with a classic example of a “heterogeneous aggregate,” whose components seem to develop independently and at contrasting scales. The problem is to make sense of this multiscalar phenomenon and, more importantly, to transcend the binary opposition between “spatial” and “social” propinquity when seeking to explain technical and aesthetic dynamics.
A Relational Perspective on Spatial Distributions

Given my interest in bottom-up processes and life histories in the analysis of Nigerien pottery dynamics (Gosselain 2008a, 2008b, 2015), I have tended to eschew the question of scale discussed elsewhere in this volume (also Knappett 2011; Stark 1996). Instead, I preferred, and still prefer, to focus on categories of spaces in exploring the geographical embeddedness—or “nesting” (Stahl, this volume)—of potting practice. Tentatively regrouped under the “social space” umbrella, which may be likened to Kaplan’s (1973) concept of “cognitive maps,” these categories comprise the space of experience and the space known. The first corresponds to places frequented (and thus “experienced”) through daily activities, social interactions, economic exchanges, or travels and around which a person’s sense of identity and belonging develops together with practical knowledge and representations. The second category of space is representational. It concerns all the places that a person knows vicariously, for example from kin, friends, foreigners, or even the media. Secondhand knowledge generally reinforces a person’s sense of belonging but also enriches his/her cognitive repertoire.

Unsurprisingly, the scale of “spaces of experience” and “spaces known” may vary tremendously from one person to the next. They are also likely to expand, contract, or freeze throughout a person’s lifetime, or across generations (Sassaman, Stahl, this volume). But the challenges of dealing with such heterogeneity and instability can be overcome by approaching spatial embeddedness from a relational rather than a scalar perspective (Lave 1993, 2011; Roddick and Stahl, this volume). A space of experience may indeed be conceived as a constellation of places where concrete relations between people, things, materials, and environment are constituted. This is comparable to Wenger’s (1998:130) notion of a “geography of practice,” in which “places”—or “localities”—correspond to incipient communities of practice that emerge not only from physical proximity or frequency of interaction but also, more importantly, from learning.

In her study of social interactions and knowledge exchange within a dozen Nigerien potting villages, Corniquet (2011, 2014) has identified several such localities. Closely connected to pottery chaînes opératoires, they correspond to what she calls “practice settings”: physical spaces that are necessarily and regularly frequented by artisans in the course of their
activity where interactions may occur with varying networks of people.

In the social world of activity of Nigerien potters, three practice settings are common: weekly markets (Fig. 1.4), clay extraction sites, and firing sites. The first two usually bring together potters from villages located within a 15 to 30 kilometer radius; the third corresponds to intra-village groupings of several potters around firing structures. Corniquet observed that all these practice settings shape potting practice, though their scope and meaning depend on the type of relations taking place. Casual or more regular encounters between potters from different villages may lead to a micro-regional homogenization of tools, clay-processing techniques, and pottery styles, the latter especially sensitive to interactions with customers and retailers in market places. They consequently generate supra-communal “constellations” of practices (Wenger 1998; Roddick and Stahl, this volume). Firing groupings imply more intimate relations between potters and sometimes develop along dividing lines.
within village communities (i.e., kin or friendship ties). They usually involve a strong bonding of participants and the emergence of micro-technical variants not necessarily restricted to the firing process itself.

Corniquet (2014:273) equates the latter (along with domestic workshops not discussed here) to “communities of practice,” thus emphasizing the importance of mutual engagement and face-to-faceness. This is congruent with Lave’s (2011) analysis of apprenticeship among Vai and Gola tailors in Monrovia, in which individual workshops are identified as the main loci of emerging social and material relations. Detailed ethnographies, as those carried out by Lave or Corniquet, are invaluable in making us understand how practice, learning, and meaning emerge in such micro-scale contexts and give rise to shared repertoires. Yet we lack a similar understanding of the mechanisms through which repertoires are liable to develop at larger time and spatial scales (Roddick and Stahl, this volume). This is where the three modes of belonging proposed by Wenger (1998:173–181)—engagement, imagination, and alignment—prove useful when considered in conjunction to social spaces (also Harris, Sassaman, Schoenbrun, Stahl, this volume). In the case of pottery activity, we have seen that artisans invariably frequent different practice settings: clay sources, workshops, firing places, markets. As far as engagement is concerned, their “pottery taskscape” (sensu Ingold 2000:195; also Michelaki et al. 2014) thus corresponds to a constellation of “localities.” But given the variety of ecological and socio-historical circumstances underlying the spatial distribution and interrelations of such localities (see below), it seems useless to associate practice with any predetermined scalar unit, be it “micro” (e.g., Corniquet 2014) or “meso” (Knappett 2011; see Roddick and Stahl, this volume). Importantly, the situations from which learning and belonging emerge in practice settings are not disconnected from other realms of the participants’ experience. As Dreier (1996:114) notes, situations are always embedded in “the overall societal structure of possibilities and actions. . . . So even [their] immediate ‘internal’ connections . . . are socially mediated in a concrete and particular way.” Part of this mediation derives from the work of “imagination” (Wenger 1998:175–178), through which participants rely on their direct and vicarious knowledge of the world to broaden their perception of practice (e.g., by envisioning historical continuities, connections or disconnections with other communities,
or possibilities for change). Another part of the mediation concerns the work of “alignment” (Wenger 1998:178–181), through which participants coordinate their actions with members of other communities, without necessarily engaging with or even knowing them. This form of belonging not only expands practice beyond the confines of practice settings or taskscapes but also makes it “fit within broader structures” (Wenger 1998:174). This latter notion is crucial, for if a potter’s experience and life trajectory undeniably differ from other members of her/his society inasmuch as it mobilizes specialized knowledge, places, and materials, they never reduce to such dimensions: a potter also lives in a historically constituted world inhabited by others, with whom s/he shares experiences, representations, and a larger array of social mediations.

I turn now to explore the “world” inhabited by NRPT producers in order to see how engagement, imagination, and alignment develop in conjunction with social spaces. Confronting the current distribution of NRPT practices, potters’ life histories, and accounts of broader historical processes, my aim is to provide a glimpse of the “rhizomic networks” (Stahl 2013:55) that contributed to the creation, diffusion, and adaptation of a unique pottery tradition along the Niger River.

Spatial Relations Within the NRPT Producing Area

Beside observing technical processes and collecting information on vessels, my field inquiries aimed at reconstructing the social space of individual potters by identifying the many “localities” to which they were connected. Most concerned their taskcape and larger space of experience: clay sources, market places, place of initial learning, residency locations of kin and friends, places frequented during temporary sojourns (e.g., seasonal migrations), and so on. Other kinds of connections pertained to their “space known”: unvisited places of origins of parents and ancestors and production centers/areas evoked by relatives or visiting strangers, among other possibilities. Bearing in mind that my research methods and familiarity with local contexts improved steadily between 2002 and 2014, thereby creating micro-regional imbalances in the quality of the data collected, and that no interview was systematic enough to ensure that all the places frequented and known by a person were mentioned, available information reveals the geographical
embeddedness of potters’ social spaces, as well as macro-regional movements of people.

Three conclusions arise from the comparison of available data: 1) connections between localities inhabited, frequented, or known by NRPT potters are essentially confined to the NRPT production area—with the exception of the river’s northwest bank where a small consumption “pocket” extends outside the production area; 2) connections are especially intense along the geographical axes of the Niger River and the dallol Bosso; and 3) while some discrete micro-regional constellations of interconnected localities may be identified, none are completely isolated from one another. Whether through intense or loose ties, the whole NRPT area thus appears to be interconnected. This conclusion is important, for it provides a first clue in regard to the stylistic homogeneity observed within this large, socially heterogeneous area. Yet it is not an explanation in itself. The spatial network thus revealed not only compresses temporalities and types of relations between places and people but also does not inform on why relations vary in intensity, develop in specific directions, or do not cross certain boundaries. To do so, we must identify the structuring—and often mutually reinforcing—factors underlying the spatial movement of people, the constitution of individual social spaces, and the circulation of knowledge.

Macro-regional Relations

Most macro-regional relations in the study area are ancient and associated with historical events or processes. Without going into details, southwest Niger and north Benin were insecure areas throughout most of the 19th century (Barth 1859; Fuglestad 1983; Gado 1980; Olivier de Sardan 1984). Slave raids, looting, and wars that opposed chiefdoms or populations led to a state of quasi-permanent warfare, inducing important movements of people. In the Saga district of Niamey, for example, ancestors of the Bella potters are said to have come from Sona (about 100 kilometers upriver) when the Zarma warrior Issa Korombe sacked the area in the second half of the 19th century. Certain regions, such as the river’s western bank in north Benin, served as refuges for fleeing people. Oral testimonies indicate that potters’ families from the Doulwal and Baleyara areas (in Zarmatarey) took refuge in southern Dendi during the 1880s–1890s, where they settled either permanently
or temporarily. Descendants of refugees from the Baleyara area are also found on the river’s eastern bank, notably in the debey boro village of Kaw Kaw (dallol Fogha). Droughts and famines also contributed to large-scale movements of people (Alpha Gado 1993). Potters notably evoked the gaasu borgu (1870) and ise-neere (1900–1903) food crises, the first pushing Bella from the Tillaberi area to resettle around Doulwal and Torodi, and the second leading blacksmith families from the north of Niamey to resettle in the dallol Bosso.

Whether related to warfare or famines, refuge areas were not chosen randomly. Beside obvious ecological reasons—the presence of shallow aquifers in the dallol Bosso and dallol Fogha, or dense forests in southern Dendi—decisions were also socially motivated. For instance, Doulwal, Tuyo, and Kaw Kaw are villages inhabited (and probably founded) by captives. Debey boro and Bella migrants arriving from the north found not only people already engaged locally in similar activities but also, more importantly, people of similar condition with whom they could intermarry. The concentration of captive communities in the dallol Bosso and dallol Fogha—and the consequent “attractiveness” of these areas for debey boro living in other regions—is also related to salt exploitation. By the middle of the 19th century (Barth 1859:639–640)—and probably earlier—thousands of captives were extracting natron and rock salt in the southern portion of both dallols under control of Zarma, Fulbe, and Tyenga masters (Lovejoy 1986:129–134). Tuaregs from the Baleyara area also controlled extraction sites in the dallol Bosso where they settled their own slave families (Lovejoy 1986:34). A large network of captive communities had thus developed in connection with salt exploitation in the southern study area, channeling the Bella and debey boro migrations of the late 19th–early 20th centuries (cf. Mills, this volume).

**Permanence of Spatial Relations**

The gradual stretching of Bella’s and debey boro’s social spaces ensured that, by the last decades of the 19th century, the stage was set for the homogenization and propagation of their currently associated potting practices. However, the ornamental style so characteristic of NRPT does not seem to have developed earlier than the 1930s. While the historical processes evoked above may account for the propagation of technical practices such as converging pounding, tempering clay with sorted
grog, or painting with an iron blade, this is not the case for aesthetic practices—at least in their current incarnation. And yet they are distributed over a similar territory, as if they followed the same propagation path. How to account for such a permanence of spatial relations, despite changing historical circumstances?

Part of the answer lies in the geographical characteristics of the area, which include attractive zones (shallow aquifers, fertile lands, salt deposits) and structuring axes along which people, animals, and goods circulated for centuries. Such characteristics are constant landscape features that have long channeled the farmer and herder practice—most notably their migrations and settlement strategies—in similar fashion to the Amazonian “culture of water” evoked by Harris (this volume). This reminds us that landscape is not just “background” but a key element in the history of practice (Ingold 2000; Michelaki et al. 2014; Sassaman, this volume).

Social status, as related to life ways, values, and craft practices, must also be considered. A good example is the way in which sedentary Bella have maintained social ties over large areas through marriage exchanges, probably because their nomadic roots (and slave status) led them to foster blood over land ties. The matrimonial networks of Bella potters consequently spread over a large area and continue to bind the Tillaberi area to the diverse migratory destinations of their ancestors. Among debey boro, craft activities such as iron smelting, forging, or weaving were frequently associated with dry season itinerancy. Due to the changing availability of raw materials and the willingness to find better economic opportunities when local markets were saturated, whole families—including potters—often resettled in villages that had previously been frequented on a seasonal basis. This has contributed to maintenance of ancient macro-regional relations, especially since the seasonal migrations of craft migrants developed across a space known through oral histories shared by kin or members of their socio-professional subgroup.

Although the Zarmaganda area seems less intensively connected to other parts of the NRPT-producing zone, it nevertheless provides another example of the permanence of relationships with distant areas. In Kanya, a large and reputed pottery center of Zarmaganda, pottery making was introduced by debey boro from the Baleyara area who migrated northward in the 1920s during a decade of abundant harvests known
locally as harey-bane or wa barka (Alpha Gado 1993:54). Some of their descendants claimed to have relatives in central dallol Bosso and to have sojourned there for family reasons or during the famine of 1984. For the last three decades, the river region has also been gradually incorporated in the “space known” of Zarmaganda potters, due to the development of market gardening that attracted a growing number of seasonal migrants from the area (Bastin 2008; Gosselain 2008a:168).

**Micro-regional Relations**

Shifting temporal and spatial scale, I now focus on the effects of weekly peripheral markets on the development and maintenance of micro-regional relations. Markets are prominent features of a potter’s space of experience or taskscape and, importantly, are places where boundary objects (Wenger 1998:129; Crown, Roddick, Stahl, this volume) circulate between unrelated production sites. Two types of markets exist in the Niger River region: “interregional” and “local” (Sauvy 1948:1–2). The first correspond to places where pastoralists and agriculturalists living in a radius of one to several days’ walk exchange goods from distant areas, notably craft products. The second are places where people living in a radius of half a day’s walk exchange locally produced goods. During the first half of the 20th century (and probably earlier), the main interregional exchange poles along the Niger River were Ayorou, Mehana, Gotheye, and Say (Bastin 2008; Sauvy 1948). While still important, they were gradually overcome by Niamey in the second half of the 20th century as the city grew and acquired an urban status. Similarly, the Fabidji market in the southern dallol Bosso lost its major status—one that prevailed at the turn of the 19th and 20th centuries—to the benefit of Dosso, a town situated at the intersection of major tarmacked roads. In recent decades, local markets also boomed in densely peopled areas and along major roads, while others situated too far from modern communication routes died.

Available information regarding potters’ visits to interregional and urban markets reveals several well-bounded zones of interconnections (Fig. 1.5). One spreads over both banks of the river, around and between the Gotheye and Niamey markets, which are exclusively supplied by NRPT producers (who also supply a dozen local markets situated in between). This zone was initially more fragmented: oral testimonies indicate that Saga was a major pottery market before the economic
development of Niamey, and only during the last decades of the 20th century did regular interactions take place between potters of the Gotheye and Niamey areas. The current zone of interconnections thus results from the fusion of two spaces that formerly developed at a smaller scale. Interestingly, the spatial distribution of some of the technical variants evoked above fully or partially coincides with this new zone of interconnections. For example, potters add gum arabic to painting materials throughout the zone, contrary to neighboring communities situated up- and downriver. Such sharing most probably results from a recent process of alignment, in which the physical characteristics of pottery vessels (here, the shininess and good adherence of mineral pigments) “created fixed points around which to coordinate activities” (Wenger 1998:187). This occurred through weekly encounters involving a level of participation that must have been low but sufficient enough to allow learning. The shared practice of tempering clay with unsorted grog in a series of

Figure 1.5. Location of interregional markets within the study area and corresponding zones of interconnections with pottery-producing villages (shaded areas). Illustration by Olivier Gosselain and Anja Stoll.
potting villages related to the Niamey market illustrates the nature of such participation. At the time of my inquiries, one of these villages, Boubon, had become the main purveyor (with Saga) of the Niamey pottery market, as well as a substantial reference for potters of neighboring communities. When Boubon potters stopped sorting grog according to the vessel part to be manufactured, the practice was rapidly adopted in neighboring communities. As explained by a potter from Tagbati: “We don’t use different preparations anymore; it was too much work. People in Boubon do the same. They were the ones who told us to do like that. We met on the Niamey market and talked: ‘We do like this, we do like that.’ That’s how it happened.” This process of alignment probably involved a greater degree of participation than reification (sensu Wenger 1998:58–61), but it was preceded by work of imagination; new technical possibilities came in association with positive technical identities (the “skilled” potters of Boubon?). They became “good to think” and thus “good to adopt.” Customers may have reinforced this process by favoring Boubon products and attributing to them better qualities, as was the case around the southeastern market of Dosso, where customers’ views on the quality of raw materials and clay-processing recipes forced potters in a 100 square kilometer area to start exploiting a particular extraction site and change processing recipes when making vessels aimed at an external clientele (Gosselain and Livingstone Smith 2005:33–34). An interesting feature of the work of alignment is its possible permanence after the circumstances from which it was born ceased to exist. This seems to be the case in southern dallol Bosso, where the addition of gum arabic to painting materials is observed in villages that were formerly connected to the ancient interregional market of Fabidji but whose potters now entertain loose relationships.

In the northwestern study area, around the Mehana market, regular interrelations between Songhay and Bella potters did not engender an alignment of practices but, rather, a deliberate un-alignment. Polychrome vessels made by Bella of the eastern bank are the sole pottery products sold in the Mehana market. Villagers from the western bank, and notably Songhay potters of the blacksmith subgroup, frequently buy them. Yet, despite valuing these vessels (often offered as marriage gifts), they never attempt to copy their decoration, in contrast to observations in other regions (Gosselain 2008a:172–173). This may stem from
the low esteem in which members of the blacksmith group hold other craft people, especially those bearing a “slave” status (Olivier de Sardan 1984:57). Copying Bella vessels would blur a meaningful boundary and threaten to situate them publicly at a lower level of the social hierarchy. Imagination is once again at play here. Fueled by a stereotypical association between social status and craft products, it reinforces preexisting constellations of practices and partially explains the western boundary of the NRPT producing area.

**Intra-village Relations**

Another meaningful spatial context among NRPT potters is the village district where they reside and work. This spatial context is not in itself a “practice setting”—it comprises two of them, the workshop and the firing place—but it corresponds to a place where frequent interactions occur between artisans and, more importantly, to a spatial manifestation of social boundaries. With the exception of the Zarmaganda, where potters’ compounds are indistinctly situated alongside other compounds, most Bella and debey boro potters live in specific districts, spatially demarcated from the living places of “freeborn” people. Along the Niger River, and specifically in the Gothey area, a distance of several kilometers may separate Bella districts from “freeborn” districts that therefore appear as independent villages. In the dallol Bosso and dallol Fogha, districts are usually situated at visual distance from each other (never farther apart than .5 kilometer), and the separation demarcates not only freeborn people from captives but also various categories of captives (e.g., blacksmiths, weavers) and migrant communities (e.g., Hausa, Bella).

Due to population movements, intermarriages, and recent processes of technical borrowing, pottery making is currently practiced within all (or most) districts of pottery-producing villages, irrespective of social boundaries. The social world of many Bella and debey boro potters has thus been heavily transformed throughout the 20th century, with the sharing of a pottery tradition and practice settings (extraction sites and market places) increasingly counterbalanced by situated practices that express contrasting forms of belonging. While relations developing in shared practice settings tend to generate technical and aesthetic homogeneity, I believe that the mutual engagement of potters bearing different
social status had the opposite effect in the study area. This may explain why social hierarchies systematically coincide with the use of distinct clay-processing recipes in pottery-producing villages with marked social and spatial divisions (Gosselain 2008b:71–72). Here, interviews reveal that processes of belonging often involve coordinating, at the district level, practices drawn from “dormant repertoires” constituted through interpersonal exchanges within potters’ spaces of experience and usually exploited for coping with changing ecological circumstances (e.g., a shortage of millet husk leading to the use of rice husk or grog alone). This strategic reformulation of known possibilities clearly combines imagination and alignment. Yet it also differs from the preceding examples inasmuch as the work of alignment is not confined to pottery activity but aims at fitting within a broader structure—here, social status. Ironically, such a “larger-than-pottery” process of belonging materializes in the micro-scalar distribution of technical variants, since the meaning to which it is associated emerges from local power relations (see Corniquet [2014:216–218] for a similar observation in relation to firing groupings in south-central Niger). Only when local variants (or innovations) are integrated into other forms of belonging—as those evoked in previous sections—do they have the ability to propagate at a larger scale.

Aesthetic Hegemonies

Up to this point I have examined the dynamics of NRPT in relation to social spaces and forms of belonging associated with various practice settings, emphasizing techniques. I turn now to explore other “extensive, societal connections” (Dreier 1996:114) in relationship to aesthetic practices. A first question pertains to their origin and structuration. What is the aesthetic landscape within which NRPT potters operate? What were the sources of their inspiration? Let us start with an interesting observation of Olivier de Sardan (1973:426, 1984:37–38) pertaining to body aesthetics: in southwest Niger, nobles and freeborn often describe captives as having crooked fingers, spread toes, thick fingernails, hard and gnarled muscles, a thick neck, tough flesh, rough skin, and a stiff, disgraceful gait. By contrast, masters are said to have slender and parallel fingers, contiguous toes, thin fingernails, flexible and well-formed muscles, a slender neck, soft flesh, smooth skin, and a supple gait. Nobles
and freeborn standards of beauty clearly derive from Tuareg and Fulbe body stereotypes, two hegemonic populations of the 19th century (Olivier de Sardan 1984:38). A notable parallel exists between pottery and body standards of beauty within the NRPT distribution zone: a “pretty” pot must be perfectly symmetrical and rounded, with a slightly elongated body, slender neck, thin lip, smooth surface, and carefully executed décor “that catches the eye as does an elaborated hairdressing or a nice cloth.” NRPT potters thus operate within an aesthetic landscape where preferences are not only connected to larger realms of experience but also expressed through a basic set of rules. When shown pictures of vessels made in neighboring regions, NRPT potters and customers usually criticize some of their attributes. Looking at a short-necked water jar from south-central Niger, a dallol Bosso potter told me that it was “well made,” but she immediately added, “Why did they forget to put the neck?” Similar reactions emerged during interviews in villages along the Niger River and in dallol Fogha, where foreign pots were unanimously described as “too stocky,” “disharmonious,” and “lacking a proper neck.”

Basic ornamental rules were also apparent: necks should be vertically zoned and bodies horizontally zoned, necks are adorned with bicolored line beams, beams or large bands divide body zones, and painted delimitation of the lip extends on interior and exterior surfaces. Moreover, several motifs are so recurrent as to seem mandatory: triangles, trapezes, lozenges, and beams of lines forming angles or crosses. While their ordering allows for numerous variants that potters often liken to individual, communal, or regional signatures, the sharing of similar color ranges and organizational patterns ensures that NRPT vessels retain a family likeness throughout the Zarmatarey, Dendi, and Zarmaganda areas and is perceived as such by both potters and customers. This large-scale distribution clearly stems from an initial process of alignment between Bella and debey boro communities, but the chronology and specifics of this process remain unclear. Judging from field observations and interviews, the sole certainty is that customers must have played a crucial role here, by favoring ornamental innovations that fulfilled their aesthetic expectations. I return to this point shortly.

Other decorated elements of their material world are a source of inspiration for NRPT potters, especially leather goods, wooden utensils, clothes, or blankets manufactured by, or for, Tuaregs and Fulbe. It is at
this level that the aesthetic imprint of these formerly hegemonic populations is most strongly felt, to the extent that some NRPT jars are notably close to Berber vessels produced on the other side of the Sahara or that some Bella or debey boro vessels seem to have been painted by Fulbe artisans. As shared artifacts whose ornamental characteristics were positively connotated, Tuareg and Fulbe objects thus played a role of “boundary objects” (Wenger 1998:105–108) whose large-scale circulation enabled the coordination of aesthetic practices between unrelated communities. Other types of boundary objects have been recently mobilized in ornamental practices: schoolbook pictures; alphabet letters tattooed on the foreheads of young women (an emerging body fashion in the 2000s, especially in urban contexts); or women’s wax prints. Bella informants from the Mehana area explained, for example, that a new wax print, inspired by the design of grass mats made in the Say area, was launched by the Nitex society (Niamey) in the late 1960s–early 1970s. It became a craze in the Niger River area, and some potters frequenting Mehana markets reproduced its key elements (checkered pattern, Teutonic crosses) on water jars. Warmly received by customers, the style spread rapidly through the network of potters connected to the Mehana market and still prevails in the area. Such aesthetic alignment emerging from the frequenting of market places may account for other local decorative variants, such as the combination of horizontal and vertical registers on the vessel body (Fig. 1.3d) or the multiplication of ornamental zones (Fig. 1.3e–f) in potting communities situated along the river north of Niamey. It also reveals a link between textile and pottery designs that is probably both common and ancient. For example, the bicolored line beams painted on the neck of water jars is remarkably close to a recurring motif on the highly prized marriage blankets formerly woven by debey boro and Fulbe slaves. Geometrical figures on these blankets parallel the most widespread—and apparently ancient—motifs on NRPT vessels. We could be faced here with an original source of inspiration for potters of the Niger River area.

Regarding recent examples of ornamental innovation (Fig. 1.3d–f), a question remains: why are such processes unequally distributed within the study area? The spatial distribution of stylistic variants shows that ornamental practices are more dynamic along the Niger River—especially north of Niamey—than in other regions. Part of the answer probably
lies in the area’s economic and social context. But another process is at work, one that brings us back to the potters’ aesthetic landscape: besides clothes, hairdressing, and other body ornaments, a major aesthetic manifestation for rural Nigerien and Beninese women is their personal room decorated with elements of their marriage trousseaux. The phenomenon is widespread in the Sahel (Cooper 1995; Cunningham 2009; Gosselain et al. 2008) and has recently followed a similar path: decorated calabashes formerly piled up or suspended in the room have been replaced by enamelledware (cups, basins, casseroles) carefully set on shelves and cabinets. This led to an overall shift from a monochrome and textured aesthetic environment to a polychrome, smooth, shiny one. Yet in several regions—most notably in insular Wogo™ villages north of Niamey—room decoration also included wall painting, richly decorated woven blankets, and painted water jars (Etienne-Nugue and Saley 1987; Olivier de Sardan 1969). While the foreign origin and quantity of exhibited articles are common

Figure 1.6. A young potter painting a polychrome water jar with a knife in Koutoukalle Kourtey, north of Niamey (Niger). Ornamental grammars and repertoires have complexified and been consistently enriched in the area since the 1970s. Photo by Olivier Gosselain.
indexes of taste and wealth in southern Niger and northern Benin (Gosselain et al. 2008:22–25), Wogo and their neighbors clearly placed (and continue to place) emphasis on locally produced goods and ornamental systems, with a marked taste for polychromy, symmetry, and exuberant compositions (Fig. 1.6). This context has undeniably favored design innovations and ornamental sophistication of vessels used as marriage gifts. It has led, notably, to the emergence and subsequent alignment around market places of increasingly complex compositions.

**Conclusion**

“The world is like a beanstalk,” a Dendi informant once told me after retracing the various migration routes followed by his ancestors. “You sow a seed and stems grow in every direction.” He cautioned me against worrying too much about mobility logics, motivations, or obstacles. In his opinion, people could just go anywhere, and did so across centuries. While I like the metaphor, I think that the man was wrong: beanstarks do not grow naturally in every direction. They need good soil, favorable weather, light, support structures, caring; such elements determine not only their robustness but also the orientation of their stalks. The same applies for people and practice. This is why the theoretical path traced by Lave (1996, 2011; Lave and Wenger 1991) is so important, for in drawing our attention to the relational nature of practice, we are compelled to open the contexts within which individual subjectivities emerge and transform concurrently with learning.

Here I have accordingly tried to untangle the constitutive elements of the context within which NRPT potters operate and the processes that shaped their everyday practices. A combination of historical, ecological, and social factors contributed, from the second half of the 19th century onward, to the development of multiple relations and transformations throughout the study area. In regard to the “rhizomic networks” (Stahl 2013:55) of NRPT, a first category of factors relates to existing geographical connections (through migrations, marriage, and trading activities) along important structuring axes such as fertile valley and main communication roads. Spatial anisotropy thus partially accounts for the current distribution of potting practices associated to NRPT. But it does not suffice insofar as it potentially concerns all the
populations of the Niger River region (not specifically craft people) and an area considerably larger than the NRPT distribution zone.

To understand why the potters’ social spaces developed in particular directions—with implications for circulation of potting practice and representation—two other factors must be considered. One pertains to power relations. Because most Nigerien and Beninese potters have a captive status, they are/were forced to follow strict marriage rules and, frequently, to settle in villages or districts inhabited by people with similar status. This has markedly oriented spatial connections and knowledge circulation in the study area, contributing to the mixing of people with distinct languages and origins. Within this spatial framework, social hierarchies have either led to multiscalar processes of alignment or alternatively acted as powerful filters, blocking the circulation of knowledge (Crown, this volume). We saw, for example, that, despite potters having direct or indirect relations in certain practice settings and attributing aesthetic and/or economic value to NRPT elements, they nevertheless rejected them because of stereotypical associations with low social status. This work of imagination played out differently around market places, when both potters and customers positively connoted technical or aesthetic variants.

A last factor pertains to the hegemonic nature of aesthetic practice. On one hand, choices in pottery forms and decoration are structured by existing grammars and repertoires, which are reinforced not only by shared representations within potting communities but also by the taste of clients on market places. On the other hand, aesthetic practices developed in other realms of the material world lead to innovations and the consecutive development of regional stylistic variants. This latter factor probably accounts for the puzzle with which I opened this chapter—the discrepancy between Urvoy’s observations and mine. We saw indeed that NRPT producers drew inspiration from an array of locally produced and foreign objects throughout the 20th century in a context of increasing competition between artisans and gradual transformation of water jars from functional to decorative items. Potters thus continuously stretched their ornamental grammars and repertoires, developing a style whose homogeneity and current geographical scope should not mislead us into believing that it is rooted in a long and coherent history.
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Notes

1. Y. Urvoy’s 1955 publication was posthumous since the French Resistance shot him in 1944 for crimes of collaboration. In charge of several geographical and topographical missions in Niger, he had developed an interest for the cultural history of southwest and central Nigerien populations (D. Urvoy 1978).

2. The Crossroads of Empires project (2011–2015), directed by Anne Haour (University of Norwich), received funding from the European Research Council under the European Union’s Seventh Framework Programme (FP/2007-2013) / ERC Grant Agreement 263747.

3. “Dallol” is equivalent to the Arab word wadi, designating a streambed that remains dry for most of the year.

4. Literally, “people from the enclosure.” The term horso is also used in the area.

5. According to vessel parts. Coarse grog is used for the body and medium-sized grog for the neck.

6. Fieldwork in the Zarmaganda was unfortunately superficial. Data were collected in 2003 during the exploration phase of the project, which ended in 2006. Regional security problems precluded additional visits.

7. The reputation of Boubon potters grew, especially after the installation of a Swiss studio potter in 1993 and the development of pottery-oriented touristic activities (see also Roddick, this volume).
8. The Songhay-speaking Wogo population is one of many Songhay subgroups. Living on islands in the Tillaberi area, they have intermixed with Fulbe and are well-known for their art—especially wall painting and woven blankets.

References


Secrecy, Production Rights, and Practice Within Communities of Potters in the Prehispanic American Southwest

Patricia L. Crown

In this chapter, I examine how individuals gained access to the tools, materials, and knowledge needed to make ceramics in Prehispanic Pueblo society. My previous research has focused on how children learn craft skills (Crown 2001, 2002, 2007a, 2007b), drawing on the work of Lave and Wenger (1991; Lave 1993; Wenger 1998). Here, I expand on that research by exploring issues of secrecy and production rights in accessing and enacting crafts knowledge. I begin by discussing current anthropological perspectives on secrecy and power relations. I then examine how individuals access knowledge in Pueblo society. Using a case study from the American Southwest, I argue that the work of learning potters provides an excellent avenue for exploring how individuals access knowledge and how skilled practitioners prevent such access through secrecy and other epistemological boundaries.

Knowing and Secrecy

All societies control knowledge, with differential access by age, gender or sex, social group, sodality, and/or guild/professional group. Some knowledge varies according to who you are, whom you know, your capabilities, and what you have earned. Knowledge may be gained at the appropriate time from elders, siblings, peers, spouses, in-laws, outsiders, teachers, employers, co-workers, objects, experience, or practice. Some knowledge is given freely to learners of the appropriate age and gender, but some must be earned through labor, payment, gaining trust, or initiation into a group. Even when something is known, it cannot always be employed; concepts of property rights or ownership limit a person’s ability to put knowledge into practice. Taboos and other social controls may effectively prevent acting on knowledge.
Secrecy is the practice of concealing knowledge from some individuals or groups, while sharing it with others. Over a century ago, Georg Simmel (1906:466) stated that “every human relationship has, as one of its traits, [a] degree of secrecy within or around it.” He argued that secret societies become more prevalent as life becomes more public and that they are particularly important in maintaining social cohesion during times of change (Debenport 2015). Secrecy serves a number of functions besides cohesion: it distributes knowledge across group members so that no single individual knows everything, it establishes a group’s clear right to control information, and concealment confers value. Knowledge kept secret has special value both because it is scarce and because gaining such knowledge requires trust, time, and effort (Debenport 2015; Jones 2012:78; Luhrmann 1989:136; Richland 2009:100). Secrecy lends status, influence, and power because individuals and groups do not possess equal knowledge (Blakely 2012; Brandt 1977, 1980; Debenport 2015; Whiteley 1987:703). As Blakely (2012:50) argues, groups with secret knowledge gain political force when those excluded from the knowledge are aware that such knowledge exists. Controlling ritual knowledge also limits access to practices that are potentially dangerous to the individual or group (Whiteley 1987:704).

Secrecy and Production Rights Among Potters

Ethnoarchaeologists emphasize the importance of secrecy in limiting knowledge among potters (Foster 1965:57; Nicklin 1971:33–34). Families, villages, ethnic groups, or workshops may control secrets maintained through membership in the group. Potters may derive their social identities and ceremonial roles in part from their positions as knowledgeable ceramists (Dilley 1989:182). Guilds maintain craft-group monopolies, with access to secrets and production rights through apprenticeships and often kinship (Dilley 1989:181). Master potters in workshops withhold information to prevent apprentices from becoming competitors and to ensure that only the most dedicated students acquire the entire suite of knowledge (Singleton 1989:27). Secrets may be inherited or passed on to non-kin successors (Nicklin 1971:33n1). Marriages are sometimes arranged to provide rights to produce pots with specific designs, colors, or forms (Foster 1965:57; Hendry 1957:237–238). Potters may spy on innovators to learn their secrets, but often they respect innovations as intellectual property
and will not copy the work of other potters even when they could easily do so (Foster 1965:53, 57; Hendry 1957:237–238; Gosselain, this volume). Beliefs in supernatural powers often protect craft guild knowledge as well (Dilley 1989:182).

What emerges from ethnographic studies of potters is that secrecy most often concerns materials and methods. Knowledge concerning designs, colors, and forms is less easily controlled because potters may copy them. However, potters may also consider these visible traits as intellectual property and avoid copying them. George Foster (1965:58) speculated that in times of technological stability, knowledge is freely shared, but in times of active experimentation, secrets limit access to knowledge among potters.

**Secrecy and Production Rights Among the Pueblos**

Secrecy pervades Pueblo life today, so much so that many anthropologists believe that it did long before European contact (Brandt 1980:131). Knowledge among the Pueblos is highly valued and gained based on age, gender, and commitment or initiation (Brandt 1980; Suina 1992; Suina and Smolkin 1995). Whiteley (1987:704) emphasizes how knowledge relates to age: “Over the course of an individual’s life, progressive initiations and increasing experience in the ritual sodalities gradually open levels of secret knowledge.” Even within an age cohort, there are differences in knowledge based on initiated status and membership in ritual societies. Ritual knowledge is tightly controlled, there is no centralized knowledge, and knowing may involve significant burdens in labor and time (Dozier 1966). Distribution of knowledge in this way means that all segments of the pueblo must contribute to keep the society functioning (Richland 2009:107).

Secrecy also keeps information away from outsiders, including other Pueblos, in part so that outsiders cannot reveal secrets to uninitiated members within a village (Brandt 1980:131). Individuals who are not privy to secrets due to age, gender, or uninitiated status are forbidden from trying to gain such knowledge. As Suina (1992) indicates, “Delving into these areas is said to be inviting responsibility for which one is not prepared, a responsibility one will most certainly regret.” Evaluating who does and should, and who does not and should not, have knowledge
requires active awareness in interactions. Thus, individuals are “deeply engaged in diagnosing the epistemological lines and limits between each other, relying on complexities of relatedness (connections) and tradition (teachings) to do so in ways that come to give . . . knowledge the form of property, phenomena tightly controlled by some to the exclusion of others” (Richland 2009:91).

Secrecy surrounds not only ceremonies but also the ritual paraphernalia associated with them (Brandt 1980:127). Only certain members of ceremonial organizations may create masks, prepare paint, and produce other ritually charged items (Lewis 2002; Plog 2003; Spielmann 1998:156). Materials used in rituals are stored in secret locations, and mural designs are obliterated from the walls of ritual structures (Smith 1990:41). Brandt (1980:131) suggests that institutionalized secrecy practices derive from a time when already diverse Pueblo villages received immigrants from other areas with new religious beliefs; secrecy accommodated varied beliefs and minimized conflict while providing the societal benefits of new ceremonial specialists.

Ethnographic research shows that potters in some pueblos maintain control over knowledge regarding clay resources, production techniques, and rituals associated with pottery production through secrecy. Several pueblos maintain clay resource secrecy (Lanmon et al. 2007:116–117; Wallaert 2012:33). Regarding secrecy generally, Brandt (1994:16) states, “Some religious societies functioned essentially as trade guilds, holding resource locations and manufacturing methods secret, and selling and trading to other communities.” Secrecy may also surround ritual aspects of pottery production. Successful production of Pueblo pottery requires learning prayers and rituals associated with the process (in some cases, each stage of the process); individuals who want to make pottery must find knowledgeable potters willing to share this information with them (Nahohai and Phelps 1995:27, 66). Thus, even when a potter is capable of copying the visible aspects of a ware, s/he may lack access to the appropriate prayers and rituals associated with its production.

Production rights encompass use of certain designs, methods, and pottery production in general. Rights to employ specific designs are passed down through families, and potters must legitimize the right to use such designs (Hardin 1993:268). Hopi potters on First Mesa maintain control of production of ceramics intended for sale through threats of revenge
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(and witchcraft) if potters from other mesas and lacking kinship ties to First Mesa potters produce pottery for sale (Wyckoff 1985:81). Women on Third Mesa may make pottery only if they are married to men from First Mesa and were taught to make pottery by women from First Mesa; however, some Third Mesa potters circumvent these restrictions by creating pottery with distinct designs or by using it for barter instead of for sale (Wyckoff 1985:81). A Santa Clara potter stated that she would not paint ceremonial designs on pottery because “there are ears in the wall and they would get you if you’re doing that” (Naranjo 1992:43). Pottery production is prohibited in one Rio Grande pueblo (Brandt 1994:16). According to Brandt (1994:16), “Ordinary community members do not know the reasons for these prohibitions, but only that whenever they make pottery for sale they will receive a visit warning them that such a practice is prohibited, and if they persist, they will be denied rights in their own community in an increasing scale of sanctions culminating in expulsion from the pueblo and loss of all rights.”

While these ethnographic observations concern potters who produce, at least in part, for the art market, anthropologists emphasize that secrecy practices are pervasive in Pueblo society, so it is reasonable to consider the time depth of such practices among potters. Archaeologists recognize extensive exchange in ceramics in the Prehispanic Southwest as well. The art market may be of a different magnitude from Prehispanic vessel exchange, but it is certainly the case that ceramics were widely traded in the past, and there is evidence for part-time specialization in ceramic production (see chapters in Mills and Crown 1995).

Archaeologists and art historians have examined secrecy in various contexts, focusing on restriction, concealment, containment, abstraction, layering, and ambiguity as important ways of maintaining secrecy (Blakely 2012; Meskell 2008:238). Archaeological indicators of secrecy among Pueblo potters include evidence for restricting information about clay sources (Bishop et al. 1988:332) and evidence for concealing information through abstraction (Spielmann et al. 2006), layering, or erasure/cleansing of designs (Crown and Wills 2003). Scholars have also examined production rights, particularly in contexts with crafts guilds; archaeological indicators for Pueblo pottery production rights may include evidence for a small group of producers and control over resources, techniques, or symbols (Chamberlin 2006).
Based on this ethnographic and archaeological research then, secrecy and concepts of ownership of knowledge are most likely to emerge in situations of ethnic diversity, aggregated settlements, technological innovation, and specialized production of pottery valued for exchange or ritual use. This describes fairly well the southwestern landscape of the late 13th century, when depopulation of much of the northern Southwest led to resettlement into large aggregated villages with diverse populations and production of new ceramic wares. In this setting, contrasts in how potters accessed knowledge and materials suggest that skilled potters controlled rights to knowledge in ways that were not previously apparent. For instance, Van Keuren (2000, 2004, 2006:102; also Kaldahl et al. 2004) has argued that there was a change in “access rules” for White Mountain Redware vessels dating after A.D. 1330, based on his analysis of these vessels compared with copies of them created by contemporaneous potters using different materials. He suggests that this shift in access might be related to increased exclusivity of ideological networks and factionalism within large villages. My research suggests that control of knowledge about how to make White Mountain Redware pottery began earlier, perhaps as early as A.D. 1175, and is particularly evident through exclusion of learners from the production process. Epistemological boundaries thus may have begun with control over vertical transmission from skilled potter to learner and later included the control over horizontal transmission of information among skilled potters that Van Keuren has convincingly demonstrated.

Learning, Knowledge, and Secrecy

Individuals desiring to learn how to make pottery must go through a process involving acquisition of knowledge and familiarity in working with materials and tools. So every thriving population that has potters also has learners. Unless individuals destroy all traces of the learning process, that process leaves material residues. My research on how individuals learned to make ceramics in the Prehispanic Southwest entailed examination of around 40,000 whole vessels in the collections of seven major U.S. museums. I selected 845 for further analysis, including all vessels that appeared to have been formed or decorated by unskilled individuals, along with a sample of vessels made by skilled
potters. The overall sample included vessels from seven different culture areas spanning the time period from A.D. 900 to 1450. For each vessel in the sample, I recorded 44 attributes related to the skill of the design, the skill of the form, the skill of the technology, and the life history of the vessel (Crown 2001).

Several assumptions underlie this research. First, I assume that I can distinguish the work of learners based on evidence of low skill level in forming, decorating, and firing the vessels (see also Bagwell 2002; Bernbeck 1999:103; Haury 1976; Judd 1954; Kamp 2001). Such pots are lumpy, asymmetrical, and poorly formed and fired, with designs that are clumsily executed and often depart from the traditional design structure of that society (Fig. 2.1). The learner pots constitute around 5 percent of all vessels

Figure 2.1. Cibola Whiteware pitchers made by an unskilled learner (left) and a highly skilled potter (right). Vessel on the left is 3.3 cm in height. Vessels are NA8942.K2.1 (left) and NA3290.10 (right) from the Museum of Northern Arizona collection. Photo by Marianne Tyndall. In the collection of Patricia Crown.
examined in the study, which seems an appropriate, and perhaps even conservative, ratio of learner to skilled potter output generally. The vessels in the sample are unlikely to be the work of experienced potters who simply lacked skill because the ways in which they deviate from skilled pottery specifically characterize the work of learners worldwide (Brown 1975; Dennis 1940, 1942:347; Fortes 1940; Golomb 1993; Havighurst et al. 1946; Russell 1943; Wilson and Ligtvoet 1992; Wilson and Wilson 1984). For instance, experienced potters know to pull brushes toward themselves while turning the pot rather than pushing the brush and paint away; they know to paint corners as two lines rather than try to round them; they paint long lines as a single brushstroke rather than as a series of short choppy strokes. Experienced potters also know how to divide a vessel into roughly equivalent sections for multiple repeating motifs; novices must learn how to do this and typically paint repetitive motifs of different sizes, contracting or expanding the final one to fit the remaining space. The vessels evaluated as the products of experienced potters certainly reveal varied skill levels, but they all reflect knowledge of standard decorative practices, including symmetries, layouts, and motifs, as well as knowledge of accepted technological and formal styles.

A second assumption is that the vessels in museum collections constitute a representative sample of the work of learners; this includes both the assumptions that southwestern learners fired and saved their earliest attempts at making pottery and that archaeologists uncovered a representative sample of such vessels in the contexts in which they excavated and the vessels were discarded.

A third assumption is that skilled potters rarely create vessels that look as if unskilled learners made them. Ethnographically, skilled Hopi potters make crude pinch pots with slapdash designs as offerings for pottery firings (Bartlett 1934; Mark Tahbo, Hopi potter, personal communication, 2000), and a few vessels matching this description were found in Hopi Yellowware ceramics only; these were not included here. The work of learners is easiest to identify when potters produce fairly high quantities of vessels, so that their performance reflects sustained, consistent practice. With high-volume output, the difference between learning potter and skilled potter is more dramatic, and hence the work of the learner is easier to identify (Crown 2007b:684).
I cannot help but conflate both time and sites in examining learning by ware, and in doing so, I miss historically relevant social contexts for learning that would contribute greatly to this research. Using individual sites with brief occupations would particularly enhance this research, but such sites usually have assemblages too small to permit interpretations of learning and social engagement.

Here, I compare two wares produced in east-central Arizona and west-central New Mexico: Cibola Whiteware and White Mountain Redware. Cibola Whiteware was produced from around A.D. 650 to 1400, with black mineral paint designs on a white-slipped background and sand and/or sherd temper (Goetze and Mills 1993). I only included vessels dating after A.D. 900, because pottery pre-dating A.D. 900 lacks the range of skill levels necessary for determining the work of learning potters, probably an indicator that early potters were not producing sufficient quantities of pottery to develop the skill levels apparent in later assemblages. The sample includes 289 Cibola Whiteware vessels made between A.D. 900 and 1400. Skilled potters created a variety of Cibola Whiteware forms, and learners created 11 different forms as well, although 77 percent of their vessels are jars or pitchers designed to hold liquids. There were apparently no restrictions on the forms of vessels learners could and did make, including the cylinder jar, among the rarest forms and used to drink chocolate (Crown and Hurst 2009).

In contrast, red-slipped White Mountain Redware pottery constitutes one of the least common wares in my study, despite efforts to target museum collections with polychrome wares when I discovered how few learner pots there were. Potters formed White Mountain Redware pottery from white- to gray-firing clay, using sherd and/or sand temper and a thick red to orange slip. Potters created a variety of White Mountain Redware forms, although most commonly bowls. In my sample, 31 White Mountain Redware vessels date between A.D. 1000 and 1400, produced in the same area and many of the same sites as the Cibola Whiteware vessels. Only one vessel pre-dates A.D. 1175, so the patterns described are most reliably associated with the types (St. Johns Black-on-red to Fourmile Polychrome) post-dating this time.

Potters making White Mountain Redware vessels followed the same procedures and often used the same designs as potters making Cibola
Whiteware vessels (Table 2.1), adding only the red to orange slip and exterior designs to bowls. In villages where potters made White Mountain Redware, studies of paint and slip recipes confirm that the same potters likely made both wares (Agostini 2012; Mills et al. 1999; Van Keuren et al. 2011), but multiple communities of practice employed distinct recipes within at least some villages (Duwe and Neff 2007). Also, in at least some villages, potters added fluxes to White Mountain Redware paints after A.D. 1275, intentionally creating matte glaze paints that distinguish them from the Cibola Whiteware produced in these same villages (Fenn et al. 2006). Three additional factors distinguish the two wares: White Mountain Redware was exchanged more widely than Cibola Whiteware, it was produced in fewer villages, and large redware bowls were used for feasts (Mills 1999, 2007; Van Keuren 2000, 2004, 2006). Indeed, redware bowls generally replaced whiteware bowls during the 13th century in much of the central and northern Southwest (Mills 2007:217), so increased production and exchange of White Mountain Redware bowls accompanied a decline in production and exchange of Cibola Whiteware bowls during this time. One White Mountain Redware type, St. Johns Polychrome, was likely the most widely exchanged pottery type

### Table 2.1. Production sequence for Cibola Whiteware and White Mountain Redware

<table>
<thead>
<tr>
<th>Production step/ware</th>
<th>Cibola Whiteware</th>
<th>White Mountain Redware</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clay</td>
<td>Kaolinitic</td>
<td>Kaolinitic</td>
</tr>
<tr>
<td>Aplastics</td>
<td>Sherd and/or sand</td>
<td>Sherd and/or sand</td>
</tr>
<tr>
<td>Forming</td>
<td>Coil and scrape</td>
<td>Coil and scrape</td>
</tr>
<tr>
<td>Slip</td>
<td>White</td>
<td>Limonite (yellow unfired but fires to red)</td>
</tr>
<tr>
<td>Paint</td>
<td>Mineral</td>
<td>Mineral and sometimes kaolinitic clay (for white); matte glazes after A.D. 1275</td>
</tr>
<tr>
<td>Shapes</td>
<td>Jars, bowls, ladles</td>
<td>Primarily bowls; some jars and ladles</td>
</tr>
<tr>
<td>Firing atmosphere</td>
<td>Oxidizing to neutral</td>
<td>Oxidizing</td>
</tr>
</tbody>
</table>

...
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in the Prehispanic Southwest. Although potters made fewer Cibola White-
ware bowls from the 13th century on, they continued to make quantities 
of whiteware jars and some ladles.

These two wares thus provide an exceptional opportunity to exam-
ine how novices accessed the materials and knowledge necessary to learn 
how to make them because they were made in the same villages, appar-
ently by the same skilled potters. If learning potters in these villages had 
equal opportunities to produce both White Mountain Redware and Ci-
bola Whiteware, I would expect 1) learner vessels to match skilled vessels 
in proportions of assemblages of these two wares, 2) equivalent patterns 
of learner involvement, and 3) percentages of forms that roughly match 
the percentages of forms for skilled wares.

Regarding the first expectation, there are far fewer redware vessels 
than I would expect to see under conditions of equivalent learning con-
ditions. The differences in numbers, 31 White Mountain Redware versus 
289 Cibola Whiteware learner vessels, do not reflect differences in typical 
ratios of these wares in assemblages in the past or in museum collections 
(Duff 2000:86; Triadan 1997:97). Furthermore, only seven White Moun-
tain Redware learner vessels post-date A.D. 1275.

My second expectation examines learner involvement, which in-
cludes both how often learning potters create a specific ware and how 
they participated in creating those vessels. Historical and ethnographic 
records indicate that learning among the Pueblos was largely by obser-
vation and imitation, so skilled potters primarily modeled how to form 
and decorate a pot, rather than taking a more hands-on approach to 
the learning process. The archaeological assemblage shows that skilled 
potters were more involved in guiding and working with learners than 
historical documents would suggest (Crown 2002). For instance, skilled 
potters sometimes etched or painted faint lines on pots for learners to 
paint over, or they formed vessels that learners decorated. Collaboration 
on vessels extended the skill level of the learning potter beyond what 
they could accomplish alone (Vygotsky 1978:86–87) by scaffolding the 
learner’s skills (Crown 2007b:680). Historically, collaboration was com-
mon among Pueblo potters, although not in contexts of learning (Blair 
and Blair 1999:186; Bunzel 1929; Guthe 1925:69; Kramer 1996:175; Na-
hohai and Phelps 1995; Naranjo 1992:106–107; Ortiz 1979:288; Peterson 
1997:57, 65; Wyckoff 1985:120). The single exception is a description of
contemporary Acoma/Laguna potters giving children formed vessels to practice painting or outlining designs for learners to fill (Olsen 2002: 162, 230). All of these are forms of “legitimate peripheral participation” as defined by Lave and Wenger (1991:29–31) as engagement of a learner in actual practice with a skilled practitioner but with limited responsibility for the product (Hanks 1991:14).

I determined collaboration based on a comparison of the relative skill levels apparent in the forming and decoration of vessels. I evaluated the skill level of the vessel by documenting the forming and finishing techniques, vessel symmetry, evenness of wall thickness, form complexity, and vessel size. I evaluated the skill level of the decoration by assessing overall motor control, line work (thickness and straightness), overlap at corners, presence of errors, integration of different motifs, equality of motif proportions, design symmetry, and whether the design fit the known norms for that type/ware. Comparing the skill levels of each vessel and its decoration allowed me to evaluate whether they roughly matched. Disjuncture between the skill level of the individual forming the pot and the skill level of the individual decorating the pot suggested collaboration. Sometimes, skilled potters formed vessels that were decorated by learners. Alternatively, unskilled potters formed clumsy vessels decorated by highly skilled potters. In yet other cases, skilled potters formed a pot and decorated some or most of it, leaving small portions for an unskilled learner to complete (Crown 2007b:679–680).

Based on this analysis, White Mountain Redware shows higher amounts of collaboration than Cibola Whiteware (Fig. 2.2). More than half (58 percent) of the sampled White Mountain Redware vessels show some form of collaboration between skilled potter and learner, either in forming or decorating the vessels. Several White Mountain Redware bowls have skilled interior decorations and poorly executed finger-painted exterior decorations (Fig. 2.3). Learners thus had limited responsibility for the ultimate product and often completed that portion requiring the least ability, the exterior wide-line design. In contrast, only 30 percent of Cibola Whiteware vessels show collaboration between skilled and learning potter.

Regarding the third expectation, while 87 percent of skilled White Mountain Redware vessels are bowls, only 51 percent of learner White Mountain Redware vessels are bowls, with the remainder primarily jars.
Figure 2.2. Percent of collaboration on wares from the American Southwest. Drafted by Beau Murphy.

Figure 2.3. White Mountain Redware bowl (St. Johns Polychrome) showing forming and interior decoration by a skilled potter and exterior finger painted by a learning potter. Arizona State Museum Catalog Number GP01975, 16 cm in maximum width. Photo by Marianne Tyndall. In the collection of Patricia Crown.
and pitchers (Table 2.2; Fig. 2.4). This is particularly true for vessels made and painted by learners working alone, with the high percentage of vessels designed to hold water approaching the proportions of Cibola Whiteware, where over three-quarters of learner vessels were jars or pitchers (Fig. 2.5).

These patterns indicate differences in how learners acquired the skills and accessed the knowledge to make these two wares crafted within the same villages. It seems likely that novice potters were expected to learn the essential methods of forming and decorating ceramics on whiteware before working with redware materials (Crown 2002). Budding potters thus developed skill working with whiteware, so that their early efforts working with redware were already skilled. But why restrict production of redware vessels? Because the red slip, production for exchange, and bowl form used for consuming food, including in feasts, are the primary differences between the two wares, the differences in learning sequences must be related to those differences.1

Table 2.2. Counts and percents of general forms for White Mountain Redware and Cibola Whiteware vessels made by learners compared to those made by skilled potters. Skilled pottery data for White Mountain Redware from Carlson (1970) and Washburn (1977) combined, and for Cibola Whiteware from Washburn (1977).

<table>
<thead>
<tr>
<th></th>
<th>Bowls</th>
<th>Jars and pitchers</th>
<th>Ladles</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skilled</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White Mountain Redware</td>
<td>457 (87%)</td>
<td>66 (12%)</td>
<td>5 (1%)</td>
<td>528</td>
</tr>
<tr>
<td>Learner and skilled collaborators</td>
<td>11 (65%)</td>
<td>4 (24%)</td>
<td>1 (6%)</td>
<td>16</td>
</tr>
<tr>
<td>White Mountain Redware</td>
<td>5 (35%)</td>
<td>8 (57%)</td>
<td>1 (7%)</td>
<td>14</td>
</tr>
<tr>
<td>Learner alone</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White Mountain Redware</td>
<td>2 (3%)</td>
<td>44 (64%)</td>
<td>23 (33%)</td>
<td>69</td>
</tr>
<tr>
<td>Skilled</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cibola Whiteware</td>
<td>30 (10%)</td>
<td>222 (77%)</td>
<td>37 (13%)</td>
<td>289</td>
</tr>
<tr>
<td>Learner</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Figure 2.4. Graphic depiction of data from Table 2.2. Relative proportions of bowls, jars, and ladles in assemblages made by skilled potters, collaboratively, and by learners. Drafted by Beau Murphy.

Figure 2.5. Cibola Whiteware (left) jar and White Mountain Redware (right) jar formed and decorated by learning potters. Jar on left is from Ojos Bonitos Ruins in Arizona. Arizona State Museum Catalogue Number GP2462, 7 cm in height. Jar on right is from Pinedale Ruin. Catalogue no. A 176971-0, Department of Anthropology, Smithsonian Institution, 6.6 cm in height. Photos by Marianne Tyndall. In the collection of Patricia Crown.
One possibility is that skilled potters guarded information on materials sources needed to make the red slip (cf. Ferguson 2008). Although limonite is not a particularly rare material in the Southwest, potters may have considered only specific pigment sources appropriate for use in slippering these ceramics. Zedeño (2009:412) has argued that all Native Americans in North America considered red paint “one of the most powerful animating substances in the universe, with divine origins and properties ranging from protective to transformative and from interactive to integrative.” Historic Pueblos also had strong beliefs surrounding pigment, including pigment taboos for some individuals (Stephen 1936:309, 311). Red pigment was used in a variety of ritual contexts among the historic Pueblos, and at least at Laguna Pueblo, it “belonged” to a specific society (Parsons 1939:299). Only certain members of ceremonial societies were allowed to process pigment into paint for ritual use (Bunzel 1932:861; Lewis 2002:66; Spielmann 1998:156). The Pueblos regarded paint as the substance that gave masks their transformative power (Bunzel 1932; Young 1988:191). Similar beliefs surrounded kachina dolls: adults might carve kachina dolls at home around children, but they painted them in private, often in ceremonial spaces (Parsons 1939:319). Ancestral Pueblos may have viewed the handling of red pigment as too dangerous for young learners or inappropriate for individuals who had not been initiated. Particularly if the red slip animated the vessels, as Zedeño’s work suggests, the young girls who most likely constituted the learning potters in Pueblo society may not have been allowed to observe the source of red slip, to handle or transform the limonite into slip, or to observe the application and painting of red-slipped vessels. Prayers and rituals associated with creating redware may have differed from those used in creating whiteware and been withheld. It seems possible then that learners had to reach a certain age and status, perhaps after menarche and through initiation into ritual societies, before gaining access to the rights and knowledge to handle the red slip used on redware pottery.

The part-time specialist potters producing White Mountain Redware bowls for exchange likely closely controlled knowledge about and rights to produce this ware. As noted above, Van Keuren (2000, 2006) has argued that not all skilled potters had equal access to the knowledge needed to make White Mountain Redware during the 14th century.
Potters, who withheld rights to make the pottery and access to the knowledge and materials to make it from some segments of the population after A.D. 1330, likely withheld these rights and knowledge from unskilled individuals as well. In other words, the barriers to horizontal transmission of knowledge discerned by Van Keuren appear to have applied to vertical transmission as well and appear to have been in place as early as A.D. 1175. For those few unskilled individuals allowed to learn how to make redware vessels, learning proceeded in close collaboration with a skilled potter, rather than through independent observation and imitation as seen on whiteware vessels. The rare unskilled learners who did begin making redware pots without a collaborator made the jar, pitcher, or ladle forms they understood from making whiteware, while bowls were most often made in collaboration with a skilled potter.

The difference in forms between the two wares raises the possibility that the shifting practice toward consumption of food from redware bowls altered views of who should make such vessels. As noted above, redware bowls generally replaced whiteware bowls during the 13th century in the northern and central Southwest (Mills 2007:217, this volume), so that people ate from redware bowls, including both regular meals and feasts. While liquids, including water and drinkable foods, were stored and consumed from whiteware, solid food, including stew, was almost exclusively consumed from redware. Redware was symbolically linked to cooked and solid food then. An intriguing possibility is that only skilled potters made vessels for consuming solid food. The fact that bowls are considerably easier to form than jars, pitchers, or ladles emphasizes the unusual nature of both the redware and whiteware samples; when learners formed vessels of these wares, they rarely formed bowls. In other parts of the American Southwest, bowls were often the most common learner forms, probably because small pinched bowls are so simple to make. Perhaps the connection red bowls: solid food in the 13th century was accompanied by a shift toward excluding learning potters from making containers used for serving/consuming cooked, solid food. If so, such a pattern suggests a shift in commensal politics, a topic discussed by Mills (this volume).

I suggest then that part-time specialist potters maintained secrecy regarding the red-firing slip and likely owned the rights to make White
Mountain Redware. Skilled potters delayed teaching the secrets of White Mountain Redware production until learners gained experience on whiteware, perhaps to avoid competition in exchange relations but also because learners might have needed to undergo initiation or reach puberty before they were allowed to produce the red bowls used to serve cooked, solid food. Knowledge concerning how to make these vessels may have been too valuable, too dangerous, or inappropriate for novices. So secrecy protected learners from the risks associated with this knowledge. Power relations constrained which novices eventually gained access to the knowledge and the rights to produce this ware.

Cross-culturally, restrictions on learning to make pottery or on making pottery of specific forms/functions were often associated with menarche, menstruation, and pregnancy, and then eliminated after menopause. For instance, among the Maroni River Caribs, girls learned to make pottery only after menarche and initiation (Kloos 1969:902), and in Cuentepec, Mexico, only post-menarcheal girls were allowed to help their mothers burnish comales (Dore and López Varela 2010:284). Among the Seri, adult women preparing blue pigment to use for decorating pottery prohibited pre-menarcheal girls from observing the process because “if the process of making the clay [blue clay pigment] is observed by any girl who has not passed the menarche, the blue will not appear” (Moser 1964:27). To prevent observation, adult women secluded themselves while preparing the pigment, covering themselves and their materials with a blanket if necessary (Moser 1964). Only post-menopausal women are allowed to make specific ritually important vessel forms in many cultures, including large jars used for brewing beer and keeping ancestors’ skulls among the Dowayo (Vander Linden 2001:140) and unusual forms of ceremonial pots among the Bukusu (Nangendo 1996:73). At least some Pueblos restrict aspects of pottery production, or pottery production in general, in association with women’s reproductive lives (Nahohai and Phelps 1995:81; Parsons 1939:91, 1991:32; Wallaert 2012:34). These cross-cultural practices reinforce the possibility that Ancestral Puebloans withheld knowledge concerning preparation and use of red pigment from girls prior to menarche or initiation and/or restricted these girls from making the red bowls used to consume solid food, particularly given the likely powerful association of red with blood and life.
Summary and Conclusions

Learning potters had access to the materials and knowledge for making Cibola Whiteware ceramics between A.D. 1175 and 1400 but largely lacked equivalent access for making White Mountain Redware. These two wares were crafted in the same villages using similar production sequences, so I have argued it was rights and knowledge to make exchanged redware pottery, particularly bowls, and access to slip sources that were restricted rather than knowledge about how to make pottery generally. Part-time specialist potters may have maintained secrecy regarding materials sources, handling and/or prayers/rituals associated with the red-firing slip and kept uninitiated girls from making the redware bowls used for serving solid, cooked food. Potters who owned the rights to make White Mountain Redware likely guarded those rights to prevent others from producing these valued exchange vessels.

Instead of the open access and self-directed learning apparent for whiteware pottery, relations of power and secrecy surrounded the production of redware, creating a boundary of practice (Gowlland 2012:368; also Dilley 2010). In maintaining a community of practice through training learners, skilled potters created different boundaries for redware knowledge as opposed to whiteware knowledge (Dilley 1989:183). And these boundaries likely included not only vertical transmission to learners but also horizontal transmission to other skilled potters, as Van Keuren (2000, 2006) found for the period after A.D. 1330. The existence of limits on the production of redware by learning potters prior to A.D. 1330 may have made it easier to exclude skilled potters from producing White Mountain Redware after A.D. 1330. Excluding immigrant potters, who were likely not part of the same ceremonial societies, may have meant only maintaining the existing boundaries on sharing knowledge without widening them to include potters with different backgrounds. The potters who made White Mountain Redware may thus have treated uninitiated and/or premenstrual girls in the same way as uninitiated, adult immigrant potters when it came to accessing knowledge surrounding production of the ware or holding the right to produce the ware. The fact that 14th-century potters making red and polychrome wares copied White Mountain Redware pottery using different materials (Triadan 2013; Van Keuren 2006) suggests that absolute control over production of
redware bowls was not possible, although access to the materials, knowledge, and rights needed to make authentic White Mountain Redware was restricted. The creation of such copies emphasizes the value placed on the authentic vessels and the knowledge they reflected.

In making pottery, southwestern potters fashioned visual reminders of the social relations that ordered their world, helping to produce and maintain those relations. Vessels made collaboratively by a skilled potter and learner materialized their relationship in an enduring visual form. Collaborative vessels demonstrated to the community that a skilled potter was sharing knowledge with a learning potter and that a learning potter was mastering new skills. At the same time, skilled redware vessels acted as reminders to learners of what they did not know and what they had yet to learn—reminders that they might face every day at meals. Even skilled potters who did not and perhaps were not allowed to make White Mountain Redware vessels were reminded of their status regarding these practices when faced with such vessels. The vessels then materialized knowledge versus ignorance, knowing versus not-knowing, access versus boundedness, and quite possibly initiated versus non-initiated status. They evince a hierarchy of knowledge because one group was able to create widely circulated and valued redware vessels while others were not. Archaeologists have argued that social hierarchies in the Ancestral Puebloan area were based in part in esoteric knowledge (Brandt 1994; Chamberlin 2006; McGuire and Saitta 1996; Spielmann 1998; Whiteley 1987). Authority constraints on learning helped to create and maintain such hierarchies of knowledge, so documenting shifts in how learners accessed knowledge necessary to make ceramics may provide important evidence for the existence of such hierarchies.

Interestingly, the pattern discussed here for the White Mountain Redware pottery also pertains to other 14th-century polychrome ceramics. Large assemblages of Salado Polychrome and Chihuahuan Polychrome vessels analyzed for this project have similarly small samples of learner vessels. I only identified 20 Salado Polychrome vessels and 15 Chihuahuan Polychrome vessels made or painted by learners out of an estimated 800 Salado Polychrome and 750 Chihuahuan Polychrome vessels examined for this study. These assemblages also show 55–60 percent collaboration between skilled potter and learner in completing these vessels (Fig. 2.2). Work in other parts of the world has shown that
symbolically charged vessels have more restrictions on who makes and uses them, where they are stored, and what rituals are associated with them (Herbich and Dietler 2008:241). It is perhaps not surprising then that such restrictions also pertain to the ritually loaded polychromes of the Late Prehispanic Southwest (Crown 1994).

A pattern of restricting access to knowledge, creating epistemological limits, appears to characterize the American Southwest after at least A.D. 1275, a time also characterized by demographic upheaval and population mixing. Anthropological theory indicates that secrecy becomes more important during such times of change, and perhaps polychrome pottery maintained value in ceremonies and exchange relations in part because of secrecy surrounding its production. Potters with secret knowledge or production rights may have increased their influence because other potters were aware that such knowledge existed but were excluded from attaining it or acting on it. As Whiteley (1987:704) has argued, knowledge can be used as “a calculus of social differentiation.”

I previously argued (Crown 1994:224) that a unified religious ideology associated with polychrome ceramics over most of the Southwest broke into sects around A.D. 1325, and it is possible that secrecy, production rights, and epistemological limits contributed to signaling and bounding these sectarian factions. Other researchers have argued for intra-village factionalism during this same time period, based in part on pottery wares and designs (Kaldahl et al. 2004; Van Keuren 2000). As they note, the creation of copies of White Mountain Redware vessels in the 14th century using local materials may have resulted from and exacerbated tensions, particularly if such production altered extant exchange networks. Such copies lacked the white paste and distinctive red/orange slip of the authentic vessels, but significant numbers of such vessels in some villages suggest that local production may have impacted exchange. As discussed above, Foster (1965) indicates that secrecy among potters is most common when potters actively experiment with new materials and techniques. Experimentation in the 14th-century Southwest resulted in the creation of many new wares, generating a craftscape of secrecy and power.

Historical records verify the ongoing tension among the Pueblos over the meaning, ownership, and value of traditional knowledge and symbols (Brandt 1994; Chamberlin 2006:39). If redware and polychrome
vessels were privileged in the construction of new identities during the demographic upheaval of the 13th and 14th centuries, control over both the creation of these traditions and their realization in production became important symbolic capital (Chamberlin 2006:42, 47). Older traditions, such as White Mountain Redware, likely legitimated existing corporate groups and their rights to land and ceremonies, as Van Keuren (2000:93) argues, while newer wares aided the formation of new groups from the blended migrants. Regardless of whether an existing or new group, transforming embodied knowledge into symbolic capital required controlling the ownership of knowledge, creating a demand and value for the products of that knowledge, and ensuring transmission in an appropriate genealogy of practice (Pauketat and Alt 2005). This pattern suggests the presence of organizations (or societies) that defined who could become a member of the community of practice (Lave 2008).

We may never know who had the power to control the materials and designs found on redware pottery and what precise combination of secrecy, threats, and taboos they used to constrain and maintain control on the flow of knowledge, but comparison of Cibola Whiteware and White Mountain Redware demonstrates that skilled potters conceived of and acted upon knowledge concerning redware production differently in sharing that knowledge with novices, and they had been doing so from as early as A.D. 1175. As noted, this early control over vertical transmission of knowledge set the stage for the later control over horizontal transmission of knowledge when influxes of immigrants shifted the social dynamics in the late 1200s.

To conclude, I suggest that careful analysis and comparison of the products of learners offer opportunities to examine secrecy and power relations in the past. This approach both confirms and extends the results of Van Keuren’s seminal White Mountain Redware research using different analytic techniques and collections, demonstrating the value of multiple lines of evidence and methodological approaches in examining the past. It also demonstrates the value of a comparative approach in understanding transmission of embodied knowledge because examination of whiteware alone would lead to very different conclusions than has this comparison of whiteware and redware.
Acknowledgments

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Notes

1. The discovery that at least some White Mountain Redware vessels made after A.D. 1275 had a matte glaze paint (Fenn et al. 2006) suggests the possibility that potters restricted knowledge of how to create matte glazes through additions of copper and lead oxides to paint recipes. While this is a possibility, it cannot account for the restriction of novices from making earlier White Mountain Redware vessels, so it is not discussed further here.

References

Agostini, Mark R. 2012. Painting Cibola Whiteware with Compositional Groups in the American Southwest: Pigment Analyses of Late Prehispanic Ceramics from Ancestral Pueblo Villages in East Central Arizona. BA honors thesis, Department of Anthropology, University of Vermont.


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Situated learning theory has emerged in archaeology as a productive way to explore socio-material relationships and small-scale craft production (e.g., Minar 2001; Roddick 2009; Sassaman and Rudolphi 2001). While situated learning theory can be deployed toward diverse goals within archaeological research, I have found its central concept, the “community of practice,” to be particularly useful as an analytic unit through which one can explore “groupness,” without resorting to a priori categories of social identity. In this chapter I begin by elaborating on this point and discuss how I have embraced this benefit to explore the social landscape of Mission Santa Catalina de Guale, a 17th-century Spanish mission community located on St. Catherines Island, Georgia. To do so, I explore the intersection of glass bead-making and glass bead-consuming communities of practice across distinctly different social contexts and spatial scales. Exploring the intersection of these diverse communities of practice, including intersections that span the globe and transcend face-to-face interactions, requires the use of Wenger’s (1998) concept of “constellations of practice” (also Roddick and Stahl, this volume). I employ a social network analysis (SNA) approach to explore these interactions, highlighting some of the ways formal network approaches intersect with communities of practice (also Mills, this volume).

Lave and Wenger’s (1991) seminal volume on learning and education has been extraordinarily influential, primarily by transforming the central metaphor for learning from one of product, transmission, and acquisition to one of participation and process (Engeström 2007; Hughes 2007). This metaphorical transformation emphasized that learning is a social process, rather than an individual, cognitive relationship between instructor and student, ushering in a paradigm shift for the academic theorizing of learning, as well as in applied fields of human resource
management, organization, and consulting (e.g., Hughes 2007; Hughes et al. 2007; Wenger 1998; Wenger et al. 2002).

In their formulation of this new theory of learning, Lave and Wenger (1991) developed three interrelated concepts: situated learning, legitimate peripheral participation, and communities of practice. Situated learning, a concept developed out of studies of apprenticeship (both historical and conceptual), is their notion that learning has situatedness—that is, learning occurs, is located in, and is part of the active, lived-in world (as opposed to a notion of situated that merely suggests a place or location, e.g., “learning in situ”) (Lave and Wenger 1991:30–31). Legitimate peripheral participation is the central process or form through which learning occurs. The third concept, community of practice, is “the locus or site of learning” (Hughes 2007:31), constituted through mutual engagement, joint enterprise, and shared repertoire (Wenger 1998:152). Together, situated learning, legitimate peripheral participation, and community of practice emphasize a process of learning in which “newcomers,” through active social participation with “old-timers” and each other, “move towards full participation in the sociocultural practices of a community” (Lave and Wenger 1991:29) or processes of “changing participation and identity transformation” (Wenger 1998:11). Wenger (1998:4–5, 72–73) emphasizes that this process of learning links practice, meaning, identity, and community through mutual engagement, joint enterprise, and shared repertoire, a direct connection of social action and the material world.

Situated Learning: Social Identities and Taxonomies

In my research on aggregated communities in the 17th-century Spanish missions of La Florida, I have turned to communities of practice because it directly links learning, interaction, and practice with material outcomes and enables a robust archaeological study of social boundaries in a manner that avoids reifying normative notions of social identity. This is always a challenge in archaeology, made even more difficult when one considers processes of learning and interaction during tumultuous times. As several contributors to this volume note (e.g., Mills, Sassaman, Stahl), during periods of acute social change—moments of social turbulence, conflict, environmental catastrophe, and population aggregations and
relocations—conventional taxonomies become even more difficult to parse, as new learning contexts serve to both crystallize entrenched ways of doing and lead individuals and groups to rapidly reconfigure material and social contexts. This was certainly the case at Mission Santa Catalina de Guale, where the circulation and consumption of glass beads became enmeshed in a social landscape that was being rapidly reconfigured.

In La Florida, during the late 17th century, Native groups such as the Westos (allied with the British) conducted a series of predatory slave raids against the Spanish missions located along the Atlantic coast (Bowne 2005). In the aftermath of these assaults, as well as in response to massive population decline due to disease, a number of mission communities began a process of aggregation and consolidation along the Atlantic coasts of Georgia and Florida (Worth 1995). There are hints in the documentary record about the difficulties and conflict that this aggregation precipitated (Blair and Thomas 2014; J. Francis and Kole 2011; Worth 1995), but if one tried to examine this process archaeologically—employing a normative approach correlating material “types” with identity—in many cases material manifestations of this process would be virtually invisible.

In all cases archaeologically, but especially during moments of conflict and turmoil, the concept of communities of practice can be a critical bridge between the material artifacts we study and understanding the social contexts in which those artifacts were manufactured and circulated. A recurring difficulty is, how do we make the analytical move from the material objects we excavate to an interpretation that does justice to understanding continually shifting and intersecting categories of identification (e.g., Casella and Fowler 2005)? One solution to this difficulty is to seek to identify communities of practice in archaeological material patterning rather than working to read, and ultimately reify, categories of identity from objects.

Meskell (2001:188) has written that the goals of social identity analysis should be to “break the boundaries of identity categories themselves, blurring the crucial domains of identity formation, be they based on gender, sexuality, kin, politics, religion, or social systems. Only through deconstruction of the domains we see as ‘natural’ or prediscursive can we truly approach an archaeology of difference—real cultural difference and contextuality.” She also writes that “identity, in its various manifestations, operates under erasure in the interstices of reversal and emergence and
thus cannot be studied in the old ways (S. Hall 1996, p. 2). This entails interrogating the old taxonomies and categories that we have reified as doxic and impermeable and happily projected across the spatiotemporal divide” (Meskell 2002:283).

Somewhat similarly, Latour (2005) has argued that in the study of the social world we must begin by tracing associations, rather than investigating social forms a priori established to be relevant. In particular I draw inspiration from what he terms the “first source of uncertainty”—there is no group, only group formation. He writes:

Either we follow social theorists and begin our travel by setting up at the start which kind of group and level of analysis we will focus on, or we will follow the actors’ own ways and begin our travels by the traces left behind by their activity of forming and dismantling groups. . . . Their duty is not to stabilize—whether at the beginnings for clarity, for convenience, or to look reasonable—the list of groupings making up the social. (Latour 2005:29)

I argue that tracing and elucidating past communities of practices is a methodological approach that—by emphasizing things and their relationships to processes of social learning and interaction—“follows the actors” in the sense advocated by Latour (2005) and avoids normative categorization.

Along these lines, Hilditch (2008:60) has emphasized that “the concept of a community of practice operating in the past should not be synonymous with previous definitions of archaeological ‘cultures.’ Many communities of practice may be operating within a large social group, either as specific differences in the performance and learning of a single technical task or with respect to the production and exchange of different materials.” Similarly, Fenn et al. (2006:61) emphasize that communities of practice “may be much smaller than residential communities . . . [operating] at social scales smaller than the village.” This observation, coupled with the understanding that a community of practice is not equivalent with a social identity (cf. Eckert 2008), highlights the analytic utility of the concept (also Stahl, this volume). Van Keuren (2006:91) makes the same point: a community of practice approach allows for the
examination of “community boundaries as they are expressed at smaller scales of interaction (e.g., within large aggregated settlements).”

Simultaneously, however, communities of practice may also crosscut and encompass larger-scale entities. Stark (2006:26) argues for the existence of communities of practice that operate both within a “local system,” which is larger than and encompasses multiple residential units, and as part of a linked regional system, which is a “meaningful social unit” in which technological practices connect peoples who may not share an “identity.” Wenger (1998) addresses these issues by suggesting the concept of “constellations of practice,” which links communities of practice of different types and sizes across space, time, and domains of practice (Roddick and Stahl, this volume).

Communities of Practice and Glass Beads

I now turn to the glass bead assemblage recovered from 17th-century Mission Santa Catalina de Guale and discuss multiple contexts of communities of practice that intersect there—contexts that cross spatial scales (local, global), temporal scales, and domains of practice (production and consumption; see also Mills, Stahl, this volume).

Following Pedro Menéndez de Avilés’s 1565 founding of St. Augustine, the administrative capital of the Spanish colony of La Florida, missionization was quickly initiated among the Indigenous populations of Florida, Georgia, and South Carolina (Fig. 3.1). After several missionization attempts and failures in the 16th century (J. Francis and Kole 2011; Hoffman 1990, 2002; Lowery 1905; Lyon 1984, 1987, 1992; Marotti 1985; Oré 1936; Worth 2009), Mission Santa Catalina de Guale, the principal doctrina of the Atlantic coast province of Guale, was established on St. Catherines Island in 1605 (Geiger 1937; Lanning 1935; Milanich 2006; Thomas 1987, 1988, 1990; Worth 1995, 2009). The mission was occupied until 1680 when it was abandoned and destroyed following a raid by the English-allied Westos (Bowne 2005; Worth 1995).

In the early 1980s surveys by the American Museum of Natural History located the site of Mission Santa Catalina de Guale, and ongoing excavations have revealed the remains of the mission church, friary, kitchen, and several aboriginal structures (Thomas 1993). Additionally,
Figure 3.1. Map of selected 16th- and 17th-century Spanish missions and settlements along the Georgia Bright. Map by Elliot H. Blair.
the remains of 431 individuals were recovered beneath the floor of the church, along with an extraordinary quantity of grave goods (Blair et al. 2009; Larsen 1990; Thomas 1988). These included crosses, devotional medals, religious medallions, bells, mirrors, rings, and almost 70,000 trade beads. The beads found at Mission Santa Catalina truly represent the products of a global enterprise, including specimens manufactured in Venice, Amsterdam, France, Spain, China, India, and the Baltic. While most of the assemblage consisted of glass beads, beads made of jet, carnelian, amber, and rock crystal were also recovered (Blair et al. 2009). My focus here is on glass beads and how this diverse bead assemblage indexes multiple, intersecting communities of practice, specifically communities of manufacturing and consumption.

Bead Production

In this section I examine production of European glass beads through the lens of situated learning, considering the multiple communities of practice involved in the manufacture and supply of glass beads to the 17th-century missions of La Florida. I argue that through detailed analyses of both glass composition and bead morphology we can identify a number of glass-making communities of practice, as well as bead-making communities of practice—both of which were largely structured by guild systems of craft apprenticeship (Blair 2015a; Blair et al. 2009; Epstein and Prak 2008; Trivellato 2006). I first discuss this process for mass-produced Venetian drawn beads, considering both the glass-making and bead-finishing processes, then turn to the smaller-scale production of wound beads.

Venetian Drawn Beads

Glass beads are one of the most important material remains found on colonial archaeological sites and have had a long history in assisting archaeologists in dating both sites and assemblages (Brain 1979; Little 2010; Marcoux 2012; Smith 1983, 1987). They have also been used to explore meaning-making by Native people in colonial contexts (e.g., Hamell 1983, 1987; Loren 2010; Miller and Hamell 1986; Turgeon 2004), as well as being central to discussions of processes of circulation and consumption (e.g., Blair 2015a, 2015b; Blair et al. 2009; Hally and Smith 2010). Despite their utility as temporal markers and central role
in global trade, relatively little attention has been paid to micro-scale
details of their production, with many dismissing subtle variation in
color, shape, or size as being random variation and meaningless noise.
Contrary to this perspective, however, there is considerable evidence
that glass bead production was a skilled practice that in fact resulted in
relatively uniform, standard products. For drawn beads, glass-making
and bead-making communities of practice intersected to create these
products.

For glass manufacture, while specific, detailed glass recipe books
exist from the 16th and 17th centuries (e.g., Neri 2003[1612]; Toninato
and Moretti 1992; Watts and Moretti 2011; Zecchin 1986), the actual
making of glass was a process primarily guided by experience and exper-
tise. Antonio Neri, the author of the first published recipe book for glass
making, repeatedly stressed the importance of skill and practice for the
consistent manufacture of glass products. For example, while describ-
ing the process of manufacturing turquoise-colored glass, Neri writes:
“Add the dose of salt little by little putting in a bit at a time pausing
from one time to the next until you see the desired color. With this, I do
not rely on either dose or weight, but only on my eyes. When I see that
the glass reaches the desired level of color, I stop adding salt. This all
comes with experience” (Neri 2003[1612]:36). Based on such statements,
McCray (1999b:156) has argued that “many aspects of the craft . . . [were]
not recorded succinctly in words and . . . instead passed on through the
apprentice system, trial and error, and shop practice. Glass making was
primarily an empirically centered skill gained . . . from experience” (see
also McCray 1999a). Though McCray (1999a) calls this a “network of
skill,” it is clearly an example of a community of practice.

As a craft that was perfected through experience and practice, and
passed down through a guild-based apprenticeship process, the chemi-
cal composition of glass products indexes specific glass-making com-
munities of practice. Indeed, because there is patterning in the physical
traces of glass manufacture, chemical analysis can reveal both broad re-
gional differences in glass-making traditions and variations within re-
gions determined by the specific choices made by individual glassmak-
ers and glass houses.

Highlighting such patterning, Figure 3.2 is a principal components
biplot of compositional data (derived via x-ray fluorescence spectrom-
Glass Beads and Constellations of Practice

etry) from over 800 drawn, opaque white glass beads recovered from Mission Santa Catalina. The beads clearly cluster into at least six distinct compositional groups (labeled a–f). While it is beyond the scope of this chapter to fully explore the compositional implications of this patterning, I note that there are two key drivers behind this distinct patterning. First, groups d, e, and f are each opacified with a mixture of lead-tin, an opacifier that was used until the mid-17th century (Sempowski et al. 2000). At that time it was replaced (likely for economic reasons) by a calcium-antimonate opacifier; groups a, b, and c were opacified using this formula. Secondly, the compositional differences that distinguish the similarly opacified groups are based on more fundamental differences in raw material sources (e.g., silica and soda) and manufacturing practices, representing distinct, coeval glass-making communities of practice. While additional analysis is needed to clarify this issue, it is possible and likely that some combination of groups a–c and d–f are genealogically connected, with some groups representing the temporally later products of a community of practice extended through time. This

Figure 3.2. Principal components biplot of compositional data for drawn, opaque, white glass beads from Mission Santa Catalina de Guale. Illustration by Elliot H. Blair.
means that the compositional clusters depicted in Figure 3.2 reflect the products of between three (if each early opacifier group is genealogically linked to a later group) and six (if none of the earlier and later groups are genealogically linked) Muranese glass-making communities of practice.

After the glass was manufactured, finished glass canes were transferred to bead-making factories and transformed into beads in distinct, morphologically identifiable ways. For example, in Venice, there were three glass bead–making guilds—the Paternostri, the Margareteri, and the Perlei e Suppialume (Blair 2015a; Blair et al. 2009; P. Francis 2009b; Gasparetto 1958; Trivellato 2006). Each of these guilds also made up a distinct bead-making community of practice. The Paternostri manufactured large drawn beads, finishing them by the *a speo* method—a means of heat rounding the beads on a spit that often leaves distinct imperfections on the finished product (Karklins 1993). The Margareteri guild also manufactured drawn beads, but rather than rounding them on a spit, they rounded them by agitating them in an iron pan—by the *a ferrazza* method. The Perlei e Suppialume guild, in contrast to both of the former, manufactured wound beads. Diagnostic attributes of each of these guild-specific bead-finishing practices is generally observable in the finished product, and at Mission Santa Catalina we can identify specimens from each of these bead-making communities of practice. While there is some overlap, compositional groups b, e, and f primarily intersect with the products of the Paternostri guild, and groups a, c, and d generally comprise beads made by the Margareteri guild. 2 This complex relationship, between the two drawn bead–manufacturing communities of practice and the three to six glass-manufacturing communities of practice, exemplifies what Wenger (1998:126–127) refers to as a constellation of practice, interconnected configurations that are “too broad, too diverse, and too diffuse to be usefully treated as single communities of practice” (see below; Roddick and Stahl, this volume).

**Wound Beads: Seven Oaks Gilded**

The other major bead type recovered on Spanish colonial sites is individually wound beads, in which a solid cane of glass is heated in a furnace or over a lamp and wound around a mandrel, or wire. In that these are individually produced products—rather than mass-produced like drawn beads—less attention has been paid to larger-scale production
patterns that might be evident. In this section I discuss Peter Francis’s pioneering analysis of the problematically named Seven Oaks Gilded Molded bead,\(^3\) one of the most recognizable types of wound beads found on Spanish colonial sites (P. Francis 2009a; Goggin n.d.), and describe a small-scale bead-making community of practice.

Seven Oaks gilded beads occur in a variety of shapes, and they are manufactured from a wound translucent green to opaque yellow/white glass that is covered in gilt. While this type specifically refers to beads decorated with assorted, alternating incisions of dots and lines, there are also numerous similar beads, likely from the same workshop, that lack the incised designs (Fig. 3.3). Probably manufactured in Spain, such
beads have been recovered in small numbers from numerous colonial sites in La Florida (e.g., de Grummond 1997; P. Francis 2009a; Jacob 1998; Karklins 1974; McLamb 2000; Mitchem 1993; Smith 1983) and occasionally outside of La Florida (e.g., Cranmer 1990; Gaulton 2006; Goggin n.d.; King and Konwest 2014; Turnbaugh 1984). In the mission province of Guale, a single specimen was recently excavated from the site of Mission San Joseph de Sapala on Sapelo Island, Georgia (Jeffries and Moore 2010, 2013), while more than 300 plain gilded beads and 99 of the incised varieties have been found at Mission Santa Catalina.

To make these beads, the general process consisted of making the glass, forming the glass rod, and winding the bead. While the bead was still warm, the incised design was applied, after which it was covered in gilt (P. Francis 2009a). While Goggin (n.d.) initially suggested that the incised dots and lines on this bead type were formed with a mold, Peter Francis’s (2009a) more recent analyses have conclusively demonstrated that the incisions were individually applied with a glass worker’s paddle and a “toothed device” that he calls a “comb.” Additionally, his detailed research into the manufacturing process of this bead type (Table 3.1), in which he tallied individual incised lines and dots on specimens from the St. Catherines Island collection (in a process analogous to ceramic paddle stamp matching studies [e.g., Wallis 2011; Wallis et al. 2010]), provides important details into a 17th-century small-scale bead-making community of practice.

Table 3.1. Incising characteristics of Seven Oaks Gilded beads from Mission Santa Catalina de Guale (Blair et al. 2009: table 10.3). Courtesy of the Division of Anthropology, American Museum of Natural History.

<table>
<thead>
<tr>
<th>Type #</th>
<th>Description</th>
<th>Comb used</th>
</tr>
</thead>
<tbody>
<tr>
<td>103</td>
<td>Spherical with dashes and lines</td>
<td>All Comb A</td>
</tr>
<tr>
<td>104</td>
<td>Oval with 10 to 12 lines</td>
<td>All Comb A</td>
</tr>
<tr>
<td>105</td>
<td>Spherical with 12 to 13 lines</td>
<td>All Comb A</td>
</tr>
<tr>
<td>106</td>
<td>Oval with 7 to 8 lines</td>
<td>All Comb B</td>
</tr>
<tr>
<td>107</td>
<td>Spherical with 8 to 9 lines</td>
<td>All Comb B</td>
</tr>
<tr>
<td>108</td>
<td>Spacer beads with dots only</td>
<td>All that can be seen, Comb A</td>
</tr>
</tbody>
</table>
Several of his important observations have implications for understanding this community of practice. First, he noted that the incisions on all of the analyzed beads followed a precise sequence, with lines placed onto the bead surface prior to dot incisions. Secondly, two distinct combs were used to incise the dot pattern onto the bead surfaces. The one Francis designated “Comb A” is identified by a small gap in the instrument’s teeth and several teeth that are slightly out of alignment. His “Comb B” is identifiable by two teeth that are slightly smaller and closer to each other than the rest. Finally, all beads incised with “Comb A” contain greater numbers of incisions and include more complicated design elements (e.g., incised dashes), while beads incised with “Comb B” contain fewer design elements and seem to be much simpler in decoration. Based on these observations, Peter Francis (2009a:91) concluded that all of the gilded and incised beads were manufactured within the same workshop by at least two individuals: a technically skilled master beadmaker using “Comb A” and a lesser-skilled apprentice wielding “Comb B.” Both individuals followed the same sequence of steps in the decorating process. His observations clearly document a small-scale bead-making community of practice and identify the material products of both “old-timers” and novice learners (also Crown, this volume).

While these bead-making communities of practice, for both wound and drawn beads, are interesting in their own right, at the small-scale perspective of local production they have little direct relevance to the archaeology of Mission Santa Catalina. But, if we change scale and switch domains of practice—from production to consumption—these distinctions become critically important, as I discuss in the following section.

**Bead Communities of Consumption**

Once glass beads were manufactured in Europe, they followed a precise sequence on their journey to Spanish Florida before entering Native communities of consumption. Tracing this sequence, the object itinerary (Blair 2015a; Joyce 2012a, 2012b) is what facilitates linking European communities of production with local communities of consumption at Mission Santa Catalina. Elsewhere (Blair 2015a) I have elaborated on the itineraries of bead assemblages moving from Europe to the coast of Georgia. To briefly summarize this journey, following manufacture of first glass
then beads (described above), the beads were polished, sorted, and strung into monochromatic, single-type strands (P. Francis 2009b:59; Karklins and Adams 1990; Ninni and Segatti 1991; Trivellato 1998). These strands were then sold to merchants before being sent to the Americas by way of Seville. Once the beads arrived in Mexico City, a representative of the governor of La Florida would travel from St. Augustine to collect the situado—subsequently returning with the goods, which would then be distributed to Native peoples, primarily as gifts and as payment for labor. In both cases beads were primarily transferred from Europeans to Native elites and subsequently redistributed throughout their communities (Worth 1998).

The precision and structure of these itineraries is critically important. Presumably glass canes would be delivered to the bead factories in batches from individual glass houses. The bead makers would then process the canes into beads using the finishing technique of their respective guilds, and the bead stringers would then string beads made from a common glass batch and finished using a single technique into lengths for distribution and sale. Therefore, the chemical and morphological characteristics of a set of beads composing a “finished” bead strand would only index a single bead factory and a single glass factory.

Once the beads arrived in mission communities, our understanding of how they were distributed and consumed is considerably murkier prior to their interment in the mission cemetery. Few of the beads were components of rosaries, and there is little evidence that they were used in embroidery or beadwork. Both documentary and mortuary data suggest that the beads were commonly worn as necklaces, wristlets, and anklets (Blair 2009b; de San Miguel 2001), though we lack more specific understandings of what meanings beads and beaded objects held in these roles. Discussing the circulation of beads and cowries in Yorubaland and the Benin Kingdom, Ogundiran (2002:435) notes that “control over the production, importation, and distribution of beads was the major means of maintaining ideological control over subjects and potential rivals” and that possession of beads indicated political status, wealth, and power. It is almost certain that beads played similar roles within the Guale mission communities of Georgia (J. Francis and Kole 2011:91; J. Hall 2009).

Operating from this assumption, caciques and other elites would receive these strands of beads, which would then subsequently be redis-
tributed to allies, relatives, etc. (Worth 1998). As they were distributed, the beads would subsequently be disarticulated and recombined into distinctively patterned strands, worn in specific ways, and ultimately deposited in mortuary contexts. This patterning, understood and refined by identifying beads that index glass- and bead-making communities of practice, reflect communities of consumption at Mission Santa Catalina.

For example, one of the most obvious instances of this involves the bead assemblages associated with three individuals within the mission cemetery: Individuals 307 and 282 and Burial B. Each of these individuals was found with large and complex mortuary assemblages, including many rare and unusual bead types that have only been recovered with these three individuals (e.g., certain types of faceted jet beads, Moorish segmented beads; Blair 2009a). But, beyond the unique types found with these individuals, they are also linked by possessing glass beads that index the same glass- and bead-making communities of practice. Specifically, all three individuals were found with beads from compositional group d (Fig. 3.2). Moreover, in some cases, these beads were assembled into identically patterned strands, suggesting that both when and how these beads were consumed was part of a shared practice (Blair 2009a, 147, Fig. 15.20).

**Social Networks and Communities of Consumption**

While these three individuals are a fairly obvious example of a community of consumption, possessing identically patterned necklaces composed of rare and unusual bead types, other individuals found within the mission cemetery can also be linked to communities of consumption via social network analysis (also Mills, this volume).

Social network analysis is increasingly emerging in archaeology as a powerful means of exploring past socio-material relationships and interactions across multiple scales (e.g., Brughmans 2010, 2013; Knappett 2011, 2013; Mills et al. 2013; Pailes 2014; Sosna et al. 2013). Derived from graph theory (Barnes and Harary 1983), social network analysis is a means of “detecting and interpreting patterns of relationships between subjects of research interest” (Brughmans 2010:277). However, unlike most other multivariate analytical techniques—for example, cluster or principal components analyses—used to identify relationships, the complexity of networked relationships can be readily visualized. The spatial dimension
of these visualizations allows social relationships to be modeled across both social and physical space, while simultaneously allowing both the content and the structure of social relationships to be explored. They also can provide formal quantification of measures of centrality such as degree, closeness, betweenness, and eigenvector. Put into archaeological terms, rather than just being able to explore the membership and existence of “groupness,” social network analysis allows us to explore the structure of groups, that is, how individuals, sites, and objects interact, identifying specific sources and conduits of resources and information (Brughmans 2013).

Figure 3.4 depicts a social network analysis visualization of the Mission Santa Catalina burial population constructed using the open source network software Gephi (Bastian et al. 2009). It is a weighted, two-mode (bipartite) affiliation network—consisting of beads and individuals excavated from the Mission Santa Catalina cemetery. Links were established based on the presence of specific bead types (refined by bead manufacturing guild and glass recipe) within burial contexts and weighted by bead counts. Node size in the visualization is based on eigenvector centrality. As elaborated above, the assumption is that individuals possessing the same types of beads, manufactured by the same glass- and bead-making communities of practice, belonged to the same communities of consumption. Importantly, this consumption could have occurred either in life or in death, with the possibility being that beads were deposited as funerary gifts, circulating in postmortem communities of practice.

To identify communities of practice within the network, two methods of community recognition were used. First, a modularity analysis was conducted (Newman 2006) and constituent nodes of the identified modules were coded by color. Second, the topology of the network was constructed using the OpenOrd layout, a force-directed algorithm that encourages graphical clustering (Martin et al. 2011). I argue that the network visualization presented in Figure 3.4 presents a reasonable model for bead communities of consumption at Mission Santa Catalina, though both approaches to community recognition yield somewhat different results. Based on the topology generated by the OpenOrd algorithm, I would suggest that at least three distinct communities are evident in the network: a large, dense cluster in the lower-right corner, and two less densely clustered communities expanding upward and to
Figure 3.4. Social network analysis visualization of bead communities of consumption at Mission Santa Catalina de Guale, Georgia. Illustration by Elliot H. Blair.

the left, respectively. These two communities, evident in the topology of the network, correspond fairly well with two communities also identified through the modularity analysis—square and star-shaped nodes in Figure 3.4. The remaining communities identified by the modularity analysis (triangles, diamonds, and circles) constitute the larger, dense cluster evident in the network topology. While I cannot ascribe specific
categories of identity to the different communities of practice that emerge in this network analysis, I strongly suspect that this highly patterned “groupness” is linked to the history of population aggregation that occurred as Native people fled slave raiders and congregated within new mission communities (see Blair 2015b).

This visualization highlights several important considerations for using network approaches for exploring communities of practice. First, the structure of the network—depicted through the combination of module colors and the OpenOrd layout—visually represents a constellation of practice, linking between three (based on topology) and five (based on modularity) communities of practice. Additionally, the network visual, and the numerous linkages between the identifiable communities of practice, emphasizes the interconnectedness of the constellation, reinforcing Wenger’s (1998:103) contention that “communities of practice cannot be considered in isolation from the rest of the world, or understood independently of other practices.” Second, fundamental measures of network structure, such as measurements of centrality, betweenness, and degree, can potentially be used to identify and interpret roles within communities and constellations of practice. For instance, Wenger (1998:105–110) identifies boundary objects and brokers as specific types of objects and people that serve to facilitate interconnections between communities of practice (Roddick and Stahl, Schoenbrun, this volume). This corresponds closely with how the term brokerage is used in network terms, where network brokers connect previously unconnected actors (Peeples and Haas 2013). Such individuals (and bead types) are clearly evident in this network, and their presence is highlighted by the use of the “competing” methods of community detection. That is, individuals (and bead types) that differentially cluster by modularity and topology (indicating strong linkages to multiple communities of practice) can be identified as the brokers and boundary objects that facilitate connections across the constellation of practice (Blair 2015b).

Looking inward to the community, rather than outward to the constellation, formal network approaches also hold the potential for exploring the relationships between the old-timers and newcomers within communities of practice. In the model presented, node size is structured based upon eigenvector centrality, and not surprisingly, many of the individuals that have high measures of centrality in the network (larger
nodes) are also those individuals found with large bead assemblages, buried in high-status locations close to the church altar—such as Individuals 307 and 282 and Burial B (discussed above). These individuals, having high centrality, can likely be equated with old-timers within the community of practice, while those with low centrality can be characterized as more peripheral newcomers. Interestingly, few of the individuals with high centrality can be identified as brokers based on the intersection of topological and modular community; indeed, almost all of the brokers are individuals who can be identified as non-elites or commoners based on burial location in the mission cemetery (for more on social implications of the network, see Blair 2015b).

Discussion

In this chapter I have presented three distinct contexts in which the notion of the community of practice is useful for understanding the bead assemblage excavated at Mission Santa Catalina. First, I discussed the manufacture of Venetian drawn beads, describing both communities of glass production and bead production. Elemental analysis revealed at least six distinct compositional groups among the white glass beads analyzed that have temporal, and likely genealogical, connections. Additionally, I discussed how these interrelated glass-making communities of practice intersect with several bead-manufacturing communities (guilds) that used different finishing techniques in the manufacture of their products. Together these bead- and glass-making communities of practice form a complex constellation of practice that crosses material domains and temporal boundaries. Second, I discussed the small-scale manufacture of incised and gilded wound beads. Detailed analysis by Peter Francis (2009a) reveals that the manufacture of these beads took place in a small-scale learning community—perhaps composed of only two individuals. Both of these contexts converge in the final discussion, in which I considered bead communities of consumption at Mission Santa Catalina where both bead types circulated within diverse exchange networks. To explore these communities of bead consumption, I used formal social network methods to reveal the existence of multiple communities of consumption among the population interred in the mission cemetery that constellate into
broader configurations, including across generations and into postmortem contexts.

The network approach I use also serves as a platform from which to consider some of the scalar ambiguity inherent in the communities of practice concept. Earlier in this chapter I noted that a number of researchers have highlighted that the community of practice has no fixed scale at which it operates and that Wenger (1998) has suggested that multiple communities of practice are often linked together into larger constellations beyond the scale of immediate face-to-face interactions. He suggests that these constellations allow for “other levels of analysis” (122). This language highlights one of the recurring difficulties of multiscalar archaeology: the conflation of analytical and phenomenological scale (Dobres 2000:144–145). It also raises this question: when we explore constellations of practice across spatial and temporal scales, do we consider them in terms of action, experience, and practice or as analytical phenomena that can be viewed at different levels? Of course, the latter is a top-down approach that lends itself to a conventional, multiscalar, planar hierarchy, such as the Braudelian framework that tacks back and forth between micro (event) and macro (longue durée) scales of analysis. However, from a perspective of lived experience, such a planar approach to scale risks the problems of creating a coarse multiscalarity that artificially separates levels and domains of practice into reified scalar entities (Roddick and Stahl, this volume).

The network approach that I employ here is one that I think productively avoids this difficulty and provides a method that “seamlessly” links the small scale of the community of practice with broader constellations. It does this as a flat, or scaleless, ontology that allows a bottom-up approach, following objects (beads) and people linearly across lived pathways. Along such lines, Marston et al. (2005) have called for a “human geography without scale,” replacing scale with “a ‘site-based’ ontology, that “flattens space (and scale) into multiple sites of practices, relations, events and processes, which are both situated in place and extended through space (i.e., sites are connected to other sites)” (Jonas 2006:399). Along these lines, I would suggest that network approaches—such as I present here—provide a methodology for following actors in a linear, scaleless fashion. And, rather than thinking about communities of practice constellating across different scales, interrelated
communities of practice are better understood as unfolding into each other, across lived pathways (also Gosselain, this volume). In this sense, such a scaleless conception of the unfolding of communities of practice into each other is the process of constellating practices.

Acknowledgments

I thank Andy Roddick and Ann Stahl for the kind invitation to participate in this volume, as well as for organizing the earlier Theoretical Archaeology Group and Society for American Archaeology sessions out of which this chapter emerged. Many thanks also to all the other participants of the Learning and Doing Amerind Seminar to whom I am very grateful for helpful comments and suggestions. I also thank David Hurst Thomas, Lori Pendleton, Royce Hayes, Kent Lightfoot, Rosemary Joyce, members of the St. Catherines Island Archaeological Project, and the Edward John Noble and St. Catherines Island Foundations for their help and research support.

Notes

1. While I specifically focus on Venetian manufactured beads here, during the 17th century other European drawn-bead manufacturers produced beads using the same techniques. In particular, the Dutch drawn-bead industry was initially guided by expatriate Venetian bead makers of the Paternostri guild. This relationship could also be fruitfully explored using the language of communities and constellations of practice.

2. No wound beads were included in the compositional analysis.

3. As P. Francis (2009a) has noted, the beads are not molded nor is there any clear reason that the type should be named after the Seven Oaks site.

4. Most of the sites outside of La Florida where this bead type has been found seem to have either a connection to the Spanish trade or a Catholic connection.

5. Other “flat” approaches include Actor-Network-Theory (Latour 2005), path dependence analysis (Mahoney 2000), non-representational theory (Thrift 2007), time-geography (Pred 1990), and Ingold’s (1993) taskscapes.

References


Elliott H. Blair


In this chapter I explore how the reconfiguration of power relationships during periods of social and economic change affected learning in potting communities of practice in the Lake Titicaca Basin, Bolivia. In the early phases of the Late Formative (200 B.C.–A.D. 450), several relatively independent but competitive political centers appeared across this region (Bandy 2006; Hastorf 2005; Janusek 2004). By the end of the Late Formative, Tiwanaku (A.D. 450–1000) emerged as an urban center with political and economic influence throughout the basin. A key moment in this transition involved the expansion of sociopolitical and economic practices from the local to regional scale. This change might have been precipitated by new intensive agricultural strategies or the co-option of llama caravan circuits by emerging elites, trade routes that were becoming increasingly important throughout the Late Formative (Bandy 2005; Pérez Arias 2014; Smith and Janusek 2014). Either way, scholars generally agree that a more sociopolitically integrated region defines the end of the Late Formative (Browman 1980; Janusek 2004; Roddick 2013).

Researchers construct the chronology for these processes from variability in decorated serving vessels and, increasingly, quotidian pottery. But the producers of these vessels, participants within particular communities of practice, were not immune from the dynamics sketched above (Adams 1979; Gosselain 2008). Communities of practice are learning communities, but they are not homogeneous or harmonious bounded groups (Gosselain, this volume). Rather they are the process of community, including the formation, reproduction, and particular senses of community. They involve “different participants, engaged differently as part of the practice, with different stakes, places, locations, and histories” (Lave 2008:290–291). Members of a potting community of practice ini-
tially learn skills through peripheral participation, but their roles gradually increase in engagement and complexity—along with their sense of belonging—as they become more competent and integrated into the community. Investigations into communities of practice often begin by asking how the ever-changing and diverse participants involved reproduce particular practices and produce succeeding generations of participants (Lave 2008:290).

A similar question of social reproduction should always be asked of our ceramic seriations, since it demands that we “situate” them within the social context in which potters learned their practices and investigate processes behind the maintenance of particular practices over many generations. Changes in ceramic attributes index the changing embodied knowledge of particular participants and their relationships within potting communities of practice (Sofaer and Budden 2013; Wendrich 2006). A consideration of such situated learning brings dynamism to what archaeologists often explain away as stable traditions, including the long-lasting crafting practices in the Lake Titicaca Basin (Roddick and Hastorf 2010). In fact, fine-grained ceramic analyses often demonstrate that most temporal categories are not as stable or homogeneous as design-style analyses might suggest (Stahl, this volume).

By the later Late Formative, we have evidence of changes within and between communities that were producing and using pottery, changes coterminal with the emergence of political hierarchies and institutions (Janusek 2004; Stanish 2003). However, power does not simply seep down from institutions to the proximate scale; it is also constituted (produced, negotiated, and performed) in everyday practices, inclusive of crafting contexts (Bowser 2000; Joyce and Lopiparo 2005). If shifting participation in and social dynamics of communities of practice are always historically situated (Lave and Wenger 1991), and if social difference (status, class, and other forms of identification) are always in play within communities of practice (Lave 2008), then we must address the political tensions within and across particular communities of practice during the Late Formative if we are to understand the political and social changes that underwrote new polities such as Tiwanaku.

How do we go beyond seriations and artifact maps to reveal the power relations of learned practices and the struggles (and creativity) of everyday life during such turbulent times? In other words, how can we
follow the traces of learning across dynamic sociopolitical landscapes (see also Mills, Stahl, this volume)? Situated learning scholars stress that learning can be spatially distributed (Lave 2008:293), going well beyond the classroom or craft producer’s workshop that we associate with such processes. Relations of learning extend across “stretched social spaces” (Amin 2002; Amin and Roberts 2008:354; Faulconbridge 2010) and even through time (Kelly-Buccellati 2012; Harris, Sassaman, this volume). If the “spaces of experience” and “spaces known” (Gosselain 2008, this volume) of Lake Titicaca Basin inhabitants were expanding well beyond local villages during the Late Formative, how might we trace these new learning relations across places and greater spatial scales? What role did movement of materials and objects have across this expanding topology of learning? The answers to such questions are critical not only for understanding what it meant to dwell in the Late Formative (Roddick 2013) but also for defining the social networks (see Mills, this volume) that generated the later regional Tiwanaku political system.

I pursue two strategies to explore these questions. My first entails juxtaposition (sensu Pál 2013; Picker 2014; Ryzewski 2011) of learning across scales in two crafting communities during periods of social and political change. I follow material traces of learning, considering both social and political dynamics and varying spaces and scales of practice in a Late Formative community of potting practice on the Taraco Peninsula and a 21st-century community of Chijipata Alta potters (Fig. 4.1). My ongoing work in Chijipata Alta is part of an historical archaeological project tracing crafting practice in the Lake Titicaca Basin (Plaza and Roddick 2014) by exploring not only the technical practices and movement of finished forms but also the histories of particular places and practices as a way of considering longer genealogies of learned practice (also Gosselain, this volume).

Several considerations are important in such a comparison, including the considerable temporal distance between these communities and the nature of the available data. The temporal gap encompasses the rise and fall of several political and economic systems, disjunctions between the colonial and republican eras, and recent socioeconomic changes in the rural countryside (Albó 1987; Bandy and Janusek 2005; Klein 2003; Malloy 1970; Preston 1978; Stanish 2003). These case studies also vary in resolution. Work on the Taraco Peninsula provides a fragmentary view
of the full range of practices associated with communities of potters, but a deep time depth. Work with Chijipata Alta potters provides a detailed perspective into the range of practices and discourses surrounding rural Bolivian craft production in the early 21st century, but currently in relation to a short time. Temporal separation, historical disjunctures, and a lack of clear units of comparison make a direct historical approach or even standard ethnographic analogy problematic.

Yet the juxtaposition advocated by multisited scholars offers a different kind of comparison (Marcus 1998, 2009; Ryzewski 2011). While such an approach is still a form of analogical reasoning (Wylie 2002:136),

Figure 4.1. The southern Lake Titicaca Basin, with the locations of archaeological sites and modern villages discussed in the text. Map by Andrew Roddick.
uniformitarian principles are not employed, and there is no need to generalize away the differences between these two Lake Titicaca Basin communities of practice. Instead, stress is on the very particularities that produce power relations and the location of craft learning across the greater landscape. Juxtaposition helps us to explore the power dimensions of situated learning using different analytical approaches and highlights specific reconfigurations of power relationships within communities of practice undergoing changes and sites “where links between individual activities and structural forces are most visible” (Pål 2013:379). Juxtaposition can, like the most carefully structured and nuanced analogy, encourage a “careful appraisal of dissimilarities as well as similarities” (Wylie 2002:153).

My second strategy is to draw on several theoretical concepts that provide avenues for tracing the power relations and material evidence of situated learning across analytical scales. “Constellations of practice” is particularly useful as it offers a way to consider the connections that tie Taraco or Chijipata potters to other communities of practice. The term refers to the articulation of distinct communities of practice that share a history, or members, or particular objects, or that engage in similar techniques or compete for the same resources (Wenger 1998:127–133, 168–169, 256–260; Roddick 2009:80; Roddick and Stahl, this volume). Such connections may be intentional, or due to “emerging circumstances” with unintended consequences (Joyce 2004; Pauketat 2000).

Within these constellations circulating humans act as “brokers,” and nonhumans (i.e., artifacts) play the role of “boundary objects,” both connecting communities across constellations of practice (Wenger 1998:105–110). Brokers are ideal for life history approaches to learning (Harris, this volume) but can be difficult for archaeologists to track. In contrast, boundary objects, such as the quarried clay (which links varying communities of potters) or the cooking pots discussed below (which link communities of production and communities of consumption) offer considerable leverage for considering learning across space and time (Lyons and Clark 2012:28, 31; Mills, Roddick and Stahl, Sassaman, Stahl, this volume). I touch on several other concepts below but now sketch the Taraco Peninsula and Chijipata Alta contexts before considering their potting communities’ embodied knowledges and “knowledge in motion” across constellations of practice.
Juxtaposing Potting Communities in the Lake Titicaca Basin

Twenty years of intensive research on the Taraco Peninsula has provided a rich perspective on the sociopolitical and economic processes of the area’s long Formative period (A.D. 1500–450). The first villages on the Taraco Peninsula were settled around 1500 B.C. Populations grew throughout the Middle Formative (800–200 B.C.), eventually resulting in village fissioning (Bandy 2006). Toward the end of this period, a number of long-distance goods, including stone hoes, sodalite beads, obsidian, shell, gold, and silver circulated through the peninsula (Bandy 2005:95–97). Regional interaction intensified during the Late Formative (200 B.C.–A.D. 450) as new economic and religious systems developed (Browman 1980; Janusek 2008; Roddick et al. 2014). We see evidence of increasing territoriality, more intensive use of both procured and produced resources on the landscape, and the appearance of several ethnic (Hastorf 2005:67) or “multi-community” (Bandy 2006; Stanley 2003) agricultural-herding polities. By the end of the Late Formative, inhabitants at sites such as Kala Uyuni gained political prominence in the region and drew populations from several disparate communities into their larger settlement (Roddick et al. 2014), perhaps associated with control of new regional trade routes (Bandy 2005).

Ceramics associated with these phases range from heavily tempered and poorly fired ceramics of early villages to much higher quality Chiripa-style fiber-tempered, highly burnished, and slipped pottery (Roddick 2009; Steadman 1999, 2007). Ongoing research is revealing the changes in forms, production sequences, and embodied knowledges within these communities of practice through these turbulent years. Recent excavations at Kala Uyuni recovered a great quantity of Late Formative pottery, including quotidian forms and diagnostic Late Formative slipped red-rimmed Kalasasaya bowls and jars (Fig. 4.2a). Late Formative assemblages tend to be quite fragmented, and excavated production locales are few. However, ongoing attribute and geochemical analyses suggest that quotidian vessels across the region were locally produced at the household scale (Roddick 2014; Roddick and Hastorf 2010; Steadman 2007). Decorated fine wares were increasingly used in commensal political events involving the consumption of corn beer.
Andrew P. Roddick

The differential consumption of these vessels across the Lake Titicaca Basin indexes socioeconomic difference and perhaps emergent political hierarchy by the end of the Late Formative (Janusek 2003:148).

The Tiwanaku “big bang” included new political structures and regional integration of previously independent settlements, alongside new forms of crafting practice and ceramic use. By the sixth century A.D., potters at Tiwanaku and nearby administrative centers produced standardized forms with complex iconographic decoration in specialized workshops (Franke 1995; Janusek 1999). Research in these workshops has recovered raw materials, production tools, and traces of production steps, which included both coiling and a new form of mold construction.
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(Rivera 2003). Standardized forms played a central role across the new political landscape, particularly the finely crafted and iconographically elaborate serving wares. This iconography was likely linked to particular ethnic identities and the vessels used to consume large quantities of chicha (Goldstein 2003; Janusek 2003). In sum, pottery is a useful tool for archaeologists but also played an essential role in the new practices and identities that developed throughout the Late Formative.

Communities continue to produce pottery around the southern Lake Titicaca Basin today (de Zapata et al. 1997), with the highest densities of potters found in rural clusters around Jésus de Machaca and Batallas (Fig. 4.1). Potters were active in the Batallas region, and Chijipata Alta specifically, at least as far back as 1864 (and probably earlier) when the hacienda system was implemented across Bolivia, continuing through an agrarian reform in the 1950s. The hacienda system denied land ownership to the Indigenous population, and their labor was controlled in a quasi-feudal system of exploitation. A portion of production (in kind or money) was given to the landowner, with the rest kept for subsistence needs. The hacienda owner, however, had less control over informal Indigenous activities such as pottery production (Gosalvez 2003:165). The 1952 revolution brought a range of social reforms, including nationalization of Bolivia’s mining industry, universal suffrage, access to education, and, through associated agrarian reform, the redistribution of hacienda lands to the rural Indigenous populations (Klein 2003; Malloy 1970). Land around Batallas was subsequently divided between communities and individual members, creating what are often called “ex-hacienda communities” or “new communities” (Gosalvez 2003: 165; Preston 1978).

Chijipata Alta is such a “new community” and provides potential for future studies of pottery production through periods of change. Three disparate communities were initially drawn into a single estate in the 1864 hacienda system before land was expropriated from the hacienda owner and partitioned among community members as individual property in the 1950s (Gosalvez 2003:113). Elders who grew up on the hacienda recall the social landscape of potters and the economics of production, but we know little about the history of pottery production in communities like Chijipata Alta. The intensity of production over the last century is materially evident in the traces of generations of open
firings, ash mounds (*q'eya kontu* in Aymara) that are peppered across the region and particularly densely in Chijipata Alta (Fig. 4.3b).

Several recent studies provide a clearer picture of modern pottery production in Chijipata Alta, including production steps and the relationship to the larger rural economy (de Zapata et al. 1997; Gosalvez 2003; Plaza and Roddick 2014). Potting and livestock have long been economic mainstays of the community, and today the rural hamlet relies on subsistence farming but also engages directly with the market economy. Pottery produced in Chijipata is sold in local markets and through a variety of bartering mechanisms common to the Andes (Gosalvez 2003; Mayer 2002:143–171). Potters still create several standardized forms (Fig. 4.2b) using the same quarry and many of the same tools and techniques of their grandparents (Plaza and Roddick 2014). Fifteen years ago Gosalvez (2003: 189) found that an average potter produces approximately 770 pots a year for weekly fairs. However, my research and Gosalvez’s findings (ibid.) suggest that if one takes into account the increased production during seasonal annual fairs and vessels produced for bartering, the output reaches a staggering 1,500 pots a year.

New economic possibilities (including those provided by non-governmental organizations [NGOs] developing the rural dairy industry) are eroding this long-lasting tradition, but discourses of health along with regular scarcity of gas in rural villages are keeping this Indigenous economy alive. Many Bolivians (rural and urban, rich and poor)

Figure 4.3. A) Excavating clays at the “Cerro Chillo” clay mine. B) An ash mound associated with pottery production in Chijipata Alta. Photos by Andrew Roddick.
believe, likely correctly, that earthen pots are healthier than the cheap aluminum vessels currently available. By way of chatter at markets and discussions on the radio, this rhetoric circulates just as widely as the vessels themselves. Ollas are also easier to cook with over a fire, which is necessary in the countryside during times of gas shortages. At such times, Chijipata potters note a noticeable uptake in orders. In sum, recent and ongoing changes in this small settlement of potters involve larger structural changes and, like the case of the Taraco Peninsula, also involve local contestation and struggles within and across communities of practice.

**Embodied Knowledge**

I begin my juxtaposition by considering the learned embodied knowledge, or *hexis* (Bourdieu 1977), of these two communities of practice. On the Taraco Peninsula we have evidence, in the form of smoothers and other production tools, that most sites produced pottery, but we have yet to identify unambiguous firing areas (Roddick and Klarich 2012:104) or primary evidence for the process of learning itself (Crown, this volume). The absence of production areas may be due in part to sampling—firing areas are difficult to define archaeologically in the Lake Titicaca Basin, whereas the lack of evidence of learning (fingerprints on clay, lumpy vessels, ungrammatical designs, etc.) may be due to the particularities of learning to pot. As Crown (2007) notes, there are often many hands involved in the production of ceramics, and evidence of peripheral participation may be lost to archaeological investigation. These traces may not be visible. Vessels formed by novices were perhaps never fired and clay from unfired vessels was perhaps reused (e.g., Singleton 1989).

Despite lack of direct evidence, patterns in ceramic attributes and *chaînes opératoires* can highlight particular learning communities (Table 4.1). For instance, shared attribute patterns associated with technological choice and resource extraction across Kala Uyuni, Kumi Kipa, and Sonaji suggest that they were one community of practice throughout most of the Late Formative. There is notable consistency in pottery production across Taraco Peninsula communities over several generations. While analysis of the technological sequence revealed variability
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<th>Table 4.1 Learned technological sequence for the ceramic production in Late Formative Taraco and contemporary Chijipata Alta communities of practice</th>
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<tr>
<td><strong>Clay/temper acquisition</strong></td>
<td>Lipari clay and micaceous sands, locally derived from outcrops near the village</td>
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<tr>
<td><strong>Paste preparation</strong></td>
<td>Clean of inclusions: likely sieved prior to preparation</td>
</tr>
<tr>
<td><strong>Forming</strong></td>
<td>Coiled and/or pinched, varied rim forms</td>
</tr>
<tr>
<td><strong>Finishing</strong></td>
<td>Smoothed, fine-wipe burnished, and fully or partially reduced</td>
</tr>
<tr>
<td><strong>Firing</strong></td>
<td>Semi-reduced to fully oxidized</td>
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**Chijipata Alta cooking vessel**
- Primary clay accessed from the Taraco Peninsula
- Siltstone temper accessed from Cerro Chillo in the neighboring community of Higachi

**LF Taraco cooking vessel**
- Well-sorted fine sedimentary clays, likely from the Taraco and Kollo Kollo formation of the Taraco Peninsula
- Crushed sands and/or grass temper, in some cases very high densities of micaceous inclusions in sands

**LF Kalasasaya serving vessel**
- Clean of inclusions: likely sieved prior to preparation
- Coiled, paddle, and anvil forms
- Smoothed, fine-wipe burnished, and fully or partially reduced

**Learned technological sequence for the ceramic production in Late Formative Taraco and contemporary Chijipata Alta communities of practice**

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in cooking vessel forms (see below), there was considerable stability in the learned embodied knowledge, from paste preparation to the surface finishing of vessels (Roddick 2009; Steadman 2007).

In their preoccupation with design styles, archaeologists of the region have yet to engage with this fascinating social maintenance of craft production. Continuity in decorative choice has been explained away as tradition, masking the social processes behind shared practice. To move beyond a view of learning as simple culture transfer or “socialization,” we need to consider the kinds of participation involved in pottery production, many of which would have involved particular power dynamics and forms of cultural capital. Power relations both enable and constrain the process of peripheral participation, and the movement into a particular community of practice may “truncate possibilities for identity” (Lave and Wenger 1991:42; Gosselain, this volume). Power dynamics were likely embedded within the process of joining a community of practice (Lave and Wenger 1991; Crown, this volume). Consistency of learning over many generations, accompanied by lack of appreciable variation, suggests a closed learning framework, characterized by “the segmentation of tasks, closed access to knowledge, strict control of behaviors, and rejection of anyone or anything departing from the socially admitted norms” (Wallaert-Pêtre 2001:490).

There are, however, subtle changes in the embodied knowledges across the Middle and Late Formative periods, including one that involves surface finish. While Middle Formative ceramics are fully and intensively burnished, Late Formative ceramics were more often wiped (Roddick and Hastorf 2010:165–166). Surface finish on earlier Middle Formative period pottery is always horizontally oriented, while 8 percent of Late Formative period jars and ollas are finished with vertical burnishes. Such seemingly minute changes in learned bodily practice might be explained through a consideration of learning communities. Potters work in regular ways to ensure success or to establish a rhythm and momentum within a repeated sequence. Muscle memory is conservative and is most malleable in infancy. Thus motor habit patterns of potting likely take at least a generation to change (Arnold 1998:357). Learned bodily movements of a particular community of practice result in artifact micro-styles (Dietler and Herbich 1998). New vertical finishes suggest that some members in the community of potting practice
introduced a subtle change in an otherwise closed learning system (e.g., Sassaman and Rudophi 2001; Van Keuren 2006). If populations were indeed moving around the peninsula during the Formative period in a fissioning process (Bandy 2006), new communities of potting practice were forming, perhaps revolving around new political alliances. By the later phases of the Middle Formative and into the Late Formative, these may have involved new participants from farther afield, with different forms of hexis.

At Chijipata Alta, we have better resolution on the potting community of practice and the micro-processes that constitute its assembly. Village potters clearly align with key elements of a single community of practice; there are shared ways of doing, mutually defined identities, and shared tools and discourses (including jargon, stories, and jokes) (Wenger 1998:125–126). Children are brought into productive tasks at a young age. By four to five years of age, children learn to care for animals by helping to milk cows and pasture cattle. They also begin to “play” with clay and small pots, including those from the nearby village of Tacanoca (Fig. 4.1) that specializes in such miniatures. By eight to nine years of age, children help to dig the ñeque clay and chillo temper, collect dung for firings, pack up ceramics, and produce small vessels. Coherence and consensus are implicated from an early stage, as community members have a “moral,” expected duty to play a part in communal activities (Gosselain 2011b) that is not restricted to the young but extends to potters who marry into the community and quickly learn to participate in local production. There is a practical dimension to this coherency, as accessing raw materials and selling at markets relies upon a certain amount of community organization and sharing of resources (e.g., transportation for dung and clay).

There is a shared way of doing and knowledge across this community of practice, with each choice of tool and technique leaving recognizable traces in the vessels (Table 4.1). All potters quarry raw materials from the same sources and fire vessels using locally available dried cow dung. Although we are still studying variation in embodied gestures, there appears to be a shared hexis across the potting community. Potters make use of a similar set of tools, including wooden pallets, ceramic turntables, and metal scrapers, all of which are associated with learned gestures. Indeed, for many potters these tools have been passed down
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across generations. Unlike the case of the Formative Taraco Peninsula, we have less data to speak to genealogies of learned potting practice over the *longue durée*. However, an examination of sherds eroding out of local ash mounds suggests a long-standing use of current paste recipes.

**The Relations of Potting Practice: Legitimation and Boundary Maintenance**

The embodied practices seen at the small scale in both Chijipata Alta and the Taraco Peninsula contribute to and reflect political processes. The practice of potting (and learning to pot) is political insofar that negotiation and contestation occurs across production steps (Bowser 2000; Neupert 2000; Sillar 2000). These shifting social relations of learning involve forms of local identity, including kinship and experience, and more regional identifiers such as class and ethnicity. As such, they participate in the production of dynamic social boundaries. A recent shift in gender roles in Chijipata Alta illustrates the significance of historical dimensions in the emergence of a new legitimate potting practice (cf. Stahl, this volume), a process that involves people, places, and things at a number of scales.

As recently as 15 years ago, it was primarily women who learned to produce pottery in Chijipata Alta (de Zapata et al. 1997; Gosalvez 2003:166), whereas today men and women are equally active in all stages of potting. This recent change in gendered practice is likely correlated with political economic shifts across the landscape but more specifically to the substantial influx of NGO funds, which brought about very different practices but also new participants and spaces of learning. One NGO focused efforts on changing local practice, transforming Chijipata Alta potters into producers for the tourist art market, with plans to distribute their wares in La Paz and beyond. This plan financed a sophisticated production space in the community equipped with kick-wheels and electric furnaces and required the finer clays (*q‘inku*) excavated from a different local quarry and glazes. Potters from communities around Jesús de Machaca (Fig. 4.1), renowned for their replicas of Tiwanaku vessels, were brought in to teach Chijipata Alta potters new techniques. Here, learning implicated a number of people (international NGO members, Jesús de Machaca experts, and Chijipata potters), places (new
workshops and quarries, and domestic patio spaces), and things (highart catalogs, new tools, and clay mixtures), all of which circulated at diverse spatial scales.

This effort resulted in several years of success, with men becoming particularly involved and competitive in the production process. Several gained visibility outside the community. One particularly skilled artist sold his wares to buyers in Europe and North America. Today, however, no potters work in the NGO-financed space. The workshop—an institutionally top-down imposed locality rather than one that emerged through situated, everyday learning—is a ruin, the expensive glass, shelving, and wheels broken and scattered about the workshop. Although potters complain about the need for a warm space for communal potting, few consider this workshop appropriate for their ongoing practice. Its strange political resonance in the village might be explained by the traces of alienated relations of capitalist production within a longer genealogy of potting practice (see Lave and Wenger 1989:112). In other words, the women potters of Chijipata Alta felt no relationship to this new form of practice, which required new tools, clays, and (most importantly) new relationships. Although some now regret not embracing these new economic possibilities, others stress the relationship between their learned practices and social identities: “Somos olleros, no somas ceramicistas!” (“We are olla-makers, not ceramicists!”). In contrast, the (temporary) flow of economic capital resulted in new social and cultural capital (Bourdieu 1986), and men became interested in the craft of potting. The moral duties within this community of practice have changed, and in many households men have learned the ceramic trade from their mothers, sisters, and wives. Today both women and men produce ollas, although final rim finishing, widely viewed by potters (but not consumers) as the technical signature of particular potters, is left to the woman of the household.

Lave and Wenger (1991:35) have argued that there “may very well be no such thing as an ‘illegitimate peripheral participant.’” Yet communities are defined as much by processes of exclusion as inclusion, what Gowlland (2012:368) calls “boundaries of practice.” Through defining a particular form of participation as legitimate or illegitimate, boundary maintenance can be a significant factor in the development of a community of practice. Such processes of exclusion, or “legitimation con-
flicts” (Harris and Shelswell 2005:168–170), are key to social boundaries, and they contribute to the shifting scales of practice we recognize in the archaeological record.

Such conflicts are not limited to gendered practice, as seen in the case of an expert potter, originally from the Quechua-speaking southern part of Bolivia. She encountered resistance upon entering the Aymara-speaking Chijipata community of potting practice, particularly due to her foreign language and dress. The community blocked her efforts to learn local crafting practices, and some marginalized her. However, she went on to learn the craft from her husband’s uncle and is now one of the best and most productive potters in town. As she moved from a newcomer to an old-timer (Lave 2008:285), she transformed her political identity, holding many of the political offices in the village. I suspect that competency within a community of crafting practice conditioned her movement through this other realm of political practice, particularly in this small village.

These legitimation conflicts are not limited to one spatial scale; power dynamics stretch beyond the workshop and village to boundary locations where people of different backgrounds, skills, and experience meet in practice. One such location is the chillo mine, where potters with a wide variety of experiences pay to pick out and crush the siltstone used to temper their ñeque clays (Fig. 4.3a). Here local-level power dynamics continue to play out. For instance, the children of the potter discussed above are often sent to help dig clay for pottery production with other potters. Yet their status and age results in difficulty in accessing the better outcrops, likely resulting in a less pure siltstone temper. Broader political dynamics at a regional scale (below) also play at such locations, and these equally implicate processes of learning.

In the Late Formative period we have fewer data that speak to such processes, and less resolution of insight into the micro-politics of daily practices. We can, however, assume that local-identity tensions defined Late Formative communities of practice. The case of Chijipata cooking pots demonstrates that relations of power can be associated with less “prestigious” items, and even the most mundane pottery can serve to “create arenas in which to display (or betray one’s lack of) knowledge and skill” (Dobres 2000:116). However, unlike the ollas produced for later Tiwanaku phases (Janusek 2003) and for modern Chijipata vessels,
the forms of the Taraco Peninsula cooking assemblage (but not other attributes such as paste preparation or surface finishing) have a high degree of variation. Lack of detailed data on quotidian wares makes tracking relations difficult. But preliminary work has revealed similar variation in production between sites in the region, suggesting that crafting knowledge around cooking vessels may not have been as freely shared or, alternatively, may not have been a competitive arena.

Where we do see intra-site variation is in production patterns in Kalasasaya bowls, which may point toward particular Late Formative boundaries of practice. These diagnostic vessels, found throughout the Lake Titicaca Basin, are likely associated with new drinking practices associated with the appearance of maize and chicha (maize beer). They are widely recognized due to both their red-slipped decoration and characteristic soft brown paste, often with red-mineral inclusions (Fig. 4.4). Of the bowls analyzed across the four sites on the Taraco Peninsula, 47 percent (n=945) are in this red-rimmed style (Roddick 2009:254). The high proportion of these vessels, and the availability of local clays that oxidize to the same color, suggest that they were local products (Roddick and Klarich 2012). Yet paste variability even within the Taraco community of practice suggests that access to such a local quarry may have been limited. Approximately 60 percent of the decorated Kalasasaya vessels used this paste, with the remaining 40 percent produced using a variety of sand-tempered pastes. If the proper material for such

**Figure 4.4.** Example of Kalasasaya rim sherd from Tilata (A, same sherd as E). Compact pastes (with red inclusions) associated with Kalasasaya bowls from B) Iruhito, C) Kala Uyuni, D) Khonkho Wankane, E) Tilata, and F) Petrographic thin section of Kalasasaya paste from Kala Uyuni. Photos by Andrew Roddick.
red-rimmed vessels was the soft paste with red-mineral inclusions, which is common at the regional scale (below), there are two possibilities: either potters learned to produce Kalasasaya vessels with the pastes associated with their domestic cooking wares, or, alternatively, we may be seeing boundary practices within the Taraco community of practice, perhaps a result of differential access to the associated clay quarry (cf. Marsh 2012:318).

Tracing Constellations of Practice

Moving to a larger analytical scale, we can begin to consider the social relations of production in a broader context. Particular steps in ceramic production can have their own regional distribution patterns aligned with the history of potters’ experiences and movements across a given region (Gosselain, this volume). Ceramics are “heterogeneous dynamic aggregates, whose various elements evolve independently, through different mechanisms” (Gosselain 2008:175). Tracing particular dimensions of potting practice (e.g., those in Table 4.1) across the broader landscape helps to problematize the “illusions of closed spaces” in communities of practice (Lave 2008:293).

Paste is a particularly useful trace through which to consider the dynamics of learning across a landscape, both in the case of the fragmented Formative assemblage and the contemporary potting landscape (also Stahl, this volume). Andeanists often use pastes to define the “local,” and thus political and/or ethnic boundaries, yet rarely do they explicitly investigate the social practices that generate such patterns (Druc 2013). However, the identities and micro-political practices of particular potting groups are essential in thinking through locality and clay collection (DeBoer 1984). Variation in ceramic raw materials cannot be explained by potting economics alone (Sillar 2000:69), and the steps taken in preparing pastes are guided by learning. Potters might exploit the same resources but employ different processing techniques, since different people taught them in different places (Gosselain and Livingstone Smith 2005; Livingstone Smith 2000). Furthermore, use of particular raw materials is bound up in social relations at quarries and to larger contexts of political control (Neupert 2000; Sillar 2000:69). Regional paste patterns might be mapped as a constellation, a relationally
determined geometry of practice situated within particular contexts of power.

Archaeologists working in the broader southern Lake Titicaca Basin have noted in particular the correlation between the Kalasasaya bowls and the soft brown paste discussed above (Bermann 1994; Janusek 2003; Marsh 2012), hinting at a larger constellation of practice. Janusek (2003) suggests that the intra-site variation of these vessels may be due to differential access to either finished products or raw materials, which hint at status variation. The high density of such forms recovered from Late Formative period deposits at Tiwanaku appears to support this claim (Ponce Sanginés 1993). Preliminary petrographic analyses of these vessels at the regional scale suggest that while potters all aimed to represent a similar paste (beige in color with red inclusions), the actual mineralogy of the pastes and steps taken to reproduce this paste vary by region (Roddick 2014; Fig. 4.4).

This production of new vessel forms was likely a key element in a larger sociopolitical process, involving both new drinking practices and a new corn beer (Logan et al. 2012). The spread of this way of making Kalasasaya vessels for a new arena of consumption suggests new regional forms of learning, but always contextualized at a local level (Mills, this volume) and linked through particular boundary objects (Gosselain, this volume). Wenger stresses that styles can move across constellations, but these should be considered not practices in themselves but rather resources that are drawn upon within the context of specific practices (1998:129–130). From such a perspective, the red-banded Kalasasaya vessels connected different constituencies—those who produced the pots and those who engaged in new forms of commensal politics (i.e., communities of pottery consumption; Roddick 2009; Mills, Roddick and Stahl, this volume)—each of which may have had different understandings of the bowls (Wenger 1998:108). These vessels, identifiable in form, decoration, and paste, quickly became entangled in altered social relations, whose meaning was claimed by those seeking new forms of power from this new practice (Wenger 1998:209). Such a process explains their differential distributions within and between Late Formative communities of potting practice.

This pattern is suggestive of a pan-southern-Titicaca constellation of technical practice, enacted at a variety of analytical scales. Such patterns
across scales would be produced, on the one hand, by the movements of potters from particular communities of practice: meeting at social events, intermarrying, and perhaps exchanging experiences at particular quarries, all of which likely contributed to a level of homogeneity across the region (Livingstone Smith 2000; Gosselain, Mills, Stahl, this volume). Yet just as the potters travelled, the movement of the pots themselves created a “stretched social space” (Faulconbridge 2010:2855), and the practices and their traces (in the form of ceramic attributes) likely exceeded the perceived social borders of those living in the area (Gosselain 2011a, this volume).

We are still mapping the geometry of situated practice in the region around Chijipata Alta, but here we have the advantage of observing day-to-day processes of this particular constellation of practice while also mapping historical archaeological traces. A particularly important node here is the chillo quarry (Fig. 4.3a), where particular power dynamics both within and between particular communities of potting practice play out. Potters throughout the region, including some from much farther abroad (as far away as Peru), visit the mine. At this mine there is consistent tension between Chijipata potters and the landowners from the neighboring village of Higachi. It is common for debates to break out about proper procedure in excavating out materials. While some potters know each other, many do not, yet all are connected through the “boundary objects” of the vessels themselves and shared material traces, including a history of learning (as indicated by a landscape of similar ash mounds, tools, and paste recipes [ñique and chillo]). Some visit this mine from communities on the edge of this constellation of practice, in villages such as Chiarpata (Fig. 4.1). Here is one of the densest landscapes of ash mounds, yet only a handful of potters are currently active. These potters produce fewer (and lower-quality) vessels and consequently visit the mine less frequently than those living (and learning) in areas with a greater density of potters.

Weekly markets and annual fairs also see tensions between varying communities of potting practice, and places are key locales in the learning process. Wenger (1998) suggests that boundaries between communities of practice can create divisions, as they can be insular and defensive but also can be areas of learning with potential for new innovations (Gosselain, Mills, Stahl, this volume). Chijipata potters are widely
considered to produce the best pots—the clays, potters, and pottery are all highly “reputable” (Sillar 1997). Villagers proudly recount stories of potters from other villages displaying fake identification to try to sell their “Chijipata” pots to buyers in the capital city: a regional-level legitimation conflict (Harris and Shelswell 2005) resolved by fakery.

Potters in Chijipata have different experiences and skills that are associated with their movement across the larger social landscape. Some potters have spent more time at both regional pottery fairs and in La Paz markets, spaces of learning (Buechler and Buechler 1992:83-106; Gordon 2002) through interaction with potters from other communities as well as intermediaries who purchase and sell larger quantities of vessels. These brokers discuss potting techniques, which produce subtle differences in the production sequence of the potter. Other potters have encountered new technologies (clay mixers, molds, and small ovens). This bottom-up interest in adapting such techniques contrasts with the NGO attempt (above) to override ongoing practice (sensu Lave 2008: 286) and holds potential to bring about new learned practices for the chillo-ñeque paste recipe.

Conclusions

I began this chapter by stressing the need to explore the dynamism behind our static, heuristic categories. This is particularly important during the Late Formative period, where even the most mundane pottery assemblages might bring into focus the social and political changes behind the emergence of the urban phenomena of Tiwanaku. The situated learning literature provides critical insights and new terrain to explore. For scholars of situated learning, there is no “culture” or “tradition” as an independent context-free knowledge awaiting “transmission.” This approach forces us to question homogeneous categories of identity, which makes simple mapping of social and political relationships in the past much more difficult (Gosselain 2011a). But it also encourages us to situate practices in their historical context, to look for the unintended consequences of long-term practices, and to work toward a kind of archaeology of the future (Sassaman 2012, this volume).

In juxtaposing the contemporary and ancient potting communities, we begin to see how participants contribute to and navigate distinct dy-
namic political and economic conditions on the ground and at multiple scales (also Harris, this volume). For instance, today elders in Chijipata worry about the maintenance of their olla-making tradition in the face of ongoing economic and political changes. A number of changes in educational policy, initiated by Bolivian president Evo Morales and enacted locally by community teachers, may help sustain such crafting practices in rural communities. As the case of the NGO effort discussed above makes clear, it is hard to predict exactly how such top-down efforts will impact relations of power within these communities of practice and whether we will see new forms of legitimation conflicts and boundary maintenance. In our ongoing work into the history of Chijipata Alta (archival research, excavations into ash mounds, and ceramic analysis), we are exploring how the earlier shifts in power relationships of the midcentury agrarian reform may have impacted this community of practice. In the case of the Late Formative Taraco Peninsula, ceramic attributes suggest changing embodied knowledges of participants in ongoing practice, a process entangled in larger structural changes. But the practices of communities of potters in Chijipata Alta and Taraco were never bounded behind an imaginary wall; rather they are, and were, woven into larger constellations through shared practices, boundary objects (such as ceramic pastes and finished objects), and particular individuals (brokers).

Wenger’s concept is a rich metaphor, but it also introduces an important question: what was the form of these constellations? Chijipata Alta oral histories suggest potters’ “spaces of experience” have contracted in recent years. Even one generation ago, potters travelled much greater distances to sell their wares and interact (and learn) from other potters. Such modifications are certainly associated with economic changes across the region, but the associated historical processes need to be explored in more detail. In contrast, there are multiple lines of evidence to suggest a significant expansion in scale during the Late Formative, involving the movement of objects and knowledges surrounding Kallasaya vessels. Here we need more intensive studies of quotidian wares. Situated learning is a “way of looking, not a thing to look for” (Lave 2008:290), but the scope and form of particular topologies of learning may only emerge out of further fine-grained ceramic analysis across the Lake Titicaca Basin.
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References


Pérez Arias, Adolfo E. 2014. Arqueología en el Río Desaguadero: Excavaciones en Iruhito. La Paz, Bolivia: Producciones Gráficas JUNIOR.


This chapter is about the learning of skills among people who live along
the rivers of the Amazon in the state of Pará, Brazil. It addresses regional
learning relations and their contexts in a historical manner. The current
volume provides the opportunity for considering the temporal and spa-
tial dimensions of learning communities. The question animating this
chapter is this: given the ruptures of Amazonian history, how have skills
been transmitted from one generation to the next? Riverbank peasant-
ries have endured as coherent societies since the late 18th century de-
spite the flux of political and economic forces (Roller 2014). My answer
explores the role of the river in learning skills and shaping lives, and the
manner in which some 18th-century Amazonians improvised the knowl-
edge and material resources of the time, and how some of their descen-
dants have built on this legacy.

The Portuguese struggled to impose their authority on the Brazilian
Amazon in late colonial times. With little economic development, rela-
tions were relatively undifferentiated compared with the rest of Brazil.
Indians were more numerous in the Amazon than elsewhere, and away
from the river, unknown numbers of Indians lived with indirect con-
tact with the colony (“the tribal zone”; Ferguson and Whitehead 2000).
Whites depended on Indians for their labor, often forced, but also for
their knowledge of products, where to get and how to process them. This
reliance shaped much of the informal side of colonial relations. The rivers
and their navigation were at the core of the identities of these new kinds
of people and society.¹ Up and down these waters, people learned new
forms of association. In doing so, they realized different kinds of people
were participating in the same space (Gosselain, this volume).

In this setting, 18th-century Amazonians discovered a range of con-
nections, such as to the Portuguese monarch in faraway Lisbon. Through
Christianity other long-distance identifications were made. Indian slavery meant individuals were forced into novel relations in areas distant from their homes. Families sought to escape oppressive bosses by moving away. In other words, people learned to operate, survive, resist, and find advantage in a turbulent context. The political, economic, and natural environments influenced these experiences of learning (Roddick and Stahl, this volume). Furthermore, the kind of society meant that knowledge transmission and sharing were dispersed over a wide area. Thus river people, *ribeirinhos* in Portuguese, moved between communities of practice for a variety of reasons. Along the river, archipelagos of learning were forming for the conduits of newly made knowledge.

Particular individuals (“brokers” in the language of Wenger [1998]) managed to draw together strands—materials, beliefs, perceptions, skills—in dazzling new combinations from Amerindian (itself not singular), European, and, from the mid-18th century, African traditions. These assemblages can be seen as “bundles” in Keane’s sense (2003), affinities of matter and value. They expressed the imaginative work of these folk finding bridges across the ethnic, racial, and class divisions. Rather than focus on the correlation between ethnic identities and knowledge of the environment—the conventional approach in Amazonian anthropology—I attend to some of the bundles that have come down to the present in which the river is salient.

The embedding of a community of practice in riverine history and ecology helps advance Lave and Wenger’s (1991) situated learning approach toward temporal and spatial affordances. Here the term task-scape, coined by Ingold (2000), can be used to encompass these bundles of skills, techniques, and activities, and their patterning and timing in a particular environment. Still, Ingold’s understanding is bounded to a particular location; its parochialism unnecessarily limits the appreciation of the lives that produce the task-scape. Moreover, no significance is given to how dominating social relations affect the patterning of activities. The task-scape is nonetheless helpful because it permits features of the natural environment to be included as subjects. The strong presence of the river has been the constant feature of societies along the Amazon. Around it, a culture of water has developed, rich with associated practices and meanings. Over the last three centuries powerful forms of attachment and inclusion of the region in global commodity circuits have created the
taskscape of riverine peasantry and the changing persistence of their livelihoods.

**Amazonian Historical Peasantries**

I have found Lave and Wenger’s argument (1991) particularly helpful in understanding how the identities of contemporary floodplain dwellers are founded in practice and the value placed on performing skills in a certain way (Harris 2005). Yet these identifications did not become objects of reflection or verbal articulations. Their sense of identity was instead expressed through an ability to live using diverse skills on the floodplain and a certain pride in being able to continue doing so as a member of a riverine community (Harris 2000). This situated learning and community of practice perspective correctly avoided questions of ethnicity and, in particular, evaded associating an activity with a specific ethnic identity (also Blair, this volume). These questions had dogged previous discussions of riverine dwellers (e.g., Parker 1985) by assuming an intrinsic connection between place, person, skill, and ethnicity. Using a bow and arrow to fish, for example, was seen as a survival of an Amerindian past rather than a learned skill for a kind of fishing at a particular point in the season. Importantly, the association between Indian and bow and arrow did not exist for my informants. I preferred to understand these recontextualized practices as new bundles of technologies and skills (Keane 2008:115).

While solving some analytical problems, adopting a community of practice perspective raised other questions about the historical character of learning skills: why continue to use bow and arrows when other technologies are available? And as indicated above, how could some kinds of knowledge—about navigating the river, for example—have been passed down in light of powerful forces rupturing the connections between past and present? In other words, “survivals” had to be confronted, but within a different framework.

The “survival” perspective, as it has developed in Amazonian anthropology, is linear and uniform in its conceptualization of history (e.g., Moran 1974; Ross 1978). It starts with conquest and Amerindian polities along the river in the early 16th century and moves to degradation in the 17th through disease and enslavement, and then reformation of mixed-blood
Amazonian societies in the 18th–19th centuries as migrants from Europe and other parts of South America arrived and Africans were forced to work as slaves on plantations and in households. The 20th century consolidated existing practices and economic patterns (Castro 2002), ending with the “cabocloization” of Amazonian people living in rural and urban areas. Cabocloization refers to the peasant and mixed cultural character of these societies (Parker 1985). Caboclos, in this perspective, were a separate category of people, deserving of their own history. The term derives from the Tupi language and indicates someone who is of Indian and white origin (Harris 1997; Pace 1997). Ruptures are an integral part of this perspective. The break from Amerindian to caboclo followed conventional Brazilian historiographical periodization: mission, colony, independence, and national (Castro 2002; Parker 1985; Ross 1978).4

Rethinking this history returned me to the same questions: how could there be continuity of knowledge if these upheavals were so complete, and did discontinuities affect some aspects of social life more than others? Perhaps the region’s history could be conceived in terms of multiple threads, some enduring, others ending, and new ones woven in. In that case, the analyst had to explain in which situations these threads and associated bundles became meaningful to participants. Clearly power is central since it is as a result of resistance from below, or suppression from above, that activities or beliefs are expressed or not (Holland and Skinner 2001).

This feature led me to conceive Brazilian Amazonian history and anthropology in terms of connections between different periods in the region (but not in a straightforward manner) and to understand its postconquest history in a transatlantic context (see Hemming 1987 for another view). By attending to skilled histories and the handing down of practical knowledge, I aim to get closer to the experience of those who struggled to survive and adapt in traumatic situations. My assumption is they protected what they valued most and what aided their survival.

The middle of the 18th century is recognized as a critical juncture in the Brazilian Amazon (Guzman 2009; Maxwell 2001; Sommer 2000), as for Luso-Brazilian connections in general (Maxwell 2004). The Portuguese state embarked on a series of reforms, expelling Jesuit missionaries and secularizing all the missions (in which about 20,000 people
lived); banning Indian slavery; encouraging mixed-race marriages; and sending a board of the Lisbon inquisition to Belém, where it remained for five years (1763–1768; Amaral Lapa 1978). Reform was aimed at economic and social development. A new society of good Christians and hardworking vassals to the Portuguese monarch was envisioned. The reality was otherwise as Indians, whites, Africans, and people of mixed descent intermingled in ways they had not previously. Here outsiders—white and poor Portuguese peasants in the main—came to rely on Indians for survival. From them they learned how to observe the river, discern fish movements, and use Indigenous technologies for fishing. Outsiders introduced practices and technologies from Europe. The later colonial period (c. 1750–1820) following these reforms was decisive in settling Amazonian peasantry on the riverbanks as persisting communities (Roller 2014; Sommer 2000).

Sabina, a famous mid-18th-century Lower Amazon shaman whose work I outline below, is a product of this dramatic period when shifts occurred in the scale of relations and the distinctive character of the Amazon became clearer. A paradox was created: as the Portuguese Crown sought to bring the region into line, the Amazon developed a strong regional identity based in the river, the economies it permitted, and the relations that connected its communities. Below I give examples, but first I review the composition of these communities, which is crucial to understanding learning.

Advancing a new scholarly understanding of the colonial period, historian Barbara Sommer writes, “Towns [along the river in the second half of the 18th century] were not random aggregates of individuals, but communities built through deeply-rooted kinship ties” (2000:242). This picture of coherent villages is very different from that normally put forward for conquest survivors. Families thus formed the basis through which Amerindian skills and environmental knowledge was passed down. As new technologies became available—metal hooks, hoes, and axes—demands for new products were made and skills innovated. Building on this revision, Roller (2014) shows how a peculiar mix of mobility and rootedness lay at the heart of these communities’ engagement with colonial society. People moved in search of better conditions to fit their skills and avoid labor drafting. Often migrations were to nearby places rather than strange villages, or into the forest. Mobility along rivers was not at odds with the
making of communities but intrinsic to their development and growth. So important were the complementary processes of being on the move and making local places that Roller argues that a uniquely resilient regional culture was forged along the waterways. “This culture—and not imperial will or state power—best explains why a large majority of the colonial Indian villages endured as settled communities into the 19th century and beyond” (2014:4).

Roller (2010) has also indicated that collecting expeditions were an important activity for the expression of Indian autonomy in the second half of the 18th century. Sponsored by the Crown and directed by a canoe leader who was often “white,” Indians went off in search of products along the riverbanks, such as cacao, Brazil nuts, clove, cinnamon, medicinal plants, and sarsaparilla. So significant were these that the regional economy centered on their export until the 1790s (Roller 2010:439). Locations in which natural products were sought, the navigation, and the length of time spent away were decisions made by Indians (2010:452), frequently in relation to their own needs, such as the chance to connect with nearby family or forge new contacts outside that might be useful if they chose to escape.

On return their packed canoes had to travel onward to the capital to deliver the goods to the warehouses and receive payment, which was shared among the crew and village officials. Given Indian knowledge of the environment and capacity for paddling and navigating the rivers, these collecting expeditions provided men with a significant amount of control in their working lives. Indeed, Roller argues this seasonal work was preferred over village-based activities, despite hardships like returning to find spouses with other men or suffering violent encounters with independent Indians. Through these journeys, river-long networks were maintained, spreading knowledge and skills between the deep forest sphere and Belém, the capital. All rivers led to Belém. It is not difficult to imagine that information was shared about these places as people stopped for food, rest, and shelter. Social relations were consolidated on a riverine scale, linking remote groups with the colonial world’s heart. Although state-sponsored collecting expeditions ended late in the 18th century, private excursions persisted. More pertinent here, long-distance movement along the watery surfaces remained important, for motivations ranging from attending festivals and visiting kin to locating
new sources of products and trading. These circuits remain highly significant for men’s networks to the present.

Another brief example shows how the scale of relations stretched across the Atlantic. During the later colonial period, an individual or group could petition directly the monarch in Lisbon, bypassing levels between the lowliest vassal and highest subject. Though the practice was not regular or numerous, Indians in the Amazon “use[d] legal means to defend their autonomy” (Sommer 2012:2). This defense meant a direct bond across the Atlantic Ocean was imagined and created by the letter. This scaling up of relations in personal terms suggests a need for analytical strategies that recognize these pathways.

These transatlantic networks are clearly in evidence in the case of Domingos Alvarez, an African from the periphery of the Dahomey kingdom known as Mahi, who was taken to Pernambuco, northeast Brazil, as a slave in the early 18th century (J. Sweet 2011). Although not in the Amazon per se, Domingos’s life history as a ritual specialist who strove to build healing communities introduces the learning of religious practice to my discussion. Although the evidence is inconclusive, Sweet reckons that Domingos had knowledge of the vodun religion and was likely a trained Sakpata cult priest before being forcibly transmitted to Brazil at age 18. Raising money from curing, he bought his freedom in Rio. With his healing skills and knowledge of herbs, a cult emerged, building a community of people around a vodun shrine (also Schoenbrun, this volume). Denounced to the Inquisition as a witch doctor, where he claimed it was the power of the plants that cured rather than his own powers, he was sentenced to exile in Portugal where he likely lived out the rest of his days.

Domingos’s life history confirms that 18th-century Brazil was replete with dislodged people, objects, and practices. Yet, like the Indians of the Amazon, Domingos tried to draw on his own skills to make a living and build personal relations. People redeployed their talents, but in conditions not of their choosing (D. Sweet and Nash 1982). Their choices were structured by institutional limits: the law in the case of petitioners, environmental knowledge and canoe bosses in the case of the collecting expeditions, and clients’ belief in ritual efficacy in the case of Domingos. In each, the colonial system constrained action, but as argued by Roller and others, it also provided new prospects (also Stahl, this volume). Some Indians and Africans were extremely skilled at taking advantage of them.
In sections to come I juxtapose life histories from different times and places that explore how individuals availed themselves of these opportunities, mixing ritual and practical knowledges. These people form a way of knowing, a path connecting present and past through transmission and sedimentation of bodily practices (Conner ton 1989). Here the river metaphor serves us well: the river shapes space and time for these historical and contemporary Amazonians, whatever the activity.

Learning from the River (Knowledge on the Move)

As we paddled upriver to visit Ermiria’s parents, the river was high and its flow strong. Propelling the canoe forward required enormous effort from Andro, an eight-year-old child, and me. Ermiria sat on the middle bench. Suddenly her calm broke; she told us to go nearer to the bank to take advantage of the slacker current. We directed paddles accordingly. The canoe shifted course, but the speed seemed much the same. I struggled to paddle in harmony with my partner to keep a smooth line. I simply did not have the knack. Strength was less important than the skill to paddle efficiently, simultaneously coordinating arms, blade, water, canoe, and current.

This small scene illuminates the significance of knowing how to negotiate the currents. Although mundane, without learning effective paddling, life on the river would be impossible. Economic and leisure activities—fishing and visiting to mention two—depend entirely on this skill. Ribeirinhos prefer to travel by canoe, rather than by foot, even for very short distances. Walking is only undertaken when hunting in the forest or visiting town, a preference noted by visitors to the Amazon in past times as well (e.g., Bates 1863: 1:105). Europeans recognized the importance of Indian knowledge, strength, and technique on the river and paid Indians well for their troubles (Carvalho 2013:78–79; Roller 2012: 105, 108).

With the Portuguese arrival, among other Europeans in the 17th century, the river’s meaning changed. Although evidence is inconclusive, Carvajal’s account of the 1541–1542 voyage down the Amazon gives the strong impression that the river was a boundary (Carvajal 1988). Amerindian polities on opposite sides of the river appeared to be at war with each other and quite separate. With larger vessels coming upstream more
regularly from the mid-17th century on, those along the banks must have considered what other “wonders” the river could bring. Did they see a river and imagine a sea? Were tales told of the land across the ocean from where these white strangers came? It is inconceivable that stories of distant places connected by water were not recounted in some form by Amerindians. Thus the imaginations of these river dwellers forced into missions or slavery took on new horizons. The river came to embody knowledge—and imaginations—on the move. As such, the flowing water is a broker, an “actant” in the alignment of communities (in Wenger’s [1998] sense).

Paddling a canoe is one way of knowing the river as it flows. Yet phrasing the learning process in that manner makes the river sound like an abstract entity rather than a living and intimate part of everyday life. People wash their bodies in it, clean pots in it, swim in it, take fish from it, observe it, and drink it, to mention only some of the regular interactions. Although the river does not reproduce, it is like a living organism. It contains life as much as it makes it possible. The interactions between people and their riverscapes have produced a stock of practical knowledge that connects the different peoples who have lived by it. This commonality is borne of constant engagement with the river rather than the handing down of knowledge across generations, as we will see. So the phrase “learning from the river” is more appropriate in this context. The river is akin to a parent to those along its banks, in the past, present, and future.

What does this entail? Is the river a parent in the sense of being an authority figure, or a source of benevolence, or a mediator between generations and their different outlooks? We should be careful to avoid an ethnocentric understanding of the parent/child relationship (Bird-David 1990), as I discuss below. For now suffice it to say that children learn from the river in the sense that they learn how to live with it. That means altering one’s activities based on the height of the river and the accompanying seasonal changes, such as fish migrations, rebuilding the houseport, sowing and reaping crops, and hunting for certain animals. This learning process continues into adulthood, for engagement with the river never ends.

This work is how the taskscape—the array of related activities arranged over time—is put into effect each season. Children learn from
river changes they need to juggle various tasks to keep floodplain life going. In effect they gain a grammar for spatial orientation and temporal patterning of work activities (on the household basis of activities, see Castro 2009).

This constant and tireless perception attunes ribeirinhos to their environment. These experiences do not make them able to control the river or understand it completely. Hugh Raffles (2002:325) puts this nicely: “The river has lives of its own that no amount of familiarity can thoroughly contain.” Diverse dangers are underneath the waters. Stingrays lie flat on the riverbed near house ports and flip their deadly tails on an ill-placed foot. The current can take away and quickly drown the weak. Trees on the riverbeds and sandbars snag in unexpected places. Whirlpools contain dangerous invisible entities that can overturn canoes or make people ill.

Is the river really unknowable from a human point of view? I have said that the different riverbank societies are connected by their common interactions with the river. The river in this sense is a storehouse of memories, skills, and knowledge. But it has also co-produced them as people go about their daily business. The tracks made by canoes and paddles vanish almost as soon as they appear. Yet the trace of human effort to make that journey endures in a memorial form, which I call the taskscape. More literally, we can point to the river as a deposit for the effigies cast away by missionaries in the 17th century. Apparently, they burnt ritual houses and threw stone idols in the river (Bettendorff 1990; Daniel 2004). Historically, placentas were thrown into the river, as were aborted fetuses (Daniel 2004). We know too that women belonging to the Tapajós Nation who committed adultery were fitted with stones and dropped into the middle of the river as punishment (Daniel 2004). During times of war and rebellion, Portuguese, and later Brazilian, authorities threw hundreds, perhaps thousands, of dead bodies into the river’s murky depths (Harris 2010). So too are there stories of personal encounters with strange beings of the river. Dolphins come ashore as handsome men, seducing women at village festivals, and shamans travel underwater to fetch lost souls (Slater 1993). In these ways, the river is an archive. Its treasures should be consulted in forms quite foreign to the Western construction of knowledge. Learning how to live with the river
in the course of each person’s life is facilitated by tapping into this storehouse of memories.

In Connerton’s sense the riverine archive shares characteristics of both inscribing and incorporating practices (see 1989:78–79 on the lack of absolute difference between them). On one hand there is the external body of the river and on the other hand the human body and its unconscious and ritual-like performance of skills. Connerton (2011) has recently discussed how societies that have undergone great trauma and suffering seek new histories of mourning the dead in order to cope with an otherwise uncontainable experience of loss. He gives the design of a dance floor in Charleston, South Carolina, as an example. The wooden floor is painted blue and white, representing the sea and land. In the middle is a map of all the places that have been important to African Americans over the centuries, providing a narrative of the slave trade. The AIDS memorial quilt started in the 1980s was conceived as a mass project to include the names of the people who died from AIDS and was produced as a collective enterprise, with additions over time (Connerton 2011:13–14). These contemporary material acts are suited to the forms of those who wanted to mourn and to produce their own kind of archive. The Amazon River has the same value for those who live next to it.

**Making Oneself Amongst Others**

As early as the first Atlantic coast landing in what became known as Brazil in 1500, Europeans respected Indian skills in hunting and fishing (Caminha 2004). Thus some colonial efforts were always directed to harnessing the superior talents of Indians for the good of the mother country. Later in the colonial period, João Daniel, a Jesuit missionary, considered Indian learning to be “enhanced greatly . . . in the missions and the houses of whites; there they learn all the crafts that are taught them, with such facility, dexterity and perfection, like the best master craftsmen” (Daniel 2004:341). Of course, Daniel would characterize white influence as only beneficial. But his reflection acknowledges Indian improvisation of European techniques and technologies. This process involved incorporation of novel elements into existing activities. Nothing could better indicate “knowledge on the move”: observing close-up, hearing
from one’s peers about variations of practice, and adjusting one’s own skills and employment of materials as a result (Gosselain, Roddick, this volume). Where they could, Indians developed their own skilled histories, which may not have coincided with colonial and missionary desires that they produce quality goods for export. Below I present life histories that exemplify “the improvisational creativity of skilled practice” (Hallam and Ingold 2007:14), but first I explore the importance of storytelling as a mode of learning and information sharing between children and their adult networks of work partners.

Elsewhere I have written about the importance of children playing games. Indeed my own induction into a floodplain village was through participating in children’s lives, especially in fishing and swimming activities around the river (Harris 2005). In these situations, the learning of floodplain life skills occurs quite separately from the adult world of work, a feature noted in many other societies (Toren 1999). Chantal Me-daets, who also worked in the Lower Amazon, has recently conceived children’s developmental process in the riverine communities of the Tapajós as taking place “despite adults” (n.d.). Though children learn independently, they are at the service of their parents or guardians and must obey them. Little, if any, effort is spent teaching children the skills necessary to survival. But much time is taken up by children fulfilling the orders of their parents—fetching water, washing dishes, cleaning, delivering, and other tasks. As such there is a tension between groups of friends (often cousins), who support each other as they grow up, and the hierarchical relations of family life. In particular this pressure comes to the fore when the person acquires a spouse and is ready to set up an independent household (Stoll 2014).

Typically, in the present period, children of 5 to 12 years of age spend their mornings at school or fulfilling household duties and their afternoons in gangs busy with countless pursuits (during the dry season). The first experiences of fishing, for example, are with a rod or line from the house port (or the house when the flood is high). Only later may they borrow a canoe and go out to the river or lake, and rarely with their parents until they are about 12 years of age. Then boys plead with their fathers to accompany them on fishing trips. Typically these requests are turned down. The child is made to feel the time when he can come along is an extreme treat. The father withholds these pleasures as he thinks fit
and does not teach the child anything during the expedition. All learning is done by watching and waiting. The child continues to build its own groups for playing and learning. By their early teens they have learned the hard way—on their own without instruction or verbal guidance. But they have amassed a great deal of practical knowledge about a wide range of skills. At this point girls and boys go their own ways, at least they did so in the late 1990s to mid-2000s. Girls often went to town to attend school and work as maids, and boys went to work on fishing boats or to help raise cattle.

The role the river plays in this learning environment is explored by Morelli’s (2013) study of Matses children in the Peruvian Amazonia. The Matses have recently sought more direct contact with national society, settling on the riverbanks upstream of Iquitos. As a result, there is a generational shift from forest-based knowledge and hunting among the parents to children’s learning around the river (2013:55). Matses children now have a strong emotional tie with the river, which is an adult-free space where they paddle, fish, and play. These activities make the river a fundamental source of “children’s ways of knowing and acting in the world” (2013:91). They learn about water's material properties and using the river for nourishment. The children are more open to national society than their parents, so they are keen to learn at school and to know where the river will take them, since they learn early on the river brings goods and newcomers to their village. So the river connects them to others and can be used to meet and know them. It is precisely this sense of mobility and new forms of identification that earlier generations of Amazonians farther downriver in Brazil must have felt. (It is worth noting the reversal of historical process of a move away from the river to avoid contact with colonial forces and the contemporary return to the riverbanks.)

The minimal parental involvement in learning in the Brazilian Lower Amazon is paralleled by the Matses case. This autonomous approach to learning permits riverine Amazonians, and others in similar learning situations, much flexibility and agility in these skills. Although I cannot verify the claim, it seems likely that self-learning among peers accounts for their quick learning of other kinds of craft-based skills, as noted above by Daniel (also Bates 1863:2:196). Each person is reasonably good at all activities and can build on their talents, improvising a
new set of skills for other activities. By being able to work on the floodplain, a person gains community membership. Indeed, this is what is at stake—staying with one’s kin and maintaining the kin group or, in the case of the Matses, establishing a new community around new skill sets and perceptions. Despite the historical upheavals in the Brazilian Amazon, and in the absence of detailed descriptions of childhood learning, I strongly suspect that children also learned on their own in the 18th century and were able to put their skills to good use in other areas to the same effect.

The peer groups of a child’s formative years remain important as they grow up and continue to seek independence from their bossy parents. Indeed these groups grow in size and have significance for knowledge circulation. One of their key features—the telling of work stories or, less often, personal adventures—serves to bring these men together. Barring festivals, these were some of the most entertaining events in my fieldwork. While men mended nets, caulked canoes, or sat in a town bar, they shared colorfully recounted narratives, told speedily, full of sound effects and hand gestures to give emphasis. Aside from entertainment, these stories provided much information to those present. There were details about places visited to find particular stocks of fish, where others had failed to find anything, who had what kind of boat, and who was out fishing. The latest fishing, collecting, and hunting news was spread through these stories (along with other information), effectively extending what Gosselain (this volume) terms “space known.” Over a lifetime, these loosely allied men draw in more mutual acquaintances, often focused on a regional urban hub, spreading out to the satellite rural communities. Chat around storytelling featured smaller items of information: who was selling a boat? Who had moved where? Men could find new work partners for fishing expeditions, source for a product, or any number of practical advisories. Women too made use of these networks, as I explore below.

This discussion has been directed to the configuring of learning environments. On the one hand, the community of practice oversees the incorporation of new members and nurtures their early development. On the other hand, the acquisition of knowledge between adults occurs on a regional scale, a continuation of the friendship groups from
childhood. There the relationships are as good as the performance of the story, where men try to outdo each other, and the quality of information. The rivers shape and facilitate this sharing: rivers are conceived as forms for circulation; one hub leads to another one and back again. There is then an assembly or constellation of places that pattern these relations along the river.

**Life Histories of Some Skilled Practitioners, Past and Present**

I have already hinted that I am bringing together different kinds of skills and knowledge, which build on each other. The following historical example focuses on the shamanic art of curing. Laura de Mello e Souza (2003) has argued that colonial sorcery (which includes shamanism) should be seen in transatlantic context, the same world in which Domingos Alvarez rose to prominence as a healer. This large scale is necessary to appreciate the circulation of ideas, perceptions, and material artifacts (e.g., witchcraft pouches worn around the neck or bits of altar stone that were thought to contain powerful forces; see also Sommer 2003). With this frame, I turn to Amazonian shamanism and its confrontations—official and unofficial—with local Christianity.

Shamanism might seem out of place here, but it fits rather well as a craft-like activity. At the end of the colonial period, shamans were in much demand to aid healing of various afflictions (Carvalho 2005; Daniel 2004). The work of a shaman involved spiritual helpers, who were (and still are) called upon to assist in divining the source of the client’s suffering. Invisible and agentive, these spirits came to rest in the body of the shaman during healing. It could be said then that a cluster of skilled practitioners worked on the patient in view of an audience. So the shaman was part of a wider set of healers who learned from each other and employed an array of methods.

How shamans acquire their healing powers has attracted much interest in anthropology (Lévi-Strauss 1974; Taussig 1987). Stephen Hugh-Jones conveyed the idiosyncratic element of becoming a shaman rather well: “To know what you are saying and doing, you must learn from others, but to be any good you must add something of yourself” (Hugh
Jones 1996:35). This strong individual aspect means that shamanic powers are sometimes doubted and challenged—an insecurity that also arises from the use of shamanic powers for good and ill. In the colonial Lower Amazon, how did people with skills to cure afflictions with their special powers learn their craft? In contemporary times, shamanic curing sessions attract observers from beyond the residential community. Generally, apart from a training period, shamans keep themselves apart and seek to make separate identities. Thus they know about each other but avoid regular direct contact. Nevertheless, through their client networks, gossip, and reputations, shamans are intimately connected.

So let me introduce Sabina, an Indian shaman in Belém, the colonial capital of the Amazon and its districts in the mid-18th century. More than likely she was born in that area, though to what ethnic group she belonged is uncertain. She was born around 1720 and, until the abolition of Indian slavery in 1755, was a slave. Her skills of detecting witchcraft were called upon by a wide array of clients, including the governor of the Amazon in the late 1740s, lawyers, clerics, military officers, and prominent slave owners. Sabina was able to find packages hidden in walls, doorways, and gardens, placed there by individuals who wanted to bring harm. The elite who requested her services had fallen into misfortune or become ill and suspected one of their slaves to have bewitched them. Reports were that Sabina accused the domestics of causing the harm and was thereby able to counteract the sorcery.

Her talents also lay beyond divination, as she cured her clients of physical ailments. For these services she used suction and blew smoke over limbs, including those of the aforementioned governor. Another client had an eye infection. To heal it, she blew smoke on the nose, licked his eye, and sucked out a strange-looking beast. The cure was completed by washing his eye in holy water from the cathedral. Many people from different villages held Sabina in extremely high regard. It was said her capacity to heal was from birth and evidenced in a cross at the top of her mouth. Some feared her powers so stayed well away. So too must she have made enemies of those she accused of sorcery. Yet for over 20 years she advised and healed a large section of the people in and around Belém. Her activities were accepted, and witnesses did not see her as a malevolent person. We know about her today because she came to the attention of the Inquisition of Lisbon. Her denouncers said she had practiced cures and
found packets in numerous villages and plantations within a few days’ journey of Belém; however, she never appeared before the board despite numerous files on her activities starting in 1747 and ending in 1763. She escaped being questioned, perhaps because she was protected by elite friends who feared what she may say about them.

Sabina was an improviser, drawing on practices and objects that filled her visible and invisible environment. She translated between European and Amerindian spheres of meaning and reassembled new bundles of rituals and practices from this heterogeneous universe (also Stahl, this volume). With a keen eye for building bridges between people and traditions, she brought together these multiple experiences in ways that attracted interest and persuaded others. Motivated by personal ambition and self-preservation, she forged a novel role for herself, and perhaps Indian women in general.

What is remarkable about Sabina is her movement, despite her slave status, between different levels of society and geographically spread-out communities. In that all-important mid-18th-century period, she brokered new connections with her fame to heal and find evil in hidden packets. Her mobility reflects the kind of place the Amazon was at the time; the river provided the pathway. Though more research is needed to address whether she presented herself as a hybrid figure, she was a new person for a new time. Her alignment of ritual skills and knowledge across diverse fields was from the bottom up and was likely to have left a wake that others followed. By explicitly fusing Christian and Amerindian symbols, she found novel social and imaginative connections between Amazonians and placed this world within a larger geographic and cultural context that spread across the Atlantic. In effect, Sabina had helped to reconfigure membership of an emerging Amazonian collectivity by re-scaling key elements in that world. Wenger notes that the work of brokering is hard and complex (1998:109). Specifically in Sabina’s case, it is the combined intensification and extension of the specific experience of being Amazonian in the mid-18th century that makes her example so poignant and aligns her with modern counterparts some 250 years later.

The 19th and 20th centuries saw great transformation of the Amazon, generally through commercialized labor relations of the rubber boom and deforestation for road and other infrastructural developments. Riverine areas of the Lower Amazon and its towns, however, escaped the
excesses of these changes since rubber was never grown there in large quantities and roads played a less significant role at the time (Nugent 1993). On the other hand, the state was ever present in the form of elections, regulations over fishing and land ownership, health visits, and education programs.

When I met Sophia, she was taking care of a house in Óbidos, a city situated at the narrowest point of the Amazon River. She was 62 and had 12 children: “each one with a different father,” she said. Her 90-year-old mother was said to have been born to a slave in the interior of Óbidos. Sofia’s life reveals a common feature of Amazonian history—mobility between proximate rural and urban areas and changes from one economic activity to another (WinklerPrins 2002). She was born the descendant of slaves in a rural community in 1930, one of four siblings. Her mother left her father because he preferred another woman. Sofia got on very well with her mother’s mother in a neighboring floodplain village, so she moved there when she was eight. Although she said she worked hard to support her grandmother’s household, she remembered fondly the exploration of the environment with her childhood friends. She frequently told me stories about excursions to neighboring islands to hunt and fish. These were her formative experiences as an enskilled riverine dweller. At first, she helped prepare wood for sale to passing steamboats. Then jute became an important commercial crop (WinklerPrins 2006). By this time she had her first children and her own household next to her grandmother’s. Her work consisted of jute fiber preparation, though she also fished with a hand-cast net and grew plants for domestic consumption. In fact, she loved fishing so much she started to earn money that way and gave up growing jute in the mid-1970s, buying a few head of cattle. Some of her children moved to Óbidos; she spent longer periods of time with them and her mother, who had also gone there to live in the 1970s. Yet she continued to go to her house on the floodplain for work and pleasure. She told me she learned everything she knew herself, motivated by the desire to learn new skills and be her own boss. All she wanted to teach her children was respect for others and to be independent. Her welfare payments started when she was 60 in 1990, just before I met her. She died in 2002 at her daughter’s house in neighboring Santarém.
This summary of Sophia’s work history spans a period of Amazonian history when the external demand for its products was at a relatively low ebb (compared to rubber and cacao before it). As a result, there was little control of productive forms by outside interests, so there was no intensification of property ownership or capitalization of working relations. She was free to move between diverse activities without control from a male counterpart, parent, or patron. She was able to overcome ruptures, residential or economic, by readapting her skills in new contexts. Her ego-centered network encompassed different communities of practice (as in residential groups) in which she participated. While her case shows the limits of these groups, it also exposes the overriding significance of growing up in a riverside hamlet and enskilment there. Her 12 children each had very different lives: some rural, others urban. None did the same kind of work; they had, like their mother, chosen their own paths. Her personal power, if that is the right word, was directed to more than surviving, perhaps flourishing, in conditions not of her choosing.

In many ways Sophia’s life would be recognizable to Amazonians of the 18th century. They would identify with the way the river and its seasons were negotiated, the necessity of juggling multiple skills, and the use of large expanses of land and water for resources. The independence of women too would be familiar (D. Sweet 1982). Sophia’s constellating movements between different communities parallels Sabina’s. For Sophia, mobility was part of her career; she moved away as she grew out of each activity and working group. Free of strong personal ties, Sophia was led by her enjoyment of the skilled practice itself.

**Conclusion**

In this chapter, I have drawn together fragments of shamanic and livelihood skills in two different periods. To understand associated trajectories of learning is to know how scalar relations are built through personal ties, access to resources, and technology (Blair, Roddick and Stahl, this volume). It is also to understand how individuals articulate with others through markets, clients, local elites, politicians, and factory owners. Naturally, these relations have changed in the last 250 years, with impacts on
communities and their economic strategies. Despite these transformations, places of kinsfolk have persisted and nurtured new generations of practitioners of a diverse economy and a complex environment. The limit of this haven, if you like, is not the residential community but spheres of social relations along the river traced by individual people as they go about their lives.

The legacy of people like Sabina was her passing down of a newfound ability to refashion the past in the present. Absorbing novel influences, they learnt how to direct them for their own benefit and stretched the relations of knowing along the rivers (see also Stahl, this volume). These powers represented hard-won independent positions. What Sabina was doing for shamanic knowledge, others were doing for environmental knowledge. Juxtaposing these two historical situations and different activities forces a consideration of the assembled routes to the present in terms of learning and scalar relations.

What lessons did people learn in the past and how might they help them face the challenges in the present and the future Amazon? I think the gift of past struggles was to have created durable communities. They valued the river, almost as a great flowing brown being, and maintained a range of skills. Those seeking to build a sustainable and more equal society can learn how this achievement came about. In addition, in some parts of the Amazon there are people who seek to recover their Amerindian affiliations (Bolanos 2010). They will find how different generations adjusted their identities in line with demands from the state and formed alliances, without losing everything and starting again.

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Notes

1. On the Latin American character of this ethnogenesis, see Schwartz and Salomon 1996.
2. Some of these were not predictable (Harris 2008).
3. See Whitehead (1993) for the original argument against unilinear and uniform history of the Amazon.
4. I am not denying that there are specificities in the histories of each society, but I am arguing that the commonalities in their pasts are often ignored.
5. Connerton (1989:102) writes that “every group, then, will entrust to bodily automatisms the values and categories which they are most anxious to conserve. They will know how well the past can be kept in mind by a habitual memory sedimented in the body.”
6. Sources for Sabina’s life are at the Arquivo Nacional de Torre de Tombo (ANTT, Lisbon), Inquisição de Lisboa, Cadernos do Promotor 125, 301, and 315 and trial numbers (processos) 13331 and 15969. Her case is mentioned in Sommer (2003) and Sousa (2003) and discussed in Carvalho (2005).
7. Shamans have often been seen as brokers but mostly with reference to difference or alterity (Taussig 1987; Taylor 2014). Sabina’s brokering is almost the opposite since it merged difference.

References

Mark Harris


Crafting Life in Turbulent Times

Communities of Practice in the Western Volta Basin from the 13th to the 17th Century A.D.

*Ann B. Stahl*

The three centuries centered on A.D. 1300 saw substantive shifts in the lives of villagers in the western Volta basin of what is today the nation-state of Ghana. In a time of expanding trade associated with West Africa’s “golden age” of Sudanic states (Bovill 1958), people, knowledge, and skills flowed along riverine networks that connected ancient Mali’s Niger River centers (Gao, Timbuktu, and Jenne Jeno; Fig. 6.1). To the south, caravans of people and pack animals traversed the wooded savanna of modern Burkina Faso and Côte d’Ivoire to the Banda area on which I focus here, while human portage moved forest goods to nearby entrepôts like Begho and Bima. As such, it was a time of newly available resources for social creativity while simultaneously one of escalated danger associated with inter-societal conflict and slaving that called for creative action (Doris 2011; Norman 2014; Ogundiran 2014; Schoenbrun 2006). It was a time when communities were exposed to alternative “ways of doing” that held potential either to expand their practical repertoires or to harden extant ones in the face of unfamiliar practice (Gosselain and Livingstone Smith 2005:43; McNaughton 1992:78–81). The best of times, as measured by expanding access to desired goods and commodities, it may simultaneously have been the worst of times (to date, for worse were to come with Atlantic entanglements) in relation to existential dangers posed by slaving and other exploitative practices.

Recent research has enhanced understanding of commercial connections during the Sudanic period (Haour 2007; Insoll 1997; Park 2010), but we are only beginning to grapple with the turbulence that accompanied extraction of resources that included enslaved people in this “golden” age (Haour 2011). Lately scholars have explored how domestic life in “Atlantic Africa” was refigured in relation to the predatory landscapes of recent
Figure 6.1. West Africa and places mentioned in the text. Map by Ann Stahl.
centuries (MacEachern 1993; Ogundiran and Falola 2007). Communities during West Africa’s earlier “golden age” also confronted both possibilities and turbulence associated with expanding networks of intra- and intercontinental trade, as for example at Oursi hu-beero (Fig. 6.1) in Burkina Faso where violence and village destruction befell its 12th-century inhabitants (Petit et al. 2011). As such, there is value in asking how communities of practice (an analytical unit that implies histories of learning, mutual engagement [Wenger 1998:125], and local face-to-faceness [Harris 2014]) engaged the possibilities and turbulence of intensifying Niger and later Atlantic trade networks (an analytic that conjures interactions of varying scale [Mills, this volume]). Knowledge, goods, and people circulated through these networks with implications for the crafting of village life at the scale of “history in person” (Holland and Lave 2001:5). However, we should not assume that knowledge transmission and sharing aligned neatly within or between activities. Instead, men’s and women’s differential “space of experience” (Gosselain 2008:168, this volume) and the political economic contexts in which they operated likely affected the scales—geographically and generationally—of knowledge sharing and making (Crown, this volume), and in turn communities of practice. We are thus challenged to develop analytical approaches that capture the geographical “nesting” and genealogical connections among communities of practitioners (Stark 1999), unconstrained by the tidy boundaries of ethnographic and archaeological taxonomies (Blair, Harris, this volume).

Here I focus on how communities and constellations of practice (Lave and Wenger 1991; Wenger 1998) reconfigured in relation to these dynamics from the 13th through the mid-17th centuries A.D. Situated in the savanna woodland on the northern forest margins, Banda’s interregional connections were shaped by its ecotonal setting, the auriferous deposits in the hills that bisect the region, and its proximity to large town sites like Begho (Posnansky 1987) and Bima (Bravmann and Mathewson 1970). Inspired by research in the American Southwest (Cordell and Habicht-Mauche 2012; Crown 2007; Habicht-Mauche et al. 2006), I ask how circulations of people, objects, and knowledge in this period contributed to continuities and discontinuities in ceramic production. However, acknowledging Lave’s (1993:15) observation that situated activity is heterogeneous, multifocal, and potentially laden with conflict, I aim to
complicate a “single medium” approach to questions of knowledge and its dynamics. I do this by considering suites of practices (Garcea 2005)—technological and otherwise—and their complementarities in relation to broader shifts in the gravity of trade, topologies of power, and landscapes of enslavement. At the same time I work to nuance an archaeological phase–based understanding by drawing out continuities that carry across phase boundaries and changes masked within them.

Three differentially networked domains of local practice thread through my discussion of how Banda peoples crafted life in a period of shifting interregional entanglements: 1) a relationship between potting and metallurgy implied in use of iron slag—a by-product of iron production—as an inclusion in ceramic fabrics, leading me to explore implications for a differential chaining (Shimada 2007:8) of these crafts spatially and temporally; 2) aspects of ritual practice and its materiality that inform on its scalar nesting with broader communities and constellations of practice (Kodesh 2008; Norman 2011, 2014; Schoenbrun 2006); and 3) the making and using of rare artifact forms that crosscut “phases” and “cultures,” and yield insight into nested practices of learning and doing in communities of production and consumption.

With reference to the third focus, I narrow attention to four uncommon ceramic types (cf. Cordell and Habicht-Mauche 2012) that instrumental neutron activation analysis (INAA) demonstrates were made in multiple locales in order to explore commonalities and choice within communities of practice. Each can plausibly be interpreted to have been actants (Latour 2005) in the production of social distinction and to have served as resources for social creativity (Graeber 2005; also Doris 2011). As such, they provide an entry point for considering the complex ways in which communities of production relate to communities of consumption in times of both turbulence and possibility as Banda was drawn into the orbit of Malian exchange from the 13th century and Atlantic networks from the 17th. A short section on the dynamics of potting and a sketch of continuities and discontinuities in crafting and ritual practice by archaeological phase provides a springboard for considering how attention to rare artifact categories can help us learn about the flows and blockages of practice and knowledge and their genealogical connections across regions and generations.
Crafting Life in Temporal Perspective

Potting of late has been a community specialization practiced by women in several villages west of the Banda Hills (Crossland 1989; Cruz 2003; Fig. 6.2). Though they speak different languages (Mo, Nafaanra), these women produce visually similar pots through a common technological style (Cruz 2011), implying shared networks of learning that transcend linguistic boundaries. Elderly people in the 1980s recalled that potting was formerly widely practiced, a memory consistent with abandoned clay pits east of the Banda hills where villagers no longer pot. Study of 19th- and 20th-century ceramics using INAA (Cruz 2003) demonstrated the value of bulk compositional data in discerning compositional groups associated with the distinctive geological character of areas east and west of the Banda hills (Fig. 6.2). Expanded to include 500 archaeological samples from 20 sites east and west of the hills, INAA data inform on changes in pottery production and consumption in relation to eight compositional groups identified through principal components analysis (Stahl et al. 2008; Table 6.1). Two are particularly relevant here. The western “L” group fabric is characterized by inclusions of deliberately added angular white grit (primarily quartzite), while the “K1” compositional group is distinguished by inclusions of crushed iron slag, which lend a distinctive chemistry to this fabric made using clays similar to the more securely provenanced eastern “K2” group. Iron-working by-products range from dense flow slags to bubbly slags that form around escaping gases. Potters and their helpers selected, processed, and incorporated the latter into the K1 fabric, though it is not clear whether slags originated from smelting or smithing (Miller and Killick 2004:25–26). Regardless, this fabric links the practices of metallurgists and potters in waxing and waning fashion (Table 6.1) as discussed below.

Differential presence of compositional groups by archaeological phase has yielded insight into geographical shifts in Banda potting practice over time. Volta phase (VP; A.D. 1000–1300) and related “Iron Age 3” (IA3) sites are characterized by red-painted “Silima Ware” as described for other areas of the Volta basin (Davies 1964; Mathewson 1968; York 1973:120–131). VP ceramics were made both east and west of the Banda hills (Table 6.1). Our limited investigations of VP sites restrict our
Figure 6.2. Geology of the Banda area, showing location of contemporary potting villages, known clay pits, and associated compositional groups east (K2) and west (H2, L) of the Banda hills, as well as clay pits unassigned (UnA) to compositional group. Illustration by Ann Stahl.
Table 6.1. Summary of INAA compositional groups by phase. Number of ceramic specimens (smoking pipes in parentheses); E and W indicate side of hills on which products were consumed (east and west, respectively). Supersedes Table 7 in Stahl et al. (2008:378) by inclusion of an additional 112 archaeological ceramic samples and reassignment of several previously analyzed samples. IA3/VP=Volta phase; NP=Ngre phase; KP=Kuulo phase; MK=Makala phase.

<table>
<thead>
<tr>
<th>Phase</th>
<th>L*</th>
<th>K1</th>
<th>K2</th>
<th>H1</th>
<th>H2*</th>
<th>I*</th>
<th>G1*</th>
<th>Whorls</th>
<th>Unassigned</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1930-601</td>
<td>2</td>
<td></td>
<td>4</td>
<td>3</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11</td>
</tr>
<tr>
<td>MK1(^1)</td>
<td>14</td>
<td>3</td>
<td>17</td>
<td></td>
<td>3</td>
<td>19</td>
<td></td>
<td></td>
<td></td>
<td>56</td>
</tr>
<tr>
<td>MK2</td>
<td>36 (5); E&amp;W</td>
<td>22 (9); E&amp;W</td>
<td>7 (6); E</td>
<td>16 (E)</td>
<td>3; E(^1)</td>
<td>15 (5); E&amp;W</td>
<td>99 (25)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KP</td>
<td>4 (4); E&amp;W</td>
<td>72 (2); E&amp;W</td>
<td>(3); E(^1)</td>
<td>36 (3); E&amp;W</td>
<td>112 (12)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NP</td>
<td>42; E&amp;W</td>
<td>60; E&amp;W</td>
<td>29; E&amp;W</td>
<td>25; E&amp;W</td>
<td>156</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>VP(^1)</td>
<td>4</td>
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<td>17</td>
<td>45</td>
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<td>IA3</td>
<td>3; E&amp;W</td>
<td>22; E</td>
<td>6; E&amp;W</td>
<td>31</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>105 (9)</td>
<td>160 (11)</td>
<td>97 (9)</td>
<td>16</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>6</td>
<td>118 (8)</td>
<td>510 (37)</td>
</tr>
</tbody>
</table>

*Sources west of the Banda hills

\(^1\)Excavated contexts for these phases all located east of the Banda hills.
understanding of life ways in this period; nonetheless, it is clear that these villagers had access to iron technology, though seemingly not to the imported copper alloys that circulated widely in subsequent centuries.

Ngere phase (NP) sites (A.D. 1250–1500) have yielded the earliest substantive evidence for Niger River connections in Banda, ones that in turn linked villagers with Saharan and Mediterranean networks. A florescence of copper and iron metallurgy coincided with the earliest substantive evidence for a chaining (Shimada 2007:8) of metallurgy and potting. Slag was incorporated into K1 but apparently not into other fabrics either east or west of the hills. Villagers of this period had ready access to copper alloys imported through Saharan networks. Iron was smelted from locally mined ores and seemingly away from settlements (Smith 2008). Both metals were smithed within villages. An NP metallurgical workshop at which copper alloys and iron were worked for decades if not centuries attests production of varied “ornaments” and “tools” (Stahl 2015). The latter included barbed iron points that, while perhaps used in hunting the wild fauna well-represented in the faunal remains, may equally signal participation in an economy of violence. A miniature pair of iron shackles incorporated into a shrine context that capped workshop deposits further hints at uncertainty and turbulence in this period of apparent prosperity. Likely associated with divination practices (Stahl 2013), they nonetheless attest a technology of constraint and violence known to this NP community of practice. Emplaced within a ritualized object cluster comprising distinctive ceramic lids, iron bangles, carefully positioned dog mandibles, and imported carnelian beads, this bundling of objects arguably acted as a part of ritual scaffolding for metallurgical practice, the larger complement of which included articulated and disarticulated human interments (Stahl 2013, 2015).

The INAA data confirm that VP potters and their somewhat later NP neighbors shared ceramic fabric recipes (K2 and L groups; Table 6.1), yet NP pottery is distinguished by form, decoration, and perhaps also forming techniques. NP potters fired and finished vessels in ways that yielded a wider array of colors than their VP counterparts, who favored a uniform buff color that afforded visual prominence to its linear and geometric red-painted decoration. NP pottery was fashioned through a range of shaping techniques: some vessels show traces of a draw and drag technique,
and others are characterized by undulating interior surfaces suggestive of coiling, with the latter more typical of VP ceramics. NP potters produced distinctive jars: some with everted rims and sharply carinated shoulders, others with thickened “rolled” rims adorned with red paint/slip, and recurved-rimmed jars with a shimmering micaceous finish. Distinctive NP bowl forms were also adorned with micaceous slip. Ngere potters deployed a wider array of impressed treatments than the dentates used by VP potters, including wavy line and fiber roulettes (twisted or sometimes braided cords or strips; Haour et al. 2010; Livingstone Smith 2007). The elaborated repertoire of forms and techniques implies an expanded array of media (e.g., mica slip), tools, and associated skills and knowledge, with implications for learning networks. Despite commonalities in fabrics and some forming techniques (coiling), distinctions between VP and NP pottery suggest largely nonoverlapping communities of potting practice, despite site proximities and some chronological overlap.

Kuulo phase (KP) pottery (A.D. 1400–1650) is genealogically connected to NP pottery despite shifts in vessel form, decorative techniques, and preferences in ceramic fabrics. Both show affinities to “Begho Ware” documented at Begho in the period from the 13th through the 18th centuries (Crossland 1989:16–35). These include an emphasis on angular everted rims and carinated shoulders, perhaps inspired by metal vessels (Posnansky 1979:27; also Ozanne 1962:65). New to the range of KP vessels was a restricted-orifice globular jar, often showing internal pitting, probably the result of exposure to a fermented liquid (e.g., sorghum beer). Twisted-cord roulettes were common and herringbone-like carved roulettes diagnostic if not common. We lack systematic data on forming techniques; however, fired-clay banana-shaped objects ranging from several to five centimeters long may have been tools used in the forming process. Recovered from NP and KP contexts and assuming they are associated with potting, they further attest a shared repertoire (Wenger 1998:82–83) and genealogical relationship between NP and KP potting.

Unlike NP sites, iron smelting was practiced within or very near village settings in KP contexts. Village middens yielded quantities of iron slag that are hard to explain otherwise. Moreover, an increasingly strong chaining (Shimada 2007:8) of iron and ceramic production is evidenced
by the prominence of the slag-tempered K1 fabric (Table 6.1), a pattern that largely disappears in the subsequent Makala phase (MP) as connections with the emerging Atlantic world intensified.

A genealogical connection of NP and KP aesthetic sensibilities and ritual practice—perhaps associated with divination, healing, and spiritual protection—is suggested by five stylistically similar miniature lost-wax-cast brass twinned and single human-like figurines (Stahl 2013). Those from NP and early KP contexts—periods when northern trade connections prevailed—occurred in association with iron bangles, quartz pebbles, and iron points in similar object assemblies with likely connotations of power. The figurines and a serpent-like projectile echo aesthetic practice of regions north and northwest—practices typified by art historians as “Senufo,” “Mande,” “Lobi,” and “Dogon”—hinting at villagers’ involvement in broader constellations of efficacious practice produced through itineraries of objects, people, and perhaps substances in a context of mobility (Warnier 2013:52–53; see Stahl 2013, in review). Intriguingly, figurines from later KP contexts, deposited at a time when involvement in Atlantic networks was intensifying, derive from middens, hinting at intentional discard and, speculatively, loss of efficacy. Another figurine suggests a bridging of style between that of the earlier miniatures and the flat circular-headed sculptures associated with Akan groups to the south (Gilbert 1989:36; Stahl 2013:63–64). Other aspects of ritual practice manifest in these same contexts—including ritualized use of perforated pots (Norman 2011)—resonate with practices to the east and south, underscoring how complex and dynamic might have been the nesting of mutually engaged communities of ritual practice with broader constellations interconnected through boundary objects and/or brokers (Wenger 1998:105–110), as explored by other volume contributors (Blair, Harris, Schoenbrun).

Transmission and Transformation Across Geographies and Generations

This differential and dynamic nesting of material practice raises questions about emergent social configurations and their processes of formation. Wenger distinguished communities of practice characterized by mutual engagement, a joint enterprise, and a shared repertoire (1998:73)
from interconnected *constellations of practice* produced through a variety of agents (people, objects) who may share historical roots or be involved in related enterprises but who are not characterized by ongoing mutual engagement (1998:126–130). Inspired by ethnographic understandings, scholars of West Africa often attribute commonalities across broader regions to diasporic task-specific groups—for example, traders or craftspeople (Brooks 1993)—some of whom may be perceived as simultaneously liminal and powerful for their transformative skills (e.g., smithing, potting, weaving, divining, or handling the dead; on liminality more broadly, see Haour 2013). Their typification as “castes” (Conrad and Frank 1995; Tamari 1991) presumes a degree of endogamy and hierarchy that is not always characteristic (Förster 2013:33) and elides variability among what David et al. (1988) term “transformer” groups whose practices are grounded in techniques of the body and sensorial experience that nonetheless distinguish them from their farmer neighbors (Warnier 2012). Where found, these specialists produce most of the durable remains found in archaeological contexts (MacEachern 1994:211). Through mobility, intermarriage, and other social processes, MacEachern sees such groups as “vectors” for cultural transmission whose activities produce an “amorphous set of overlapping distributions of . . . cultural elements . . . shared across linguistic/historical boundaries,” the aggregated result “of individual or familial decisions and movements rather than group actions” (1994:218, 220). Underscoring travel as a source of knowledge for craftspeople and ritual specialists, MacEachern’s discussion resonates with Wenger’s (1998:108–110) depiction of brokers as agents in the emergence of broader constellations of practice (Blair, Gosselain, Harris, Roddick, Schoenbrun, this volume).

Gosselain’s ethnographic work in Niger and elsewhere nuances this understanding. He shows how “space experienced” (2008:168, this volume)—inclusive of “practice settings” frequented through daily activity and travel—contributes to potters’ practical knowledge through exposure to new techniques, forms, and representations. Social demarcation and functional assessment affect whether exposure results in adoption of new ways. Techniques demarcated as typical of another social group may be avoided as “foreign,” even if perceived as functionally superior. In other cases potters embrace exogenous practices, sometimes combining them with familiar ones (Gosselain 2008:161–173; Gosselain and Livingstone
Table 6.2. Provenance of vessel forms listed in Tables 6.3–6.6. Outlined boxes indicate site contexts from which specific vessel forms were recovered. a: rolled-rim jars; b: recurved rim jars; c: incised and mica-slipped bowls; d: diagonal-slated and mica-slipped bowls. NK=Ngre Kataa mounds shown in light gray; KK=Kuulo Kataa mounds shown in dark gray; M=mound; L=lower levels; U=upper levels. “A” and “B” site numbers reference location of survey zones established by Smith (2008). Within rows, earlier contexts appear to the left and later to the right where temporal ordering can be established; otherwise, contexts are ordered by mound number.

<table>
<thead>
<tr>
<th>AD</th>
<th>Phase</th>
<th>Site/mound</th>
<th>Site/mound</th>
</tr>
</thead>
<tbody>
<tr>
<td>1100–1300</td>
<td>Volta</td>
<td>Banda 13</td>
<td>Banda 27</td>
</tr>
<tr>
<td>1200–1400</td>
<td>Ngre</td>
<td>Banda 41</td>
<td>B-123</td>
</tr>
<tr>
<td>1300–1500</td>
<td></td>
<td>KK M138</td>
<td></td>
</tr>
<tr>
<td>1500–1700?</td>
<td>Kuulo</td>
<td>NK M101</td>
<td>NK M3</td>
</tr>
<tr>
<td>1700–1890s</td>
<td>Makala</td>
<td>A-236</td>
<td>Early Makala</td>
</tr>
</tbody>
</table>

- a: rolled-rim jars
- b: recurved rim jars
<table>
<thead>
<tr>
<th>Era</th>
<th>Region</th>
<th>Period 1</th>
<th>Period 2</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1100–1300</td>
<td>Volta</td>
<td>Banda 13</td>
<td>Banda 27</td>
<td></td>
</tr>
<tr>
<td>1200–1400</td>
<td>Ngre</td>
<td>Banda 41</td>
<td>B-123</td>
<td>NK M4</td>
</tr>
<tr>
<td>1300–1500</td>
<td></td>
<td></td>
<td></td>
<td>KK M138</td>
</tr>
<tr>
<td>1400–1650</td>
<td>Kuulo</td>
<td>NK M8</td>
<td>NK M7 L</td>
<td>KK M118</td>
</tr>
<tr>
<td>1600–1700?</td>
<td></td>
<td>NK M7 U</td>
<td>KK M131</td>
<td>KK M122</td>
</tr>
<tr>
<td>1700–1890s</td>
<td>Makala</td>
<td>A-236</td>
<td>Early Makala</td>
<td>B-112</td>
</tr>
</tbody>
</table>

**Notes:**
- c: incised and mica-slipped bowls
- d: diagonal-slashed and mica-slipped bowls
So too does “space known”—vicariously through kin and acquaintances or alternatively through media and objects (Gosselain, this volume)—hold potential to shape valuation and belonging through processes of imagination and alignment (Wenger 1998:173–174; Roddick and Stahl, this volume). Through interactions of people and objects, space “experienced” and “known” amalgamate spatio-temporal scales and provide a chrysalis from which future practice emerges through “history in person” (Holland and Lave 2001).

These perspectives underscore that craft communities are not the “closed technical units” (Gosselain 2008:170) once thought, but potentially porous entities, their practices open to innovation and improvisation as well as duration (McNaughton 1992:78–81). So too with ritual practice (Norman 2014; Ogundiran 2014; Stahl 2008, 2013), and, given that potting and metal-working produce not only “tools” but also efficacious objects deployed in ritual, there is value in considering archaeological traces as the dynamic and nested components of these relations. To further probe these, I draw on small samples of archaeological pottery to variegate our understanding of the commonalities that unite and the differences that distinguish communities of potting practice. I comparatively assess technical practice in four rare vessel types that crosscut our Ngre and Kuulo phases, after which I reflect on their implications as boundary objects and constellating actants in contexts of turbulence and possibility.

The rare vessel forms on which I focus are distinguished by form and decoration. Adorned with red pigment and mica slips, these are “eye-catching” vessels (Wells 2012:18), likely bound up in practices of power and distinction, whether through use in feasting or other non-routine forms of consumption. Not all are contemporaneous (Table 6.2), but two are found at sites across the Volta basin, implying commonalities among communities or constellations of producers, consumers, or both. INAA data attest that each was produced within the Banda area at locales east and west of the hills, providing a basis for exploring the geographical extent of and variation within communities of productive practice. I assess commonalities and differences in aspects of technological style among four vessel “types”: 1) relatively large “rolled-rim” jars (n=31), typically adorned with a band of red paint; 2) recurved, everted rimmed jars (n=14) decorated with dentate impressions and mica slip;
3) bowls decorated with diagonal or crisscross incision overlaid by mica slip and augmented by red pigment (n=15); and 4) small bowls decorated with diagonal slashes overlaid by a mica slip (n=35).³

**Rolled-Rim Jars**

Distinctive in shape and decorative treatment, “rolled-rim” globular jars form a recognizable “type” that carries across two to four centuries in NP and KP contexts (Tables 6.2a and 6.3; Fig. 6.3). Though no full vessel has yet been reconstructed, they were relatively large and, in contrast to typical carinated NP and KP forms, likely had rounded shoulders. Form and lack of sooting suggest use for storage, though their form and decorative features distinguish them among the “visual ecology” (Wells 2012:72–74) of the more common tall-rimmed everted jars that served an array of storage functions. Set apart by shape, decoration, and rarity, these vessels probably had a limited use, whether for water storage or perhaps deployed in a pottery repertoire marked (Keane 2010:191) for feasting or special occasions.

Despite their small numbers, rims from these vessels occurred in a range of domestic contexts over centuries. Samples derive exclusively from sites of consumption east of the hills, but INAA data attest their production both east and west of the Banda hills (Table 6.3). Fashioned from clays mined in different locations and distinctively tempered (white grit of western L and slag of eastern K1 fabrics), potters east and west of the hills nonetheless produced visually similar vessels. Their form intimates shared gestures like the running of the hand round the rim as clay was shaped in the crux between thumb and index finger. Though vessels made west of the hills were slightly larger, potters produced similarly decorated vessels of similar proportion (Table 6.3). A band of red paint/slip was routinely—but not always—applied, typically in a continuous band of varying width extending from the neck constriction on the interior surface to the exterior lip, ending above the neck constriction, drawing the eye to the vessel’s rolled rim (cf. Wells 2012:52–55). Two K1 vessels were distinguished by two bands of red paint (one wide; one narrow), but otherwise similarly placed. Vessel bodies, when recovered, were decorated with a fiber roulette, typically a single twisted cord, though potters working with K1 fabrics sometimes used plaited roulettes (Fig. 6.3a). Roulette impressions were most often aligned obliquely to the horizontal
Table 6.3. Rolled rims by compositional group and mound context. Numbers indicate rims assigned to compositional group based on INAA. Those in parentheses represent vessels assigned to compositional group based on inclusions.

<table>
<thead>
<tr>
<th>Rolled rims</th>
<th>INAA compositional groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site/mound context</td>
<td>L</td>
</tr>
<tr>
<td>NK M4</td>
<td>1(1)</td>
</tr>
<tr>
<td>KK 138</td>
<td>1(1)</td>
</tr>
<tr>
<td>KK 101</td>
<td>(1)</td>
</tr>
<tr>
<td>NK M3</td>
<td>1</td>
</tr>
<tr>
<td>KK 148</td>
<td>(1)</td>
</tr>
<tr>
<td>NK M8</td>
<td>1</td>
</tr>
<tr>
<td>NK M7</td>
<td>1</td>
</tr>
<tr>
<td>KK 118</td>
<td>1(1)</td>
</tr>
<tr>
<td>KK 130</td>
<td>(1)</td>
</tr>
<tr>
<td>Total</td>
<td>7</td>
</tr>
</tbody>
</table>

Means

| | Rim diameter (cm) | Neck diameter (cm) | Neck to rim height (cm) | Rim thickness (mm) | Red paint n (band width cm) | Roulette* | Application angle in degrees (N) |
| | 28.3 | 25.9 | 23.6 | 22.3 | 20.6 | 18.4 | 2.6 | 2.2 | 2.3 | 15.7 | 16.7 | 16.4 | 7(6.6) | 16 (6.1**) | 5 (5.6) | 28 |
| | TC; 4 NA | TC; 6 PC; 3 NA; 1? | 3 TC; 1 NA | 30 (2); 160(1) | 30 (9); 35 (1); 40 (6) | 30 (1); 35 (1); 10,125,160 (1) |

* TC=twisted cord; PC=plaited cord; NA=not applicable—body not represented; ?=unknown
** Red paint on two rims appeared as a 3 or 3.5 cm band augmented by a 1 cm band.
*** Includes one rim with mica slip applied below the neck constriction.
plane of rim and neck, the rouletted zone often truncated by a smoothing of the neck that left a small lip of clay over the rouletted zone. The angle of roulette (measured by protractor aligned parallel to the vessel rim) was most often between $30^\circ$ and $40^\circ$ (Fig. 6.3a, b, d), though one L-group rim was oriented in the opposite direction ($160^\circ$; Fig. 6.3c).
hinting at different handedness or vessel orientation as the roulette was applied. Curvilinear grooving or channeling was sometimes executed atop the roulette impression. One rim unassigned to compositional group stood out for its haphazard rouletting and unsmoothed neck (Fig. 6.3f). And finally, several jars of similar form had mica slip applied below the neck (Fig. 6.3e), an eye-catching treatment discussed in more detail below.

As even this small sample makes clear, potters east and west of the Banda hills shared in a community of practice associated with this rare jar form, though with choice in materials (fabrics and slips), tools (single-cord or plaited roulette), gestures (direction of rouletting and smoothing of necks), and seemingly also variation in care and/or skill (precision of rouletting). Recovered from a variety of mound contexts at multiple sites dating between the 13th through the mid-17th century (Table 6.2a), rolled-rim jars were a long-lived form—ubiquitous but not common—when the regions’ Niger Valley connections prevailed. Notable too is that vessels made east and west of the Banda hills co-occurred in five of the nine contexts from which they were recovered (Table 6.3).

Similar vessels have been recovered in small quantities from sites north and east of Banda: New Buipe (York 1973:101), downstream from Banda on the Black Volta River; Daboya (Shinnie and Kense 1989:79) on the banks of the White Volta River; and Begho, a large townsite to the south (Crossland 1989:26–27). Eastward, a single example of a red-slipped rolled rim with fine-cord roulette on the vessel body came from Bono Manso (Effah-Gyamfi 1985:145, Fig. 33a). We lack descriptions of paste or compositional data that might aid in determining whether rolled rims from these sites were produced near to where they were recovered or elsewhere. Perhaps vessels produced by Banda potters found their way to sites farther afield. However, shifting the lens to consumption, it is clear that similar vessels were consumed over a large area (230 kilometers separating Bono Manso from Daboya and 150 kilometers from Daboya to Begho), though in small quantities over a period of decades and probably centuries.

Recurved-Rim Jars

NP and KP contexts yielded small numbers of jars that combined sharply angular necks with a tall inward-curving rim (Tables 6.2b and
Table 6.4. Recurved-rim jars by compositional group and mound context. Numbers indicate vessels assigned to compositional group based on INAA. Those in parentheses represent vessels assigned to compositional group based on inclusions.

<table>
<thead>
<tr>
<th>Site/mound context</th>
<th>INAA compositional groups</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>L</td>
</tr>
<tr>
<td>Banda 41</td>
<td>1</td>
</tr>
<tr>
<td>NK M4</td>
<td>(1)</td>
</tr>
<tr>
<td>KK M101</td>
<td></td>
</tr>
<tr>
<td>NK M3</td>
<td>1(1)</td>
</tr>
<tr>
<td>NK M6</td>
<td>1*</td>
</tr>
<tr>
<td>KK M148</td>
<td>(2)</td>
</tr>
<tr>
<td>NK M8</td>
<td>1</td>
</tr>
<tr>
<td>NK M7</td>
<td></td>
</tr>
<tr>
<td>KK M118</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>7</td>
</tr>
<tr>
<td>Rim diameter (cm)</td>
<td>22.7</td>
</tr>
<tr>
<td>Neck diameter (cm)</td>
<td>15.5</td>
</tr>
<tr>
<td>Neck to rim height (cm)</td>
<td>4.5</td>
</tr>
<tr>
<td>Rim thickness (mm)</td>
<td>10.0</td>
</tr>
<tr>
<td>Slip</td>
<td>mica (6); mica (2); mica (1); white* (1); red (3); white* (2); red (1)</td>
</tr>
</tbody>
</table>

*Indicates examples with white slip.

6.4). The constricted neck is consistent with liquid storage. Because complete vessels cannot be reconstructed, it is unknown whether shoulders were rounded or carinated. Exterior rims were decorated with dentate impression, obliquely applied in double or triple rows to produce a “roping” effect. An exception from an early context (Banda 41) was adorned with obliquely applied double grooves, producing a similar effect using a different tool.

A light mica slip applied atop the impressions produced a shimmering effect on these “eye-catching” vessels (Wells 2012:18; Fig. 6.4a, b, e, f). Mica slip was sometimes applied to the inner as well as outer rim. Interior rims were sometimes red slipped; one example displayed
a red-slipped band on its exterior neck. Vessel necks had either a single line of dentate impression around the neck constriction (Fig. 6.4 a, c) or parallel, horizontal grooves. Rather than mica slip, several showed a light white slip (Table 6.4; Fig. 6.4c). Though not yielding the same shimmering effect, the white slip arguably mimicked the lightness of mica slip and represents an alternative choice made by potters working with K1 and unassigned ceramic fabrics.

**Figure 6.4.** Recurved-rim jars, from Ngre (NK) Kataa. M indicates mound number. INAA compositional groups K1, and L. Compositional groups indicated in parentheses are assigned based on inclusions. Photos by Ann Stahl.
Like rolled-rim jars, recurved ones were recovered in small numbers from diverse contexts dating to the 13th through mid-17th century (Table 6.2b) and therefore extending from early NP through KP contexts. Though recovered from consumption contexts, the presence of L and K1 group fabrics attests production both east and west of the hills. Again, notably, vessels produced east and west of the hills co-occurred in two contexts.

Similar rims have been recovered from sites across the region, suggesting a broader constellation of productive or alternately consumptive practice. An unknown quantity were recovered from Daboya (Shinnie and Kense 1989:124, Fig. 67), described as red slipped, but seemingly not decorated with either dentate impression or mica slip. New Buipe yielded similar rims (York 1973:150), though in unspecified quantities. Characterized by quartz and granitic inclusions that York linked to the Banda-Bole area, their interior rim surfaces were red slipped. Exteriors were coated in a “thin slip containing a very high proportion of muscovite . . . [resulting in] a characteristic metallic (gold or silver) coating” (York 1973:150). To the south, similarly decorated examples have been reported at Begho (Crossland 1989:40) and Bono Manso (Effah-Gyamfi 1985:164). Geologists who examined these vessels thought “the ware is foreign to both [New Buipe and Bono Manso]” (Effah-Gyamfi 1985:165), with a suggested source in the Banda-Bole area.

Like rolled-rim jars, these vessels were consumed over a wide area, though in small numbers. Made east and west of the Banda hills, they may have been traded from there or produced more widely. The process through which the shimmering gloss of mica slip was achieved is not well understood (cf. Eiselt 2005), but it was an innovation that perhaps transferred knowledge of one medium (red pigment) to another (mica). Like some red-slipped surfaces, the sheen of the mica slip was likely enhanced through pebble burnishing (Crossland 1989:39; Effah-Gyamfi 1985:163). As with rolled-rim jars, potters exercised choice of materials (mica compared to white slip) and tools (comb compared to simple incising tool) in producing vessels that nonetheless conformed to “type” and were likely used in contexts where shimmering vessels performatively differentiated presentation of consumables from everyday practices through their distinctive “visual ecology” (Wells 2012:72–74).
Incised Mica-Slipped Bowls

While the full range of vessel forms to which mica slip was applied remains unclear due to vessel fragmentation, two bowl forms occur among excavated Banda assemblages. The first is a relatively deep, constricted-orifice bowl decorated with oblique, sometimes crisscross incision, visually complemented by bands of red paint and mica slip (Fig. 6.5). Grooved lines sometimes framed (Wells 2012:57–58) decorated zones. Consistently sized (Table 6.5), they, like the jars described above, occurred in small quantities and were produced by potters both east and west of the Banda hills. In contrast to the jars, they were recovered from later site contexts (Table 6.2c). Nor did bowls produced on different sides of the Banda hills co-occur in depositional contexts. Sample sizes are small, but those from early mounds belonged to the western L group and those from later ones to the slag-tempered K1 group.

The decorative grammar of the incised bowls varied most among the types considered here. A zone framed by grooved lines was typically filled with incised or grooved lines over which mica slip was applied. Form and angle of incision varied (Fig. 6.5a, b, c, d, f, i). Two vessels—one L and one K1 compositional group—had obtusely angled incisions (150°) overlaid by zigzag diagonal slashes; six K1 group vessels had crisscrossed lines, while others combined acute and obtuse lines to form either a “<” (n=1 L group) or “>” pattern (n=1 K1 group). Four were decorated by parallel grooved lines overlaid by mica slip (2 L group and 2 K1 group; Fig. 6.5e, g). A mica-slipped zone on another (K1 group) was framed by grooved lines but not otherwise incised or grooved. Dentate impression framed either the upper or lower limit of the mica-slipped zone on two examples (e.g., Fig. 6.5d). Red slip or paint was variably applied to these vessels (n=10), most commonly applied to the area above the mica-slipped zone (Fig. 6.5b, d, h, i), extending slightly over the lip (3 L group; 3 K1 group). One L-group vessel had interior red slip, and several (1 unassigned and 2 K1) were red slipped below the exterior carination. Form and size suggests that these bowls were primarily associated with food consumption, and unlike the jars discussed above, similar vessels have not been described for New Buipe, Daboya, Begho, or Bono Manso.
Figure 6.5. Incised mica-slipped bowls from Ngre (NK) and Kuulo (KK) Kataas. M indicates mound number. INAA compositional groups K1, L, and Unassigned (UnA). Compositional groups indicated in parentheses are assigned based on inclusions. Photos by Ann Stahl.
Mica-Slipped Bowls with Diagonal Slashing

A shallow, less elaborated decorated and slightly carinated bowl form was, with one exception, associated with later (KP) contexts (Table 6.2d; Fig. 6.6). Produced east and west of the Banda hills (Table 6.6), examples from the L and K1 compositional groups co-occurred in mound contexts (e.g., Fig. 6.6a, c). The narrow (2 to 2.5 cm) region from carination to lip was decorated with slashed lines overlaid by a narrow band of mica slip, less visually striking than on the bowls described above. Slashes were applied acutely (n=13) or obtusely (n=15) or both, and then in alternating fashion (n=8). Decoration was executed with variable care: some vessels characterized by evenly spaced slashes of similar length and angle, and others more haphazardly executed. The mica slip was often thin in coverage and therefore less eye-catching. No examples were red slipped. Form

Table 6.5. Incised, mica-slipped bowls by compositional group and mound context. Numbers indicate vessels assigned to compositional group based on INAA. Those in parentheses represent vessels assigned to compositional group based on inclusions.

<table>
<thead>
<tr>
<th>Site/mound context</th>
<th>INAA compositional groups</th>
<th>L</th>
<th>K1</th>
<th>Unassigned</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>NK M4</td>
<td></td>
<td>2(1)</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>NK M6</td>
<td></td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>KK 148</td>
<td></td>
<td></td>
<td>(5)</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>KK 118</td>
<td></td>
<td>1(1)</td>
<td></td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>KK 119</td>
<td></td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>KK 130</td>
<td></td>
<td>1(1)</td>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>KK 131</td>
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</tr>
<tr>
<td>Total</td>
<td></td>
<td>4</td>
<td>11</td>
<td>1</td>
<td>16</td>
</tr>
<tr>
<td>Rim diameter (cm)</td>
<td></td>
<td>14.7</td>
<td>13.6</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Shoulder to rim height (cm)</td>
<td></td>
<td>2.9</td>
<td>3.1</td>
<td>3.1</td>
<td></td>
</tr>
<tr>
<td>Rim thickness (mm)</td>
<td></td>
<td>10.6</td>
<td>7.6</td>
<td>8.1</td>
<td></td>
</tr>
<tr>
<td>Mica slip band height (mm)</td>
<td></td>
<td>16.6</td>
<td>18.1</td>
<td>22.3</td>
<td></td>
</tr>
</tbody>
</table>
Table 6.6. Mica-slipped bowls with diagonal slashing by compositional group and mound context. Numbers indicate vessels assigned to compositional group based on INAA. Those in parentheses represent vessels assigned to compositional group based on inclusions.

<table>
<thead>
<tr>
<th>Site/mound context</th>
<th>INAA compositional groups</th>
<th>L</th>
<th>K1</th>
<th>Unassigned</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>NK M4</td>
<td></td>
<td>1</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>KK 102</td>
<td>(1)</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>KK 129</td>
<td>(1) (3)</td>
<td>(6)</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KK 130</td>
<td>(1) 2(1)</td>
<td>(11)</td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KK MKT</td>
<td>(1)</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>KK 123</td>
<td>(1)</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>KK 127</td>
<td>(2) (2)</td>
<td>(2)</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A212</td>
<td>(1)</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>A236</td>
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<td>1</td>
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<td></td>
<td>7</td>
<td>8</td>
<td>20</td>
<td>35</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Measure</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rim diameter (cm)</td>
<td>13.7</td>
</tr>
<tr>
<td>Shoulder to rim height (cm)</td>
<td>2.4</td>
</tr>
<tr>
<td>Rim thickness (mm)</td>
<td>8.4</td>
</tr>
<tr>
<td>Slash angle in degrees (n)*</td>
<td>30 (2); 10–40 (6); 20–40 (5); 150–170 (4); 140–160 (2); 30/140 (6); 30/140 (1)</td>
</tr>
<tr>
<td>Mica slip band height (mm)</td>
<td>12.5</td>
</tr>
</tbody>
</table>

*Angles separated by / indicate orientation of sequential slashes

and lack of sooting suggest the vessels were used for serving/consuming food.

Given the somewhat later contexts in which these diagonal-slashed mica-slipped bowls occurred and their generically similar decorative treatment, they may have been successors to the more elaborately decorated and more carefully executed incised mica-slipped bowls described above. If so, it is notable that their smaller diameter and shallower depth
implies diminished serving capacity compared to the larger, deeper, incised bowls. Comparatively speaking, the earlier incised bowls involved more steps (e.g., preparation and application of red paint) and greater time and care in decorating. The diagonal-slashed bowls are never common, but occur with notable frequency in some mound contexts (KK M129 and M130; Table 6.6). Neither is this form described among “micaceous wares” at sites like New Buipe, Begho, or Bono Manso. If it is accepted as reasonable that bowls treated with mica slip were likely used in non-quotidian contexts; they more routinely appear in later KP rather than earlier NP contexts (Table 6.2); they occur somewhat more frequently at the same time as they become simplified through time; they
are differentially concentrated within sites; and they are not among the ceramic repertoire at sites outside Banda where mica-slipped jars were nonetheless consumed, then we can begin to envision possibilities for how these marked vessels (Keane 2010) became (differentially) bound up in the negotiation of social distinction at a time when the fulcrum of Niger networks was beginning to shift to Atlantic ones.

**Communities and Constellations of Practice in Turbulent Times**

Combined with the profile of INAA results and insights into commonalities and connections among aesthetic and ritual practice sketched above (also Stahl 2008, 2013, 2015, in review), these four rare vessel types attest to both continuities and discontinuities that crosscut archaeological phases in relation to practices of learning and doing in a time when villagers’ “space experienced” and “space known” were subject to scalar transformation. Available evidence suggests disjunction between VP and NP potting, despite commonalities in ceramic fabrics, which contrasts with the genealogical links evident between NP and KP practice. Within and between the latter two phases, generations of potters east and west of the hills passed on knowledge and practice of distinct fabric recipes through situated learning in diverse practice settings (clay pits, households, markets) as they processed constituent materials. The incorporation of slag into ceramic fabrics by potters east of the hills implies a chaining of metallurgical and potting practice not so far evidenced west of the hills, where potters instead incorporated angular white grit. They nonetheless produced rare (and less rare, not discussed here) vessels of similar form decorated in similar ways on both sides of the hills. This implies a degree of mutual engagement and circulation of shared knowledge and practice within a community of potters that transcended the hills, despite differences in choices of fabric and differential chaining with metal working.

We might consider this a first level of “nesting” of potters who differentially shared in Gosselain’s (this volume) “space experienced” and “space known.” The growing predominance of slag-tempered K1 ceramics from NP to KP implies a period of experimentation with and broadening acceptance of this fabric that included the by-product of one
transformative craft into constituent materials of another. If we consider gathering raw materials as an activity enmeshed in landscape (Michelaki et al. 2014), the slag inclusions in the K1 fabric and its intensified use in KP contexts suggests a change in operational sequence. Recall that smelting appears to have shifted from an off-site to an on-site activity in KP contexts. In light of the likely gendered associations of metal working as a male and potting as a predominantly female activity (Stahl in press), this chaining hints at the involvement of whole households in craft practice, though without necessarily implying the suite of features of so-called casted crafting as projected from ethnographic accounts. The laborious task of crushing slag into relatively fine fragments that characterized the recipe may well have fallen to those on the peripheries of learning communities (e.g., youth) as they engaged in processes of situated learning (Lave and Wenger 1991:32–36) using technologies and gestures (grinding, pounding) similar to those deployed in the processing of clays and in food preparation in which they likely also participated (see Logan and Gokee 2014 on relations among craft and culinary practice). The intriguing presence of isolated large (double-fist–sized) chunks of bubbly slag in NP mounds formed through the collapse of residential structures hints at the transport of this “waste” product at a time when smelting was conducted away from village settings. Its context suggests that processing occurred amid ongoing domestic activity rather than in the NP metallurgical workshop (Stahl 2015), where apprentices participated peripherally in the diverse actions associated with fabricating copper alloy and iron objects. With evidence that later KP smelting occurred within or near village limits, slag would have been readily available, with its collection, transport, and processing perhaps incorporated more readily into household routines.

Attributes of these rare ceramic types demonstrate that, despite subtle differences, potters east and west of the hills shared in a community of productive practice at the same time as they operated within a broader landscape of consumers who valued a subset of their products (Michelaki 2008:357). While variability in attributes suggests flexibility in practice, each type showed considerable overall uniformity. Distinguished in a “visual ecology of the everyday” (Wells 2012:72–74) by their form, relative rarity, shininess created by mica slip, and contrast created by red pigment, each was produced over decades and perhaps centuries, implying
a genealogical connection among knowledgeable potters. They also imply the development and transmission of innovative technical practice, particularly in reference to the preparation and execution of mica slip. They hint at an aesthetic valuation of brilliance and luster as a sensuous “qualisign” (Keane 2003:414) bound up in production of social distinction and perhaps with spiritual valences (cf. Saunders 2003; Thompson 1973:64). We might envision imagination being at work here: what Wenger (1998:176, 178) characterizes as a creative “process of expanding our self by transcending our time and space and creating new images of the world and ourselves. . . . anchored in social interactions and communal experiences.” The lustrous mica-slipped vessels may well have stood in mimetic relationship with the brass vessels traded through Saharan networks and valued by peoples of the western Volta basin and forested regions (Ozanne 1962:65), which in later periods housed shrines and gods (Silverman 1987; Warren 1976:30–31).4

Moving from sites of production to consumption, vessels marked by mica slip may well have acted as boundary objects and brokering agents (Wenger 1998:105–106; Crown, Roddick, Roddick and Stahl, this volume) that, by connecting practices across distances, produced regional interconnections and alignments (Wenger 1998:109) at the same time as their rarity produced social distinction in surrounds of their immediate use. So too might the distinctive locally produced pot lids incorporated into the shrine emplaced atop a metallurgical workshop (see Stahl 2013) have similarly operated as a boundary object, representing a “space known,” in Gosselain’s terms, conjuring Niger River connections where similar forms have been described. That these co-occurred with the miniature shackles mentioned above hints that Niger networks connected villagers to a terrain fraught with possibilities and dangers with which they engaged dialogically (Holland and Lave 2001:9–10) through materials.

The ceramic types explored here also attest development of creative if not widely shared alternatives to received practice, as in the case of the white slip that seemed to stand in for mica slip on several recurved jars and a bowl with diagonal slashing. Whether or not secrecy and mystification (Saunders 2003:23) were implicated in these different choices (Crown, this volume) is unknown. But it is evident that potters both east and west of the hills produced forms that circulated differentially.
The two marked jar forms were consumed if not produced across a wide-ranging area of the western Volta basin. The similarly showy incised bowls and less eye-catching diagonal-slashed mica-slipped bowls circulated less widely, raising questions about object itineraries and their role in the production of social boundaries (Warnier 2013:52–53). While the overall range of vessel forms to which mica slip was applied is poorly understood, sites in the Banda area have yielded a wider array than described for surrounding areas (New Buipe, Begho, or Bono Manso). Augmented with insights from other artifact classes and depositional contexts—including the intriguing shifts hinted at in the discard of miniature brass figurines and shifts in their head form described above—they imply that potters and metalworkers participated in nested, emergent, and not entirely overlapping communities and constellations of technological, aesthetic practice that defy tidy boundaries of language, ethnicity, and “culture” in ways that can be gleaned through close contextual study of material practice. Taken together with other lines of evidence, it seems likely that these differential circulations of objects, including mica-slipped vessels marked by their distinctive luster, were bound up in negotiations of belonging, social position, and power in ways about which we have much to learn and that likely relate to the shifting contours of turbulence and possibilities that accompanied both West Africa’s “golden age” and its growing entanglement in an emerging Atlantic world.

Concluding Thoughts

This study underscores the value of objects—including rare types—and their attributes as sources of insight into differentially shared practices, knowledge transmission, and the scalar dimensions of practice across crafts, geography, and generations (cf. Herhahn 2006; Joyce 2012) during centuries when people and objects were on the move (Warnier 2013: 53) and villagers’ “space of experience” was shifting. While the era of Malian exchange may indeed have been a “golden” one—the best of times for some—the prosperity that accompanied strengthened northern connections arguably enhanced the need for social creativity as villagers negotiated their social positions in relation to broader terrains of violence with which prosperity was enchained, in what were likely the
worst of times for others (also Harris 2014:87–88; Harris, this volume). Ongoing creativity was demanded as the northern connections yielded to the possibilities and encroachments of an emerging Atlantic world, its violence and turbulence at the same time accompanied by newly available resources for social creativity (Norman 2014; Ogundiran 2014). Communities of practice—nested and emergent—crafted life in turbulent times by drawing on the known while creatively incorporating the novel as they grappled with the shifting terrains of connection, power, and violence of recent centuries in ways that archaeological assemblages hold promise to illuminate.

Acknowledgments

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Notes

1. Data used in this study derive from Banda Research Project excavations at several “type” sites, augmented by regional site testing (Smith 2008; Stahl 2001). Our working sequence of phases is anchored by more than 70 radiocarbon and 16 thermoluminescence dates, augmented by insights from cross-dating (Stahl 2007).

2. Table 6.1 augments data in Stahl et al. (2008) with 112 additional samples without substantive change to overall results. Several VP context sherds (n=3) were newly assigned to the K1 group, raising the possibility that VP potters experimented with slag tempering (cf. Stahl et al. 2008:379). However, overlapping dates on VP and NP contexts at nearby sites raise the possibility that vessels were acquired through exchange, one strengthened by substantive differences in VP and NP form and decorative treatment.

3. The small samples studied here were exported under license by the Ghana Museums and Monuments Commission. Additional samples are stored in Ghana; however, these types are rare in the overall assemblage.
4. However, here we need to be cautious of imputing priority to metal as a source of this valuation, as Saunders (2003:23) notes in reference to Pre-Columbian Central America.

References


Pythons Worked

Constellating Communities of Practice with Conceptual Metaphor in Northern Lake Victoria, ca. A.D. 800 to 1200

David Schoenbrun

This chapter explores the emergence of a community of practice engaged with shrines dedicated to forging connections among dispersed communities of other practices such as ironwork, canoe-building, healing, fishing, and so forth along the shores of Lake Victoria in eastern Africa before A.D. 1000. Mediums and their interpreters, through techniques of imagination and travel that reached beyond the local, aligned a shrine community’s engagement with other shrines that had different pasts. This process of constellating (Wenger 1998:126–130; Roddick and Stahl, this volume) involved conceptual experiments with meaning, a key element in how communities of practice are constellated. Working with objects, like the striking Luzira Group (Fig. 7.1; Posnansky 1995), practices such as spirit possession, and ideas like clanship, the conceptual experiments in question guided and responded to a larger scale of political life. Their lexical and material traces suggest that the dynamic involved a conflict. The historical standing of each locality, which local people conceptualized as a source of their success in assembling the particular array of skill and knowledge that made them attractive to the constellating group, was likely reconfigured as contenders over an expanded scale of social interaction crafted its history. The conceptual experiments with meaning analyzed and interpreted in this chapter elicited new ideologies of belonging in part by revising the historical terms on which such belonging turned.

This chapter expands on other explorations of the arguments people made in crafting expanded political scale in this part of east Africa (Cohen 1972; Feierman 1995; Kagwa 1971; Kodesh 2010; Schoenbrun 1998; Stephens 2013) by asking how people might have made such arguments stick (Barber 2007). How did the community dedicated to expanded scale overcome the authority, inertia, or disinterest that flowed
from respect for predecessors? It was the authority of ancestors that helped local people generate their wealth. Blending local history and practice underwrote access to the unseen and abstract powers people knew were necessary if not sufficient causes of such success. A thousand years ago, along the northern littoral of Lake Victoria, central Africa’s most expansive body of water, women and men made pythons—as snakes resident at certain shrines, words, and an icon of a python wound round the neck of a thousand-year-old clay figure of a medium (Fig. 7.1)—an important part of the new form of clanship they created in answering these questions.

The historian Neil Kodesh set aside the idea that clans are kinship groups writ large to argue they are socially composed “networks of knowledge” (Kodesh 2008). One of the widely known oral traditions in Lake Victoria’s northwest that Kodesh analyzed tells that founding figures of the Pangolin clan defeated Bemba the python by cutting off its head (Kagwa 1971:5–6; 1972[1912]:40–41; Kakoma et al. 1959:4–5; Roscoe 1911: 475–477). By listening to this story at shrines on the core estates of Buganda’s clans, Kodesh came to understand it as a foundational account of “dislodging spiritual entities from their territorial bases” to extend “the territory for which a particular spirit and its earthly representatives might

Figure 7.1. Luzira Head and one of two torsos. © The Trustees of the British Museum.
ensure collective health and prosperity” (Kodesh 2010:30). The serpent Bemba was the “particular spirit” in question. By decapitating Bemba, and giving the snake’s head to Kintu, an efficacious, well-connected spirit medium (and a founder of Buganda, one of Africa’s oldest monarchies), the Pangolin clan expanded the territorial reach of its powers over health and wealth at Bemba’s expense.

The python was the figure to dislodge because it embodied the historical connection between the living and ancestors who had made the python’s territory wealthy. The bond between an ancestral spirit and python was rooted in places like shrines; it was the nexus in which the particular community hosting the snake met the challenges of collective well-being. To thrive in a place, one needed access to the forces that conditioned its prosperity and fecundity, and those forces resided as much in the past success and failure of people and spirits as in a present set of circumstance, ability, and spirit involvement. The latter factors produced abundant offspring, productive agricultures, and thriving communities of artisanal practice. Those who enjoyed that success understood it, in part, as the product of historical ties to ancestral figures, access to whom was provided by offerings and spirit mediumship. They understood success as flowing from a deep history of relations between ancestors and the living, in a particular place. Accounts make plain that that bond was activated in the course of mediumistic activity at shrines (Cohen 1972:44–45; Kagwa 1934[1918]:112–128; Kakoma et al. 1959:4ff; Kodesh 2010:73ff; Mackay 1890:172ff; Roscoe 1909; Speke 1863:394–396), some of which had a resident python.

African rock pythons love water and are common in Uganda, especially on Lake Victoria’s islands, “evidently swimming freely between them and the mainland” (Pitman 1935:54–57, 61, 64ff, 1936:213). They may become habituated to people (Pitman 1936:217). They slough their skin as they grow and have vestigial hind limbs, and adults hunt by stalking or lying in ambush before springing at their quarry. In this they behave like lion, leopard, and crocodile. But, unlike those predators—which were also held to be familiars for spirits a millennium ago—African rock pythons kill their prey by constriction. By distending their lower mandible, they swallow their victim whole and headfirst. Their bodies, life-course, and behavior separated pythons from other kinds of snakes and other kinds of predators.
Fortunately, we possess a detailed account from early in the 20th century of a shrine with a resident python published by the Rev. John Roscoe, a colleague of Sir James Frazer and avid ethnographer of this region (Roscoe 1909, 1911:320–322). The shrine was a large conical house, 20’ across and 25’ tall, located in a forest by a river at Bulonge, on the mainland littoral (Fig. 7.2). Attended by a female guardian, the python lived in one side of the house, entering and exiting through a hole cut into the wall. The python drank milk mixed with kaolin from a large wooden bowl held by the guardian. The medium—a man, in Roscoe’s account—occasionally canoed to an island in the Ssese group to get the cows that provided this milk. Members of a senior lineage from the Heart clan kept the house in good repair, providing a priest who received offerings of thanks from supplicants and “told the python what had been
brought [offerings] and the number of requests, [and] dressed the Medi-
dum in the sacred dress ready for the python to take possession of him”
(Roscoe 1909:89). Roscoe’s and other descriptions of mediumistic events
all mention beer (Buligwanga 2006[1916]:3; Mackay 1890:168, 173; Ros-
coe 1909:89; Speke 1863:393). The medium fed the python the offerings
of fowls and goats to ensure success in fishing and reproduction. The
medium made utterings while possessed. The Heart clan’s interpreter ex-
plained what the medium had foreseen, telling the people whose requests
had been attended to what they must do to bring about the desired result.
Such events occurred on each of seven days following the sighting of a
new, waxing moon.

The mediums, priests, and other shrine personnel provided access to
such spirits for ordinary people pursuing individual and collective well-
being. These intermediaries grounded well-being in territorial histories
embodied in the snake and in the other, eco-geographical features where
people understood such spirits resided. Wealth, health, and access to the
spiritual authority of particular ancestors in a particular territory, there-
fore, all went together. But constellating involved multiple territories,
ancestors, and histories, something people figured out how to manage
by expanding the experience of spiritual embodiment. In addition to
the longstanding practice in which a medium called a leader’s ancestral
ghost from its residence in these places and life-forms, to possess her,
some shrines began to include a practice in which people understood
the medium and her patron spirit as in some manner coterminous. The
polysemy of the word mbàndwa, which can refer to the spirit that pos-
sesses a medium and to the medium herself, captures that relation el-
egantly (Table 7.1).

The prior form of mediumship worked from the premise that places
have resident plant, animal, or reptile spiritual authorities. In the newer
practice, people emphasized the figure of the medium and her colleagues
(hereafter, public healers; Feierman 1995:80) in interacting with spirits.
That additional mode of engagement at a shrine enabled spiritual enti-
ties to travel with their mediums; potentially mobile spirits were avail-
able for inclusion in a social imaginary—and its histories—beyond the
local. At Bulonge, for example, the python’s medium canoed to the
Ssese Islands, to fetch the cows whose milk the python drank. Oppor-
tunities for wealth and health could be pursued and expanded in the
<table>
<thead>
<tr>
<th>Term</th>
<th>Gloss/semantics</th>
<th>Proto-language or language</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>ngândá (polysemous noun)</td>
<td>Heap, pile; clan</td>
<td>Proto-Bantu</td>
<td>Bastin et al. 2002:RN 1324</td>
</tr>
<tr>
<td>kùbândwa (passive verb)</td>
<td>Be knocked down; be possessed by spirit</td>
<td>Proto-Great Lakes Bantu</td>
<td>Schoenbrun 1997:178</td>
</tr>
<tr>
<td>kùsambwà (passive verb)</td>
<td>Be kicked</td>
<td>Circum-Lake Victoria</td>
<td>Schoenbrun 1997:226</td>
</tr>
<tr>
<td>èkikà (s.); èbikà (pl.) (polysemous nouns)</td>
<td>Big homestead; clan, family</td>
<td>Proto-North Nyanza</td>
<td>Stephens 2013:187</td>
</tr>
<tr>
<td>miryamirye (reduplicated noun)</td>
<td>African rock python; Python sebae; lit. swallows big things</td>
<td>Proto-Great Lakes Bantu</td>
<td></td>
</tr>
<tr>
<td>-sambwà (polysemous noun, with different noun prefixes)</td>
<td>Territorial location of a spirit; the spirit; its familiar (including python); lit. kicked being</td>
<td>Circum-Lake Victoria</td>
<td>Schoenbrun 1997:226</td>
</tr>
<tr>
<td>mbândwa (polysemous noun)</td>
<td>Spirit; initiated medium; lit. person mounted by a spirit</td>
<td>Proto-West Nyanza</td>
<td>Schoenbrun 1997:178</td>
</tr>
<tr>
<td>èmmandwà (polysemous noun)</td>
<td>Spirit; initiated medium; python; bull</td>
<td>Ganda</td>
<td>Schoenbrun 1997:178</td>
</tr>
<tr>
<td>ttimbà (polysemous noun)</td>
<td>Python; lead drum in royal battery; a chief from Ssese Isles is its hereditary keeper. From Ganda: kùtimba, “bind, lash; hang (curtain or picture); decorate (room); drape, entwine”</td>
<td>Ganda</td>
<td>Snoxall 1967:312</td>
</tr>
</tbody>
</table>
presence of such mediums because they embodied the spiritual authority whose power and knowledge people needed access to in order to succeed. These public healers, working with speech and objects, improvised solutions to the challenges of expanded scales of social life, in the process crafting new histories for their new shapes.

A trace of this may be found in an object assemblage discovered in 1929 when a pressgang of Africans expanding the colonial-era Luzira prison found a set of figures made out of clay that included representations of a medium and two other persons (Ashley and Reid 2008; Reid and Ashley 2008). Associated pottery provided a proxy date of about a thousand years ago (Reid and Ashley 2008:104–108). One figure is a head with no body and two are torsos with no heads (Fig. 7.1). The torsos wear wrist bangles. The face’s bulging eyes and parted lips evoke the experience of spirit possession. A thick, winding neck ring evokes a constricting python (Tantala 1989:613–615). The assemblage (discussed below) was deposited at a site within easy walking distance from Lake Victoria and only 10 kilometers from the hill where Bemba the Snake is said to have resided before being defeated by allies of Kintu (Nsimbi 1980[1954]:153–154). The assemblage represents a group of mediums and interpreters patronized by a territorial spirit, such as the python figure of Bemba. The Luzira Group is unlikely to have been unique during its time, but nothing like it is made today or has been found anywhere else in the region.

Understanding why people stopped making such objects requires broader historical context, including the emergence around A.D. 1000 of a constellating world of novel clanship in which local spiritual authorities were defeated, dislodged, or co-opted. Oral histories of that process point to struggles over the standing of local territorial spiritual authority. In the current example, Lungfish clan histories exist in which a variant claims Bemba the Snake as a founding ancestor (Buligwanga 2006[1916]:10ff) and others do not (Kagwa 1972[1912]; Kakoma et al. 1959). Struggles over the standing of Bemba did not lead people to abandon the figure of the python. An important drum in Buganda’s royal percussion battery is called ttimbà (python) and bears a bas-relief of an undulating python (Fig. 7.3). One Lungfish clan history that treats Bemba as a defeated tyrant keeps the python category alive in the figure and title of Ssematimba, made the clan’s “judge” when an ancestor placed a
copper bracelet (*ekikomo*) on his wrist (Kagwa 1972[1912]:37). “Ssematimba” means “Father of the Pythons.” Whether Lungfish clan members claimed Bemba as a founding ancestor or forgot him, they used the figure of the python to revise local histories. mediums used pythons
to align local communities of practice in a constellating process that yielded the knowledge networks that became the Lungfish clan.

Constellating thus involved conceptual experiments that unfolded at shrines, in which people marked things and ideas, making them available for revision (Keane 2010; Wenger 1998:91). Mobile mediums marked existing territorial spirits—like Bemba or Bulonge’s python—in order to debate their authority or efficacy. Mediums instigated the group’s reconfiguration, prompting members of a face-to-face community of practice to imagine their work connected to others not present—in part by questioning the efficacy of their existing spirits. The social dynamics at Bulonge suggest that mediums, interpreters, and other shrine personnel brokered participation by guiding imagination beyond local practice and aligning it with other places (cf. Gosselain, this volume). They could bring life to a reified thing or word, clarify its mute ambiguity in the presence of supplicants, restate its lost purpose, propose entirely new purposes, or respond to others’ efforts to do the same (Wenger 1998:108–110, 128–131, 179–187).

This chapter explores these conceptual and participatory contingencies of constellating by analyzing and interpreting a complex of conceptual metaphor and blends (discussed below), with lexical and material iterations that juxtapose eating, totemic avoidances, and pythons in contexts of spirit possession. That complex facilitated connecting communities of practice beyond their local littoral settings on Lake Victoria and framed struggles over doing so. Beyond the face-to-face lay opportunity for prosperity and fecundity at the close of the first millennium A.D. But the moral weight of the forms of power available to steer things in that direction grew from local histories and discourses of affiliation. This arrangement afforded constellating with different shapes that emerge from the contingent contexts of their growth.

Orientations

The second-largest freshwater lake on earth has a crenellated geography favoring the canoe for connecting far-flung littoral communities (Fig. 7.2). People had been developing Lake Victoria’s challenging, multifaceted riches for centuries (Ashley 2005) by the time someone formed the Luzira Group. More than 100 islands lie offshore, some mere rocky tumbles, most rolling rises of rich soils and forests (Reid and Ashley
Thunderstorms bring disorienting curtains of rain and huge waves that could pulverize a canoe (Mackay 1884:275–276). Winds and strong currents can drive a determined crew off course and create rapidly shifting conditions for fishing. Very large, sewn canoes were closely associated in the 19th century with professional canoe men from the Ssese and Buvuma Islands (Fig. 7.4; Kirkland 1908). These may have been in use since much earlier in the first millennium. Ganda speakers shifted their term (èryâto), which in the majority of other Bantu languages refers to a dugout, to refer to the large sewn canoe. They called the dugout by a new term, èmmânvu (Snoxall 1967:195, 205). The semantic shift implied that the sewn canoe had been considered the standard—and the dugout worthy of a new name—since as early as the 12th century, when the Ganda speech community emerged from the dissolution of its ancestral speech community, North Nyanza.

The emergence along Lake Victoria’s northwest littoral of a new speech community—North Nyanza Bantu—is well supported by exclusive lexical and phonological features established according to comparative historical linguistic method (Stephens 2007:256–294). During
the 1100s, it split into two branches, separated by the River Nile (Stephens 2013:24; Fig. 7.5). The North Nyanza lexicon included a rich and growing vocabulary related to bananas, reflecting the ongoing development of cultivars and marking banana gardens as land worth inheriting (Schoenbrun 1998:79–83; Stephens 2013:66–71). Archaeological evidence is rich for grain-processing and field systems of grain (Reid and Ashley 2014:183–185). A period of broadly tighter water budgets opened all across east Africa between the seventh and the ninth centuries and lasted until the 13th century (Ssemmanda et al. 2005; Verschuren 2004). At smaller spatio-temporal scales the shrinking regional water budgets had unique shapes. Shifting volumes of rainfall were concretely expressed as two big drops in Lake Victoria’s level, one between 1140 and 1160 and a larger one between A.D. 1180 and 1200 (Stager and Johnson 2000; Stager et al. 2003:179, 180, items “g” and “h” in Fig. 7). In just two generations Lake Victoria’s littoral and climate changed. North Nyanza speakers used exclusive new words for the novel seasonality, capturing an emerging uncertainty over the timing and volume of short rains.2

Historical linguistic evidence suggests that dislodging territorial spirits and constellating communities of practice through mobile medi-
umship and a new form of clanship began after about A.D. 800. Before then, leaders from lineages with a longstanding local presence managed the structured improvisations that instigated encounters with embodied spirits at python shrines like the one at Bulonge. A term exists today in many of the region’s languages for a territorial spirit managed by members of firstcomer lineages like those at Bulonge. But its distribution is limited to Lake Victoria’s littoral, or just behind, suggesting that the region’s Bantu-speaking societies used this practice (Table 7.1; Schoenbrun 1998:197–203). From the 8th to the 12th century, when Proto-North Nyanza existed as a speech community on Lake Victoria’s northwestern littoral (Stephens 2013:23–24; Fig. 7.5), terms for spirit mediumship grew polysemic, as public healers began to travel between communities instigating such encounters (Cohen 1972:70–83; Kiwanuka 1972:31–35; Kodesh 2010:27–88; Schoenbrun 1998:203–206). Learning to live in a world beyond the face-to-face was part of making Lake Victoria home.

That involved constellating dispersed settlements into the novel scales of interaction and shifting networks of political affiliation that Kodesh calls “clans” and North Nyanza speakers called ebika (pl.). Many of Africa’s some 600 Bantu languages—including many in our region—have a word, *nganda, that can be glossed in English as “clan” (Bastin et al. 2002:RN 1324). The distribution’s breadth implies some antiquity for the idea and practice of composing “networks of knowledge” (Kodesh 2008:197) as keys to prosperity and a technique of political affiliation. Membership was marked by shared totemic avoidances (Roscoe 1911:133) as well as claims to a distant, shared ancestral figure or figures (Cohen 1972:6–7; Kagwa 1972[1912]:1). So, at the same time that they expanded the lexicon of mediumship to elide the difference between a medium and a spirit and promote spiritual portability, North Nyanza speakers replaced an old term, nganda (pl.), with a new one, ebika (pl.), as the name for “clans,” retaining the use of shared avoidances and ancestral figures (Table 7.1).

At the same time, potters made different wares (Ashley 2005; Posnansky 1961; Reid 2003). Some worked in an older ceramic register with roots in the last millennium B.C., which I call Classical Urewe ware, in order to set if off from Transitional Urewes, the variations on Classical Urewes developed by potters across Lake Victoria’s northern littoral. Transitional Urewes first appeared in the 7th century, were widely
dispersed by the 9th century, and gradually disappeared in the 13th century (Ashley 2005:285–288, 304; Fig. 7.6); they were a “group of ceramics found exclusively on and around Victoria Nyanza and currently focused in Uganda” (Ashley 2010:149). Transitional Urewe potters shifted from Classical Urewe’s careful decoration, finely sorted fabrics, and varied vessel forms to a narrower set of forms with less finely executed decoration (Ashley 2010:149–153; Reid 2003). In the 1000s, some potters began to make Entebbe ware, unique in decoration and vessel type, its large bowls implying new dimensions to feasting. All known Entebbe ware sites, from Lolui Island to west of Entebbe, lie less than seven kilometers from the shore (Ashley 2010:154–156).

The formally diverse Transitional Urewes (Ashley 2010:146), widespread around Lake Victoria’s northern littoral by the 800s, pointed to the historical depth of Classical Urewe wares. The differences between them marked the earlier Urewe vessel forms and decoration as classical. After A.D. 1000, people embraced Entebbe ware’s new decorative grammar and very large bowls for serving beer. These pots broke with the historical depth of Urewe wares, affording a new orientation toward

Figure 7.6. Chronology of northern Lake Victoria ceramic traditions. Redrawn from Ashley 2010:149.
larger gatherings during which feasting with the new bowls pointed to aspirational futures, rather than an aura of antiquity. Thus, at sites with both Classical and Transitional Urewes, but no Entebbe wares, farmers and fishers were making Lake Victoria’s northern littoral home in part through the process we have reviewed. They transformed particular ancestral ghosts into territorial spirits. That process involved establishing and promoting an historical depth to a leading lineage’s ties to a place, reflected in the curatorial concerns with ancient decorative syntaxes and vessel shape grammars present on Transitional Urewe pots and showing clear links with Classical Urewes.

Multicomponent sites such as Luzira, where Entebbe pottery appears with Classical and Transitional Urewes, reflect a shift in orientation. Entebbe ware’s bowls were huge: full of beer, they would have been extremely difficult to move (Ashley 2010:155). Their size clearly implied a larger scale for public events, like those commonly associated with offerings and feasting at New Moon ceremonies held at shrines like Bulonge. The larger group of people involved in such feasting surely included visitors as well as locals. So, the feasts at some of these multicomponent sites were likely some of the first involving mobile mediumship and constellating communities of practice.

Sites with Entebbe pottery but no Urewe began to appear in the 1200s (Fig. 7.6). They were used by the descendants of the generations that experienced the newly uncertain “short rains,” the people who had invested in intensive cereal and banana agricultures and had possibly begun using the large, sewn canoes. Such sites were new communities, established as part of the process of constellating, which brings us back to the Luzira Group.

Ceri Ashley and Andrew Reid, their most recent archaeologists, argue that the head and the major fragments “were partial and broken prior to deposition,” although “several of the large pieces” were clearly damaged in discovery (Reid and Ashley 2008:104). All of the material was found together in the three shaft-pits (Ashley and Reid 2008:115). Information about which parts of the assemblage were found in which pits has been lost, but the pits are not associated with any structure or debris indexing mundane, domestic activity. The uniformity of color and mica intrusions in the clay fabric of pots and figures suggest to Ashley and Reid (2008:109–114) that “the same productive community” made
them. Wherever else the Luzira Group (as a whole or in parts) may have been made and used, it went into the ground together.

The Luzira Group was discovered with functional pottery sherds, of which 65 so-called feature sherds remain (Ashley and Reid 2008:110). Of these, 44 belong to two variants of Transitional Urewe (Ashley 2005: 178–182, 212–213). Six Classical Urewe sherds index the full range of its functional vessel forms, carefully incised decoration, and beveled rims (Ashley and Reid 2008:112). One Entebbe sherd was part of the assemblage. This suggests that the Luzira Group was broadly contemporary with the time of Transitional Urewe, no younger than its advent, in the eighth and ninth centuries A.D. (Ashley 2005:177). The Classical Urewe, if not deposited at the end of very long lives, make it possible that the Luzira Group is perhaps as old as the sixth and seventh centuries when Classical Urewes first showed up in this part of their currently known distribution (Reid and Ashley 2014:182; Fig. 7.7). But, if the single Entebbe sherd is not merely an intrusion from the surface, it means the site existed at least to the 12th century.

Whether or not the Luzira Group’s life began earlier—or pointed to the past—it was put into the ground at some moment during the later centuries of settling Lake Victoria’s littoral. Current dating of the advent of Entebbe ware makes the 12th century the earliest time for their deposition. The Luzira Group could have been made well before then, when people were converting ancestral ghosts to territorial spirits in this location, and then buried during the 12th century, when people were converting territorial spirits into portable ones, through the person of the medium, and constellation dispersed communities into clans. They turned from the deep past to new horizons, taking shape as clan histories but prompted by the work of mediumship.

The itinerant mediums who organized that process formed their political aspirations in contexts of a novel seasonality, increasing linguistic difference and ceramic variability, and continued development of an intensive grain and banana agriculture, all of which ground this chapter’s central historical argument: lexical and material reifications prompted new kinds of engagement, novel forms of imagination, and improvisational alignments oriented to constellation (Roddick and Stahl, this volume). By marking these reifications, public healers facilitated the sort of debates needed to dislodge, co-opt, or suppress the local within new
terms and practices, making the new groups, or clanship, habitual. The curatorial life of the Luzira Group, reflected in its deposition, suggests that such prompts had a life-span, the end of which was implicated in the beginning of successful constellating.

**Literal Meaning, Marking, and Conceptual Metaphor: Tools of Imagination and Alignment**

Meaning lies at the center of the literature on communities of practice, but it is rarely discussed with much nuance (Lave 1993:8; Wenger 1998: 4–5). Making meaning is shaped by so many variables—social position, gender, age, power, context, and so forth—that such a foundational topic is elusive. Therefore, the anthropologist Webb Keane suggests, scholars must approach meaning as historically specific “basic assumptions about what signs are and how they function in the world” and “what kinds of agentive subjects and acted-upon objects might be found in the world” (Keane 2003:409, 419ff). These assumptions apply to material things as well as language, rendering interpretation a dynamic process by which people lend coherence to, or reshuffle, the subjects and objects that shape the social life of language and materiality. The meaning of language and things therefore grows in contexts of use—like shrines and beer drinks—that mutually implicate cognitive, material, and social processes (Lave and Wenger 1991:36). By framing meaning as action, we can think about what something can mean and put the shapes of semantic fields in motion.

These assumptions ground marking, the process by which a material or lexical form stands out from a background of habitual, repeated processes. The centrality of marking “certain parts of experience for special attention” in terms of “its relationship to human subjectivity, agency, and values” restrains imposing on people in the past “some particular set of utilitarian judgments or practical reasons that would be obvious to us” (Keane 2010:213). The Luzira Group’s figures were marked because they stood out from other objects made from clay, like pots. Otherwise ordinary pots may be marked by placing them in an unusual location such as the repaired Classical Urewe pot placed in an uninhabitable rock shelter on Lolui Island or the complete vessels placed in smelting furnaces or shaft pits (Ashley 2010:145–146). A marked lexical form works in the same manner, often by adding a morphological
feature contrasting gender or agency. Many Bantu languages—but not Ganda!—add a passive suffix to verbs describing “to marry” to signify the bride’s involvement. When speaking about grooms marrying, no such particle marks their action: grooms marry while brides are married. Markedness does not make meaning, but it renders words and things available for others to evaluate, alter, and discuss (Keane 2010:188ff).

Conceptual metaphor opens up this dynamic because it binds people to new ideas in part through drawing on a fund of common embodied experience. Like any other metaphor, a conceptual metaphor produces knowledge through juxtaposition: one thing is grasped in terms of another (Gibbs 2011:18; Lakoff and Johnson 1988[1980]:246–249; Ortman 2000; Table 7.2). Asking you to understand meaning by thinking about prehensilism draws on your experience of bounded things like containers in order to confine the indeterminacies of meaning in a package that a hand can grab. These sources of conceptual metaphor are “motivated by different experiential invariants,” or embodied experiences of the world, whose structured mappings lend coherence to their targets (Fusaroli and Morgagni 2011:5). According to one scholar, such mappings are “basins of attraction within a self-organized system involving the interplay of brains, bodies, and the world” (Gibbs 2011:30). They are

<table>
<thead>
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<th>Property</th>
<th>English example</th>
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<tr>
<td>Directionality</td>
<td>TIME IS MONEY, but money is not time.</td>
</tr>
<tr>
<td>Superordination</td>
<td>Expressions of LIFE IS A JOURNEY involve modes of transportation: “Her career is on track.”</td>
</tr>
<tr>
<td>Invariance</td>
<td>LIFE IS A JOURNEY, but you can’t go back and take the other fork in the road.</td>
</tr>
<tr>
<td>Constitutive</td>
<td>POLITICS IS WAR: “give ground,” “attack,” “defend,” etc.</td>
</tr>
<tr>
<td>Blending</td>
<td>BRAINSTORMING is valuable, but a storming brain is fanciful.</td>
</tr>
<tr>
<td>Experiential</td>
<td>ANGER IS HEATED FLUID IN A CONTAINER. Body temperature rises when you get “steaming mad.”</td>
</tr>
</tbody>
</table>

Table 7.2. Aspects of conceptual metaphor (adapted from Ortman 2000)
emergent “way[s] to increase the stability of conceptual representation” (Hutchins 2005:1558).

Juxtaposition-as-understanding combines cognizing individuals, whose embodied experiences of the world provide the sources for conceptual metaphor, with the social distribution of understandable cultural values, the assumptions or literal meanings marking the targets (Fusaroli and Morgagni 2011). The persistent, shifting need for reference in the world, and the excess of interpretation, render the ordering properties of conceptual metaphors central to learning in and constellating communities of practice. When people use the target of a conceptual metaphor as a source in another metaphorical juxtaposition, they blend different conceptual metaphors, producing complex techniques of meaning in play with marking. The resulting conceptual blends involve cross-domain mappings of conceptual metaphors (Grady et al. 1999; Ortman 2000:618).

Conceptual metaphors and metaphorical blends have linguistic iterations in compound words, in a word’s polysemy, and in seriated semantic shifts, all of which may be placed in a sequence of speech community events such as divergence and transfer (Ortman 2013:89–96; Schoenbrun 2012:297–300). Iterations in decoration, form, and spatial organization and in use and depositional practice may be placed in an absolute chronology of material culture. Systematic correspondences between aspects of these iterations, when located in the same temporal and spatial frame, confirm their grounding in the particular shared domains of embodied experience affording them. Their elaborations reveal the ways in which the conceptualization enabled by marking afforded particular shapes to struggles over the changing scale of social life, by which people converted novelty to habit.

Literal meaning is the habitual ground on which people grasp and deploy meaning and against which marking makes some things stand out. Conceptual metaphor and metaphorical blends provide important clues about contexts of use for marking and meaning-making in historical settings, like the current one, that call on ethnographic analogy to bring life to them. Literal meaning, marking, and metaphor provide analytical leverage on Wenger’s central questions of imagination and alignment. They reveal how people addressed the challenges of dislodging, co-opting, or suppressing local historical knowledge in creating clanship as a practice of constellating. By looking more directly at these
tools, we can get at the dynamics of struggle over local historical stand-
ing entailed by constellating.

Python Work: Conceptual Metaphors and Blends on Lake Victoria’s Northwestern Littoral

A widespread conceptual metaphor, EATING IS POWER (Table 7.1), has a lexical form reconstructed to the mid-first millennium language group from which North Nyanza, among others, emerged. The polysemous verb *kulya* (to eat; rule; provide prosperity) allowed speakers to juxtapose the destruction, pleasure, waste, growth, and transformation in the experience of eating with practices of giving, redistributing, and transforming wealth into more wealth, a core element of the commensal politics of feasting (Dietler 2001). Shifts in eating and drinking during the 12th century, reflected in Entebbe ware’s large bowls, point to larger publics, but they do not reveal a particular strategy for forming them, such as labor mobilization (Dietler and Herbich 2001). However, it is easy to imagine participants drawing on new experiences of eating and drinking to elaborate ideas about other social processes, such as the instrumental power to put on such feasts and the opportunities for semantic creativity that they occasioned (Parkin 1982:xlvi). The mundane experience of eating, when juxtaposed to rule and prosperity, structured processes and states of power, prompting or facilitating elaborations, such as the idea that leaders are master hunter-eaters like leopards, lions, crocodiles, or pythons.

In the same regional language group, those predators were familiars for territorial spirits, called *misambwà* (Table 7.1). This polysemy marked the metaphorical proposition that SPIRITS ARE PREDATORS signified in particular names for the African rock python that elaborate its prodigious capacities for swallowing very large prey whole. The noun *mùsambwà* (s.) was derived from the verb *kùsambwa* (to be kicked), grounding spirit, its familiar, and place in the experience of possession as the experience of being physically attacked. Those experiences—possession as the physical attack by a particular familiar—marked pythons as spirits against the habitual experience of a python as a predator.

Prompted by mediums who behaved in this manner—the medium at Bulonge “went down on his face and wiggled about upon his stomach
Pythons Worked

like a snake” (Roscoe 1909:89)—people elaborated that distinction in another metaphor, MEDIUMS ARE PYTHONs. This idea took the lexical form ëmmandwà (Table 7.1), a widely distributed polysemous term signifying both “a medium” and “a spirit.” It is only in Ganda, one of the two languages formed as the North Nyanza subgroup dissolved in the 12th century, that ëmmandwà may signify “python” and “bull” as well as “spirit” and “medium” (Schoenbrun 2006:1420–4). Ganda speakers could think and talk about any or all of these objects using the same word.

At some point, and for an unknown length of time between A.D. 700 and 1100, when North Nyanza was still an interacting speech community, people on the Entebbe peninsula could also think and act with the conceptual blends of the Luzira Group, in which the python figured prominently. The coiled neck ring on the Luzira Head evokes a python in the act of constricting prey before eating, marking that aspect of the snake’s behavior as belonging in some way to mediumship. In order to appreciate the power of this conceptual blend over thinking and action—and to open up questions of the power to propose it—pythons (the snakes, not the mediums or spirits) beckon.

Compared with other animal life populating an ordinary village a thousand years ago—sheep, goats, cattle, guinea fowl, chickens—pythons were probably encountered rarely but regularly. Their love of water brought them into contact with people at springs, lakes, swamps, and watercourses. The presence of a python at a shrine surely stood out from the banal, domesticated village creatures, all of which could be offered to shrines (Kagwa 1934[1918]:114; Roscoe 1909:89). Visitors could wonder about the differences between large snakes they didn’t eat but which ate distinctively and the domestic animals people ate or milked. Or they could reflect on differences between pythons and other large predators not eaten by people but which ate distinctively compared to pythons. Pythons were marked from other animals linked with territorial spirits because they blended and departed from the eating techniques of predators like lion and leopard.

Ordinary people’s experience of pythons afforded grounds for public healers to stage circumstances instigating thinking and acting with pythons, as at Bulonge. There, one index of a python’s power was swallowing the offerings brought by supplicants. Another index was spirit possession, an experience described as being “knocked down,” “seized
or mounted by the head,” or “kicked” (Roscoe 1909:90; Table 7.1). The
dramatic effect of possession naturalized a medium’s practice, lending
it social power and a literal meaning in which spirits could possess me-
diums. Marking mediums as indexical brought them into the flow of
history, in part by exposing them to the semiotic potential of that literal
meaning. Living pythons at shrines like Bulonge were material anchors
for these complex emergent practices. The terracotta figures from Luzira
may have been too.

For their makers, these objects materialized ideas, even if for those
who encountered them the objects brought other ideas to mind, or
none at all. A fair amount might be said about what those ideas were by
“reading” the assemblage, using the syntax of production, use, and de-
position. But we only have evidence about deposition, an outstanding
feature of which is their having been broken before being installed in
pits. By breaking and moving them below the surface of the earth—the
place where people claimed many spirits resided (Kagwa 1934[1918]:112–
113; Tantala 1989)—did people decommission or recommission them?
We may never know because the missing pieces defy analysis as acts of
interpretation in the absence of intact, analogous figures. We do not
even know which buried pieces were deposited in each of the three pits.
But, the fragments point to other absences, like the flesh-and-blood peo-
ple of which the terracotta figures were icons or whom they indexed in
some manner, if ceramicists and mediums could be the same person
back then. Those persons and their histories—or simply the set of cat-
egories a group of mediums embodied—hovered near the terracottas,
potential subjects of others’ imaginations and actions.

It is intriguing that the Luzira Head is built on a coiled pot and has
been torn from a base of some sort, while the smaller torsos have been
torn from what were presumably heads and hands. Perhaps the burial
of the head rendered a living medium unavailable to possession by a
patron spirit, perhaps one that manifested as a python. Did the burial
of the iconic bodies render local living healers—whose identity as fig-
ures (interpreters?) in a public healing group is hinted at by the bangles
they wear—unavailable to manage and translate the medium’s mes-
ages while possessed? If so, breaking these figures prior to deposition
was analogous to the story of Bemba’s decapitation by founding figures
in the Pangolin clan, described above.
Kodesh’s rich reinterpretation of that story reveals the significance of the dramatic conclusion in which Nfudu and Kigave (founding figures of the Pangolin clan) decapitate Bemba the Snake and bring his head to Kintu, their patron medium and spirit. For Kodesh, the vignette represents the defeat of one public healing network by the superior power of another one. At least one Lungfish clan history (Buligwanga 2006[1916]) claims Bemba as a figure involved in founding their clan. The versions of the encounter told since the 19th century agree Bemba’s locus of authority lay on Nnaggalabi Hill, now called Buddo Hill, a 10-kilometer walk from Luzira. Without putting too fine a point on things, the evidence suggests that constellating communities of practice involved contested improvisations in material, language, and narrative, in which public healers used the python to figure imagination as well as to realign communities of practice. The figure of the python prompted struggles over local histories in the context of crafting new histories of clanship through a community of practice of public healing increasingly dedicated to the work of constellating other communities of practice.

The proxy dates assigned to the Luzira Group between the 9th and the 11th centuries broadly match the formation and initial divergence of the North Nyanza speech community into two branches. Only one (Pre-Ganda, centered in Lake Victoria’s northwestern littoral) had in its vocabulary all of the following items (Table 7.1): the compound term ènzìramìre (python; offering or avoidance swallower) and the polysemous terms ômúsâmbwa, êmmandwà, and ttimbà, which elaborated the conceptual metaphor EATING IS POWER, and the conceptual blends, SPIRITS ARE PYTHONS, MEDIUMS ARE PYTHONS, and PYTHONS ARE DRUMS, respectively. The congruence in time and space of lexical and material iterations of these blends suggests the Luzira Group represented public healers patronized by the territorial spirit of a python. The Luzira Group’s depositional associations with Classical Urewes, Transitional Urewes, and the single rim sherd of the distinct Entebbe ware—only the last two of which have a strictly maritime distribution—implicate the figures in participatory processes of local authority in the context of that emerging maritime world.

Metaphors and blends juxtaposing eating, mediumship, groupness, and aspiration facilitated people at one shrine imagining that they shared things with people using other shrines, whom they would never meet,
and aligned engagement with their shrine toward other shrines. This worked, in part, by people using the schematic structure of metaphors and blends to compress information about the past and the present—or to lessen the cognitive burden such a body of information imposed—by materializing a particular and familiar structure for that information (Hutchins 2005). For example, by mixing experiences of mediums being possessed by a python with the politics of group belonging enacted at shrines like Bulonge, these metaphors and blends condensed meaning in particular ways. The python’s compound name, ènziramire or uruziramire (Table 7.1) referred to the creature’s capacity to swallow the offerings supplicants brought in order to secure the outcomes they sought and to swallow the things that members of a group avoided, allowing new groups—like clans—to form. That idea was nothing new, if the antiquity of these terms is accurate. The group of public healers who facilitated productive and reproductive success for a local community, materialized by the Luzira figures, was familiar and thus easily translatable across time and space because people already relied on such groups of flesh and blood mediums for consequential encounters with the spirits that mattered in their territories.

But, after A.D. 1000, the role for individual mediums and their public healing groups changed. They became “brokers” who “introduce elements of one practice into another” (Wenger 1998:105) in part byconstellating dispersed localities with valuable accumulations of skill and knowledge through a public healing community of practice that transported their spiritual authority beyond particular territorial bases (Kodesh 2010). Lexical and material conceptual blends of eating, mediumship, and pythons marked fields of imagination that mediums could shape to align particular localities with other communities of practice. By enlisting the resources of the emerging network that were not local, mediums could respond to local needs. By swallowing supplicants’ offerings and the avoidances that marked their belonging to one group, python work opened the way for people and their locales to take up new roles in a larger collectivity.

The figure of the python at one shrine enabled people there to think about pythons at other shrines in an emergent network. Pythons resident at shrines enabled that to which they were linked indexically, such as ancestors or other spiritual personae, to come into conversation. The
mix of presence and absence accomplished by calling pythons “avoidance/offering swallower” (ènziramiire), housing and feeding them at shrines, and marking them by rendering an iconic presence on objects like the Luzira Head, which are then bundled with other clay figures and embossed and functional pot sherds, all constitute the python as a symbol. They were the raw material the symbol compressed or reified, and they were the practices that altered what the symbol could entail. Markedness and absence together made the python something special, lent it an otherness it did not already possess (effective, in part, because people encountered other snakes and animals). Encountering pythons at territorial spirit (músambwà) shrines cast that figuring into a new relief, making it susceptible to further “experience, reflection and reappropriation” (Keane 2010:196–198) that apparently led people to stop making such figures.

Shrine managers at places like Bulonge supervised offerings, facilitated possession by a spirit, interpreted the significance of what a medium said while possessed, and so forth. They marked new ideas and things by recruiting them to amplify existing domains or as tokens of a new type of domain that had appeared or was appearing in ordinary life. They enjoyed an advantage in semantic creativity, as a consequence of these responsibilities, but held no monopoly on such creative marking. Given the interplay of supplicant, medium, and interpreter with local conditions, critique arose. Pythons were old symbols pressed into new service as people with deep local histories on Lake Victoria’s littoral interacted.

Conclusion

Clan histories used idioms of travel and descent to align the imagination of localities with people who had particular skills and knowledge toward mutual engagement. Mobile, founding figures of a clan’s first generations are also marked as mediums facilitating encounters with spirits (Kagwa 1972[1912]; Kodesh 2010:27–66; Schoenbrun 1998:97–112, 195–206). In clan histories these idioms stake different claims on past figures. For example, at least one branch of the Lungfish clan claims Bemba the Snake as a founding ancestor, despite the centrality of the story of Bemba’s defeat and decapitation by Kintu and his allies in the Pangolin clan in accounts of establishing the Buganda kingdom. The variant
reflects contests over the outcomes of struggles over constellating communities of practice, revealing the challenges of sustaining mutual engagement, joint enterprise, and shared repertoires as the intimacies of face-to-face proximity interacted with the expansive world of clanship articulated through public healing and mobile, then itinerant mediumship. Metaphors and blends juxtaposing a python’s capacity for swallowing prey whole to the “swallowing” of propitiatory offerings and of the avoidances that marked membership in a local group, mixed eating, mediumship, belonging, and aspiration. They framed the terms of debate over the authority of portable spirits in a recursively creative manner, allowing both spirit and authority to travel across time and space. But the metaphors and blends also oriented python work toward the powerful medium-leaders who guided the process at the instigation of supplicants at repetitive calendrical events, such as the appearance of the new moon (Keane 2003:410; Lave 1993:23; Wenger 1998:84). Instigation issued from a variety of sources, but shrine managers’ positions afforded opportunities for semantic creativity, steering its entailments in particular directions (Kodesh 2010:40).

By making portable the authority of territorial spirits, some brokers shifted mediumship away from the exclusive control of firstcomer lineages ensconced in a particular territory, an imaginative act on display in the discursive idioms of clan histories. Historians have argued that this shift occurred in the 14th and 15th centuries as intensive agriculture sharpened struggles over access to and inheritance of lands best suited to bananas or grains (Kodesh 2010:89; Schoenbrun 1998:200–206). The story told here suggests the process was multifaceted, tied as much to opportunities for efficient travel on Lake Victoria as to the political economy of intensive cereal and banana farming, with stops and starts unfolding over as many as five centuries earlier. Early efforts struggled to reconfigure the marks of legitimate access to such mediumship away from their habitual sources: shared residence and face-to-face interaction that produced the moral heft and historical weight that residents invested in such locales. In the course of constellation, whose histories and places would count and on what terms? Python work held out the promise of forgetting local belonging, in the form of swallowed offerings, avoidances, and the reconfigured groupness to which one, or one’s descendants, might belong. Constellating communities of practice was
a central strategy for increasing prosperity, security, and cultural mixing in the 12th century as a new seasonality set in, agroeconomic commitments deepened, and linguistic diversity grew.

Conceptual metaphor and blending open the dynamics of power and scale in communities of practice to analysis and interpretation because they may be tracked in both lexical and material form. Their elaboration in blends and occasional fossilization (Ortman 2013:84–85) are the contingent locations for marked and habitual processes, indexing engagement, imagination, and alignment between communities of practice, which remain opaque for historians working in times beyond literacy or a dense archaeological record. Conflating mediums and pythons—in words, possession, and clay—presumed a rich, historical experience with each that informed recognizing them as one. But their joining in the juxtaposition MEDIUMS ARE PYTHONS marked them for debate and revision of a new sort than those marked by SPIRITS ARE PYTHONS. The latter rested on experience in a particular location and its surroundings where pythons and mediums resided. MEDIUMS ARE PYTHONS emphasized the experience of interactions between a medium—who could travel—and a python, fostering new practices of power in which python-mediums swallowed the bonds of shared avoidances so that new groups could form.

Constellating interaction between localities, mediums, and locals had to deal with the historical knowledge that gave lineage elders authority to guide encounters between resident supplicants and the spirits that patronized their locality. In producing new links between such communities constituting the emergence of a clan, each constellating locality had to create a new reification: their version of a clan history accommodating or reconfiguring local power (Kodesh 2010:39–48). Therefore, python work was also boundary work, involved in the interplay of imagination and alignment that engagement with shrines prompted. Pythons were boundary objects linking pasts, presents, and futures and providing material anchors for new historical knowledge attendant on constellation (see also Harris, Sassaman, this volume). Some iterations lasted—the notion that pythons swallowed offerings and avoidances—and others, like the practice of making terracotta figures tied to mediumship, fell away. The disappearance of the Luzira Group indexed the defeat of a particular “local history,” but not its disappearance from historical
accounts. The one retained in Buligwanga’s narrative reveals that people could make pythons persist as symbols of reconfigured groupness. Early Ganda speakers elaborated lexical and material iterations of conceptual metaphor and blends in a fashion contingent upon struggles over local historical standing perceivable in the variants of clan histories that took shape in the aftermaths of struggle.

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Notes

1. One clan supplied priests for a particular shrine. Mediums might come from any group. Youths who cared for a large shrine had often been sent there by parents grateful for their good fortune in having children. Such supplicants made up the largest single group at a shrine (Kaggwa 1934[1918]; Kodesh 2010; Roscoe 1911; Tantala 1989).

2. Radiocarbon dates for the climatic shifts match glottochronological dates for the dissolution of Proto-North Nyanza and the subsequent formation of Pre-Luganda and Proto-South Kyoga (Stephens 2013:23–24). The new terms for short rains thus provide independent evidence for the dated paleoclimatic shifts, confirming the later 1100s as the closing decades of Proto-North Nyanza’s existence.
3. Space precludes analyzing the Entebbe Figurine, found at a site some 35 kilometers south of Luzira, on the Entebbe peninsula and associated with the same Transitional Urewe variant as the Luzira Group (Ashley 2005:196) and with Entebbe ceramics. It represented male and female genitalia in a single, painted column (Posnansky and Chaplin 1968).

4. Andrew Reid, personal communication, January 15, 2015

5. The “bull” gloss refers to the importance of sexual activity in effective public healing (Mackay 1890:150).

6. A founding ancestor of the Lungfish clan, Mubiru Gabunga, is said to have placed a *kikomo* on the wrist of his “son” Ssematimba (Father of the Pythons), making him the clan’s head judge (Kaggwa 1972[1912]:38).

7. Scholarly opinion agrees that the Lungfish clan enjoys a considerable antiquity (Cohen 1972; Kodesh 2010).

References


Communities of Consumption
Cuisines as Constellated Networks of Situated Practice

Barbara J. Mills

The concept of “communities of practice” has been effectively used to understand the transmission of technological practices during production. In this chapter I argue that another fruitful way of looking at communities of practice is through consumption. For ceramics, these patterns of consumption can be looked at in two ways, both of which are situated practices but at different spatial and temporal scales. One is the way in which cuisines are situated in the choices that people make in how and what food is prepared, in what containers they were served in, and to whom. A second way of considering consumption is in how these container choices by different communities accumulate at large temporal and spatial scales to produce distinctive regional networks of consumption practices. I argue that the articulation of the local choices in how to prepare and serve foods with regional patterns of ceramic accumulations produce large-scale networks that are equivalent to Wenger’s (1998) “constellations of practice” (see also Roddick and Stahl, this volume). Further, I show that this concept can be fruitfully addressed through a multiscalar network approach.

I draw on research by the Southwest Social Networks Project using late Prehispanic period ceramics from the western American Southwest to show how networks were produced through the accumulation of choices made by communities of consumption. The dramatic growth and dissipation of these networks reveals social relations at multiple social, temporal, and spatial scales during this dynamic period. Such a relational perspective requires that we consider networks that are built on shared ideologies and identities in and through consumption, especially those that take place in highly visible and politically charged settings of feasting events. I then tie these large-scale networks back to the social contexts of production and use, and the power relations
that produced differences and similarities among our communities, writ large. Decorated ceramics, especially polychromes, were one medium through which different communities were constructed, and their use and discard at multiple scales helped to construct and maintain networks across the Southwest.

**Communities of Practice: From Production to Consumption**

Previous applications of the communities of practice concept in archaeology have focused largely on the social contexts of production and particularly on the transmission of specific “ways of doing” from teacher to apprentice (e.g., Crown 2001, 2007, this volume; Kamp 2001; Minar 2001; Minar and Crown 2001; Stark 2006; Wallaert-Pête 2001). These approaches, drawn initially from Lave and Wenger’s (1991) important book on situated learning, were combined with the insights from studies of “technological style” and *chaînes opératoires* (Dietler and Herbich 1998; Hegmon 1998; Lechtman 1977; Lemonnier 1993) to understand how the process of manufacturing an object provides evidence for transmission between individuals with close social relationships. The relationships they describe have been interpreted as evidence for shared social identities at different scales and as the basis for delineating migration flows (e.g., Cordell and Habicht-Mauche 2012; Duwe and Neff 2007; Eckert 2008; Gosselain 2008; Hegmon et al. 2000; Neuzil 2008; Stark et al. 1995; Wendrich 2013). Nowhere is this more heavily applied than in the American Southwest, where migration was “a way of life” (Naranjo 1995) and topics such as identity and cultural affiliation permeate contemporary research in many contexts (e.g., Ferguson 2004).

As the chapters in this volume show, however, there are many ways in which the concept of communities of practice may be extended to include different social, spatial, and temporal scales than previously applied, and more than transmission during production. In her previous work, Stahl (2010) makes clear that material histories require that we also include consumption, not divorced from production or distribution, to look at how things become bundled together (see also Zedeño 2008; Pauketat 2013). Following object genealogies or biographies from production to consumption provides a way of augmenting these con-
cepts to understand the different networks through which things flow. The resulting networks are not just about identities but also about similar choices in the ways that people engage with things in different contexts. The networks are created by shared affiliation—especially through the sharing of ideas about how to make and use objects, and participation in consumption events that range from daily to highly visible public performances.

Such an approach to networks need not be solely metaphorical, and there are insights that come out of thinking about and reconstructing these networks in a more formal sense. My collaborators and I have done this as part of the Southwest Social Networks Project, using data compiled from projects conducted in a large area of the western American Southwest. In our work we have emphasized the multiscalar spatial nature of the networks from single valleys to the western Southwest (Borck et al. 2015; Mills et al. 2013a, 2013b, 2015; Peeples and Haas 2013; Peeples and Mills 2014; Peeples et al. in press). Our use of “multiscalar” in these publications has largely been in terms of spatial and temporal scales, although we also have investigated the relationship between different materials, especially those of ceramics and obsidian (especially in Mills et al. 2013a, 2013b) and their implications for understanding different social scales of interaction. Here I further develop how thinking about these networks in terms of a multiscalar approach to consumption provides a link between the individual interactions of people and things ranging from local to regional-scale social networks. Like others in this volume, I draw upon the concept of “constellating practice” (Wenger 1998) to refer to practices that draw together different communities of practice into larger webs of interaction that transcend individual communities of practice. As pointed out in the introduction to this volume (Roddick and Stahl), these constellations can be formed through a variety of processes that link people and things over continents and generations.

**Setting the Table: Strategies and Tactics of Consumption Communities**

Carl Knappett (2011) has discussed how objects move through different networks as we ratchet up the scale of analysis from production
to use to consumption. His approach is compelling because it recognizes the relations between people and things and the power of different consumption events or contexts, and how these play out at regional scales in the selection of “sets” of objects that are used and discarded to form distinctive regional signatures of consumption such as found in the Bronze Age Aegean. Knappett explicitly incorporates the concept of communities of practice as his “meso-scale” and makes the important point that these communities include loci of consumption, such as feasts. At the macro or regional scale, communities of practice become writ large on the landscape as acts of feasting (and other contexts of consumption) are replicated across broad areas. At this larger scale, Knappett’s “sets” are networks of shared consumption of objects, providing a framework for looking at networks at regional scales through archaeological contexts. One could argue that there are communities of practice at all three of Knappett’s scales. For example, the production of specific ceramic vessels was achieved within a community of practice involving teachers and apprentices, and at the largest scales, his sets of objects entail communities of practice in the choices of different vessels that make up an assemblage.

At the largest scales, Knappett’s sets are quite similar to the way that Wenger (1998:127) uses the term “constellations”—in that they incorporate many communities of practice that are linked together. There are two major differences between the two in that Knappett emphasizes material objects and explicitly uses a network approach at each scale. Wenger’s discussion of communities of practice or constellations is not without reference to materials or artifacts, however, as situated learning almost always involves interactions with things, but he does not forefront materials. Nonetheless, Wenger (1998:105) uses the term “boundary objects” as a springboard to the idea of how different communities of practice become linked—a concept to which I will return later in this chapter. Wenger’s relational approach is highly commensurate with social network theory even if he does not explicitly incorporate a network approach. Recent work in network theory has pointed out that social networks are based on a number of different ways in which people may be connected. Borgatti and Halgin (2011) distinguish between states (e.g., kinship, teacher-student relationships, shared affiliations) and discrete events (e.g., the transfer of an item from one individual to another or at-
tendance at an event). While some of these involve face-to-face interaction, others may be through shared participation in different events or groups (e.g., all majors in anthropology in a department or members of a sodality)—and even shared beliefs or ideologies. Wenger’s approach is to “focus on the practice that is created in the process rather than on the network of relations and the flow of information” (1998:287), but there is nothing in network approaches per se that excludes discussion of process or practice. Contemporary network theorists are exploring the relationship of practice theory and social networks (e.g., Pachucki and Breiger 2010) and especially the importance of integrating meaning, agency, identity, and history, all of which are part of Wenger’s approach to situated learning.

Augmenting Knappett’s multiscalar network approach is the idea that consumption is an inherently social, political, and economic act. Much of the recent literature on consumption has been on modern material culture studies, identity, and inequality (e.g., Dietler 2010; Graeber 2011; Mullins 2011). What these studies have pointed out is that peoples’ choices are historically contingent with symbolic, social, and structural-relational dimensions. There is a long and venerable tradition within historical archaeology for looking at consumption—especially through table wares (e.g., Deetz 1977; Spencer-Wood 1987b)—that continues to today (e.g., Gifford-Gonzalez and Sunseri 2007; Pavao-Zuckerman and Loren 2012). As Spencer-Wood and others pointed out nearly 30 years ago in her volume *Consumer Choice in Historical Archaeology*, there may be differences in household consumption patterns depending on their status and dimensions of power, identity, household structure and size, the ease of procurement of goods, and the role that these goods played in the society (Spencer-Wood 1987a:11). What is especially compelling in these studies is their attention to everyday items of consumption and that the choices that are made in what to use to prepare and serve foods is meaningful.

De Certeau (1988; de Certeau et al. 1998) provides an overarching framework for thinking about how everyday consumption practices—in both senses of the term—are made up of strategies and tactics. Strategies are the overarching structures, which are usually named entities and describe particular categories, such as roles. Tactics are ways in which people operationalize the strategies that are part of these overarching
structures. De Certeau uses cooking and consumption to talk about relations of power. As he put it, “The tactics of consumption, the ingenious ways in which the weak make use of the strong [and not the other way around] thus lend a political dimension to everyday practices” (de Certeau 1988:xvii). Tactics are used by everybody, but being in the context of every day they are ways that practice becomes a potential means of resistance, or at least reinterpretation. Food preparation and serving, being an everyday practice, provides an arena for constant reinterpretation. As Wilk (2010:429) observes, “The family dinner table is a place where public and private politics intersect, where the connections between gender and authority can be seen in all their pervasive and encompassing complexity.” Cooking—and all of the activities related to it from procurement to serving—can then be a way of “turning the tables” as it were. I think that this relationship of consumption and power has particular resonance for understanding innovation and the transformation of networks. What is rare may become popular; what is originally a food or practice related to a relatively restricted group may be incorporated by many. De Certeau’s approach adds change to Bourdieu’s logics of practice (largely through the addition of healthy citations to Foucault—a good example of his own academic tactics).

What de Certeau’s model does not do as effectively is show how these strategies or tactics are transmitted intergenerationally or why innovation may take place. That is where the contributions of Lave and Wenger, in particular, are of such great value because practices are historically situated. As Lave wrote, “Living (including research on and as apprenticeship) is embedded in political arrangements, hegemonic projects, and diffuse relations of power” (Lave 2011:153). She advocates relational theory to provide the means of comparison, thereby bridging the historically contingent with the language of apprenticeship as a “relational concept” (2011:154). This adds a dimension of time and directed variation in transmission since each apprentice has his/her own tactics and may innovate at the same time as carrying forward learned practices. In some situations the margin for innovation may be narrow and in others wide. For example, consider the “open” and “closed” learning systems discussed by Wallaert-Pêtre (2001). Although better thought of as a continuum rather than a dichotomy, the distinction is situated in relations of power between teachers and learners, and there may be dif-
different tolerances for innovation along the continuum. If “apprenticeship is a process of changing practice” (Lave 2011:156, emphasis original), then perhaps it is the pace and extent of innovation and transformation in practices that may be best suited to understanding power relations.

**Building Networks in the Prehispanic Southwest**

As noted above, one foci of the “communities of practice” concept in the Southwest has been to wed it with the technological-style approach to understand the transmission of production attributes. These attributes tend to be “low-visibility” attributes that are used to make arguments about shared identities and migration. While this is valuable, the attributes that we study need not be restricted to those that are “low visibility” or “beneath the surface” (Ortman and Cameron 2011). In some cases low-visibility attributes, such as forming techniques, can be very helpful in tracking learned motor habits transmitted from teacher to apprenticeship (e.g., Clark 2001; Haas 2006; Minar 2001; Neuzil 2005; Peeples 2011). But in other cases high-visibility attributes and artifacts, such as vessel shape and the choice of slips and paints, may also provide evidence for connections that are both learned and socially situated (Hegmon 1998; Mills 2007b). These distinctions in visibility are not the same as “active” versus “passive” styles or “conscious” versus “unconscious” (Carr 1995) because both low-visibility and high-visibility attributes may be active or passive depending on their social contexts.

Decorated ceramics in the Southwest form a useful corpus for looking at high-visibility artifacts and how they were incorporated into community consumption practices. Between A.D. 1200 and 1450, the period addressed in this chapter, the majority of decorated ceramics were serving bowls and water storage jars (Fig. 8.1; see also Crown, this volume). What is particularly striking is how prominent decorated bowls are in these assemblages, both quantitatively and visually. Bowl size, exterior designs, polychromatic decoration, and the incidence of red, orange, and buff slips increase over time in most areas of the Southwest, especially after A.D. 1300. These attributes have been argued to indicate the increasing use of bowls in suprathousehold feasting. But as many have noted, there do not appear to have been many specialized forms for feasting. Instead, bowls moved back and forth between public
and more private spheres (Crown and Wills 2004; Mills 1999, 2007a; Potter and Ortman 2004; Van Keuren 2004). One way of viewing the dynamics of these vessels is that the communities of practice surrounding large-scale feasting became naturalized within the domestic sphere. There was not a clear distinction between public and private, and the movement of pots may be seen as multiscalar—moving among different social scales.

Not only was there more use of decorated bowls, there were also preferences, or consumer choices, in what kinds of decorated vessels were more appropriate for serving food versus storing water. For example, at the Bailey Ruin, a site of 200 rooms occupied for about 50 years between A.D. 1275 and 1325 in the Silver Creek area, redware bowls were considered the most appropriate for serving, replacing whitewares, which became more exclusively used for water jars (Mills et al. 1999). Ninety-seven percent of Roosevelt Redware (mostly Salado polychromes) and nearly that many of White Mountain Redware from this site are bowls. There was a shared community of practice in which wares were consid-

Figure 8.1. Example of White Mountain Redware, Cedar Creek Polychrome bowl from Bailey Ruin. Photo by Barbara Mills.
ered to be most appropriate for serving vessels (red vs. white)—a pattern replicated over large areas of the northern Southwest and the basis for many seriations starting with Kroeber (1916) and Spier (1917). Moreover, two redwares were consumed in these Silver Creek assemblages—Salado polychromes and glaze-painted White Mountain Redware. Both of these were significant innovations over previous production in the area incorporating polychrome designs and, in the case of White Mountain Redware, new paint recipes that included glazes (Fenn et al. 2006; Huntley et al. 2012; Van Keuren 2006). Analyses of the glaze paints from a series of sites in the Silver Creek area determined that Pinedale Black-on-red and Pinedale Polychrome were the first types of this ware with glaze paints (Fenn et al. 2006:65–66; see also Huntley et al. 2012). Both of these types had intentionally added low-temperature fluxes and were initially made between A.D. 1275 and 1285. Based on vessel size, the placement of imagery on the interior versus the exterior, the size of the exterior designs, and the design content on different redwares, archaeologists working in the area have argued that they were related to participation in multiple and crosscutting social networks, including religious sodalities (Mills 2007a; Van Keuren 2001). The innovation in both of the wares was coincident with the interval of the final migration out of the Four Corners. The high degree of skill evidenced in their production and design layouts and the use of a specific form of turning plate to aid in vessel forming and building all support the interpretation that the innovations were originally made by potters from northeastern Arizona who moved into the Mogollon Rim area. Yet, each household used and discarded vessels of all wares, even though the innovations began with migrants and some households were more specialized than others in their production (Mills et al. 1999).

The use of ceramic vessels in consumption practices within the Silver Creek area formed the basis for thinking about how these highly visible and distinctive wares might be used to look at social networks at larger scales than individual settlements or settlement clusters. Such an approach uses “consumption” and “communities of practice” in two different ways or at two different levels. First, through peoples’ use of ceramic containers in food consumption events, they are participating in shared communities of practice revolving around cuisines. These events are opportunities for situated learning in how to serve food, who
to serve it to, where it is placed, and when it is consumed. The second use of consumption refers to the use and subsequent discard of the residues of feasting—including ceramic containers, that is, consumption in terms of the accumulation of deposits. This definition has two parts because one refers to the choices of what vessels to use and another to the ways in which archaeologists address deposits through the concept of discard and accumulation. The latter adds a dimension of temporality since these actions are those that accumulate in middens and other archaeological contexts over time. As past research on accumulations of ceramic assemblages has shown, one of the major variables in the frequencies of ceramics is the use of vessels and their subsequent use-lives (e.g., Mills 1989; Varien and Mills 1997). These uses and their implied breakage rates are also part of communities of practice because there are social differences in the selection of objects for specific uses, the care of objects, and when and how to replace vessels that are part of the learning process surrounding cooking and cuisines. The resulting assemblages are “structured deposits” because they have a high degree of redundancy. As Gifford-Gonzalez (2014) has recently pointed out, the term structured deposition need not be limited to the unusual, rare, or marked practices for which the term was originally used (Richards and Thomas 1984; see also Pollard 2008). All deposits are structured in some way, and while the pathways of discard of some objects may indicate that they were intentionally placed in certain configurations, habitual activities such as those that involve consumption may also result in structured deposition.

Based on these different meanings of consumption, the Southwest Social Networks Project has created a database of ceramics over a broad area of the western American Southwest. We collected data on both plain and decorated ceramics but treat each separately because there are great differences in the ratios of plain to decorated vessels across the region. Out of some 4.3 million ceramic artifacts in the Southwest Social Networks Database, over 800,000 are from decorated wares, and project members have used these to identify similarities in the frequencies of 49 wares from 590 sites in the Southwest west of the Continental Divide (Mills et al. 2013a, 2013b, 2015). We use wares as the basis for ties because these are the most reliable and replicable categories. As noted above, wares are also the most visually distinctive vessels and for the
The time period that we address are used for two major functions—serving (bowls) and water storage (jars). The assemblages were parsed into 50-year periods using the methods discussed by Roberts et al. (2012). For each 50-year period, the percent of each decorated ware in each settlement’s assemblage was compared to each other assemblage, and a similarity index was calculated using a modification of the Brainerd-Robinson coefficient (Brainerd 1951; Robinson 1951). Such an index has been used for looking at ties in other contexts, including obsidian in Mesoamerica (Golitko et al. 2012), and provides a means of summarizing the degree to which two assemblages differ from each other.

Networks can be illustrated in a number of different ways, both spatially and non-spatially tied. Figure 8.2 illustrates the ties superimposed on a GIS of the project area. Strong ties are shown, with the darkest lines...
being the longest-distance ties and the lightest lines the shortest-distance ties. Strong ties are those that have the highest similarity (upper 25 percent) and are differentiated from weak ties, which are often referred to as “bridging” ties (Peeples and Haas 2013). In this case, this means that the frequencies of different wares in each pair of assemblages were between 150 and 200 in terms of the Brainerd-Robinson coefficient. Weak ties are of great interest as well since they provide a way of identifying settlements that link different components or subgroups within the network (Granovetter 1983) and therefore ways in which information and practices are diffused between otherwise disconnected parts of the overall population. These weak ties tend to be most prevalent in the physiographically identified Transition Zone of the Southwest and in areas that migrants moved into during the late 13th and early 14th centuries (Mills and Peeples 2014; Peeples and Haas 2013; Peeples and Mills 2014). For the purposes of our discussion here, however, I focus on the strong ties since these emphasize the more durable dispositions or practices associated with vessel choices used in food preparation, serving, and storage.

Several conclusions may be drawn from this analysis. First, while some ties show strong connections over very short distances (i.e., the clustering of light-colored ties), there are some settlements that shared consumption practices despite being quite distant from each other. Second, long-distance ties were more prevalent in the northern Southwest before A.D. 1300, but after this, long-distance ties became more common in the southern Southwest. This correlates with the depopulation of many areas in the northern Southwest, especially in northeastern Arizona. And finally, there are distinctive subnetworks in the overall network, indicating certain areas had very different consumption practices than others.

For example, before A.D. 1300, the largest subnetwork in the graph is made up of a large, highly connected group of settlements that spans either side of the Mogollon Rim, including Zuni, the Upper Little Colorado, Silver Creek, and the Mogollon Mountains. As discussed for the Bailey Ruin in the Silver Creek area, serving vessels of redware, especially White Mountain Redware, predominate. With their bold exterior white designs, they actively conveyed a shared community of consumption, even though the specific designs were more variable (e.g., as shown
Another highly connected subnetwork is in northeastern Arizona at about the same time, encompassing the Kayenta and Tusayan areas. This component is disconnected from the Chaco/Chuska area in northwestern New Mexico, another densely connected subarea. Recent analyses of the relationship of internal to external ties (called embeddedness) have brought out differences in the degree to which subareas of the Southwest were more internally than externally focused (Borck et al. 2015). These differences reflect a degree of conservativeness in communities of consumption and potentially implications for understanding other networks of interactions, such as marriage networks.

I should emphasize that the different subnetworks may have included people with very different backgrounds, even different group identities, who shared in the same communities of consumption. After A.D. 1300, the depopulation of northeastern Arizona and subsequent migration to the central and southern Southwest created socially heterogeneous spatial clusters and communities. New wares, including highly visible technologies of paint types and slip combinations, were introduced and adopted in several areas. These included glaze-painted vessels and the Salado polychromes, both of which were first made in the Transition Zone of Arizona in the last two decades of the 13th century.

Pezzarossi (2014) has recently discussed why similarities in consumption patterns are not always evidence for shared identities. “Mimicry” (after Bhabha 1984) in table wares may be a strategy of diverting inequalities in situations of culture contact. As he points out, this “appropriation-via-hybridity” recognizes the powerful ways in which materials can naturalize distinctions (after Bourdieu 1984) at the same time as it produces greater homogeneity through the inadvertent or intentional “slippage” of differences. In the case of the southern Southwest, where the innovation of Salado polychromes was first brought by migrants from northeastern Arizona, and then adopted by the first-comers, the appropriation was in the reverse. Highly skilled northern potters introduced new polychrome traditions of production and consumption that were adopted by local settlements, first in the eastern valleys and then throughout the southern Southwest. Host settlements, which had already claimed the best agricultural lands, adopted these ceramics as part of their own communities of consumption. Many of the same technologies were shared prior to migration (e.g., some of the
firstcomers decorated their ceramics in carbon paints), but the innovations that were made soon after migrants arrived added new designs and color combinations, and introduced the production of polychromes to the area. These migrants were brokers—introducing new technologies at the same time as they were negotiating their relationships with firstcomers. Southwest applications of the network concept of brokers has been recently applied by Matthew Peeples (Peeples and Haas 2013; Peeples and Mills 2014). This work shows that settlements in brokerage positions did not have long-lasting benefits (as measured by settlement persistence). Rather, their positions were more tenuous, enabling them to reach multiple communities of practice, but at the same time, they were in spatially, socially, and physiographically marginal areas that limited their long-term success. The ceramics that they produced were therefore “boundary objects” (Wenger 1998:105) that linked migrants and hosts into interlocking communities of practice.

Wenger (1998:105–111) discusses brokers as being torn between two “opposite tendencies: being pulled in to become full members and being rejected as intruders.” Ultimately, we think that the former overcame the latter. As Crown (1994) originally identified, the Salado polychromes were decorated with designs that indicate a shared ideology yet were made in most areas where they are found. Building on Crown’s initial analyses, several archaeologists working in the area have argued that this widespread adoption was driven by a new social and religious movement that promoted the use of Salado polychromes by households comprising migrants and hosts (Lyons and Clark 2012; Mills et al. 2013a, 2013b).

Many of the contexts of their use must have been suprahousehold feasts, based on a wide range of bowl sizes, including some very large ones, and the bold exterior designs meant to be seen at a distance (Mills 2007a). These vessels included both bowls and jars and dominate the painted assemblages of large swaths of the southern Southwest. These shared communities of consumption may have “naturalized” distinctions, some of which were based on participation in religious movements of different kinds, but they seem to have been the basis for bringing migrants and hosts together. These consumption events were performances, and ceramic containers played a part in the repertoire. Just how big
a part is difficult to reconstruct, but as Wenger (1998:288) wrote, “The achievement of meaning is always a performance and a repertoire thus construed certainly includes props.” While the term “props” seems to diminish the importance of material culture in these gatherings, the symbolic content of Salado imagery and their contents filled with feasting foods must have played important roles in the performance. The communities of practice that taught and learned how to produce the vessels, cook the foods that filled them, and serve food interacted with these objects in meaningful ways. Serving bowls may be viewed as active agents in the situated practices of consumption because they focused attention on their contents to different audiences. The central importance of these vessels in consumption events was also one of the reasons that some wares may have been more highly controlled (see Crown, this volume). They are even depicted in kiva murals, overflowing with food, signifying their centrality within rituals of consumption.

Discussion

In a recent overview on consumption, Mullins (2011) points out that there has been a massive amount of research on exchange, but little of this actually follows objects through the pathway of consumption. Here, I have extended the concept of communities of practice to include ceramic consumption over time and extending over a large area. The resulting “constellations of practice” (also Roddick and Stahl, this volume) reveal a dynamic that is related to demographic and ideological changes seen over a large area of the Southwest. It is the result of multiple and overlapping kinds of individual networks, some of which involved face-to-face interaction but others that were shared ideas or knowledge about how to make and use ceramics and in what contexts. Sociologists who study networks distinguish between networks that are based on shared affiliations or “states” and networks that are based on events, such as exchange transactions or attendance at an event (Borgatti and Halgin 2011). Affiliation networks may be based on shared participation in a group, kinship, shared position along a road or pathway, or a teacher-to-apprenticeship relationship. All are ways that ties can be identified. While individual feasts are events, the communities of practice that
transmitted how to carry a feast out may have been based more on affiliation networks. That is, the shared knowledges and practices that were learned through participation in consumption events helped to determine whom to invite, what to serve, and how to serve guests. These affiliation networks are closer to the constellations of practice discussed by Wenger. The possibilities of network analysis are only touched upon here, but I think that there are more overlaps with Wenger’s definition, pointing to a disjuncture in the social network analysis literature and the literature on learning and communities of practice. Wenger specifically addresses network analysis in a few places—but seems to limit networks to “interpersonal relations through which information flows” (1998:74)—despite his discussion of boundary objects and brokers. There is commensurability between Wenger’s theory of constellations and social network theory, and I think that drawing upon both can provide insights into situated practices at multiple scales.

At the temporal and spatial scales addressed by the Southwest Social Networks Project, it is the intersecting and overlapping communities of practice captured by the accumulation of materials that I have focused upon. What this means is that we have extended the consideration of linkages of people and things from production through distribution and consumption. Do we lose perspective on everyday and situated practices, on persons, and on their individual interactions? This is a classic quandary in archaeology when thinking at the multiscalar level because each scale reveals new interpretations (Mills et al. 2015). At the largest scale, individual interactions can become more elusive, but by tacking back and forth (sensu Wylie 2002) between the local and immediate to the more regional accumulations, we can begin to appreciate how consumption patterns may be seen at multiple scales. These different scales are also more useful for addressing different kinds of questions, from the more local political negotiations of migrant and firstcomer households and settlements to the larger regional transformations and interconnections of different subareas (Mills et al. 2015). At the larger scales, and especially when compared to demographic data on depopulation and migration (e.g., Hill et al. 2004), we can also see how long-distance ties that were present in one time period were harbingers of future movements of people into new areas.
I have argued that consumption is a situated practice and that shared use and discard of decorated ceramics provide a way of linking the local to the regional scale. Polychrome pottery vessels, in particular, were decorated with designs that linked people together across large areas of the Southwest (and perhaps similar to the ways in which pottery and architecture linked Neolithic people in Britain [Thomas 2010]). Not everyone who used these ceramics knew or interacted with each other—in fact, there may have been more who did not than those who did in the large Salado network of the southern Southwest. Nonetheless, these ideologically charged objects/features were quite similar to each other, and people across a broad swath of the Southwest shared consumption practices that were remarkably similar. The movement of ideas or knowledge was just as important, if not more so, than the movement of goods for some periods of time and in some areas. Yet, one thing that remains important at every scale is that there were personal interactions and that those interactions involved materials that engaged people as people interacted with things. Thus, although we may talk about macro-regional networks, they still involved persons, engaged in communities of practice at the smaller scales that over time produced the regional “constellations” that we see at larger scales.

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References


Communities of Consumption


Ortman, Scott G., and Catherine Cameron. 2011. A Framework for Controlled Comparison of Ancient Southwestern Movement. In Movement, Connectivity,


A Constellation of Practice in the Experience of Sea-Level Rise

Kenneth E. Sassaman

Registered in the archives of human history are moments when connections among people with independent histories coalesced into broader institutions and structures of practice. We know well how this developed over the past 500 years, as colonial and capital interests expanded outward to encapsulate and transform communities across the globe (Wolf 1982). We know less about the circumstances of premodern times, when seemingly independent and varied communities coalesced around shared experience. Absent of the economic and political forces behind the globalization of modernity, the emergent structures of ancient times are traced by archaeologists to ideological or cosmological motives (e.g., Dillehay 2007; Pauketat 2013) or, in more prosaic terms, to a sociality of cooperation that promotes sustainability through pooled risk (e.g., Bettinger 1991; Braun and Plog 1982). In all such cases, practices that transcend local communities to form what Wenger (1998) calls “constellations of practice” can be expected to involve shared experiences, like globalization, of commensurate scale. For instance, climate change and its manifestations in drought, flooding, and sea-level rise can be experienced simultaneously by communities distributed across vast spaces (also Schoenbrun, this volume). How experiences among dispersed people inform practice at larger social scales is a matter of considerable interest not only to the historians of ancient times but also to policy makers who hope to mitigate the impact of global climate change through transnational, cooperative action.

About 3,500 years ago across the lower southeast United States, a constellation of practice coalesced around the experience of sea-level rise. Over scores of generations its forebears experienced transgressive seas that flooded ancestral homeland and pushed communities landward repeatedly. With its low gradient and sandy composition, the Gulf coastal
setting of this shared history was especially vulnerable to shoreline erosion and inundation. Did living through centuries of constant change in such an environment enable communities to project futures far beyond the next generation? Did a constellation of practice emerge not merely from shared past experience with rising sea but also as a collective intervention against future uncertainties?

My intent in this chapter is to address these questions through the archaeological residues of life on the Gulf coast from ~5,000 to 3,200 years ago, when settlements, cemeteries, monuments, and caches formed a constellation of practice that culminated ~3,500 years ago in the Poverty Point culture of northeast Louisiana. I first review theory that informs my interpretation of these residues, starting with Wenger’s (1998) constellations of practice and the agents that link communities, followed by phenomenological perspectives on movement and temporality that help to explain how constellations arise as instruments of intervention.

**Constellations of Practice**

As the editors of this volume emphasize in their introduction, issues of scale challenge the application of situated learning theory in archaeology. How far can a community of practice be expanded as an analytical construct before it loses its interpretive value? If communities of practice are not something to look for, but a way of looking, as Wenger (1998) advises, then analytical scale would appear to be a matter of choice, not of discovery. If, for example, we allow that communities of practice arise out of consumption, as well as production (e.g., Knappett 2011; Mills et al. 2015; Roddick 2009; Mills, Roddick, this volume), communities are open to agents with roles beyond the face-to-face transmission of culture. This perspective also redirects our analytical emphasis away from learning bodily skills and toward the resources of social reproduction within networks (e.g., alliance, exchange, coalescence). It also puts things in motion by virtue of networks whose constituencies are linked through the physical movement of human agents and their material counterparts (Blair, Harris, Mills, Schoenbrun, this volume).

The multiscalar nature of communities of practice is captured nicely in Wenger’s (1998) notion of *constellations of practice*. Abstracted from the connections among diverse and dispersed communities of practice,
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Constellations of practice encapsulate multiple constituencies, even persons who may never see but can imagine one another. Constellations coalesce as meaningful social units through the actions of particular agents—human and otherwise—who connect communities across space and through time. Following Wenger, two such agents are boundary objects and brokers.

**Boundary Objects and Brokers**

Connections among diverse communities take many forms and can be materialized (reified, per Wenger [1998]) in objects and places that convey meaning or value across time and space. Boundary objects, for instance, serve to coordinate the perspectives of diverse communities for common purpose. Examples of boundary objects noted by the authors of this volume include the clay sources shared by potters of distinct communities (Roddick) or the marketed pot, which, in the context of a public market, coordinates interactions among producers, consumers, and other producers (Gosselain).

Boundary objects transcend the physical and social constraints of participation by indexing other places, times, persons, and ideas. They cannot, however, convey unambiguous meaning across communities without some form of mutual engagement. Wenger (1998) points to a variety of circumstances that have the potential to afford transcendent qualities to boundary objects and hence give rise to constellations of practice. These include, among others, common historical roots, parallel experiences, members in common, and geographic relations of proximity. Ultimately, some form of interpersonal engagement is necessary for boundary objects to work in connecting communities. In this respect, the relative positions of agents across two or more communities of practice bear relevance. Wenger defines brokers as members on the periphery of particular communities whose participation in other communities is a potential source of alternative perspectives. Being a member of two or more communities does not alone qualify one as a broker, as this status requires what Wenger (1998) calls “participative connections,” essentially the translation and coordination of practices among communities through mutual participation.

Boundary objects and brokers are conceptualized by Wenger as complementary modes of connection, the former through reification, the latter
in participation. The complementarity is most sharply seen, he argues, when boundary objects and brokers travel together. Wenger also argues that practice itself can be a form of connection, as in the delegation of boundary practices to address conflict and seek resolution between communities. In these cases, constellations may not emerge from long-term, evolving practice so much as they do from the intent of individuals to intervene in uncertain futures (also Schoenbrun, this volume).

As should be evident by now, the distinction between boundary objects and brokers need not be drawn too sharply because objects may themselves be animate and brokers may take nonhuman form. This perspective goes a bit beyond Wenger’s thinking on constellations, but it is fully consistent with incarnations of practice and agency theory in archaeology that make space for agency of any imaginable form (Watts 2013). Of course, what makes something imaginable is constrained somewhat by the *space of experience* (sensu Koselleck 2004) and how experience is encoded and transferred as knowledge. We thus arrive back at situated learning theory, where we need to open up space for phenomenological perspectives to enhance its interpretive value when brokers and objects are put into motion.

**Movement and Temporality**

Constellations of practice are predicated on connections, and connections involve movement. Familiar in the modern era are the movements of human bodies, as in migration or pilgrimage, and of things, as in transport and trade. There are likewise a variety of “natural” movements humans conscript for various purposes, such as the seasonal flight of migratory birds or the annual orbit of the earth around the sun. All such phenomena hold the potential for temporalizing experience, for placing events into meaningful sequences or cycles. The rhythms of social life among *caboclo* fishing communities of the Amazon (Harris 2000, this volume), for instance, follow seasonal changes in river levels, cyclically enabling and constraining the movement and gathering of persons in regional communities. Drawing on Ingold (1995:126), Harris (2000) takes a dwelling perspective to account for the “resonance” between the movements of humans and the rhythmic fluctuations of environment. In this sense, dwelling is the flow of activity, the relational nature of being and time. Persons gain perception of these flows by engaging their full senses
in monitoring their surroundings and its changes, mutually constituting seasonality through embodied periodicity of activity, movement, and social interaction.

Other temporalities emerge from long-term and discontinuous experiences with movement and change, events that structure the contours of history by challenging the familiar and extrapolating the space of experience onto horizons of expectation. The Dreaming of Native people of Australia, for instance, appears timeless for its enduring qualities, but it greatly factors into ontologies for change. Many of the places of Dreaming were not permanent or enduring sites of human activity, and many such places emerged not out of experience (myth/history/lineage) but out of expectation (anticipated change; Morphy 1995). This twist of perspective is revealed in moments of colonial encounter, of turbulence, when connections of Native people to familiar land were disrupted. Such disruptions were also an outcome of eventful environmental changes, such as droughts, that challenged the permanence of place for aboriginal peoples long before the encroachment of Europeans (Holdaway and Allen 2012). Similarly, Harris (2000:125, this volume) sees the resilience of floodplain peasant communities of the Amazon to colonial encounter as intrinsically linked to a long history of engaging with environmental change.

In the view of Howard Morphy (1995), Dreaming is an ontology that links time to places in a very stable relationship while also allowing for a fluid relationship between actual persons and places. Time is therefore subordinated to space without requiring continuity of practice or even the social memory of particular persons or actual events. This is enabled by a time-space referential system that is transposable to virtually any context, making change in material surroundings appear familiar by referring change to movement. New surroundings in this sense are not so much novel experiences as they are discoveries about a structured, mythical past. New places appear timeless because they are anticipated by a past saturated with movement: movement of mythical beings, social bodies, and “inanimate” matter. The Dreaming also enables transmission of knowledge about the need to abandon some areas and reoccupy others (Holdaway and Allen 2012:92).

The literature on landscape learning deals mostly with the colonization of unfamiliar terrain (e.g., Rockman and Steele 2003), but it also
involves the study of changing environmental conditions. Whether an experience is novel due to migration or local change, learning is about identifying contrasts between past and present conditions (Rockman 2012:100). Of the types of landscape learning identified by Rockman (2003), limitational and social knowledge are predicated on experiences that potentially span multiple human generations. Limitational knowledge involves information on the nature of long-term variation within an environment, such as the periodicity of drought or the rate at which seas are rising. Social knowledge refers to the cultural encoding of “locational or limitational knowledge in forms that are remembered and transmitted by the group to succeeding generations” (Rockman 2012:102). Because landscape learning is generally informal and experiential among people glossed as “hunter-gatherers,” transmission of knowledge about long-term change is likely to involve some form of inscribed memory (sensu Connerton 1989), such as rock art, mounds, or “natural” features imbued with meaning. As with Aboriginal Dreaming, however, such features need not be fixed on the landscape but rather arrayed in spatial (and temporal) relation to one another to allow for their transposability.

We are thus interested in how people learn about movement, human and otherwise, as a means of coping with changes in landscapes with which they are familiar. In this respect, the concept of wayfinding bears relevance. According to Golledge (2003:25), wayfinding is the ability to determine and learn a route, follow it, and then reverse it from memory. The initial use of this term by Lynch (1960) and later Ingold (2000) is a bit more encompassing, relating it to schema that would include, for instance, the narratives of Dreaming. To use a map, Ingold argues, is to navigate a route; wayfinding, in contrast, is about moving from place to place and not merely to get somewhere and back but to constantly work on knowledge of the environment. Movement, not linked places, defines the route of a wayfinder: movement “in response to the movements, in his or her surroundings, of other people, animals, the wind, celestial bodies, and so on” (Ingold 2000:242). Places on the landscape do not have locations as much as they have histories, in this case histories of movement. Constellations of practice can thus be defined by movement rather than the places or communities connected by movement (e.g., Morphy 1995; Myers 1986).
Despite his emphasis on movement, Ingold (2000) does not envision wayfinding as futures work per se. To consider how places and communities have not only histories but also futures we must consider how change is anticipated and not just experienced.

How do sociohistorical structures (like constellations of practice) take form through the relationship between experience and expectation, and how do changing relationships between the past and present lead to new senses of time? Common to all humans, according to Koselleck (2004:259), is the space of experience, in which past things are present or can be remembered, and the horizon of expectation, in which the future is made present through anticipation. This follows from the phenomenology of Husserl, Heidegger, and others who conceptualize time as the flow of succession and retention (see Lucas 2005:22–24), the latter a matter of social memory. What structures the relationship between the past and present is the space of experience in which past events have been gathered together and ordered into patterns of recurrence or repetition. Prospective futures are bound most closely to the past when history is predicated on repeated or enduring experience.

Studies of social memory in archaeology occasionally privilege the actual experience of environmental change in shaping perceptions of the future. Dean (2000), for instance, explores how Ancestral Pueblo communities of the Colorado Plateau accumulated, stored, and retrieved information about variation in rainfall. With paleoenvironmental data scaled to the yearly chronology of tree-rings, Dean identified four multi-generational periods over a 2,000-year interval of Colorado Plateau occupation when the frequency of extreme rainfall variations shifted from low to high. In comparing this record to the culture history of the region, Dean found that major adaptive transformations were associated with regional-scale climatic phenomena that were so infrequent as to elude traditional environmental knowledge. High-frequency variation was often encoded as memory that allowed communities to respond by planned relocation, but low-frequency variation posed challenges to tradition in the contradiction between experience and expectation. Another study employing tree-ring data by Anderson et al. (1995) shows how
food-storage strategies among Mississippian chiefdoms of the American Southeast were structured by the severity and frequency of droughts, and Sassaman and O’Donoughue (2015) examine how varying rhythms of environmental change in the same region led to alternative temporalities across 2,000 years of Native history.

How futures were held as memory in these various studies remains vague, but in others the horizon of expectation is a matter of political control. For instance, the Tarascan state of Mexico arguably arose by imposing temporal structure to annual fluctuations in lake levels. This is the argument of Haskell and Stawski (2013), who project a series of landscape views in 50-year increments of the Lake Pátzcuaro basin, showing fluctuations in water levels that could be visualized from the viewpoint of adjacent mountaintops. The alternating losses and gains in land correlated with production capacity, so knowledge of future lake levels could be used to plan for economic expansion or contraction. Those who climbed to elevated perspectives for religious purposes, according to Haskell and Stawski (2013), developed such knowledge and mobilized it for political gain. Encoded in memory and passed down through generations, knowledge of lake fluctuations became a historical resource in which memories were materialized in particular landscape features and futures anticipated by relational properties among them, not unlike those of Dreaming. Ultimately landmarks to changing lake levels became the materialized memories of past conditions for purposes of futures planning.

In the Tarascan case we see how power intervened in futures, and we can take this one step further to see how futures fall under the control of entire constellations of communities who experience turbulence from without. The Araucanian (Mapuche) of Spanish Conquest Chile was a regional population of Indigenous people who participated in the creation and ritual renewal of settlements, mounds, and cemeteries that were integrated by cosmological spatial referents (Dillehay 2007). This cosmological community—what Dillehay (2007) calls a community—persisted for centuries in dynamic relationship to enduring external threats (Spanish incursions) not by guarding tradition but rather by mobilizing social bodies in novel forms of resistance. Dillehay draws on French theorist Louis Marin’s (1984) notions of “utopic social engineering” and “utopic spatial play,” in which a society’s concept of utopia is expressed spatially, as in urban planning, landscape gardening, or other civic works projects.
Although built places like these draw on historical resources and existing frames of spatial reference, they are oriented expressly toward alternative futures, toward novel material circumstances and new social practices. What can be gleaned from the foregoing to inform the emergence of a constellation of practice from the shared experience of sea-level rise on the Gulf coast of North America? Several key concepts warrant emphasis:

1. **Movement.** Short of the distributed communities of cyberspace (Cianciolo and Evans 2013), constellations (connections) among communities are actualized in the movement of agents.

2. Agents include **boundary objects** and **brokers**, the former a materialized (reified) form of connection, the latter a participatory form. These categories are neither mutually exclusive nor essential, but instead relational.

3. **Temporality** arises from the interplay between experience and expectation, and when movement is experienced as cyclical (e.g., river fluctuations, celestial orbits), anticipated futures are bound closely to experiences of the past. Movement that is instead non-cyclical or eventful (e.g., colonial displacement, encroaching sea) need not appear novel so long as change (e.g., encountering new places) is referred to movement, as we see with Dreaming.

4. **Intervention** is futures work, in both the deliberate effort to change things from the way they are to the way they are imagined to be (Wobst 2000) and in the mediation between two points, itself a matter of movement but materialized in boundary objects, including places of planned abandonment, like those of the American Southwest.

5. A **constellation of practice** can emerge as an intervention against alternative futures from the time-space connections among boundary objects and the brokers who mobilize them. When referred to cyclical change, boundary objects can flatten the temporality of movement to make change appear changeless.

### Constellating the Practice of Sea-Level Rise

My own example of an archaeological *cosmunity* or constellation of practice consists of an array of mounds, caches, cemeteries, and settlements
whose integration—spatially, socially, historically—can be informed by experiences like those of the Araucanians. Granted, the unrelenting threat of Spanish incursions into southern Chile may at first glance bear little similarity to the turbulence of climate change on the Gulf coast. However, they have in common an enduring quality, both lasting for centuries, as well as a punctuated rhythm (i.e., periodic onslaught via military forces in one case and intermittent storm surge in the other) that benefited from spatial frameworks and ritualized practices that connected events across otherwise disjointed space and time. The rich and complex archaeological record of ancient life on the Gulf coast serves as testimony to a constellation of practice that parlayed the experience of unrelenting climate change across vast geographies and integrated it in a spatial framework that referenced time and change for purposes of futures planning. I regret not being able to share its full details here, but I cannot proceed without some empirical scaffolding on which to hang my abstractions (see Sassaman [2013] for details on futurescapes; Sassaman et al. [2014] for an overview of a Gulf coast research project; and a series of reports available online [http://lsa.anthro.ufl.edu/publications.html] for technical details of fieldwork).

**Moving with the Sea and Sun**

A scaffold can be erected from the archaeological traces of living on the northern Gulf coast of Florida through 80 meters of sea-level rise and 250 kilometers of shoreline retreat since the end of the Pleistocene. The average rate of transgression has been 20 meters/year, or a football field every five years. This part of the Gulf coast has an extremely low-gradient coastline and is thus highly vulnerable to changes in sea level. The Florida peninsula today is only half the landmass it was when people first arrived ~14,000 years ago.

Most of the rise in sea and attendant shoreline loss took place in the first two millennia of the postglacial era (Donoghue 2011). It then slowed to a moderate rate that persisted until about 5,000 years ago and then to a rate that has all but flatlined until the hockey stick of industrialization. Slowing in the rate after 5,000 years ago has long been thought to have triggered the initial development of productive estuarine environments, when an intricate balance was reached among water salinity, sedimentation, and marsh aggradation that was until then precluded by rapid
sea-level rise. The underwater archaeology needed to evaluate this presumption is thin, but enough evidence from beneath Gulf water has been recorded (e.g., Faught 2004) to know that people spent time on the coast since at least the early Holocene, when rates of sea-level rise were high.

We have no purchase on the experiences of the earliest coastal dwellers other than to venture that they came to not only appreciate that change occurred but also anticipate change going forward. The archaeological record of Gulf coastal living after ~5,000 years ago² presents itself as a variety of material traces for futures planning (Sassaman et al. 2014). Besides the expected residues of “domestic” dwelling is an array of mounds, ridges, rings, and other terraforming involving both shell and earth; cemeteries and mortuary mounds with persons both local and nonlocal; and caches of material goods that trace to distant sources. Inferred from this record are several instances of landward retreat from the coast, presumably in response to rising seas. Although the rate of rise slowed considerably after 5,000 years ago, over the next two millennia it rose another 2 meters and the shoreline transgressed about 5 kilometers in the northern Gulf coastal region of Florida (Wright et al. 2005), where my graduate students and I work.

Among the evidence for coastal retreat are the locations of cemeteries dating to ca. 5,000–4,500 cal B.P. (Fig. 9.1). Three such cemeteries have been at least partially documented in the study area. The best-documented of them, McClamory Key, contains secondary burials among an estimated 32 individuals, many grouped together and one subset possibly oriented in a line parallel to the coast (Sassaman et al. 2015). They were reinterred at this location when the sea was lower and the coastline 4 to 5 kilometers to the west. This cemetery and the other two were emplaced about 10 kilometers apart on the northern distal arms of parabolic dunes, all at the same elevation. They have each been exposed in recent years by storm surges and the ambient erosion of a rising sea. The northernmost cemetery, at Bird Island (Stojanowski and Doran 1998), was occupied a few centuries after emplacement of the cemetery and was later the recipient of at least 15 soapstone vessels from geological sources nearly 600 kilometers to the north (Yates 2000). Despite its distance from sources, the Bird Island soapstone vessel assemblage is the largest known in Florida. Moreover, the emplacement of these vessels after 4,100 cal B.P. appears to be a post-abandonment
event, the capstone to a sequence that started with the establishment of the cemetery. I suspect that ancient cemeteries were located landward of the coast in anticipation of the landward movement of increasingly vulnerable coastal settlements. Substantiating this idea means locating evidence for

Figure 9.1. Futurescape of the Late Archaic period of the Lower Suwannee region, Florida, showing boundary markers of cemeteries, caches, settlements, and landmarks aligned to meridians and solstice angles. Illustration by Kenneth E. Sassaman.
now-submerged sites, assuming they have not been destroyed by transgressive sea. In the meantime, alignments among known settlements, cemeteries, and submerged physiographic landmarks suggest that the direction of movement was consistently to the north. This is seen best in the alignment of Seahorse Key, McClamory Key, and Shell Mound on a meridian (Fig. 9.1). Seahorse Key is the highest elevation in the region, the relict of a parabolic dune that has survived sea-level rise. At the opposite end of the meridian is Shell Mound, a fifth-century A.D. construction overlying a ca. 4,500–4,400 B.P. settlement. Notably, parabolic dunes in the area are open to the southwest, at roughly 240 degrees east of north, which is the angle of the winter solstice set (and its reciprocal, the summer solstice rise). Shell Mound was constructed to be open to the southeast, at roughly 120 degrees east of north, the angle of the winter solstice rise (and its reciprocal, the summer solstice set). Solstice angles form equilateral triangles when one axis is aligned to a meridian. As elaborated further below, equilateral (solstice) triangles factored into the siting of mounds and other features at places of ritual gathering.

Another instance of northward retreat is suggested in the construction of a massive shell ring on the western shore of Lake George in northeast Florida (Sassaman et al. 2011). In size, shape, and orientation, the Silver Glen ring is very similar to a coastal ring at Bonita Bay in southwest Florida (Dickel 1992), ~320 kilometers to the south (Fig. 9.2). Both are U-shaped ridges of shell (oyster at Bonita Bay; freshwater snails at Silver Glen) roughly 250 × 150 meters in plan and open to the southwest. With only four age estimates from ambiguous contexts, the ring at Bonita Bay is not well dated but was apparently occupied from about 4,950 to 4,150 years ago (Russo 2006:149). The occupational sequence at Silver Glen is better known (Sassaman et al. 2011), with a range of intermittent occupation extending back nearly 9,000 years and a more-or-less-continuous, intensive occupation from 5,000 to 3,600 years ago. The ring at Silver Glen was completed at about 4,100 cal B.P., at about the same time that Bonita Bay was abandoned. Regionwide, shell rings of the Gulf and Atlantic coasts of the Southeast span the fifth and fourth millennia B.P. and assume a variety of sizes and shapes (Russo and Heide 2001). Silver Glen and Bonita Bay are among the largest ever recorded, and they are positioned on a meridian running through the center of the Florida peninsula.
The function of shell rings is a matter of ongoing debate among regional specialists, with some emphasizing residential aspects and others their ceremonial import (Russo 2006:8–26). Whatever the activities at Silver Glen, they resulted in the accumulation of an enormous amount of pottery, some of the oldest and most ornate in all of Florida (Gilmore 2014). This was the advent of pottery making regionwide, and it arrived with great fanfare. Literally thousands of large decorated bowls were used, broken, and discarded on the northern fringe of the ring, which was elevated several meters above the lake. The assemblage has all the hallmarks of large-scale feasts, and the facilities to provision large
groups of people with food is well-documented at a location only 500 meters west of the ring (Gilmore 2014).

That large-scale feasts at Silver Glen were attended by nonlocal persons can be seen in the provenance of the pottery. Many of the vessels deposited at Silver Glen were made from nonlocal clays. Neutron activation analyses conducted by Gilmore (2014) show that 63 of the 125 vessels sampled from the ring were made from clays from southwest Florida, at least 200 kilometers away. High levels of antimony, uranium, and sodium, along with limited iron, point to clay deposits located between Tampa Bay and Charlotte Harbor, not too far north of Bonita Bay. Notably, the shell ring at Bonita Bay is itself devoid of pottery. In general, this region of Florida is believed to be late in adopting pottery, even with large centers of settlement—like Bonita Bay and the somewhat earlier Horrs Island (Russo 1991)—thriving during the first few centuries (4,400–4,100 cal B.P.) of pottery use at places like Silver Glen. Multicentury alliances between communities who made pottery and those that did not are documented elsewhere in the greater region (Sassaman 1993). The clay sourcing data from Silver Glen, however, suggests that alliances with groups in southwest Florida involved the transfer of vessels (and presumably persons) by coastal communities that made but did not consume vessels locally, at least not in archaeologically conspicuous ways. The production of vessels for gifting would later become a hallmark of Woodland-era communities of the Southeast (Wallis 2011).

One hundred and twenty kilometers north of Silver Glen on the meridian connecting it to Bonita Bay is a site on Greenfield Peninsula on the south bank of the St. Johns River that contained at least four soapstone vessels, three in proximity to burials (Smith et al. 2001). The age of the burials is uncertain, but soot from one of the soapstone vessels returned an age estimate of ca. 3,550–3,350 cal B.P. (Sassaman 2006). This is obviously much later than occupations at the two shell rings on the meridian but coeval with the high-volume transfer of soapstone vessels along the Gulf coast and up the Mississippi River, discussed below. The lack of coevalness among burials, objects, and occupations obscures what are arguably related historical events. For instance, the association of soapstone vessels with burials and early pottery at Bird Island illustrates how the three were enchained in practices elapsing over centuries. The burials at Bird Island are not well-dated but almost certainly
pre-date 4,500 cal B.P.; the settlement at Bird Island dates to ca. 4,450–4,250 cal B.P. (McFadden and Palmiotto 2012); and the soapstone vessels deposited near the burials are estimated to date ca. 4,100–3,800 cal B.P. (Sassaman 2006). Early pottery is not abundant at Bird Island, but the site has produced sherds of an unusual type known as Tick Island Incised. Restricted to only a few sites, Tick Island Incised is most abundant at Silver Glen Run, dated securely to 3,900–3,700 cal B.P., and concentrated in a shell deposit that arguably capped the assemblage of food-processing pits for provisioning feasts at the shell ring (Gilmore 2013). Thus, the Bird Island sequence suggests that a location of burials on the coast at a time when sea level was down and the coastline seaward was later occupied, abandoned a century or two later, the recipient of soapstone vessels another century or two later, and then the recipient of a highly unusual pottery motif with a Silver Glen pedigree. What is more, Bird Island lies on an orthogonal of the meridian connecting Bonita Bay, Silver Glen, and Greenfield, about 165 kilometers due west of Silver Glen. Over 600 kilometers directly north of Bird Island is one of the sources of soapstone used to make vessels deposited at this Gulf coast site (Yates 2000).

The alignments inferred to this point among cemeteries, places of dwelling, large-scale gatherings, and caches of soapstone vessels were anchored by boundary objects to particular places, but they became reified as a constellation through movement—through knowledge, persons, and things “on the move.” As such they involved time, in this case centuries, but I suggest they were made timeless, reified as structure, by referring noncyclical and erratic movements, like those of the rising sea level, to cyclical movements of the sun. Substantiating this assertion requires upscaling the constellation even further.

The meridians that intercept soapstone vessel caches in peninsular Florida, spaced some 165 kilometers apart, can be transposed over six multiples, westward across the Gulf coast, to intercept other known occurrences of soapstone vessel caches and/or major sources of soapstone in the interior Southeast (Fig. 9.3). Notable among the caches is one at Claiborne at the mouth of the Pearl River in Mississippi (Bruseth 1991), itself a shell ring of sorts, as well as a massive cache involving 200–300 vessels at Poverty Point in northeast Louisiana (Webb 1944), a complex of earthworks erected between 3,600–3,200 years ago.
There is much more to Poverty Point than its assemblage of mounds and cache of soapstone. Poverty Point occupies the end of the 2,000-year sequence in question and thus encapsulates the historical interpretation of centuries past, as well as the social geographies involved, which were vast considering the inventory of nonlocal materials besides soapstone (Gibson 2000). Revealed in the layout of the mounds is a measurement system traced to earlier mound traditions (Clark 2004) and, in the case of Poverty Point, deployed in reference to solstice angles (Brecher and
Poverty Point was erected on a meridian, actually two meridians, spread 600 meters apart (Sassaman 2005). In practice, the layout of mounds on a straight line is merely a matter of sighting and back-sighting, but the practice of triangulation adds the possibility of measurement across space; it is, in fact, dependent on known distances between points. Equilateral triangles offer the simplest means to triangulate a straight line at fixed intervals, but they necessarily involve the sighting of two parallel lines, like those at Poverty Point. As noted earlier, equilateral triangles assume solstice angles when one axis is aligned to a meridian.

The scale of Poverty Point’s residential community is a matter of enduring debate, but in one moment of grandeur, near the end of its time, a few thousand people converged at this place for a few months to participate in a massive public works project. Mound A at Poverty Point, the second-largest earthen mound in North America, was erected in less than 90 days by a work force of at least 2,000 persons. This is the informed projection of Anthony Ortman and T. R. Kidder (2013; see also Kidder 2011), who add an estimated 1,000 support staff to the roster. There is little to suggest that all of these people resided at Poverty Point and much more to suggest that many of them converged at this place at this time to erect this mound. Its collective intentions aside, the gathering that was Poverty Point’s crowning moment brought together for the largest public works project to date a community that was distributed widely across much of the Gulf coast (see also Spivey et al. 2015). What united them in practice was a shared set of cosmological principles about directions and distance that arguably was rendered temporal with reference to moving bodies, in this case the sun, but ultimately the transgressive sea.

Solar Senses

Like so many other celestial bodies, the sun is accessible to all sighted observers and universally understood by them to “move” across the sky in redundant, hence predictable ways. The sun of course rises on the eastern horizon each morning and sets on the west, temporalizing with sunlight the rhythms of day and night. But given the ecliptic of the earth from a Gulf coastal perspective, the sun seems to migrate north along the horizon as it rises from its southeast position at winter solstice to its northeast position at summer solstice. Migrating back south after
its June 21 standstill, the sun therefore has both diurnal and annual cycles, the former subject to the latter in ways that account for the lengthening and shortening of days and attendant physical and ecological changes we recognize as seasonal change.

The sun factors into wayfinding in cultural contexts across the globe, and no doubt through all of human time (Pauketat 2013). Lynch (1960: 128–131) reviews several examples of solar wayfinding in his discussion of reference systems. The sun has obvious utility in determining cardinal directions, as any Boy Scout knows and our modern GPS units render obsolete. But beyond the capacity to determine which way is north, the sun’s annual migration, north then south, across the horizons, both east and west, adds a spatial dimension to wayfinding that could be related, metaphorically (and perhaps as a boundary marker), to the rate of change, in this case a transgressive sea and retreating coastline. Thus, from an orientation along a meridian, solstice angles enabled the triangulation method used not only to site mounds at places like Poverty Point but also to temporalize movements north, notably the anticipation of landward resettlement with the rising sea.3

What cannot be inferred from available data is how Gulf coastal dwellers calibrated the spatial and temporal dimensions of the sun’s movement as a referential system of wayfinding. I can only speculate on this for the time being but will note here that both short- and long-term dimensions are implicated in solar motions. The westward movement of soapstone among communities distributed along the Gulf coast, from Florida to Louisiana, followed the daily path of the sun. The relocation of cemeteries, the replication of the Bonita Bay center at Silver Glen, and the evolving moundscape of Poverty Point all went north, with the transgressive sea and migration of the sun into six months of growing days. It is hardly inconsequential that soapstone vessels were emplaced in caches (sometimes deliberately broken) after settlements were abandoned at set intervals along the sun’s east-west path. How the temporality of this direction informed the temporality of north-south movement remains to be seen, but I suspect it is somehow related to the rate at which sea level rose and thus enabled coastal people to anticipate the timing of future abandonments.

Soapstone vessels in this futurescape (Sassaman 2013) were far more than tools of subsistence; they were, indeed, boundary objects. Given
the relative position of caches to other points of significance on the solar grid, it is worth considering that soapstone was a major medium of interaction and connectivity, a medium of consumption that defined constellations of practice. Quarry sources of soapstone and locations of caching are as far apart as 800 kilometers as the crow flies and no shorter than 400 kilometers. Meridians connect geological sources to caches in only one case (Bird Island), so I do not imagine that each of the caches had a spatial reference to meridians alone. However, three of the five caches occupy locations that fall along rivers oriented north-south (one, the St. Johns, flowing north and the others flowing south, to the Gulf). Moreover, the Gulf coast itself is generally orthogonal to these rivers (i.e., east-west in flow), and even the easternmost cache, near the mouth of the St. Johns River, lies on the orthogonal of meridians. The distribution of soapstone vessel caches maps on to the physiography of the Gulf coast and the rivers that drain into it, thus serving as geographic boundary objects for the interconnectivity of far-flung communities. As noted at the outset of this chapter, constellations of practice can be construed as networks of consumption. In this sense, the distribution and ritual caching of soapstone vessels signal a constellation of interacting communities whose shared experience with sea-level rise invited connections to high, dry interior lands in the direction of rebirth or renewal (north). It is thus hardly surprising that, following this logic to its end, the largest cache of soapstone vessels anywhere in the continent is at Poverty Point, the interior-most location of a massive constellation of practice and a major locus of consumption. As a metonym of not physiography per se, but movement across space, the soapstone cache at Poverty Point completed a 1,500-year-long journey that began in the mountains of present-day Georgia, 800 kilometers to the east.

Conclusion

To understand why 3,000 people converged in northeast Louisiana for at least 90 days to erect a massive effigy mound in the shape of a bird flying west is to understand how history was mobilized to intervene against uncertain futures. Those enterprising people were accustomed to moving north with the rising sea, to reorienting themselves to the solstices that pointed to both pasts and futures. This was a transposable image
of the environment, to use Lynch’s (1960) term. It was useful in gauging the rate of change and thus anticipating futures. Space precludes detailed discussion of Poverty Point’s watershed moment: why it was so much larger in scale and more elaborate in form than anything that came before. In short, I will note that the construction of Mound A at Poverty Point signaled a new sense of the future. After experiencing rising seas for centuries, even millennia—enchaining distributed communities along a flood-prone coast through exchanges of soapstone and other media; emplacing through movement a solar grid that anticipated future relocations with familiar, transposable time-space references; and effectively coping with drastic changes in the land—the climate got wetter and cooler, and the sea began to recede (Kidder 2006). It must have been a moment of existential crisis. In erecting Mound A and emplacing into a pit on the angle of a setting winter solstice sun hundreds of broken soapstone vessels, the once-distributed communities that converged at Poverty Point redistributed themselves in a way that is today recognized by archaeologists as a thorough remaking of the cultural landscape of the southeast United States (Thomas and Sanger 2010). The once-distributed communities that converged at Poverty Point in this moment redistributed themselves in new form across the region, to become, for a while, nearly archaeologically invisible.

This was the endpoint of a constellation of practice that was 15 or more centuries in the making and—because of its protracted history of motion—arrayed across a vast swath of geography. The cosmological core that defined this constellation focused on practices that linked past experience with imagined futures, which, in this case, were not all that different from the past insofar as the spatial relationships of the cosmos, the futurescape, were transposed without structural change. The time-space scale of this constellation and its futurescape exceeds that of contact-era Araucanians in Chile. Dillehay’s case material might be best classified as the mesoscale of practice (sensu Knappett 2011), arguably where communities of practice reside. The case I have described here includes vignettes of mesoscale histories—such as the relocation of Gulf coast cemeteries, the establishment of Silver Glen, and the construction of Mound A at Poverty Point—but ultimately, it is the macroscale of practice that warrants further investigation because of the challenge in linking real-time learning with enduring cosmologies. As with the Araucanians, the Gulf
coast communities participated in ritual events that enabled otherwise-situated persons and communities to coalesce around a set of shared ideals, tracing ultimately to shared experience with sea-level rise. Again, the power intrinsic to the Spanish Conquest regime of Araucanian communities may be vastly different from the power intrinsic to the processes of climate change, but both were turbulent, eventful, ever-threatening, and potentially fatal to large numbers of people.

Referring environmental change to movements of the sun not only normalized the variation of erratic change but also “democratized” knowledge about the cosmos that had practical utility in long-range planning. The sun in this regard was a broker that connected pasts with futures, and the caches, mounds, settlements, and landscape features aligned to the solstices were the boundary markers of connectivity. These resources made wayfinding an effective intervention for people experiencing frequent displacement and settlement. It may be useful to imagine how such a constellation of practice might inform our own challenges of coastal displacement and resettlement as an alternative to the capitalist forces that operate with time horizons too short to mitigate long-term risks.

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Notes

1. Conversely, Florida is now twice the peninsula it was during the last interglacial era, some 125,000 years ago, the last time the Greenland and West Antarctic
ice sheets collapsed. Projections for climate change and sea-level rise going forward have not factored these sorts of collapses into our futures because of enduring uncertainties. Geologists Dutton and Lambeck (2012), however, are documenting the rate and magnitude of this past future 125,000 years ago in order to lessen the uncertainties of our own.

2. Unless otherwise stated, age estimates reported here are based on radiocarbon assays calibrated using OxCal v4.2.4 (Bronk Ramsey and Lee 2013), although for ease of communication, ages or age ranges are generalized to the nearest century or half century.

3. A note here on the method of triangulation with solstice triangles is warranted. Any three people with two pieces of cordage of exact length can execute triangulation on flat ground with no obstructions. Of course, the longer the cordage the more challenging the triangulation, but theoretically the method works with any length desired. So, for instance, three people with two lengths of cordage, say 20 meters long each, can make a perfect equilateral triangle with minimal instruction. One person stands at an arbitrary starting point, while the second person stretches one length of cordage to its full extent. With these two persons each holding the end of a length of cordage, the third person walks away perpendicular to the baseline until the two cords intersect at the opposite ends when pulled taut. The result is an equilateral triangle with axes 20 meters long and a median of 17.3 meters. From this starting triangle the crew of three can extrapolate outward in any direction parallel to one of the three axes, forming parallel lines as they triangulate outward, one nested triangle at a time. Now, if we were to orient the baseline on a north-south line, the resultant axes emanating outward follow the generic solstice angles of mid-latitude geography: 60 and 120 degrees east of north for the summer solstice and winter solstice rises, respectively, and, in the opposite direction, 240 and 300 degrees east of north for the winter and summer solstice sets, respectively. One would not need to use the solstices to establish a north-south baseline (that can be done with a pole in the ground in the manner of a sundial), but it would be obvious to anyone paying attention to the annual migration of the rising and setting sun that triangulation mirrored solar orientations. In other words, it would not take long for individuals to learn how to triangulate and to understand how this method related to solar movements, although it no doubt required a good bit of experience to chart meridians over great distances with accuracy.

References


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Contributors

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Plate 1. Examples of polychrome water jars produced within the study area: a) Kaw Kaw; b) Doulwal; c) Bobiel; d) Tagbati; e) Sona Kado; f) Koutoukalle Kado. Photos by Olivier Gosselain (a–c, f) and Marie Brisart (d, e).

Plate 2. A young potter painting a polychrome water jar with a knife in Koutoukalle Kourtey, north of Niamey (Niger). Ornamental grammars and repertoires have complexified and been consistently enriched in the area since the 1970s. Photo by Olivier Gosselain.
Plate 3. Cibola Whiteware pitchers made by an unskilled learner (left) and a highly skilled potter (right). Vessel on the left is 3.3 cm in height. Vessels are NA8942. K2.1 (left) and NA3290.10 (right) from the Museum of Northern Arizona collection. Photo by Marianne Tyndall. In the collection of Patricia Crown.

Plate 4. White Mountain Redware bowl (St. Johns Polychrome) showing forming and interior decoration by a skilled potter and exterior finger painted by a learning potter. Arizona State Museum Catalog Number GPo1975, 16 cm in maximum width. Photo by Marianne Tyndall. In the collection of Patricia Crown.
Plate 5. Cibola Whiteware (left) jar and White Mountain Redware (right) jar formed and decorated by learning potters. Jar on left is from Ojos Bonitos Ruins in Arizona. Arizona State Museum Catalogue Number GP2462, 7 cm in height. Jar on right is from Pinedale Ruin. Catalogue no. A 176971-0, Department of Anthropology, Smithsonian Institution, 6.6 cm in height. Photos by Marianne Tyndall. In the collection of Patricia Crown.

Plate 6. Example of Kalasasaya rim sherd from Tilata (A, same sherd as E). Compact pastes (with red inclusions) associated with Kalasasaya bowls from B) Iruhito, C) Kala Uyuni, D) Khonkho Wankane, E) Tilata, and F) Petrographic thin section of Kalasasaya paste from Kala Uyuni. Photos by Andrew Roddick.
Plate 7. Rolled-rim jars from Ngre (NK) and Kuulo (KK) Kataas. M indicates mound number. INAA compositional groups K1, L, and Unassigned (UnA). Compositional groups indicated in parentheses are assigned based on inclusions. Photos by Ann Stahl.
Plate 8. Recurved-rim jars, from Ngre (NK) Kataa. M indicates mound number. INAA compositional groups K1, and L. Compositional groups indicated in parentheses are assigned based on inclusions. Photos by Ann Stahl.
Plate 9. Incised mica-slipped bowls from Ngre (NK) and Kuulo (KK) Kataas. M indicates mound number. INAA compositional groups K1, L, and Unassigned (UnA). Compositional groups indicated in parentheses are assigned based on inclusions. By Ann Stahl.
Plate 11. Luzira Head and one of two torsos. © The Trustees of the British Museum.

Plate 12. Strength of network connections in 50-year increments, A.D. 1200–1500, superimposed on map of Southwest Social Networks Project study area. White ties are closest connections; darkest blue are the longest. The number of sites for each interval is indicated in the upper-left corner of each map, and the number of ties is indicated in the upper-right corner. After Peeples et al. 2013:12–13, courtesy Archaeology Southwest. Illustration by graphic artist Catherine Gilman.