

Metals in Mandara Mountains Society and Culture

Dokwaza Kawa of Lum-Ziver near Mokolo (1989). A Mafa master smelter, blacksmith, diviner and healer, he is seen here assembling a variety of seeds and other plant parts to place in a bracelet of smelted iron made for Nicholas David.



Metals in Mandara Mountains Society and Culture



**Edited by
Nicholas David**



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A Note on Transcription

To the best of my knowledge there are published lexicons, dictionaries or grammars for only five of the over forty Biu-Mandara Chadic languages¹ still spoken in the northern Mandara Mountains region. Lacking such resources, fieldworkers' transcriptions of native words tend to be *ad hoc* and erratic, often failing to note tones. Furthermore, somewhat different conventions have been adopted by linguists on either side of the Nigeria-Cameroon border. Readers of this volume should therefore not expect consistency in the reproduction of native terms. While Wade (chapter 9) and van Beek (chapter 10) specify their transcriptions in more detail, and others use the transcriptions of the authors they cite, the following special characters are commonly used:

ɓ	voiced bilabial implosive
ɗ, ɗ̥	voiced alveolar implosive
ə, ɘ	schwa
ŋ, ɲ	voiced velar nasal (English – <u>si<u>ng</u></u>)
tl/sl	unvoiced alveolar lateral fricative (Nigerian versus Cameroonian orthography)
dl/zl	voiced alveolar lateral fricative (as above).

Reference cited

Lewis, M. Paul (ed.), 2009. *Ethnologue: languages of the world*, 16th ed. Dallas, Tex.: SIL International.

1. See Ethnologue (Lewis [ed.] 2009) http://www.ethnologue.com/show_family.asp?subid=263-16 for a full listing of Biu-Mandara Languages

Part I

Setting the Stage



Introduction

Nicholas David

The Northern Mandara Mountains

Variously defined by authors, the Mandara Mountains are generally agreed to extend on both sides of the Nigeria-Cameroon border from the Benue-Kebbi valley north to the Zelidva hills, some 130 km south of Lake Chad. We are concerned with the northern part of the range, defined here as lying within a rectangle extending from Mubi at $10^{\circ} 15' N$ and $13^{\circ} 16' E$, east to Maroua ($14^{\circ} 20' E$) and north to $11^{\circ} 15' N$ (Fig. 1.1).¹ Within this area the mountain range and surrounding inselbergs rise from 550 m to the summit of Mount Upay at 1494 m. To the west lie the Yedseram river plains and to the east the Diamaré plain, drained by the Tsanaga and Louti rivers. To the north, the Mozogo-Koza plain drained by the Ngassawé river and its tributaries divides the mountains into eastern and western horns. That part of the western horn lying in Nigeria is known as the Gwoza hills, including their northern Zelidva spur. The eastern horn terminates at Mora, the most recent capital of the Wandala, otherwise known as Mandara, precolonial state.²

In the southeast the Louti river drains to the Atlantic but most drainage is to the Lake Chad basin. However, the northward flow of many watercourses is largely blocked by the Bama ridge, a complex geological feature extending from northwest

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1. This section is largely taken from *Performance and agency: the DGB sites of Northern Cameroon* (David 2008). For fuller introductions to the natural and human geography of the Mandara Mountains the reader is referred to *Le Nord du Cameroun* (Boutrais et al. 1984), the *Atlas de la Province de l'Extrême-Nord du Cameroun* (Seignobos and Iyébi-Mandjek (eds), 2000) and to Hallaire's (1991) *Paysans montagnards du Nord-Cameroun*. Most data in this section are drawn from these sources.
 2. Mandara is a Kanuri corruption of the term Wandala, which properly refers to the state's dominant ethnic group (Barkindo 1989:17).

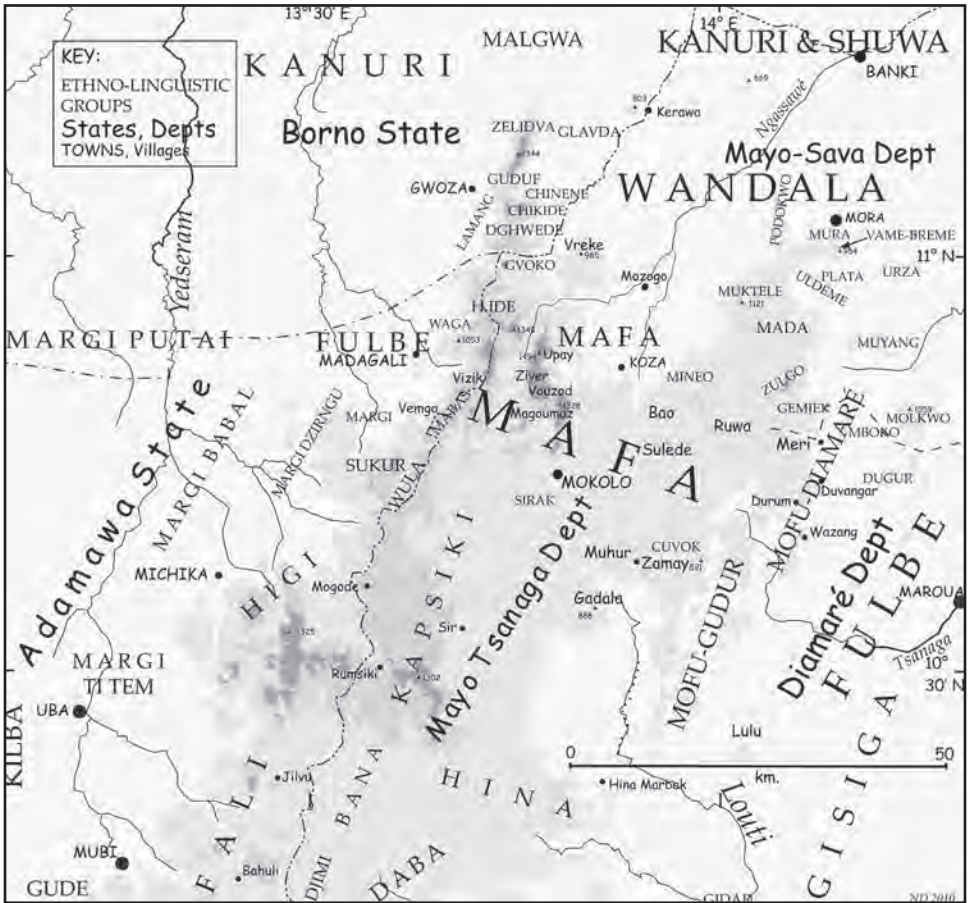


Figure 1.1. Map of the northern Mandara Mountains and surrounding plains showing topographic features and selected ethno-linguistic groups, towns and villages. Contours at 607, 914 and 1067 m (2000, 3000 and 3500 feet).

of Maiduguri to the southeast through Bama and across Cameroon, passing some 20 km north of the mountains, to Bongor on the Logone (see Fig. 7.1). In the mid-Holocene this ridge at times formed the shoreline of Lake Mega- (or Palaeo-) Chad. During wetter periods lagoons and marshes formed behind (south of) the ridge.

The mountains are formed of basement complex granites and related rocks, migmatites and gneisses, with localized volcanics, including Mount Zuelva (1121 m) in Muktele territory, basalt lava flows on the Kapsiki plateau and trachyte needles, the fantastic remnants of Pelean eruptions, around Rumsiki. Although the mountains are low, the topography is rugged and deeply incised by seasonal watercourses. Mountains rise steeply from the surrounding plains and the upper part of massifs is often a chaos of boulders. In contrast, much of the inner part of the range consists of upland

plateaus, 700-1000 m above sea level, dotted with smaller but still rugged hills. The climate is tropical sahelo-sudanic with a marked rainy season from May/June to September/October and a dry season from November to April. December and January are cool and dry with dust-laden harmattan winds blowing from the Sahara. April and May are uncomfortably hot with sharply rising humidity. Mean monthly temperatures at Mokolo vary from 30.5°C in April, just before the rains, to 23.5° in August at the height of the rains and 24° in December. Temperatures on the plains are 2-3° hotter. Precipitation, averaging 1020 mm between 1944 and 1995 at Mokolo on the plateau but only 795 mm at Maroua and 705 mm at Mora, decreases from south to north and from mountains to plains. Rainfall is highly variable from year to year, month to month and, in any one year, from place to place.

These conditions, especially when combined with high population densities, tend to produce gravelly or sandy skeletal soils (regosols) and, on parts of the plateaus, shallow ferruginous tropical soils. Both require considerable human labor and organic input for them to become productive. While the climax vegetation was once forest, this is everywhere degraded. Acacias, most notably winter thorn (*Faidherbia* [*Acacia*] *albida*), *Isoberrinia doka*, *Boswellia dalzielii*, the jujube tree (*Zizyphus* spp.), mahogany (*Khaya senegalensis*), *Parkia*, hackberry (*Celtis integrifolia*), African ebony (*Diospyros mespiliformis*), tamarind (*T. indica*), numerous figs (*Ficus* spp.) and *Borassus aethiopum* palm are amongst the common trees, most being carefully encouraged and controlled if not actually planted. Mangoes, key limes, guavas and neem trees are colonial introductions. *Grewia mollis*, the custard apple (*Annona senegalensis*), and *Piliostigma thonningii* are common shrubs, exploited for their leaves, bark, fruits or wood. With the exception of rocky peaks and of those parts of the plateaus that have low population densities, the northern Mandara range can be considered as a vast garden.

The Montagnards

The mountain peoples, or montagnards, are speakers of languages assigned to the Biu-Mandara (or Central) branch of the Chadic family of the Afro-Asiatic phylum (Lewis, ed., 2009).³ They are divided into numerous ethno-linguistic groups, some consisting of single communities of a few hundred speakers. The Mafa, numbering over 140,000 and extending across the border into Nigeria, constitute the largest linguistic group. However, Mafa settlements or clusters of settlements were formerly independent political entities. Before market towns and administrative centers sprang up in the colonial period, most montagnards lived in un-nucleated settlements. Often described as egalitarian or acephalous, their societies were most frequently governed

3. Boutrais et al. (1984) remains a useful source on the peoples of the Mandara Mountains, as are the *Atlas de la Province de l'Extrême-Nord du Cameroun* (Seignobos and Iyébi-Mandjek, eds, 2000), Sterner's (2003) *The ways of the Mandara Mountains* and Müller-Kosack's (2008) <http://www.mandaras.info> encyclopedic web site.

by a combination of petty chiefs or priest-chiefs, title holders and clan elders (David and Sterner 1999). Durum, part of the diverse Mofu-Diamaré cluster, comprising the pettiest of chiefdoms with others powerful enough for their chiefs to be described as “princes”, was the largest and most powerful chiefdom but is only 90 km² in area with a population of 10,100 in 1976 (Vincent 1991: 142).

A field of view that broadens to encompass the surrounding plains finds within it much greater linguistic disparity. Three of Africa’s four indigenous linguistic phylae (Afro-Asiatic, Nilo-Saharan and Niger-Congo) are represented and, at the turn of the 20th century, the societal range included four Sudanic states, Wandala, Borno, Baghirmi and the Fulbe⁴ Adamawa emirate, itself a province of the Caliphate of Sokoto.

Population densities range from under 20 per km² on the plateau southwest of Mokolo to over 140 per km² to the south and west of both Koza and Mora.⁵ These high densities have been achieved over the past few hundred years, partly by a high birth rate and partly by immigration, both stimulated more or less directly by forms of asymmetric exchange with the states of the plains (Seignobos 2000; MacEachern in review).

The economy is primarily agricultural and, although Mokolo and other high-land towns are commercial centers, most montagnards are farmers with an average purchasing power parity (PPP) still in the region of US\$1 a day. They cultivate sorghum and pearl millet (*Pennisetum glaucum*) as staples and a considerable variety of other cereals (e.g., eleusine), legumes (e.g., *Vigna unguiculata*) and root (e.g., sweet potatoes) crops, besides leafy vegetables (e.g., roselle), peppers and fruits (e.g., limes and mangoes). Peanuts (*Arachis hypogea*) and cotton are the primary cash crops. They also keep cattle, sheep and goats (and some more recently pigs), usually confined within the compound during the farming season, and poultry, mainly chickens but also ducks and occasional guinea fowl.

The Genesis of This Book

Studies of metals in African life include wide-ranging surveys such as the early, descriptive and technical *Mining and metallurgy in Negro Africa* by Walter Cline (1937) and Eugenia Herbert’s thematic analysis of *Iron, gender, and power: rituals of transformation in African societies* (1993), the main evidential bases of both being data gathered from primary sources written by many and varied authors. Patrick McNaughton’s (1988) *The Mande blacksmiths: knowledge, power and art in West Africa* and Peter Schmidt’s (1997) *Iron technology in East Africa: symbolism, science and archaeology* are two of a number of monographs that, developed from their authors’ own

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4. Fulbe (sing. Pullo) is an anglicisation of that people’s name for themselves. They are also known locally and in the literature by other names, including Fulani, Peuls, Fellata and Pelasar.
 5. Locally they exceed 200 per km² where, since the 1930s, montagnards have been able to cultivate the plains while keeping their houses in the mountains above (Boutrais 1973:82).

fieldwork, in very different ways explore the ramifications of metallurgical technologies amongst particular peoples and regions in the present and past. Valuable edited volumes (e.g., Haaland and Shinnie, eds, 1985; Moñino, ed., 1991; Schmidt, ed., 1996) demonstrate the value of a focus on metals for approaching a variety of technical, social and cultural questions on scales up to and including the sub-continental and the *longue durée*. Films (e.g., Echard 1968; Huysecom and Agustoni 1997) offer case studies that reveal the interpenetration of metallurgy, society and ideology and there are hosts of papers that focus on metals in African societies and culture from technical, economic, semiotic and other perspectives. This book does something rather different. It capitalizes upon a critical mass of archaeological, historical, ethnographic and ethno-archaeological data, much gathered at first hand by its authors, the rest from a plentiful literature, to investigate the pervasion of metals in society and culture within the confines of a small, well-defined and highly varied region of West-Central Africa, the Mandara Mountains of northern Cameroon and northeastern Nigeria. I must add a disclaimer: while all the authors value and exploit the information contained in material culture, none of us are metallurgists. This is a work of social science.

It was the Mandara region's great societal and cultural range that first led me to initiate the Mandara Archaeological Project (MAP) in 1984. It received funding, primarily from the Social Science and Humanities Research Council of Canada, almost continuously for 24 years. Over this period graduate and undergraduate students were introduced to the field and several wrote master's theses and doctoral dissertations on their materials. Publications, including films and the Sukur website (<http://www.sukur.info>), were many and will continue to appear for the foreseeable future. Although labeled archaeological, the prime concern of the MAP was ethnoarchaeological, its main objective in the early years being to develop a more satisfactory understanding of the workings of style. (The argument of chapter 7 in David and Kramer's (2001) *Ethnoarchaeology in action* may serve as a synthesis of my views on style.) In the field we very quickly found that in order to understand material culture and its relations to culture in general a good proportion of our time and effort had to be devoted to the gathering of information on the ethnography and history of the peoples amongst whom we were working (MacEachern 2003 [1991], David and Sterner 1995, 1996; Sterner 2003). Some of the research team focused, at least initially, on single settlements (Sterner 1989; Gavua 1990) or specialist groups (Robertson 1992), while others undertook studies at a sub-regional scale. The range of material culture domains we studied emphasized but was not restricted to those likely to leave considerable physical traces in the archaeological record: ceramics (David, Sterner and Gavua 1988), housing (Lyons 1992, 1998), mortuary practices (David 1992); grinding equipment (David 1998); basketry (Sterner 2008); and of course metallurgy (e.g. David and Le Bléis 1988; David et al. 1989).

Because our work was so varied, ranging from the archaeological to the social anthropological, it seemed foolish to attempt any large scale synthesis of MAP results, especially as other researchers, some of whom possess a longevity in Mandara Mountains studies that rivals or even exceeds our own, have been producing work that complements ours in the manner of ongoing conversations. A thematic approach seemed more appropriate, and we and our colleagues had done a great deal of work on metallurgy and particularly its reverberations in the lives, works and thoughts of Mandara mountagnards – as we refer to the peoples of the mountains. Whence this volume, a collection of chapters by specialists, that explores the implications of metallurgy as practiced in the Mandara Mountains for society and culture from points of view that together add up to a regional and multidisciplinary mosaic in which the results of different approaches throw light upon each other. A simple example of this is the metonymic proof that the cast iron pellets detected in the bloom mass recovered from Dokwaza Kawa's 1986 smelt were intentional products. This was demonstrated during the smelt by the introduction via the tuyère of fleshy white nodules from the root system of the *nngúrlélé* plant. The furnace was being given vegetable models of the cast iron pellets that it was expected to produce (David 2001).

In assembling the authors, we have called on members of the MAP team (David, MacEachern, Robertson and Sterner) and other colleagues whose archaeological, ethnological or ethnographic (Langlois, van Beek, Wade) research in the region has included study of metallurgy or metallurgists past and present. Of the two remaining contributors, Bernhard Gardi is the anthropologist son of René Gardi who first brought the unique iron smelting technology of the Mandara Mountains to the attention of the world (Gardi 1954). Jean-Pierre Warnier generously agreed to add an afterword from his perspective as a distinguished anthropologist whose work includes studies of metallurgy and its historical place in the economy of the west Cameroonian Grassfields region (Warnier and Fowler 1979; Warnier 1985) besides broader reflections on material culture (Warnier 1999).

The Sources

The anthropological and related sources on the Mandara Mountains region are highly varied in their interests, coverage and the schools represented by German, Swiss, French and British observers with, post-independence, the addition of others of Cameroonian, Nigerian, American, Canadian, Dutch, Belgian and Polish nationalities. According to Judy Sterner (2003: 9) most sources fall into one of the following five categories:

1. 19th century accounts by European explorers of whom the most important are Barth and Denham;
2. colonial period: historic, ethnographic, and linguistic materials collected by German, British and French military and civilian personnel (*ca* 1902-1960);

3. post-colonial anthropology: monographs and articles by anthropologists of several nationalities;
4. contributions by archaeologists, ethnoarchaeologists, linguists, historians, geographers, development workers, and others; and
5. regional overviews.

In addition to the extensive references given in Sterner's monograph, a Mandara+ bibliography is available on the web at <http://www.ucalgary.ca/~ndavid/Homepage/#Mandbib>; there is also the Mandaras Homepage bibliography (<http://www.mandaras.info/Bibliography.html>) maintained by Gerhard Müller-Kosack. The existence of these convenient and substantial sources which focus on but are not limited to the human sciences of the region allow this chapter to be lightly referenced. Citations should be considered as examples and links to those bibliographies.

Before the first World War, the Mandara region formed part of German Kamerun, but the post-war division into French and British Mandates and much later incorporation into Nigeria and Cameroon proved a disincentive to treatment of the region as a region. Two valuable multidisciplinary overviews (Boutrais et al. 1984; Seignobos and Iyébi-Mandjek, eds, 2000) stop at the Nigerian border. Though many researchers have looked across the border, especially when considering the role of Gudur in regional history (Seignobos 1991c; David and Sterner 2009), few have carried out fieldwork on both sides. Exceptions include anthropologists Wenté-Lukas (1977), David (David and Kramer 2001: *passim*), Sterner (2003), MacEachern (1998, 2002), and Müller-Kosack (2008). Both Cameroonians (Njeuma 1978) and Nigerians (Abubakar 1977; Barkindo 1989) have written on the history of the larger region, and Eldridge Mohammadou (1988) was a major contributor, in particular collecting and synthesizing the oral traditions of Cameroonian Fulbe chiefdoms established in the 19th century. It is true that the region has seen far too little historical research and that materials on almost any anthropological (*sensu lato*) topic are patchy and of unequal value, historical linguistics being a partial exception (Barreteau and Jungrathmayr 1993). However, in contrast to surrounding regions and comparable others – the Jos plateau of Nigeria and the Upper East Region of Ghana, for example – the literature is rich and, as noted above, constitutes a critical mass. In addition, the initiative maintained primarily by French researchers of the former Office de la Recherche scientifique et technique d'Outre-Mer (ORSTOM) and its successor Institut de Recherche pour le Développement (IRD) in organizing and publishing a long series of conferences and colloquia embracing the human and related sciences in the “MegaTchad” basin (e.g., Barreteau, ed., 1987; Baroin, Seidensticker-Brikay and Tijani, eds, 2005; and notably for present purposes Moñino, ed., 1991) has proved invaluable in stimulating interaction between Mandara region researchers and linking them to those of surrounding areas.

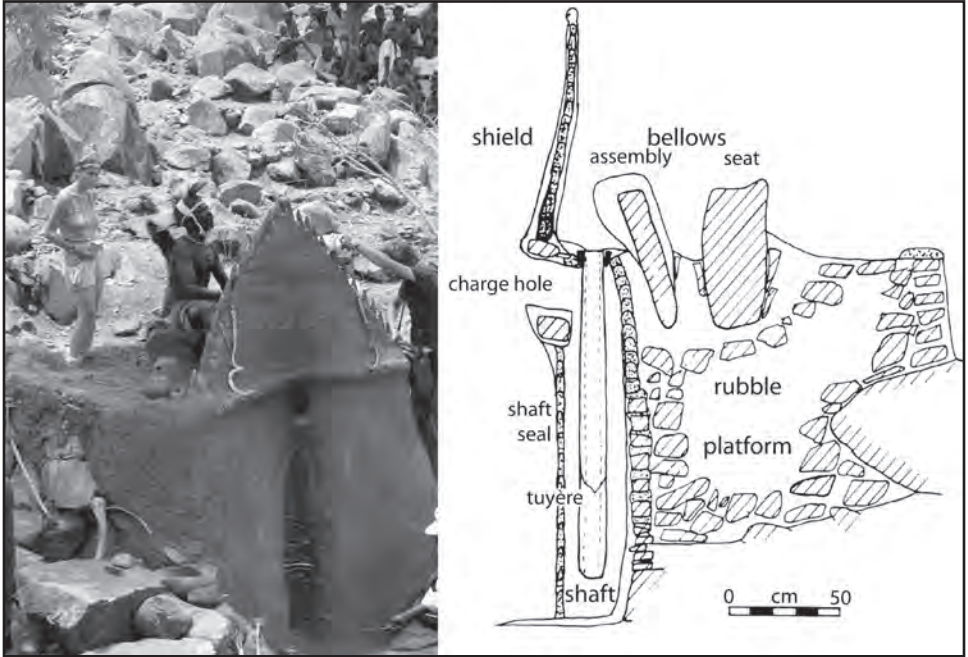


Figure 1.2. The furnace built by the Mafa iron-master Dokwaza. The left hand picture shows the 1986 smelt in progress. Dokwaza is blowing the bellows egged on by the singing and playing of a harpist who is largely hidden behind the furnace shield. Judy Sterner and Yves Le Bléis are making sound recordings. The right hand picture shows a cross section of the furnace.

A Mandara Mountains Metallurgy Primer

Readers of this book may require some background on the present state of research on metallurgy in the Mandara region in terms of which they can approach the chapters that follow.

In most of Africa there is enormous variation in iron making from group to group – yet in the Mandara Mountains, despite ethno-linguistic diversity, smelting technologies are all recognizable variations on a theme, one known nowhere else in the world and characterized most obviously by air introduced down a tuyère into the shaft by a person pumping pot bellows seated on a platform above the shaft and behind a shield. Three types of furnace – Mafan, Sukurian and Teleki-Banan – are known to exist, the last only recognized very recently (David 2010). Mafan furnaces, tall and massive, produced a heterogeneous bloom mass after many continuous hours of smelting (Fig. 1.2). Sukurian furnaces, smaller and less bulky, produced a number of blooms over the course of a day's smelting (Fig. 1.3). The special feature of the Teleki-Banan type, first noted by René Gardi (1954, 114-21) under circumstances that precluded accurate characterization, is a constriction forming a ledge in the lower part of the furnace shaft on top of which the bloom forms and



Figure 1.3. The Sukurian furnace built by Plata smelter Ajokfa in use in 1989. Note the poor closing of the furnace shaft. *Photo: David Killick.*

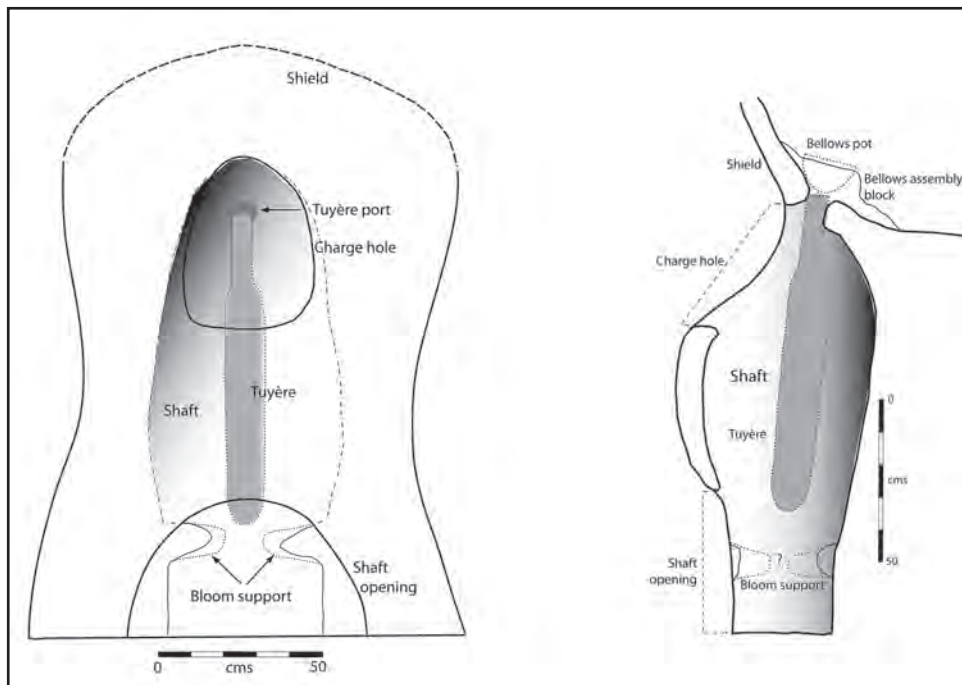


Figure 1.4. Front and side views of examples of Teleki-Banan furnaces at Guili, the Bana center.

through which liquid slag can drip, so that the furnace is slag-releasing (Fig. 1.4). This type, intermediate in size, occurs in a little studied region just south of the area shown in Figure 1.1. All three types produced wrought iron, steel and, in the case of Mafan furnaces though not demonstrably in others, a quantity of cast iron in the form of pellets (David et al. 1989).

A technical explanation for the unique form of the Mandara region furnace must await publication of scientific analyses by David Killick, Michael Wayman and colleagues, mainly of materials collected by MAP members in the 1980s and 1990s. However, it is adapted to the local ore, primarily magnetite with some hematite, eroded in sand-sized particles from the local granites. At present we can not evaluate the relative productivity of different furnace types but there is no reason to suspect substantial overall differences between Sukurian and Teleki-Banan furnaces. Both were utilized by groups specializing in the production of iron for export. An advantage of the Mafan furnace is that because it is not opened periodically to remove blooms it conserves fuel and can more easily maintain the higher temperatures required to produce cast iron (David Killick pers. comm. 2010).

Easily available depictions and descriptions include two video programs showing re-enactments of smelting by Mafa in a Mafan furnace (David and Le Bléis

1988) and Plata iron masters using their variant of a Sukurian furnace (David 1995) and smithing by Mafa and Sukur smiths. David, Heimann, Killick and Wayman's (1989) study of a Mafa smelt represents the most sophisticated scientific analysis to date of the montagnard smelting process and its products, which here included wrought iron, carbon steel and cast iron, the last-named being then something of a surprise as Africans had previously been thought to have been incapable of intentionally producing or using a relatively brittle, high carbon form of iron. Whereas this paper focused almost exclusively on the technical aspects of iron production, David (2001) explored the social and mental construction of iron metallurgy in the Mandara Mountains and elsewhere in the context of a sub-Saharan survey of ethnoarchaeological and "anthropology of techniques" approaches to iron metallurgy.

In the absence of any region-wide study of montagnard blacksmithing technology or even of detailed published studies of the work of individual blacksmiths, the following generalizations on the forge rely primarily upon my field observations over the period 1984-2008. I worked intensively with the Mafa master smith, Dokwaza Kawa in 1986 and 1989 and on several occasions with Hundu of Sukur between 1992 and 2008. I also visited forges and interviewed smiths, often as they worked, in other Mafa settlements and amongst the Cuvok, Hide, Bana, Mabas, Zulgo, Mofu-Gudur and Plata. Throughout those parts of the mountains with which I am familiar I found that forges could all be considered as variations on a pattern exemplified by that of Dokwaza Kawa (Fig. 1.5) (filmed in David and Le Bléis 1988). The forge is a sub-circular building 3.50-4 m in diameter, with low walls built of rocks supporting an unkempt conical thatched roof open at its apex. Close to the low entrance on the western side the smith sits on a rock with a range of anvils in the well-lit area to his right (I have never met a left-handed blacksmith). The firebox is within his reach to the left and to hand against the wall is a supply of charcoal. In some forges the smith works in a shallow pit and in all well-established forges the ground surface is somewhat higher to the south of a line formed in the figure by the anvils, a water-filled grindstone used as a basin, used for cooling and quenching metal, and the firebox. The most important installation in the upper area, in which visitors sit and chat, is the bellows which delivers air to the firebox through a downwards-tilted tuyère, here short and thick but elsewhere sometimes long.

Substantive variations from this pattern include differences in the placement of the bellows, which may be set in line with the firebox or even deliver their air from the side nearest the wall. Dokwaza's placement is the most efficient as it allows the bellows blower to move quickly to the anvils to act as striker. In forges where bloomery iron was fined and forged there was sometimes a large, taller anvil placed a little further from the smith (approximately where the stone hammer no. 16 is shown on the plan). This enabled the striker, using a massive, unhafted stone hammer, to stand rather than squat while welding or forging the metal to the smith's instructions. Such anvils were much more common before the collapse of

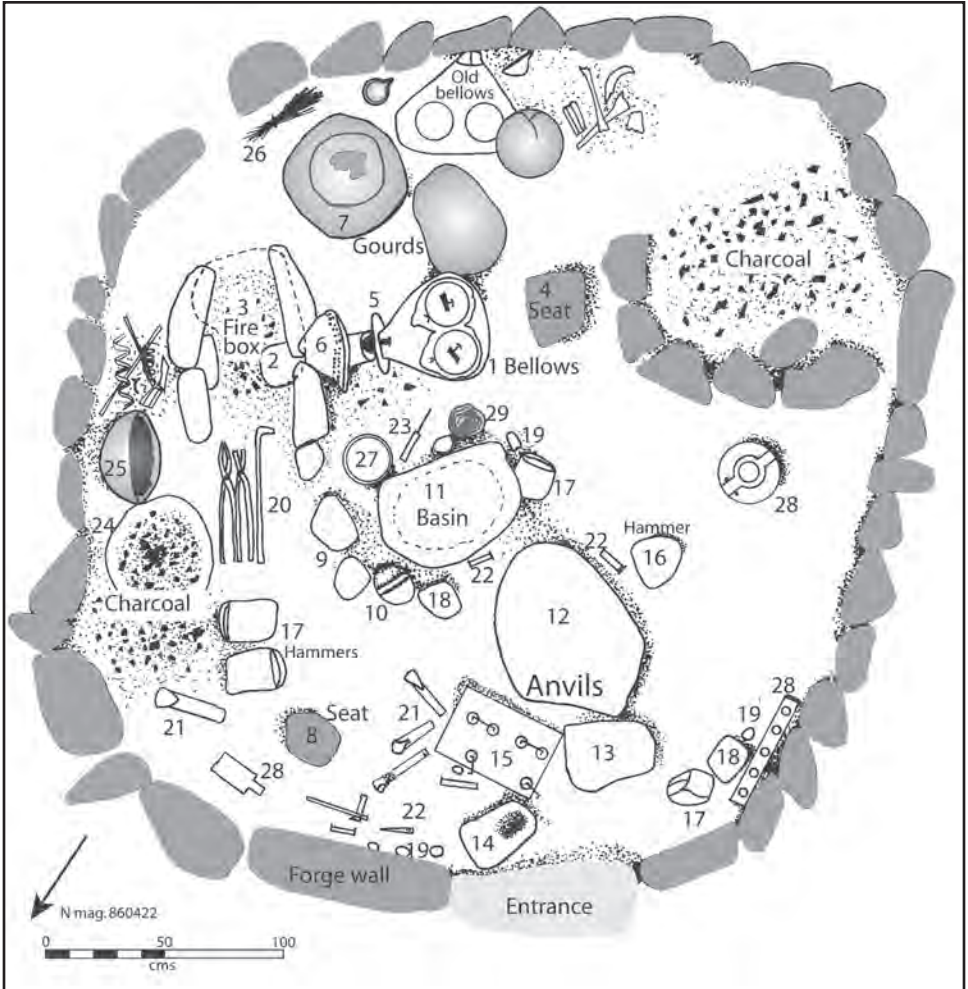


Figure 1.5. Dokwaza Kawa's forge, 1986. Original sketch by Ian Robertson, redrawing Nicholas David.

the smelting industry in the mid-20th century. The positioning and the material of the cooling basin are variable but it is always in easy reach of the smith.

Presently smithing involves a subtractive process in which blanks are cut, using chisels, out of larger pieces of metal or scrap before forging into shape. In the past the process was additive as pieces of bloomery iron were welded together, with or without the use of crucibles, to make larger tools. All montagnard smiths could fine, weld, anneal, forge, draw, shrink, bend and upset iron, and create a decorative pattern by punching, usually with a chisel. Smiths hardened tool edges by cold hammering. Quench hardening, only rarely practiced in sub-Saharan Africa, has not been reported except in recent pieces, for example an ax made by Badadak, son of

KEY:**The bellows and firebox**

1. double pot bellows
2. tuyère
3. firebox, sunken and enclosed by stone walls on two sides and a steep slope up to the south on the side away from the smith. A stone slab on which there are various items of scrap partially covers the firebox.
4. bellows person's (usually male) seat
5. hoe blade (placed in between bellows and tuyère opening when bellows not in use)
6. large sherd, part of firebox enclosure
7. gourd bellows cover (with cloth repair over hole), and three other gourds.

The smith's fixed equipment (granite except for 15)

8. smith's seat
9. pair of embedded rocks used as an anvil in the forging of sockets, the piece being forged between them
10. embedded and grooved rock anvil used in forging sockets
11. cooling basin (old lower grindstone)
12. main anvil
13. secondary anvil

14. anvil with shallow depression used for forming hoe blades
15. steel casting pinned to ground by home made 'staples' used as an anvil for fine work such as making arrowheads

Stone hammers

16. Massive smooth stone hammer
17. Massive ridged stone hammers used for spreading metal (4)
18. Smaller rocks used as hammers (2)
19. Polished, abraded quartz cobbles (5) and one battered basaltic cobble.

Iron tools

20. Two pairs of tongs, ash rake/poker
21. Iron bar hammers, cylindrical but with splayed ends.
22. Various chisels (9 - not all shown)
23. Awls (3 - 1 shown)

Other

24. Basket holding charcoal
25. Gourd holding bloomery iron fragments
26. Broom
27. Pottery bowl
28. Cast iron truck parts
29. Roof support

Dokwaza, and probably also his and others' chisels (D. Killick, pers. com. 2010). The technique may be a colonial introduction or a local discovery consequent upon the spread of European stock and scrap metal after about 1945. In recent years various bulky pieces of scrap metal have been laterally cycled for use as anvils. The smooth and ridged (crested) stone hammers used by montagnards respectively to weld and spread metal have since at least the 1980s been complemented by imported sledgehammers; home-made chisels are now far more common than in the smelting era and bar hammers are now often made of automobile axles. Otherwise the essential hand tools, bar hammers, tongs and poker/rake, are little changed (David and Robertson 1996).

Given the widespread availability of raw materials on the one hand, and ethnic, political and caste divisions on the other, an explanation for the region's overall similarity in smelting and forging practices is to be sought in physical laws and social processes. In a context of endemic tensions relating to land and labor existing between small ethnic units, independent or semi-independent polities within larger ethnic groups such as the Mafa, or more powerful chiefdoms such as some found among the Mofu-Diamaré, there was constant interaction between communities

in the forms of trade and exchange, inter-community violence, intermarriage and migration at multiple scales (Sterner 2003: see especially pp. 70-89). Metal workers were particularly mobile and might be enticed or forced to settle by a community in need of their expertise (Sterner 2003: 169-97). Such socio-political circumstances combined with the widespread, though not ubiquitous, availability of high-quality magnetite ore to favor the spread of the same basic smelting and forging technologies through the mountains. That said, we know virtually nothing about the dates of that spread, nor indeed whether other forms of furnace had penetrated the mountains before the invention of the shaft furnace with vertical tuyère.

Before the introduction to the Mandara Mountains by the colonial and mandate powers of weekly markets that often link settlements and ethnic groups, within the mountains most iron was distributed in the form of blooms and bloom fragments by smelters, who might also be smiths, to smiths of their own or neighboring communities. The smiths would then fine and forge these materials into a variety of artifacts or into an intermediate product, a form of iron bar that served both as a store of metal convenient for transport and sometimes as currency. It was commonly used in bride payments. Montagnard clients purchased or bartered tools, weapons, decorative and other items from smiths who formed part of their own communities and to whom they might well be linked by ties of kinship and alliance. Nonetheless a substantial quality of metal was exported from the mountains to plains dwellers, often of the same states that on occasion raided the montagnards for livestock and slaves (MacEachern 1993). Trade and warfare are two sides of the same coin, and even in times of conflict there were middlemen of various origins with access to both sides of the montagnard/state divide. Montagnard societies benefited from trade with the plains, obtaining salt, livestock and other products. Sukur, a chiefdom in Nigeria, and some of its neighbors specialized in iron production and export (David and Sterner 1995, 1996), making it a favored target for raiding. However, it proved able to retain its independence until the early 1920s. Regional integration of the precolonial economy had benefits of sorts for all the montagnards. Meanwhile, the dispersed nature of the material resources needed for smelting made it difficult for states to take over production, though it is likely that the attempts of Hamman Yaji, Fulbe ruler of Madagali, to conquer Sukur were in part aimed at controlling the iron trade and possibly also its production.

As to the smelters and smiths themselves, a great deal has been written about them and especially about the two caste system found in a band across the southern part of the area shown in figure 1.1, extending east from the Higi to the Mofu-Gudur and north from the Fali to the Mafa (Sterner 2003: 192-197). Since the articulation of smiths and their communities is treated in chapter 4 and the origins and nature of the caste system in part III of this work, they do not require further consideration here.

In contrast to iron, very little has been written of cuprous metals in the region. Fortunately two of the contributors to this book are authorities: James Wade (1989) has written on the context of adoption of brass technology and Walter van Beek's chapter 11 places this metal in rich cultural context.

Parts and Chapters

Part I, which includes this chapter, introduces the reader to the Mandara Mountains region, its culture history and the history of research related to metals. Scott MacEachern sets the historical stage in chapter 2, on the prehistory and early history of the northern Mandara Mountains and surrounding plains. After writing a PhD dissertation on ethnogenesis as a member of the MAP team, in the 1990s MacEachern developed the own *Projet Maya-Wandala*, investigating the archaeology of the mountain-plain interface and inselbergs in both Nigeria and Cameroon. In this chapter he approaches the culture history of the region by melding his archaeological expertise, experience and knowledge of the work of French archaeologists, notably Alain Marliac, Michèle Delneuf and Olivier Langlois, together with a critical reading of recent genetic studies and the historical linguistics of the region. Despite the limited amount of archaeological research around the margins of the Mandara range and the near absence of coherent archaeological sites in the mountains occasioned by the reworking of sites associated with high population densities, he is able to sketch the grand lines of cultural development in and around the region from the earliest Iron Age in the mid-first millennium BC to the development of state-level societies and their impact on the montagnards.

The study of iron smelting in the Mandara Mountains was initiated by the Swiss travel writer, René Gardi, and ethnologist Paul Hinderling in the 1950s. Bernhard Gardi's memoir (chapter 3) describes the context and conduct of this early work, undertaken in the final years of smelting in the region before the availability of European stock and scrap rendered the practice uneconomic. René Gardi and his colleagues' work were exemplary in their use of visual recordings, both films and photographs, which now constitute very substantial archives held, with other materials, by museums in Bern and Basel. These early reports are complemented by Sassoon's (1964) account of a very late smelt, itself a revival, at Sukur in 1961. Also on the Nigerian side of the frontier Vaughan (1973) discussed smelting and iron working among the Marghi Dzirngu of Gulak and Duhu in the mid-20th century.

Several of the social scientists who have worked in the Mandara Mountains have established long term relationships with the their montagnard interlocutors. One such long term contributor to knowledge of metallurgy and the role of metallurgists in regional history is Christian Seignobos, a distinguished human geographer who has worked in the region since the 1970s and published on a variety of topics: architecture (1982), agricultural tools (1984) and livestock (Seignobos and Thys, eds, 1998), among others. He initiated and described two re-enactments of

smelting in the mountains by Murgur smiths of Mawasl in 1983 and by Plata smiths in 1984, and in the same year a third on the plains by smiths in the Fulbe town of Bogo (Seignobos 1991a: Annexe). Little other research of a technical nature was carried out on metallurgy until MAP ethnoarchaeological studies began in 1986, although the demographer Podlewski's (1966) monograph on Mafa smith-potters constitutes the first extensive treatment of the caste question. Genest's (1976) study of traditional knowledge and its transmission among Mafa caste members is another substantial contribution of relevance to the subject matter of this book.

Part II focuses on social structure, on the iron economy and on the societal referents of artifact typology. In chapter 4, Nicholas David and Judy Sterner synthesize the results of their own and others' fieldwork in order to show how, from first contact with Europeans to recent times, producers of iron and iron artifacts were integrated into their societies in ways that express differences in the manipulation of kinship and alliance, and the varying incorporation of specialists whether by kinship, force or favor into local communities. They describe six patterns of articulation which at times cross-cut ethno-linguistic groupings and appear geographically distinct, though this conclusion must be considered provisional with regard to the Primitive and Northeastern patterns identified in the relatively little studied northwestern and northeastern Mandara Mountains sub-regions respectively. David and Sterner emphasize the substantial degree of cultural homogeneity that underlies these patterns and sketch their emergence.

Most studies of African iron metallurgy focus on the technology and often on specific smelting events. Apart from de Barros's (1986) quantification of regional production among the Bassari of Togo, not a great deal has been written on production at a regional scale; there is less on distribution and very little indeed on iron consumption. In chapter 5 Nicholas David builds on the two best known patterns of articulation to consider the corresponding modes of production. He takes a historical and ethnoarchaeological approach to the reconstruction of iron production, distribution and consumption amongst casted groups in the central part of the northern Mandara Mountains during the 1930s and 40s. After explaining his methodology, he develops and evaluates estimates that are then considered in the light of David Ricardo's law of comparative advantage. An important implication of Ricardo's work is that in the study of economic relationships between trading partners it is not specialization *per se* but rather its absence that requires explanation. This insight leads to likely explanations for differential production and exchange of commodities within and beyond the sub-region. He argues that it was a comparative advantage in marketing that led to Sukur's pre-eminence as a producer of bloomery iron. Next, the collapse of the ancient smelting industry is explained in terms of the minimal scale of iron consumption facilitating replacement of bloomery iron by industrial imports. Finally it is noted that Ricardo's law cannot account for the forms that specialization took in the Mandara Mountains region. It

is argued, following Justus von Liebig's law of the minimum, that time, particularly the window of time open for farmers to weed, was the "limiting nutrient", and that one response to this constraint favored the delegation of craft and other specialist tasks to a smith-potter caste.

Chapter 6 is reprinted with minor modification and updating from *The culture and technology of African iron production*, a volume edited by Peter Schmidt (1996). In the 1980s, Nicholas David and Ian Robertson were able as ethnoarchaeologists to observe the interaction between two competing iron industries, montagnard and Muslim Wandala, and the spread of the latter at the expense of the former. Muslim blacksmiths have shown remarkable technical and managerial initiative in coping with new challenges and opportunities. Montagnard smiths, who lost their near monopoly of iron supply as a consequence of the inroads of European stock and scrap, were in the 1980s ceding their share of the market for finished tools to Muslim competitors. Such shifts are often taken by archaeologists as marking cultural or stage changes in the archaeological record. In this instance a reversal of the former flow of iron from mountains to plains is a primary cause. Superior plains forge design and equipment and sophisticated organization of production and distribution by a guild of plains smiths are also factors. It is of particular interest that the marketing strategy of the Manaouatchi Wandala smiths includes the production of hoe forms that imitate those of the montagnard groups to whom they sell their stock. The trajectories of the montagnard and plains industries are considered and to an extent explained in the context of the economic, social and political history of the region. The chapter concludes with suggestions for the interpretation of such technological successions in the archaeological record and predictions regarding the future of ironworkers and potters in the region under study.

Chapter 7 by Ian Robertson links the societal aspects of metallurgy to the cultural, inquiring into the way in which typology reinforces principles of social structure, including gender and power relationships, and reifies other aspects of world view. He is concerned with formal and stylistic patterning in two classes of traditional iron tools – knives and hoes – made by Muslim blacksmiths living and working in the Cameroonian portion of the northern Mandara region. Although generated by the same general class of craftsmen operating within a single technological system, the stylistic content of these two classes of artifact contrasts quite markedly. The form of iron hoes, the quintessential agricultural tool, is deliberately linked by blacksmiths to perceived ethnic differences within the target population of farmers who buy and use them. In contrast, the main referent for much more subtle stylistic variation in iron knives appears to lie on the side of the producer rather than the consumer. No attempt is made by blacksmiths to map knives to the ethnicity of potential buyers, and salient discontinuities in form seem most closely tied to workshop locations in the broader Mandara landscape. These contrasts

reflect differing contexts of use and contrasting symbolic connotations associated with the two artifact types.

The two caste system characteristic of the central northern Mandara Mountains appears very different from the trans-ethnic casted corporations of artisans, musicians and griots of the Western Sudan. Part III treats the caste phenomenon and its metal products from historical and social anthropological viewpoints. The question of caste in this part of Africa has already given rise to a substantial literature summarized by Sterner (2003: 169-97). Here all four papers emphasize the ideological and symbolic aspects of metallurgy as these are played out through time and space.

Chapter 8 by Olivier Langlois draws heavily on the Francophone ethnological, ethnohistorical and archaeological literature from the area and serves as a valuable introduction to those materials. Langlois addresses the question of the emergence of a smith-potter caste in parts of the Mandara Mountains. He does not entirely reject the “functionalist” and “structuralist” approaches to the problem that he associates with Anglophone authors, but insists on the importance of the political and culture history of the Mandara region as this has been affected by ongoing migratory and political processes affecting much of the eastern and southern Lake Chad basin. He takes as his historical point of departure the reconstruction advocated by Seignobos (1991a and c). Functionalist and structuralist perspectives on the development of a caste system must, he argues, be integrated with the historical context and especially with analysis of the production of metals and disposal of the dead. Seignobos’s “political” model of caste emergence is presented and evaluated in the light of myth and the archaeological and ethnological record especially as these relate to craft specialization and burial. In Langlois’ view the archaeology tends to support important elements in Seignobos’s reconstruction; however he proposes that, in addition to the political process, a cultural process involving pollution tied to disposal of the dead was closely related to caste development both as cause and justification of that institution and as a means of maintaining it. Langlois shows that a marked contrast in attitudes towards the dead differentiates the peoples of the mountains, where ancestor cults are universally practiced, to those resident on neighboring eastern plains, where the dead are widely feared. When eastern migrants entered the mountains some, he suggests, were able to devolve responsibility for dealing with the dead onto earlier inhabitants. From this, whether or not in association with Seignobos’s reconstruction of the devolution of smith-kings, developed the caste distinction. Alternative trajectories were followed by other montagnard groups.

In chapter 9 James H. Wade considers the caste system characteristic of the Transformer and Sukur patterns of articulation in the light of his fieldwork among the Chadic-speaking Fali of the southern part of the northern Mandara region. This provides the basis for a fresh understanding of the caste complex. The many

specializations of the Fali *mihin* minority caste include men's iron smithing and brass casting and women's manufacture of pottery. Caste members are also morticians, diviners, musicians and ritual practitioners. Within the Fali cosmos *mihin*, like women and the dead, can be considered 'marginal,' situated between order and disorder, ontologically ambiguous, polluted, concerned with processes of transformation and mediation. Wade re-examines iron, death and gender as factors explanatory of this complex, exploring its regional variants and intricate dynamics as well as its likely origins. More than other writers on the Mandaras, he emphasizes the relationship of caste to chieftaincy, asserting the centrality of the marginal, and stressing the complexity rather than the simplicity of the societies concerned. Caste development in the Mandaras should be seen in terms of the growth, articulation and integration of specialists in increasingly complex societies.

In chapter 10, the first of a pair of case studies that resonate with the previous chapter, Walther van Beek explores the role that metal artifacts and especially iron play as "symbols in action" and the position of casted smiths among the Kapsiki. He focuses initially on the iron skirt worn by a bride and shows how, unlike brass, iron is associated with femininity. This is particularly evident in situations of transformation, as in the case of marriage when non-fertile girls are transformed into married women. Iron is also associated with power and wealth in things as opposed to wealth in people, the latter achieved through women's fecundity. Turning his attention to the smiths, van Beek shows how they are symbolically linked to women. They are each other's ritual inverse, and as such need each other.

Brass working, smithing and casting, is widely practiced in West and Central Africa but scarcely at all in the area covered in this book, extending into it only in the south among the Kapsiki and Fali. In chapter 11 van Beek provides a wide ranging survey of the regional brass industry. He begins by describing a brass casting episode and the artifact forms made by Kapsiki brass smiths. He contrasts the very different associations of iron and brass, showing that brass is associated with wealth and with distinguishing oneself from others but most of all with the bush. A description of the distribution of brass working in the area leads into a categorization of the different kinds of smiths present in Kapsiki society and their respective specializations. Kapsiki brass smiths are regarded as quite different from iron smiths. Van Beek concludes with reflections on the influence of tourism on brass working and on the effects of marginality and relative recency of introduction on the nature of the industry.

Part IV consists of an afterword by Jean-Pierre Warnier, in which, reflecting on the materials previously described, he takes the discussion to a new level capable of resolving tensions between the results of different approaches. Warnier distinguishes between verbalized and procedural knowledge, the latter comprising material culture and its associated and embodied sensori-motor culture. While material culture is often fruitfully considered as a system of connotation and com-

munication, we should also recognize that technologies are embedded in systems of agency that result in transformation of the persons involved. Craft activities learned through repetitive practice and apprenticeship produce not only iron but also smelters, pots *and* potters, ancestors *and* undertakers. Such *technologies of the subject* are well attested in this book, most notably in regards to a caste system that involves both verbal and conceptual knowledge and its procedural counterpart, between which there is often dissonance. Warnier's dual approach to technologies involving attention to both sorts of data and the disharmony between them can lead to new insights and explanations. Furthermore the technology of the subject has important implications for economic analysis inasmuch as "ontological differences between people translate into differences in the value of people and things and in the desirability of the services and things they produce". The implications for study of the past are also many but in the case of the northern Mandara Mountains will require considerably more historical and archaeological research for their potential to be realized.

Besides its examination of the many roles of metals in Mandara montagnard culture, one of the legacies of this book will be a stimulus to develop not only comparable and comparative regional studies of the social and cultural implications of particular technologies but also wide-ranging explorations of technologies of the subject.

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The Prehistory and Early History of the Northern Mandara Mountains and Surrounding Plains

Scott MacEachern

Introduction

The Mandara Mountains of northern Cameroon and Nigeria, and the foothills and plains surrounding those mountains, were occupied by a great diversity of human populations a century ago, at about the time of European conquest. That diversity expressed itself in a number of interrelated realms: social relations, politics, cultural expression, language variability and usage. Ethnographic and historical research has since made this one of the best-known areas of Central Africa, at least in cultural terms and for investigators interested in developments over the last two centuries. We have somewhat less idea of the deeper roots of that human diversity, since much of the work that would inform such questions – in archaeology, linguistics and most recently genetics – only commenced during the 1970s. Nevertheless, the energy of investigators from a number of countries has resulted in the generation of a great deal of data from all of these different disciplines over the last 30 years, and this allows us to begin to assemble a more detailed account of the Mandara past than was earlier possible.

That account will certainly not be definitive. Information from different disciplines can be very difficult to reconcile and far more data from these various investigations are available for some areas than for others. In particular, most of the existing archaeological data on Mandara prehistory comes from the foothills

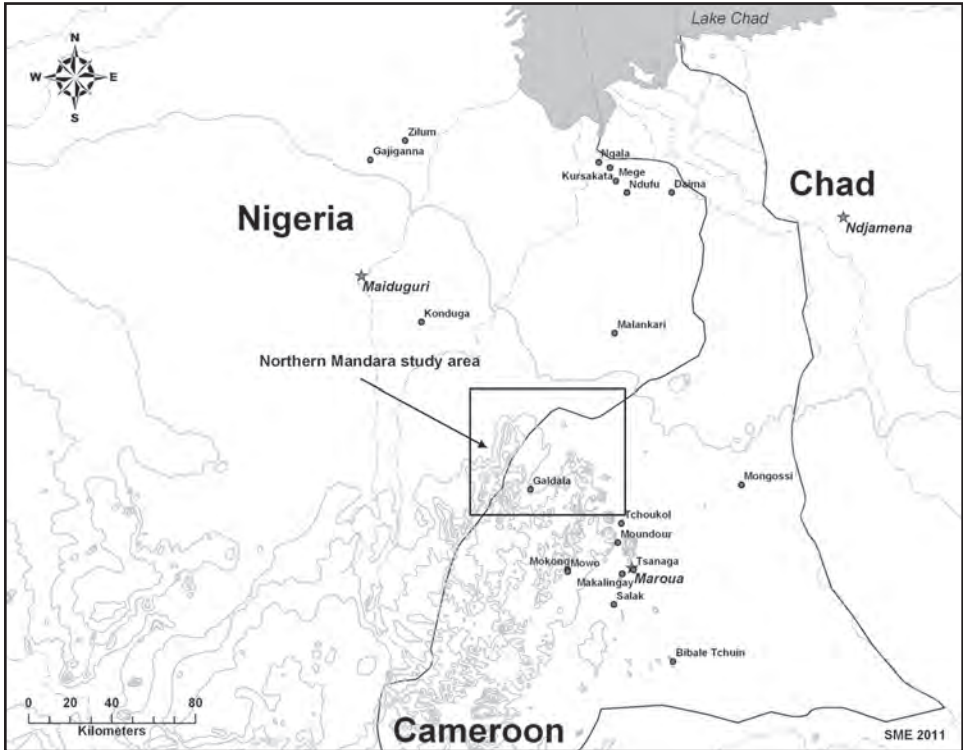


Figure 2.1. The study area in regional context, with archaeological sites.

and plains immediately surrounding the Mandara range, with very little information available from the mountains themselves. Our view of the archaeology of the region is biased both by this relative lack of archaeological exploration of the highlands, and by the destructive effects on archaeological sites in the mountains of high population densities and intensive agriculture involving house, terrace and platform building and recycling. To give one example, ground stone axes, which may well be more than two millennia old, often form part of montagnard diviners' toolkits and undatable rock querns and mortars may also be of considerable antiquity (David 1998). However, the earliest coherent archaeological sites in the mountains, the stone-built DGB monuments, are somewhat more than 500 years old. Similarly, it is at this point very difficult to establish the boundaries of a distinct Mandara cultural region (if such exists), and what its history in deep time may be. Despite these uncertainties, we can perhaps begin to sketch out some broad themes in the history of this part of the continent.

Mandara Environments

The area covered in the course of this research is indicated in a regional context in Figure 2.1 and in more detail in Figure 2.2. It includes the northern extension of the Mandara Mountains and the plains and inselbergs immediately surrounding them, from *ca* 10° 40' northward, in both Cameroon and Nigeria. The extent of research has been largely conditioned by interest in the Chadic populations of the region, both montagnards living in the massif itself and related groups like the Wandala living on the plains below. At various points, I will however make reference to archaeological and other data deriving from the larger southern Lake Chad Basin and beyond.

Recent settlement patterns have varied widely through the Mandara Mountains. (I refer here to settlement patterns evident during the first half of the twentieth century. Colonial and post-colonial policies aimed at moving montagnard populations to the plains below the massif were variably successful.) In some of the northeastern and northwestern highlands, population densities reached well over 150/km², some of the highest in rural Africa (Boulet et al. 1984: 108-115; Muller-Kosack 2003; Seignobos 2000a); other areas further to the south were historically almost empty of human settlement and are beyond the purview of this chapter. Population densities in the surrounding plains are equally variable, falling from 50 – 100/km² in favoured areas close to the mountains to less than 5/km² through the *firki* seasonally inundated clay plains that stretch north toward Lake Chad. The human impact upon Mandara landscapes has been significant, even in areas of relatively low population densities (cf. Seignobos 2000b), but few data are available on how Mandara environments have changed through time.

Regional climatic variation through even the last ten thousand years is known to have been very significant, with terminal Pleistocene hyper-arid environments and active dune fields (Talbot 1980: 42-45) disappearing during a period of increased moisture availability and higher lake levels in the early Holocene (Holmes, Allen et al. 1999; Maley 1981; Servant and Servant-Vildary 1980). Mid- and late-Holocene regional climates appear to have been subject to considerably more variability, albeit over shorter timescales and with somewhat lower amplitudes (Beauvilain 1989: 84; Gasse et al. 1990; Servant and Servant-Vildary 1980: 143-145, 150; Thiemayer 2004). Palaeoclimatological data are available from a number of sources in and around the Lake Chad Basin. These include geological evidence for high-stands and retreats of the lake itself (Brunk and Gronenborn 2004; Drake and Bristow 2006), palynological evidence from different areas around Lake Chad (Maley 1981), palynological, palaeolimnological and geological evidence from sites in the Manga Grasslands in northeastern Nigeria (Holmes, Allen et al. 1999, b; Street-Perrott et al. 2000; Waller and Salzman 1999) and data from archaeological sites in the region. However, most of these sources of data are distant from the Mandara Mountains, and the picture of climate change that they yield varies with the analytical techniques in use.

Climatic reconstructions are thus necessarily partial, and are often contradictory. However, multiple data sources from the Manga Grasslands indicate marked climatic changes, involving especially increased aridity, after about 2000 BC, leading to the establishment of the modern Sahelian scrub grassland by 1500 BC (Street-Perrott et al. 2000: 299). There is evidence for a limited increase in water levels in Lake Chad over the period 1500 – 1000 BC, with a retreat after that time opening the firki plains southwest of the lake to human settlement (Brunk and Gronenborn 2004: 107-111). Klee et al. (2000) note the disappearance of Sudano-Guinean plant taxa, indicating at least local environmental deterioration, at the Kursakata site in the early first millennium BC. Data from around Lake Chad and from the Manga Grasslands indicate increased moisture availability at about AD 300 and at about AD 1300 – 1400, bracketed by periods of pronounced aridity around 300 BC – AD 300 and AD 1000 (Holmes, Allen et al. 1999; Holmes, Street-Perrott et al. 1999: 366-367; Maley 1981; Street-Perrott et al. 2000; M. Wilson, pers. comm. 1989). Aridity between 300 BC and AD 300 is attested in other areas of West Africa as well (Brooks 1998: 147). Finally, there was a fluctuating decline toward modern moisture availabilities through the last millennium (Holmes, Street-Perrott et al. 1999: 183; Nicholson 1996), with conditions in the mid-second millennium AD and in modern times probably the driest that the region has seen during that period.

There exists considerable regional variation in the geomorphological conditions upon which these changing climates acted. The influences of different geological and topographical systems – the Mandara Mountains themselves, a Lake Chad highly variable in extent and hydrology (and probably influential in determining local environments in its own right during the early Holocene Mega-Chad phase), extensive permanent and seasonal river systems – produced a diverse suite of soil types across the region, soils upon which sophisticated farming and agropastoral systems now depend. Differential exploitation of these soil regimes by prehistoric farmers seems to have played an important role in determining ancient settlement systems (see below). Any consideration of environmental change through the late Holocene must thus take into account the possibility of anthropogenic effects. Nigerian pollen profiles (Waller and Salzman 1999) yield little evidence of such influences on the changing Sahelian environments of the Manga Grasslands over the last 3000 years. The situation may have been different south of Lake Chad and around the Mandara Mountains, with somewhat different topographies and climate, and with recent food production systems oriented toward agriculture rather than pastoralism. Thus, Barth (1965 [1857-1859]: 2: 85-127, 316-424) described some areas north and west of the mountains as quite heavily treed, as do some more recent accounts (MacEachern 2003 [1991]: 50-51); today these areas are open grassland and woodland. An increase in tree cover may also be in part due to lack of cultivation in certain areas during periods of political instability.

This area now lies in the transition zone between Sudanian and Sahelian vegetational regimes. Higher rainfall at various times over the last six millennia would have encouraged the formation of Sudanian woodlands similar to those found further to the south in Cameroon and Nigeria (cf. the Konduga site below). There may exist two stable equilibria for vegetation regimes in the modern Sahelian/Sudanian zone: (1) the present case, with the boundary between Sahelian and Sudanian zones at about 13° N latitude; and (2) an alternate case, with different rainfall-ecosystem interactions, where that boundary is shifted up to 600 km to the north (Street-Perrott et al. 2000: 299) and areas to the south are correspondingly more heavily wooded. The entire region is heavily impacted by human activity, associated especially with agriculture and (historically) iron production, which would have in this case have tended to open up areas of fertile soils and encourage a suite of economically useful trees (MacEachern 2003 [1991]: 27-40). The plains around the mountains are covered with sparsely wooded Sudanian grasslands, characterized by high frequencies of *Acacia*, *Khaya senegalensis* and other Sudanian species. Over-usage of these soils often results in increased colonisation by Sahelian, as opposed to Sudanian, species. The Mandara highlands, which receive somewhat more rainfall, are characterized by generally similar vegetation, albeit with higher proportions of Sudanian species. Mountain landscapes in this region are intensively managed in areas of high population densities, with every suitable square metre of land used for agriculture and only useful trees and shrubs tolerated. Mandara environments probably tended to *Isobertinia* woodlands during periods when rainfall was more abundant and human intervention in the environment was less marked than today (Bellefontaine et al. 1997).

The Earliest Archaeological Traces in the Region

Data on pre-agricultural populations in the region is easy to summarize: very little evidence of such communities exists. This broadly parallels the situation in north-eastern Nigeria, where dramatic finds like the Dufuna canoe (Breunig 1995), dated to the last half of the seventh millennium BC, demonstrate occupation by (probable) foragers, but are hard to interpret without other data. At the Konduga site, populations were using pottery in Sudanian woodland in the period 5500 – 5000 BC (Breunig et al 1996) but, again, other data are not available.

Rare and scattered lithic artefacts identified with Acheulean and Middle Stone Age traditions have been found at a variety of locations around the Mandara region (Connah 1981: 47, 78-80; Connah 1984: 168; MacEachern and Garba 1994; Marliac 1987, 1991; Marliac et al. 2000), but such finds have to this point told us rather little about the behaviour of the humans responsible for producing them. Materials have often been found in secondary contexts, and typologies in many instances are not well controlled. Terminal Pleistocene aridity certainly would have rendered the area marginal for human populations during the period; settle-

ment probably remained low in the early-/mid-Holocene in more heavily forested environments. The very active Holocene hydrological systems associated with Lake Chad and rivers flowing away from the Mandara Mountains will have destroyed some sites and buried many others below mantles of sediment. It is quite possible that these early populations used the quarry sites identified at Galdala inselberg near Mozogo (David and MacEachern 1988: 56) and at Hosséré Makabay near Maroua (Marliac et al. 2000: 71), but the nature of such occurrences makes study of one particular period difficult, and no intact occurrences from these periods have been systematically examined. Exploitation of these quarry sites seems to have remained an important regional marker of human activity into the Iron Age.

West African LSA materials appear to be extremely diverse, with both macro-lithic and microlithic elements in different areas at different times (see for example MacDonald and Allsworth-Jones 1994; Shaw and Daniels 1984). Macrolithic, non-blade-based elements may be difficult to distinguish from earlier MSA assemblages. Survey and excavation in the area have to this point focused upon the investigation of Neolithic and especially Iron Age sites. (For present purposes, 'Neolithic' identifies agricultural communities that do not practice metallurgy or use metal tools.) Concentration of effort in areas where we expect such sites to be found, as well as limits of excavation exposures at the bottom of Iron Age mound sites, has worked against the detection of particularly microlithic LSA assemblages.

Genetics, Linguistics and Archaeology in the Southern Lake Chad Basin

Data derived from both linguistic and genetic research is important for the elucidation of population movements and contacts in Africa generally, and for the Lake Chad Basin in particular. Geneticists have responded to the populational diversity of the region by undertaking research on a number of fronts in the Lake Chad Basin. One major issue lies in the reconciliation of the very different kinds of data derived from archaeological, linguistic and genetic research – and, for that matter, from genetic analyses undertaken on different regions of the human genome, which in many cases imply different relations between particular human populations. Another issue involves the choice of cultural and demographic phenomena, and their associated time-periods, that could be most usefully examined through such multidisciplinary reconstructions.

As noted, we have very few pre-Holocene archaeological data from the region, and the linguistic data are usable only for the Holocene and perhaps the terminal Pleistocene. At this point, it appears that these different sources of data would be most usefully compared in the analysis of broad population movements and interactions associated with Holocene environmental transformations in this region. These latter would involve (1) the existence of Lake Mega-Chad and other Saharan mega-lakes and river

systems (Drake and Bristow 2006), which would have provided increased resource availability in some areas of the Lake Chad Basin but prevented or channeled occupation in others (those areas under water or marsh, or heavily wooded, for example), and (2) the subsequent shrinkage of Mega-Chad and the disappearance of southern Saharan fluvial and lacustrine systems in the mid-/late-Holocene, with complementary effects. Data derived from genetic and linguistic investigations indicate substantial and complex relationships between the ancestors of peoples living in and around the Mandara Mountains today, and contemporary populations of the Sahara and North and East Africa (see also MacEachern 2007), and it is likely that many of these relations find their ultimate origins in these Holocene environmental reorganizations.

Most of the groups living in and around the Mandara Mountains speak Chadic languages today, with their closest linguistic relations to the Berber languages of the Sahara (Ehret 2006a; Fleming 1983). Ehret (2006b) posits on linguistic grounds that the present distribution of these languages may in part be the result of the widespread incorporation of Nilo-Saharan speakers, previously occupying much of the southern Lake Chad Basin, into populations of immigrant Chadic-speakers, implying that cultural interactions between populations speaking these different languages were quite intense. Reconstructed elements of vocabulary suggest that both of these populations were herders and farmers (possibly to differing degrees), and primarily on archaeological grounds Ehret posits that these encounters south of Lake Chad would have taken place between approximately 6000 BC and 5000 BC.

These reconstructions parallel some recent genetic reconstructions in the region (see below – Tishkoff et al. 2009) and are not incompatible with others (Cerny et al. 2007, 2009). It is interesting to note that Ehret's dating of these events is consistent with genetic estimates for the time-depth of the L3f3 mtDNA (mitochondrial DNA) lineage, associated with the initial movement of Chadic-speaking populations into the Lake Chad Basin (Cerny et al. 2009). At the same time, however, we must remember how little archaeological evidence for human settlement there actually is in the southern Lake Chad Basin in the period 6000 - 5000 BC, during the period when these intensive interactions are supposed to have taken place. Virtually the only known site from this period is Konduga in Nigeria (see above), but the Sudanian woodland environments that appear to have covered the area at that time (Ballouche and Neumann 1996) would not be very suitable for herding. Extensive archaeological evidence for human occupation in the region dates to some 2000 years later, with the Gajiganna sites southwest of Lake Chad (see below).

As already noted, genetic data from the region is derived from different regions of the human genome, using different approaches. A cursory examination of only some of the recent genetic research relevant to the Mandara area will provide a sense of the complexity of the issues that such research raises – especially for non-geneticists. The detection of the R-P25* NRY (non-recombining region of the Y-chromosome) sub-clade among Chadic-speaking populations, including Ouldémé, Podokwo and

Wandala (Mandara) groups living in and around the northern Mandara Mountains in Cameroon (Cruciani et al. 2002, Wood et al. 2005) has received substantial attention. The utility of this marker in population studies has been questioned (Adams et al. 2006), but if taken as an accurate reflection of ancient population contacts, it would imply a significant male contribution to these populations ultimately from West Asia and Nile Valley. Such biological relationships, if accurate, would probably originate in the early Holocene, when higher levels of rainfall would have facilitated movements across the Sahara and along the Nile Valley.

On the other hand, mtDNA research has found (1) low frequencies of the mtDNA U6 haplogroup in Podokwo and Ouldémé populations (Coia et al. 2005), which might indicate North African origins *dissimilar* to those of the R-P25*Y-chromosomal sub-clade, but also (2) somewhat higher frequencies of a L3F3 mtDNA sub-haplogroup found almost exclusively among Chadic-speaking populations (including Ouldémé, Podokwo and Wandala), but with affinities to eastern African populations, including Afro-Asiatic-speaking Cushites (Cerny et al. 2007, 2009). Finally, in a recent and much larger-scale genome-wide survey of African genetic affinities, Tishkoff et al. (2009) suggest (1) very close genetic relations between Chadic- and Nilo-Saharan-speaking populations of the region (the Chadic speakers including Ouldémé, Podokwo, Mada, Zulgo, Giziga and Wandala groups from the Mandara area) and (2) more ancient affinities of these Lake Chad Basin groups with Nilo-Saharan populations in Northeast and East Africa. This parallels Ehret's (2006b) linguistic reconstructions, as noted above, in which pre-existing Nilo-Saharan populations adopted Chadic languages, so that Mandara Chadic populations would be genetically related most closely to East African Nilo-Saharans. These data also imply low levels of genetic contribution from the Chadic-speaking populations from which those languages were adopted. In general, we might expect that genome-wide analysis will provide a more complete picture of ancient population relations than will studies of particular genetic markers like mtDNA or NRY, because the latter will be affected by the choice of individuals tested (each of whom will carry only one variant of the one marker tested), and by random differences in the rate of transmission for particular alleles of these markers between one generation and the next over time (Nielsen and Beaumont 2009). Given ethnohistorical evidence for diversity of origins within even small Mandara montagnard populations, the processes of selection of individuals for genetic analysis may introduce some degree of bias into research results. Thus, for example, the Ouldémé/Plata group, about 12,000 strong, includes communities claiming at least eight different points of origins in the Mandara Mountains and beyond (MacEachern 2003 [1991]: 394).

Taken together, these genetic and linguistic data might suggest a number of avenues of investigation for archaeologists. First, they speak to intensive interaction between different populations around the southern Lake Chad Basin, and the archaeological signatures of that interaction will probably become more visible with more research. Second, they testify to the complexity and diverse back-

grounds of populations in and around the Mandara Mountains – although not necessarily to large-scale migrations from every region where genetic affinities are noted, especially on the basis of single markers. Some of this diversity may well be reflected, for example, in the material culture differences between Gajiganna, firki and later Diamaré populations (see below) of the mid-/late-Holocene south of Lake Chad. Archaeologists need carefully to compare the ceramics assemblages from these different areas in light of the genetic and linguistic data. Third, we need to pay more attention to the likelihood of ancient east-west population movements by herders and farmers in what are now southern Saharan and Sahelian regions, on the analogy with the movement of Fulani herders from Senegambia eastward in more recent times. Such considerations have been to some degree overshadowed by archaeologists' preoccupations with north-south movements in the context of a desiccating mid-Holocene Sahara, especially given the relative lack of information on the prehistory of regions between Lake Chad and the Nile Valley.

At this point, genetic data obtained from Mandara montagnard and related groups provide fascinating evidence on the general population history of the Lake Chad Basin through the Holocene – but, ironically enough, the procedures for data collection and documentation do not afford much illumination on the local histories of these populations themselves. There is a significant need for more fine-grained and sensitive genetic research on the histories of specific populations, in Africa and elsewhere (see for example Veeramah 2008).

Agriculture and Relations to the North: 2000 – 750 BC

We have moved from very sparse archaeological data for the southern Lake Chad Basin as a whole for the period before approximately 6000 BC, to a consideration of recent genetic and linguistic data that may illuminate later periods, when more archaeological data are available. At present, human occupation of the areas around the Mandara Mountains themselves can really only be studied over the past four millennia, from the time of appearance of agricultural communities. (See Figure 2.2 for a map of sites in the region.) Traces from approximately the first half of this time span are rare, and often appear to be differently organized than are later sites. Surface occurrences of ground stone axes and (at Doulo) a concave-based projectile point similar to those found on sites in northeastern Nigeria and the southern Sahara (Jones 2001: Fig. 6.13) indicate the possibility of sparse occupation of the area during this period, but tell us little more. A number of sites dating to between about 2000 and 750 BC, before the appearance of iron technology in the region, are known from the immediate peripheries of the Mandara Mountains. There are no sites known from the Mandara highlands during this period, and indeed not until less than a thousand years ago.

Of known sites, Gréa Twin Peaks (PMW 618), at the foot of the Gréa inselberg, includes a surface component with evidence of grindstone production, possibly for

Table 2.1. Radiocarbon dates from Mandara research 1984 – 2008. (Calendar date ranges derived using OxCal 3.9 – Stuiver et al. 1998)

SITE #	UNIT	LEVEL	DESIGNATOR	MATERIAL	$\Delta 13$	RADIOCARBON AGE	CALENDAR DATE RANGES (2- σ GA)
523 (Mehe Djiddere)	Mound VII, Trench A	1 (20-35cm)	Ly-3817	Charcoal		790 ± 100 BP	AD 1020-1330 (89.0%), AD 1340-1400 (6.4%)
523	Mound I, Trench A	3 (60-75 cm)	Ly-3818	Charcoal		1160 ± 140 BP	AD 600-1200
523	Mound I, Trench A	4 (150-165 cm)	Ly-3819	Charcoal		1690 ± 110 BP	AD 50-600
602 (Manaouatchi-Gréa)	Pit 1 SE	2	TO-4418	Charcoal		1440 ± 50 BP	AD 530-690
602	Pit 2 SW	5	Beta-61583	Charcoal		100.0 ± 0.6%	modern
602	Pit 2 SW	8	Beta-61584	Charcoal		150 ± 50 BP	AD 1660 - 1960
602	Pit 2 NW/NE	14 F. 1	TO-4419	Charcoal		1420 ± 50 BP	AD 530-700
602	Pit 2 SE	24	Beta-61586	Charcoal		1700 ± 90 BP	AD 120-560
602	Pit 2 NE	25	TO-4421	Charcoal		2150 ± 80 BP	390 BC - 10 AD
618 (Gréa Twin Peaks)	Pit 1 N	3	TO-4420	Charcoal		3410 ± 50 BP	1880-1600 BC (90.9%), 1570-1520 BC (4.5%)
635 (Doulo Chefferie)	Pit 2 B	5	TO-8629	Charcoal		160 ± 70 BP	AD 1640 - 1960
635	Pit 2 A	12	TO-8627	Charcoal		300 ± 70 BP	AD 1400 – 1850 (94.0%), AD 1900-1950 (1.4%)
635	Pit 2 A	25	TO-8628	Charcoal		330 ± 80 BP	AD 1400 – 1850
636 (Doulo Igzawa 1)	Pit 1 NW	2	TO-4788	Bone		2100 ± 70 BP	360-270 BC (12.7%), 260 BC- AD 60 (82.7%)
636	Pit 1 NW	6	TO-4422	Detrital charcoal/ burned clay		2500 ± 60 BP	800-480 BC (85.7%), 470-410 BC (9.7%)
636	Pit 1 SE	8	TO-4790	Bone		6890 ± 230 BP	6520 - 5350 BC
642 (Aïssa Dugjé)	Pit 1, Unit C	5	Beta-116641	Charcoal		910 ± 40 BP	AD 1020 – 1220
642	Pit 1, Unit A	14	Beta-116638	Charcoal		1100 ± 60 BP	AD 770 – 1030
642	Pit 1, Unit A	20	Beta-116639	Charcoal		1030 ± 60 BP	AD 880 – 1170

SITE #	UNIT	LEVEL	DESIGNATOR	MATERIAL	$\Delta 13$	RADIOCARBON AGE	CALENDAR DATE RANGES (2- σ MA)
642	Pit 1, Unit B	24	Beta-116640	Charcoal		1460 \pm 90 BP	AD 410 – 730 (93.4%), AD 740 – 770 (2.0%)
642	Pit 2, Unit A	9	Beta-116642	Charcoal		1150 \pm 50 BP	AD 770 – 1000
642	Pit 2, Unit A	15	Beta-116643	Charcoal		1120 \pm 40 BP	AD 780 – 1020
642	Pit 2, Unit A	19	Beta-116644	Charcoal		1130 \pm 50 BP	AD 770 – 1000
642	Pit 2, Unit A	22	Beta-116645	Charcoal		1220 \pm 50 BP	AD 680 – 900 (90.4%), AD 920 – 960 (5.0%)
642	Pit 2, Unit A	27	Beta-116646	Charcoal		1570 \pm 90 BP	AD 260 – 300 (2.7%), AD 320 – 660 (92.7%)
642	Pit 6, Unit A	12	Beta-116647	Charcoal		1270 \pm 50 BP	AD 660 – 890
642	Pit 1, Unit E	13	TO-7515	Bone	-16.2	1310 \pm 60 BP	AD 620 – 890
642	Pit 3	3	TO-7516	Bone	-13.1	950 \pm 50 BP	AD 1000 – 1220
642	Pit 4, Unit B	6	TO-7517	Bone	-15.7	680 \pm 50 BP	AD 1260 – 1410
678 (Doulo 4)	Pit 1 B	10	TO-8625	Charcoal		260 \pm 80 BP	AD 1450 – 1710 (64.2%), AD 1720 – 1820 (20.6%), AD 1830 – 1890 (4.4%), AD 1910 – 1960 (6.2%)
678	Pit 1 B	16	TO-8626	Charcoal		-50 \pm 100 BP	modern
744 (Ghwa Kiva)	Pit 1 NW	10	Beta-69019 (CAMS-10919)	Charcoal	-25.3	1050 \pm 70 BP	AD 780-1170
744	Pit 1 NC	13	TO-4424	Charcoal/ burned soil		1200 \pm 70 BP	AD 680-980
744	Pit 1 NW	23	Beta-69021	Charcoal		1630 \pm 60 BP	AD 250-570
744	Pit 1 SW	24	TO-4791	Bone		2630 \pm 160 BP	1250-350 BC
744	Pit 3 NW	4	TO-4792	Bone		1690 \pm 90 BP	AD 120 - 560

SITE #	UNIT	LEVEL	DESIGNATOR	MATERIAL	$\Delta 13$	RADIOCARBON AGE	CALENDAR DATE RANGES (2- σ MA)
744	Pit 3 SE	8	TO-4426	Charcoal		2330 \pm 60 BP	800-200 BC
755 (Ngoye Kirawa)	1 N & S	8	TO-4425	Charcoal/burned soil		1120 \pm 50 BP	AD 780-1020
756 (Ghwa Masogo)	Pit 4 NW	3	TO-4423	Detrital charcoal/burned clay		2980 \pm 80 BP	1410-970 BC
756	Pit 4 NE	10	Beta-69018 (CAMS-10918)	Charcoal	-24.1	2730 \pm 60 BP	1000-790 BC
DGB-1 (Kuwa)	CCA East side	160 BD	Beta-256891	Charcoal	-25.3	140 \pm 40 BP	AD 1660-1950
DGB-1	CCA West niche	304 BD	Beta-256892	Charcoal	-25.1	320 \pm 40 BP	AD 1460-1660
DGB-1	CCA NW	331 BD	Beta-256893	Charcoal	-23.7	270 \pm 40 BP	AD 1500-1670
DGB-1	CCA NE corner	350 BD	Beta-256894	Charcoal	-23.7	280 \pm 40 BP	AD 1490-1670
DGB-1	Unit 6SE	14	Beta-256895	Charcoal	-25.1	710 \pm 40 BP	AD 1260-1310
DGB-1	Unit 6SE	10	Beta-256896	Charcoal	-24.3	240 \pm 40 BP	AD 1360-1380
DGB-1	Unit 6SE	4	Beta-256897	Charcoal	-24.3	480 \pm 40 BP	AD 1520-1950
DGB-1	Unit 13 E side	7	Beta-256898	Charcoal	-25.3	500 \pm 40 BP	AD 1400-1460
DGB-1	Unit 15 S side	4	Beta-256899	Charcoal	-25.8	400 \pm 40 BP	AD 1400-1450
DGB-1	Unit 19 cooking area	3	Beta-256900	Charcoal	-23.6	410 \pm 50 BP	AD 1430-1530
DGB-2 (Kuwa)	SE Platform; N Entrance Ext.	Basal gravel	TO-11106	Charcoal		880 \pm 50	AD 1560-1630
DGB-2	SE Platform; N Entrance; Red	Grey under lintel	TO-11107	Charcoal		460 \pm 50	AD 1030 - 1260
							AD 1320 – 1350 (1.8%), AD 1390 – 1530 (87.4%), AD 1580 – 1630 (6.1%)

SITE #	UNIT	LEVEL	DESIGNATOR	MATERIAL	$\Delta 13$	RADIOCARBON AGE	CALENDAR DATE RANGES (2- σ GM)
DGB-8 (Mtskar)	S Platform; N Stair	Lower reddish; Spit 2	TO-11109	Charcoal		490 \pm 50	AD 1300 – 1360 (10.7%), AD 1380 – 1500 (84.7%)
DGB-8	N Platform; S wall trench;	Spit 5	TO-11110	Charcoal		490 \pm 50	AD 1300 – 1360 (10.7%), AD 1380 – 1500 (84.7%)
DGB-8	N Platform; Silo	Silo Spit 5, ~165 BD	TO-11111	Charcoal		550 \pm 40	AD 1300 – 1370 (43.0%), AD 1380 – 1440 (52.4%)
Sukur	Midden	110-120 BS	Beta-64952	Charcoal		30 \pm 60	AD 1670 – 1760 (24.7%), AD 1800 – modern (70.7%)
Sukur	Midden	230-250 BS	Beta-64953	Charcoal		modern	modern
Sukur	Midden	300 – 330 BS	Beta-64954	Charcoal		50 \pm 60	AD 1670 – 1770 (27.6%), AD 1800 – modern (67.8%)
Sukur	Midden	330- 355 BS	Beta-64955	Charcoal		220 \pm 60	AD 1510 – 1600 (11.4%), AD 1610 – 1890 (72.8%), AD 1900 – 1960 (11.2%)

export to settlements closer to Lake Chad to the north. The surface and upper levels in the site showed evidence of production of stone rings, probably to be used as either digging stick weights or bracelets (Bourges 1996: 133). The sub-surface component at Gréa Twin Peaks yields the oldest date, of the early-/mid-second millennium BC (Table 2.1), found near the northern end of the Mandara Mountains, from close to the top of a one-metre-deep excavation. Fragmented ceramics from the sub-surface component are primarily decorated with comb impression and incision, and are generally comparable to contemporary early Gajiganna pottery from northeastern Nigeria (Wendt 2007: 44-83), approximately 120 km away.

The Ghwa Masogo (PMW 756) site in Nigeria and Blabli (MAP 506) in Cameroon are both situated in the plains 15 – 20 km from the Mandara Mountains themselves (MacEachern and Garba 1994; David and MacEachern 1988). Neither site shows evidence of the accumulation of cultural material in contemporary Nigerian mound sites, including Gajiganna, Daima and Kursakata, approximately 150 km to the northeast (Breunig et al. 2001; Connah 1981; Gronenborn 1998), and during later periods around the Mandara range itself (see below). Both appear to be habitation areas, although the duration of occupation is unknown; two dates were obtained from one unit at Ghwa Masogo, indicating occupation in the late second-/early first millennium BC (Table 2.1). Ghwa Masogo consists of 20 surface features, irregular concentrations of stone, daub, grindstone fragments and/or lithics, within a low-/medium- density scatter of lithic artefacts and potsherds over an area of *ca* 300 x 150m. Blabli is a smaller and effectively undated site, with a buried occupation horizon. Ceramics from these two sites are very fragmented, but their decoration includes slipping and burnishing, comb-stamping and fine incision, albeit with somewhat different frequencies. These decorative techniques are generally similar to those found at late Gajiganna and related sites of the same general period further to the north in the Chad Plains.

The small numbers of sites located and of surface finds around the Mandara massif imply a considerably lower intensity of occupation of the plains in this area than was the case in northeastern Nigeria, where a large number of Gajiganna Phase I and II mound sites are known from the second millennium BC (Breunig 2004). Site densities are also much lower than they would be some centuries later. A lack of architectural remains and low levels of accumulation of cultural materials may indicate higher levels of community mobility than in more recent times. The economic adaptations of these populations would have been considerably more diversified than those of modern communities. It appears that contemporary groups occupying Nigerian sites to the north of the Mandara Mountains kept domesticated cattle and small stock, hunted and fished, made extensive use of wild grasses and fruits as part of their diet and increasingly cultivated millet (*Pennisetum americanum*) over the period 1800 – 800 BC (Breunig et al. 1996; Gronenborn 1998; Klee and Zach 1999: 83-87). Cattle and ovicaprid remains were recovered

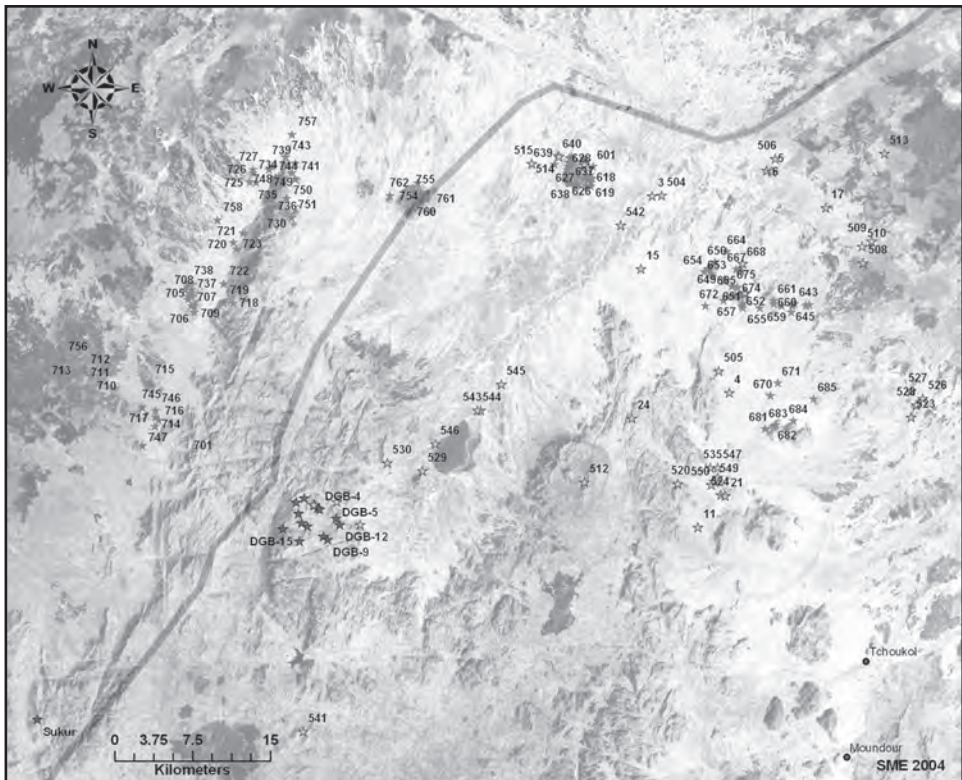


Figure 2.2. The northern Mandara Mountains, with numbered archaeological sites.

from the Gréa Twin Peaks site, but as yet we have no other evidence for use of similar plant resources around the Mandara Mountains. It is questionable whether the extensive stands of wild grasses still evident on the plains south of Lake Chad would have been available further to the south around the Mandara Mountains, and the lower site densities in this area may be related to the persistence of woodland in higher-rainfall regimes before 1000 BC. Wetter climates during this period would also have extended the area of tsetse/trypanosomiasis infestation into the northern Mandara area (Bourn 1978; FAO 2001; Rege et al. 1994). The evolution of disease (especially trypanosomiasis) tolerance in West African livestock is not well understood, but the presence of trypanosomiasis might well have made pastoral adaptations relatively unrewarding during this period. Communities were probably considerably smaller and more mobile than are those of pastoralists today.

The archaeological record for the period before 750 BC indicates cultural relations between the northern peripheries of the Mandara Mountains and regions still further to the north, in the Sahel and southern Sahara, with populations adjusting (over millennial time-scales) to the difficulties and opportunities provided by an

expanding Sahara, a disappearing Lake Mega-Chad, and the gradual retreat of woodlands further to the south. Along the edges of the desert to the north, arable land disappeared, while it appeared as waters retreated along the edges of the shrinking lake. Our lack of knowledge of the prehistoric record of regions further to the south of the Mandara area (on the Adamaoua Plateau, for example) remains frustratingly limited, and this certainly contributes to a perception of the primacy of cultural contacts to the north. The appearance of northern domesticates, including *Pennisetum* and goats (Eggert et al. 2007; Mbida et al. 2000), in contemporary sites in southern Cameroon makes it likely that long-distance north-south contacts were important during this period. This may be associated with a drying trend in southern Cameroon during the first millennium BC, but claims of the extension of Sudanian savanna to that area (Maley and Brennac 1998) are probably over-stated (Eggert et al. 2007).

Breunig and Neumann (2002: 496-501) note the abandonment of Gajiganna and related sites early in the first millennium BC, and suggest that this abandonment is the result of climatic deterioration through increasing aridity and subsequent settlement reorganization (including occupation of new areas, and greater settlement mobility) during this period. The information available for the area around the Mandara Mountains does not indicate such processes of abandonment, although more work will be needed to answer this question definitely. Breunig and Neumann posit a significant change in regional settlement patterns during this period, as people moved toward areas where more water was available, such as the *firki* clay plains south of Lake Chad. It is possible that occupation of Mandara sites like Ghwa Masogo, during the period that the Gajiganna sites were being abandoned, was one element of this reorganization (see also Brunk and Gronenborn 2004: 111).

A Period of Transition: 750 BC – AD 400

Known sites from the period after 750 BC are located close to inselbergs and along the Mandara foothills. There continues to be no indisputable evidence for occupation of the highlands. Of sites in the area from this period, Doulo Igzawa 1 (PMW 636 – Jones 2001; MacEachern 1996) is probably the most interesting, albeit in part now destroyed by roadwork. It consists of three low (*ca* one metre high) mounds, all of which have high concentrations of potsherds, along with slag, ground stone axes, axe fragments and flakes, visible on their surfaces. Excavations show substantial variability in deposits across the site, but two dates in stratigraphic sequence (Table 2.1 – TO-4422, TO-4788), in the first and largest unit excavated indicate occupation through very roughly the middle of the first millennium BC. (A third date, of 6520-5350 BC [TO-4790], was taken on a very small sample, and is almost certainly in error.) Large quantities of ceramics, as well as iron artefacts, slag, and flaked stone were recovered from the same unit, while ground stone axes and axe fragments were recovered from the surface of the site and two fragments in excavation.

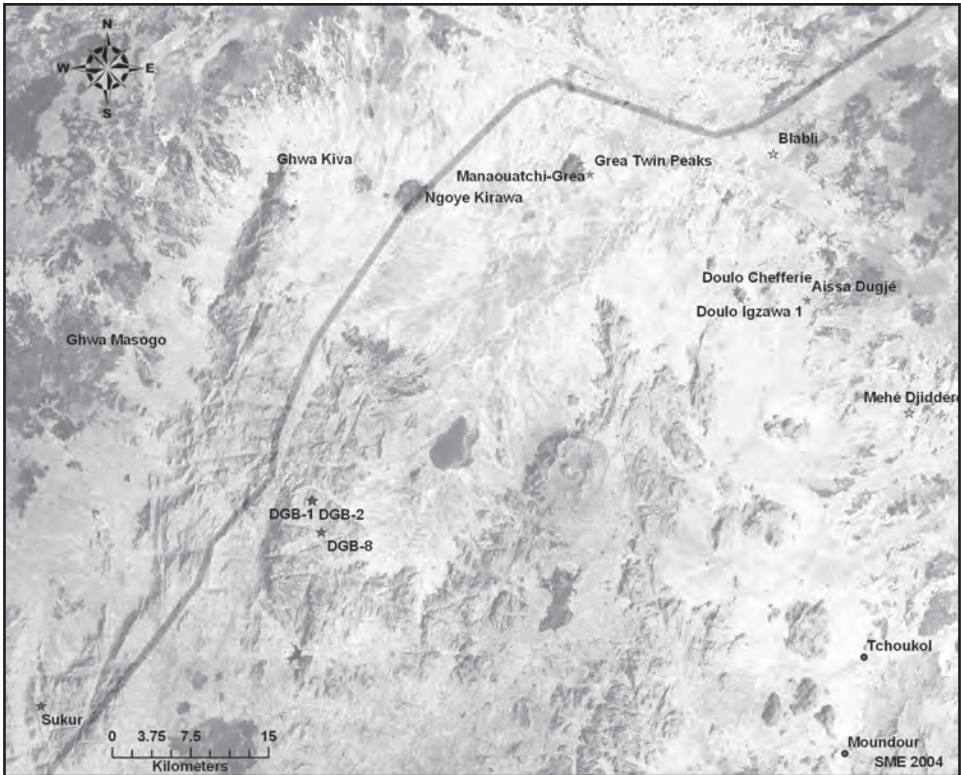


Figure 2.3. The northern Mandara Mountains, with selected named sites.

Ceramics are primarily decorated using a new technique, twisted-string rouletting, which appears at about the same time in some Nigerian sites to the north (Wiesmüller 2001: Figs 12a and b), although low frequencies of comb stamping, incision and slipping persist, especially in the lower levels (Jones 2001: 61-71). Bone from ovicaprids was recovered throughout the stratigraphy in this unit, while the remains of a small bovid were found in levels corresponding to the TO-4422 date. Such a thorough mixture of old and new artefact technologies might imply mixing of materials in the units, but the stratigraphic sequence in the dated unit seems quite distinct, and the materials dated (a piece of charcoal for the earlier date and bone collagen from a *Bos* femur for the later) appear to be from secure contexts.

Two other sites near the Mandara Mountains yield similar artefact assemblages, in similar contexts and with generally similar dates. The earliest occupations uncovered at both Manaouatchi-Gréa (PMW 602) and Ghwa Kiva (PMW 744 – Connah’s [1984: 161] site B123) yield significant amounts of pottery. Twisted-string roulette decoration appears alongside varying frequencies of burnishing, painting and incision. At Ghwa Kiva, the lowest levels of occupation in the two units excavated are

dated to 1250-350 BC (TO-4791) and 800-200 BC (TO-4426) respectively (Table 2.1). Iron and slag fragments were found in the older of these two dated levels. The sample that yielded the earlier date was bone collagen derived from a substantial fragment of *Bos* long bone, and appears to be in a firm stratigraphic relationship with the iron and slag. In this level, roulette decoration is a relatively minor component compared to more recent samples in the site, and incision, burnishing and comb stamping predominate. The levels above these earliest dated deposits in each unit yield dates of the early first millennium AD: AD 250-570 (Beta-69021) and AD 120-560 (TO-4792) respectively.

A similar pattern holds at Manaouatchi-Gréa. The earliest dated occupation in the main excavation dates to the late first millennium BC (390 BC -10 AD – TO-4421), while the level above is significantly more recent (AD 120-560 – Beta-61586). In this site, slag was only found in levels dating to the early first millennium AD and later. These results suggest that accumulation of cultural deposits was relatively slow during the late first millennium BC and the beginning of the first millennium AD. There was less evidence for stone working in these two sites, although a number of quartzite flakes were found in the lowest levels of Ghwa Kiva.

There is thus evidence for occupation of the northern peripheries of the Mandara Mountains by iron-using populations during the first millennium BC, although calibration problems through this period make it very difficult to tell when that technology was first used in the region. Further to the south, around Maroua and in the Diamaré plain (Marliac et al. 2000: 72), occupations of the “Âge du Fer Ancien” appear on the Tsanaga sites, and at Moundour and Bibalé-Tchuin, only during the early first millennium AD. In these latter areas, there appears to be some coexistence between populations utilizing primarily Neolithic technologies and populations making use of iron between AD 1 and AD 500 (Langlois 1995: 515, 603-9). Almost all of these sites are located along the edges of the massif or of inselbergs, and local economies involved exploitation of sorghum and ovicaprids. Ceramics from this area seem in general similar to those found during the same period on northern Mandara sites, with a mix of techniques associated with the Neolithic (incision, comb-stamping) and the rouletting that would become predominant in later sites.

Breunig and Neumann (2002: 498-9) identify some degree of cultural rupture between early first millennium BC Gajiganna Phase II and later stone-tool-using populations in the Chad Basin, particularly the occupants of the large Zilum site and other ‘Gajiganna Phase III’ sites (C. Magnavita 2004). At present, such a discontinuity does not appear to exist near the Mandara Mountains. Iron-using populations were certainly occupying sites around the mountains by the late first millennium BC (MacEachern 1996). We might note for example the cases of Ghwa Masogo (PMW 756) and Ghwa Kiva (PMW 744), located on the Nigerian side of the mountains and approximately 25 kilometres apart. The most recent date for

the Neolithic site, Ghwa Masogo, is 1000-790 BC (Beta-69018); the oldest date for Ghwa Kiva is as noted 1250-350 BC (TO-4791), with iron and slag in the dated level. Ceramic decoration is dominated by burnishing at Ghwa Masogo in those cases where sherd erosion did not erase all evidence of decoration, with much lower frequencies of comb-stamping and incision; at Ghwa Kiva the frequencies of these techniques is much more balanced, and some twisted-string rouletting is also found. There is no real evidence for a discontinuity in occupation of the region between these two dated contexts, and occupation then continues at Ghwa Kiva without obvious interruption until about 1000 years ago. As such, these sites may be most comparable in period and technology with sites like Malankari (Franke 2007) on the plains in Nigeria and only about 50 km to the north. However, none of the Mandara sites are comparable to the 30-35 ha extent of Malankari, or even the 10-13 ha size of Zilum in Nigeria, with its estimated maximum population of 1700 – 2500 people during the middle of the first millennium BC (C. Magnavita 2004: 85-91). These latter sites raise questions of social organisation and political control that are of central importance for the Mandara area as well, especially given the simultaneous appearance of larger settlements and iron working south of Lake Chad. It appears that, through the middle of the first millennium BC, the areas around the Mandara Mountains were distinctly peripheral to sociopolitical developments on the plains further to the north.

Metallurgy

Available data indicate that some (probably Chadic-speaking) food-producing populations around the northern Mandara Mountains began using iron tools at some point during the first millennium BC, in a context of general cultural continuity from earlier times. It is likely that this innovation was only one element in economic and cultural changes going on at the time. This might have included, for example, increased usage of domesticated cereals and more intense exploitation of livestock. Arguably, the increases in settlement size and complexity at sites like Zilum to the north are as important as is the adoption of iron technology, although there is no evidence for iron-working at Zilum (Magnavita and Schleifer 2004: 53).

There is archaeological evidence for a movement of settlement closer to the edges of the mountains and inselbergs during this period, probably associated with the agricultural potential of these areas, where soils are easier to work, richer than in most areas of the surrounding plains, and probably more amenable to long-term exploitation. This may help explain the positioning of both iron-working and non-iron-working sites in the Diamaré. In historic times iron was extracted from alluvial magnetitic sands, derived from the erosion of highland granites and deposited where streams originating in the mountains debouch on to the plains and start to lose energy, and so often at the edges of the highlands and inselbergs. We may thus see

during this period the origins of a trend toward increased sedentism and intensification of settlement around the Mandara range that would increase in later periods.

One of the perennial questions of African archaeology involves the origins and dissemination of iron technology (see for example Alpern 2005; Bocoum 2002; Descoeurdes et al. 2001; Killick 2004; Woodhouse 1998): is it an indigenous development or was iron working introduced from beyond the continent? One of the major problems associated with the investigation of this topic lies in the fact that radiocarbon date calibration yields only extremely broad date ranges for the first millennium BC, the period of most interest. The debate has been long and involved and is beyond the scope of this paper, although the dates associated with the appearance of iron in this area may be relevant to the argument. Perhaps more useful would be to examine the topic in a regional context. Cameroon and Nigeria have yielded approximately 20 radiocarbon dates between 800 BC and 300 BC associated with some manifestation of iron technology (Lavachery et al. 2005; Gronenborn 1998: 232-3, 241; Woodhouse 1998: 170, 181). These dates come from a limited number of localities, in southern Cameroon, around the Jos Plateau in Central Nigeria and in some areas between the Mandara Mountains and Lake Chad. Iron appears some centuries later in the Diamaré region (where communities using iron coexisted with those still using only stone tools) and in other parts of the Lake Chad Basin. There is rather limited evidence for iron working in southern Nigeria until a millennium after it appears in southern Cameroon (but see Eze-Uzomaka 2008, Okafor 1993). There seem to be no obvious environmental or economic commonalities tying together the areas where iron technology is first found, nor fundamental differences between neighbouring areas that differ in time of adoption. Such a gradual and piecemeal introduction of iron working implies that the technology may not have been as immediately transformative of economies as is often supposed (Huysecom 2001).

Sedentism and Intensification: AD 400 – 1400

If we may talk about prehistoric cultural transformations around the Mandara Mountains, one such seems to have occurred around AD 400. This coincides with a period of increasing moisture availability in northeastern Nigeria, after an arid period in the late first millennium BC and early first millennium AD. It is after this time that we see the appearance of the large (usually multiple) mound sites that are the most visible and impressive signs of prehistoric occupation in the plains around the northern Mandara Mountains, and evidence for occupation becomes generally far more significant over the next thousand years. During the period between AD 400 and AD 1400, regional communities assume forms that we also recognize from historical documentation, occupied by peoples known – albeit in a mythologized form – in local oral histories as ‘Sao’ and ‘Maya’, and recognizably akin to modern populations.

To this point, approximately 30 of these mound sites, of widely varying sizes and characteristics, have been discovered in the course of survey work within an area extending outward about 30 kilometres from the peripheries of the northern Mandara range. This is almost certainly a significant underestimate of the total number of such sites in this area (see also Connah 1984: 161-4). The surface of these mound sites is usually covered by a dense scatter of artefacts, primarily potsherds but also including varying amounts of slag, daub, animal bone, grindstones and grindstone fragments and other cultural debris. They are more recognizable than are earlier sites, a fact that creates a significant issue of discovery bias. Nonetheless, it is hard to escape the conclusion that regional populations increased, became more sedentary and experienced significant economic and social elaboration during the mid-/late-first millennium AD. This corresponds to a wider increase in site visibility, and particularly the accumulation of large mound sites, through much of the Sudanic zone of West Africa (MacEachern 2005).

As noted, some sites occupied before the first millennium AD continue to be occupied into that millennium. At Ghwa Kiva and Manaouatchi-Gréa, sediment accumulation rates appear to increase after about AD 200: at the former site, approximately 1.3 metres of deposits between then and the early second millennium AD. Other sites are first occupied over the same period and show similar relatively rapid rates of deposition. These resulted in the accumulation of significant amounts of cultural material. On some sites (as at Ghwa Kiva), only one large mound accumulated; on other cases, multiple mounds of varying sizes (approximately 30 at Aissa Dugjé, see below) can be found. In few cases do these mounds approach the sizes of the large 'Sao' mounds found on the plains just to the south of Lake Chad (Connah 1981, 1984; Lebeuf 1969). Significantly, a number of these settlements are placed at some distance away from the Mandara Mountains, although frequently still in proximity to inselbergs.

Excavations on the large (*ca* 18 ha) and complex Aissa Dugjé (PMW 642) site (Bourges et al. 1999, MacEachern et al. 2001), situated about 11 kilometres northeast of the mountains and between two very small inselbergs, have yielded 13 radiocarbon dates, including two stratigraphically controlled sequences from different mounds on the site (Table 2.1). These indicate that the site was first occupied in the mid-first millennium AD, and that occupation continued until at the thirteenth century AD. Moreover, even in the earliest phase of occupation the site appears to have covered a substantial area, given similar radiocarbon dates from three different mounds in two different parts of the site. The multiple-mound site of Mehe Djiddere (MAP 523) is located in the plains about 23 kilometres east of the mountains and 15 kilometres southeast of Aissa Dugjé (Wahome 1989; David and MacEachern 1988). The most reliable series of radiocarbon dates from the site indicates that it was occupied between the early first and the early second millennia AD (Table 2.1). In the case of these mound sites, disturbance and erosion of the

top of the mound makes it likely that radiocarbon determinations taken from close to the top of a stratigraphic column are dating occupations significantly before the actual period of site abandonment. The most recent date at Aissa Dugjé, of AD 1260 - 1410 (TO-7517) thus comes from a horse burial in one of the mounds on the site, and not from the top of the dated stratigraphic sequences.

The increased rates of accumulation on these mound sites, and the nature of architectural remains discovered, indicates a widespread shift to use of various forms of mud architecture, with equivocal evidence for very limited use of mud-brick at Aissa Dugjé. Limited evidence for walls, floors and activity areas, probably including a kitchen area at Ghwa Kiva, was located on a number of these sites, while the various forms of pits constantly encountered during excavation appear to have been used for a variety of purposes, including storage, garbage disposal and burial (Bourges 1996: 132; Bourges et al. 1999; MacEachern 1993a). This parallels discoveries at a number of sites in Nigeria and further south in the Diamaré region of Cameroon (Gronenborn 1997, 1998; Langlois 1995), where architectural features including floors, potsherd pavements and storage pits were located in the course of excavation. (The circular burnt feature located at approximately one metre below the surface at Manaouatchi-Gréa [PMW 602] Unit 2 [Bourges 1996: 139-140] may be equivalent to the Kanuri *belaá ngawuli* food-storage pits noted by Gronenborn [1997: 435, 437].) These remains, and the vastly greater accumulation of artefacts (especially ceramics) on these sites, indicate a considerably greater investment in the built/manufactured environment than was the case in earlier periods.

Mounds are, of course, rather more than simply particular concentrations of archaeological traces: they also indicate that particular kinds of behaviours took place in the past and had their significances for the communities occupying these locations on the landscape. One ongoing debate in the archaeology of this region involves the varying contributions of midden deposits and architectural constructions to the formation of these mounds: briefly, are they primarily garbage dumps, primarily house remains, both or neither? It is likely that both discard and construction processes are at work on these sites to varying degrees and sometimes at different times. Thus, for example, on the Aissa Dugjé mounds the upper portions of the stratigraphy appear to be largely the result of garbage disposal, while lower sections of the stratigraphy appear to have accumulated more slowly, incorporating more material from architectural episodes (Bourges et al. 1999; see also Lamotte and Marliac 1989). We require different models of waste disposal than are provided by present-day populations in this area, who in general appear to dispose of garbage in a less concentrated manner (Jones 1996). There is also evidence for substantial off-mound cultural deposits, sometimes to a significant depth, at a number of these sites, including Aissa Dugjé, Ghwa Kiva, Mehe and a number of the Doulo sites (Bourges et al. 1999; Jones 2001; MacEachern and Garba 1994; Wahome 1989).

Archaeologists working in this area sometimes risk becoming fixated on these often very impressive mound deposits, forgetting that these sites were almost certainly foci for a variety of activities – only some of which would have directly contributed to the accumulation of cultural deposits in mounds. Bailey (1999: 99-106) critiques a similar concentration on tell sites in southeastern Europe, pointing out that it may be misleading to assume that mound sites were permanently occupied by stable populations, and that we ignore off-mound activity areas at our peril. Some of his criticisms probably do not apply to sites near the Mandara Mountains: the diversity of material remains recovered from the latter sites do indeed indicate that a wide variety of domestic activities were taking place on or near the areas where mounds were accumulating, and there is – often rather unspecific – evidence that structures contributed to the accumulation of many of these mounds. Perhaps most important, the accumulating material traces of human occupation, both in architecture upon the mounds and in the physicality of mounds themselves, would have been powerful arguments for occupants' rights of possession of those particular places, of their accumulating history in those places, and especially for privileged relations with local powers of the land (MacEachern 2002: 212). The burials encountered during excavations on a number of these sites, as well as on similar sites further to the north and south (Connah 1981, Gronenborn 1998; Langlois 1995) would have laid similar claims. It is safe to say that these mound sites, now characterized as garbage dumps (*dugjé* in Wandala, *djiddere* in Fulfulde [Fulani] and *poubelles* in Cameroonian French) by local people, were much more than that to their original inhabitants.

Changes in ceramic characteristics take place during this period, but they are often difficult to specify. In part, this is because of the very large volume of material recovered from many of the sites, and its very fragmentary nature. Ceramic traditions over the period AD 400 - 1400 around the northern Mandara Mountains also seem to be quite homogeneous, however, with relatively little evidence of patterned directional changes in decoration or morphology. Twisted-string rouletting and burnishing (with or without the addition of a red or blackened slip) are dominant decorative treatments on ceramics recovered from all contexts dating to this period around the Mandara Mountains. Comb-stamping, incision and appliqué techniques are used with considerably lower frequencies, although they continue to be present; twisted strip rouletting, important in more recent periods, is rare in deposits dating to this period. For the most part, this material generally resembles the contemporary ceramics of the Mongossien tradition, found on plains sites east of the Mandara Mountains (Marliac 1991), although the dearth of complete vessels recovered from Mandara sites makes detailed comparison difficult. The time span of the Mongossien, from approximately 500 AD to 1400 AD (Marliac et al. 2000: 72), is broadly equivalent to the period under discussion. Cord-wrapped stick decorative techniques to a great extent replaced twisted-string rouletting on sites

of the same period in the plains south of Lake Chad in Nigeria (Wiesmüller 2001); this change does not occur in the Mandara ceramic assemblages.

There are certainly noticeable differences in proportions of these different treatments on different sites, and sometimes even within sites. Thus, for example, ceramics from Ghwa Kiva (PMW 744) from this period display higher proportions of burnishing (slipped and unslipped) in comparison to twisted-string rouletting than is the case at other Mandara sites, while some differences in the frequencies of these decorative treatments exist between ceramic samples recovered from contemporary deposits from different parts of the Aissa Dugjé (PMW 642) site. Jones (2001) and Bourges (1996) note the relative homogeneity of ceramic assemblages from these periods at sites around Doulo and Gréa, respectively, and use cluster analysis to identify units with similar characteristics from these sites. Some patterning does exist within these data, but it is subtle and hard to interpret.

It is not clear at this point whether such differences simply indicate functional differentiation within and between sites, or whether differences in ethnic and/or other affiliations were being expressed through ceramics. It is quite possible, of course, that both effects were in play. Modern ceramic variability in and around the northern Mandara Mountains only weakly correlates with ethnicity as usually defined in the area: ceramic production traditions often are shared by a number of contiguous ethno-linguistic groups, while other groups do not produce pottery but buy it in local markets (MacEachern 1998; Sterner and David 2003). Similar systems of production and distribution in the past might well lead to the kind of archaeological patterning seen on sites from this period.

To this point, systematic macrobotanical and palynological investigations have not been undertaken on these sites, although it is likely that farming systems were generally similar to those found in the area today. Significantly unknown is the date of introduction of sorghum to the region. Dates of AD 426-610 (Erl-3103) and AD 266-449 (Ki-4742) for sorghum grains from Dorota and Elkido Nord respectively (C. Magnavita 2002), from north of Maiduguri, and 200 BC – AD 400 (OBDY-1187) for sorghum stalk impressions on daub from the Bibalé Tchuin site in the Diamaré (Langlois 1995: 503, 608), suggest that this high-yield domesticate may well have been available to Mandara farmers during this period. Faunal remains from these sites indicate that cattle and ovicaprids were kept, and there is some evidence for hunting and fishing. (Figurine fragments representing quadrupeds, most probably of cattle, are found on a number of Mandara sites from this period.)

The discovery of horse/pony remains at Aissa Dugjé, and the direct dating of some of this skeletal material to between AD 600 and AD 1400 (Table 2.1) has a number of implications. These are some of the earliest such remains known from sub-Saharan Africa, and their presence in large part invalidates one historical model – developed by the author – for state formation in the region (MacEachern 2003 [1991]). From historical accounts, we know that horses and ponies have been

important possessions in this area through most of the last thousand years, the former found most often in Islamic and the latter in non-Islamic communities. They are closely associated with elite social status and political power. Their appearance at Aissa Dugjé may indicate the emergence of social and political hierarchies in the Lake Chad Basin by the middle of the first millennium AD. It is unlikely that significant political centralization beyond the community level had developed at that point (MacEachern in review, MacEachern et al. 2001), but political structures certainly became more elaborated over the next millennium. Horses/ponies are also one of the few signs of external contacts recovered from Mandara sites of this period (although they were very likely locally bred). The area seems to have been somewhat isolated from even the regional trade networks indicated by artefacts recovered from contemporary sites on the plains closer to Lake Chad.

Over more than a thousand years, between AD 400 and AD 1400, agricultural communities became firmly established on the plains around the Mandara Mountains, in some cases at least through long-term occupation of large and complex sites. These occupations show patterned similarities with sites both to the north, on the plains stretching toward Lake Chad, and to the southeast, along the eastern edge of the highlands and in the Diamaré. Ceramics and other artefacts from these sites indicate cultural relations to some modern Mandara populations, especially some of the groups that occupied the heights of the Mandara in the middle of the twentieth century (MacEachern 2002).

At the same time, significant differences exist. There is rather little evidence for inter-communal conflict around the Mandara Mountains during this period. Some habitation sites were already situated in the defensible positions at the edges of inselbergs that continue to be characteristic of plains communities today, but others were occupied in the open plains. Inselberg-edge sites provide access to a variety of resources beyond their military potential, and we cannot assume that initial occupation was for defensive purposes. During the last thousand years, a number of these habitation sites were also surrounded by walls and/or ditches. We do not know when this practice originated, although a claim for a defensive ditch and wall at Zilum just after the middle of the first millennium BC (C. Magnavita and Schleifer 2004) would imply considerable antiquity for this practice in the region, and for the conflicts that would make it necessary. In many cases, it is difficult to date wall features and associate them with other remains on a site. Thus it is possible that the circular stone-wall feature and outer stone alignment/wall at Manaouatchi-Gréa (PMW 602) was constructed before AD 1500. A rather formulaic story collected by Bourges (1996: 68-9) asserts that the wall is pre-Wandala. There is no obvious evidence for walls at Aissa Dugjé (PMW 642), the largest northern Mandara site known from the period, although it should be noted that the ditch features at Zilum and other more northerly sites are not visible on the surface. The small size of that inselberg would in any case make the site only minimally defensible.

Occupation of the Highlands

There is no firmly established evidence of occupation of the northern Mandara Mountains themselves until just less than one thousand years ago. Spedini et al. (1999) interpret genetic data to mean that the Mandara Mountains have been occupied for a long period of time by genetically isolated montagnard populations ancestral to the people living there today, although the ethnographic and archaeological data upon which they base their interpretations are quite dated (MacEachern 2001; see also Spedini et al. 2001) Other genetic data (especially Tishkoff et al. 2009) indicate much more substantial levels of interaction among montagnard communities.

Excavation on a midden area integrated into a terrace system at the Ngoye Kirawa (PMW 755) site, on the edge of the Kirawa inselberg, yielded a date of AD 780 - 1020 (TO-4425). Ceramics from this excavation are generally similar to those found on other Mandara sites of the period. Substantially more data come from the remarkable DGB sites (*diy-ged-bay*— ‘ruins of chiefly residence’, the Mafa name for these sites), located in the mountains close to the Cameroon – Nigeria border on and in the immediate vicinity of the Oupay massif (Figs 2.2, 2.3). These sites are complexes of rubble platforms with distinctive dry stone facades; some contain interior passages, staircases, and chambers. Excavations have taken place on three of these sites to this point – the largest, DGB-1 (MacEachern, in press), as well as DGB-2 and DGB-8 (David 2008). Archaeological investigations at DGB-1 in 2008 yielded evidence for a complex and varied occupational sequence, involving multiple constructions phases and diverse activities – including habitation and discard from domestic contexts, as well as different ritual activities, including feasting and cache production - going on across the site and in its environs over a period of some centuries. Metal and ceramic finds clearly demonstrate the indigenous nature of the complex, and it is noteworthy that the most common form of pottery decoration is twisted strip rouletting: DGB ceramics appear to be related to those of modern Mafa people in the same region, and belong firmly in a regional tradition of pottery production that can be traced back to the first millennium AD. However, non-local artefacts were recovered from different parts of the DGB-1 site, including beads, ceramics and iron probably not originating in sub-Saharan Africa. As has been noted, such non-local goods are rare in the region, and may attest to relations between this part of the northwestern Mandara Mountains and the developing Wandala state on the plains to the north (see below).

The DGB sites have yielded a series of radiocarbon dates, covering the period between approximately AD 1260-1670 but with a concentration of dates from AD 1400-1600 (Table 2.1). The sites were provisionally identified as combining functions of surveillance and rituals relating to rain, in the context of severe droughts during the fifteenth century AD (David, 2008: 101), but the data from DGB-1 at least suggests that this probably encompasses only part of the activities that went on

there. The only other formal excavation in the mountains, a test of a large midden associated with the house of the chief at Sukur, on the Nigerian side of the Mandara range, yielded a set of radiocarbon dates from only the sixteenth century into modern times (Table 2.1), although this is likely a minimum estimate (Smith and David 1995: 446).

Further data on the issue of massif occupation is derived from David's (1998) study of bedrock and boulder querns and mortars on the Sukur plateau. In that area, it is clear that the earliest grindstone forms are of a substantial antiquity, as is indicated by often-substantial modifications of the local topography subsequent to their use (David 1998). Similarly, the rubble fillings of the DGB-8 platforms contain numbers of broken grindstones, the deep forms of which are discordant with the slightly curved or flat faces of the upper grindstones found at this site and at DGB-2. The implication is that there was a relatively substantial and/or long-term occupation of the area by food producers prior to the DGB occupation, and that their broken querns were utilized as raw material by the builders of the DGB sites. The querns found at DGB-8 are not of the earliest type in David's (1998) developmental sequence. Thus, to explain the bedrock querns and mortars found widely over the Mandara highlands even earlier occupations by food producers must be envisaged.

The DGB site cluster and the Sukur midden are the only well-attested pre-colonial sites known from the northern Mandara Mountains. The DGB sites' complexity and the dates associated with them provide a fascinating counterpoint to developments on the plains below at the same period. A substantial number of pre-colonial sites exist along the peripheries of the northern mountains and the inselbergs surrounding it, with some being occupied for centuries, but in the mountains only the DGB sites are known to be more than a century or two old. This also holds along the southeastern edge of the northern Mandara Mountains, where a lack of mountain sites contrasts strikingly with intensive occupation of highland/inselberg peripheries after about the early first millennium AD (Marliac et al. 2000). This differs markedly from the recent situation, in which the northern mountains have been intensively occupied while population densities on the plains below have been significantly lower. Furthermore, the modern ceramic assemblages most closely analogous to those recovered from plains sites dating AD 400 - 1400 are produced by montagnard populations.

I have suggested (MacEachern 2003 [1991]: 323) that the Mandara Mountains were sparsely populated before 400 – 500 years ago, and that any people who lived there lived in the peripheries of the massif. Research on the DGB sites suggests that this view must be modified. The size and position of these sites indicate that significant populations lived in the northwestern part of the mountains, in the area around the DGB sites at least, by 800 years ago, while the existence of grindstones in the fill at DGB-8 suggests some degree of earlier occupation. No doubt the

relative massiveness of stone constructions at Sukur and the DGB sites contributes to their survival in a region where stone from smaller structures is continuously reused for terracing and house construction; more workaday sites may have simply vanished. At the same time, sites and artefacts do not vanish entirely. If modern population densities had existed across the highlands from the same period when evidence for substantial, settled populations begins to accumulate on the plains – that is, from perhaps AD 400 – we would expect to find mountain terraces and walls crammed with potsherds and grindstone fragments, traces of that intense occupation. Instead, evidence of such occupations is found in only a relatively restricted area, around Oupay where the DGB sites are found. The evidence of grindstones suggests that people may have occupied the mountains more widely and in earlier periods, but such settlement in other parts of the massif seems to have been quite sparse.

Antoinette Hallaire (1976: 6) argues that there is a (fairly high) population threshold below which the intensive, terrace-based farming techniques of modern montagnard communities would be difficult to maintain. It is likely that, without significant human intervention and especially during wetter conditions than obtain today, the mountains would be covered in open woodland or forest. Without field systems covering large areas of the mountain slopes, erosion would, she believes, destroy even well maintained terrace systems, while animal pests from the bush would destroy crops. Occupation by farmers would then involve much lower population densities in predominantly wooded environments, and would be correspondingly harder to detect archaeologically.

This implies that it would be difficult for populations using recent montagnard agricultural systems to colonize the Mandara Mountains gradually; it would be an all-or-nothing process. More likely than a slow increase in population density over the whole area would be localized increases in population toward modern densities, as perhaps around Oupay. It is possible that the massif's interior plateaus could support higher population densities without terracing, but to this point such occupations have not been located. The date from Ngoye Kirawa, as well as the widespread occupation of piedmont areas at the edges of the mountains and inselbergs, indicate that plains populations were accumulating expertise in terrace-based agriculture by at least a thousand years ago. Data from the DGB sites show that in some areas substantial montagnard communities existed by 500 - 600 years ago, and that the local occupation preexisted that by some centuries at least. It is clear, however, that during the past five hundred years there has been a demographic shift between plains and mountains.

The DGB sites (and Sukur) are of course more than simply archaeological occurrences. They are evidence of significant inputs in communal labour, as well as very striking architectural (and probably ritual and political) statements. In the case of Sukur, still occupied today, ethnohistorical research (Smith and David 1995,

Sterner 2003) can tell us something about the animating principles behind such statements, but the walls of the abandoned DGB sites are mute. The period of their first occupation, during the thirteenth and fourteenth centuries AD, appears to have been a pivotal time in the development of state-level societies around the Mandara Mountains. The Kanuri state was becoming steadily more involved in social and political relations southwest of Lake Chad at the end of the fourteenth and during the fifteenth centuries AD (Lange 1984: 255-60), culminating in the settlement of Birni Ngazargamo during the period AD 1460 – 1490 (see below). The first historical mention of political units in the Mandara region occurred in AD 1459, when Fra Mauro placed ‘Mandera’ and ‘Mergi’ on his *mappamondo* (Garparini Leporace 1956). ‘Mandera’ is the Wandala state, which would play a vital role on the plains around the Mandara Mountains over the next four centuries, while the Marghi polities to the west of the Mandara highlands remained non-Muslim and localized over the same period. This was also a time of dramatic changes in regional climates, with periods of very pronounced aridity in the fifteenth and sixteenth centuries AD (Brunk and Gronenborn 2004; Maley 2000; Nicholson 1996), processes which may well have contributed to economic disruptions in the Mandara area itself and also within the wider region of the Lake Chad Basin.

It is thus possible that construction of the DGB sites coincided with a broader process of political centralization and elaboration south of Lake Chad over the period AD 1000 - 1500. The evidence for external contacts at DGB-1 reinforces this conclusion. The impulses behind this process may have been various, and possibly include climatic instability and the increasing impingement of the Kanuri state upon the region. At the same time, the DGB sites are very much cultural features of the area itself, with no evidence of external influence in their construction nor in the vast majority of the artefacts associated with them. A fuller understanding of their nature will certainly require further engagement with montagnard information sources. Like the mound sites on the plains around the massif, the DGB sites demonstrate the local origins of political and cultural institutions in the Mandara region.

An Archaeology of Vanishings and Appearances: The Last Five Hundred Years

Over approximately the last five centuries, then, the southern Lake Chad Basin enters the historic period, with the region being mentioned in both Islamic and European texts. The role that archaeology plays in the elucidation of events during this period has been perhaps somewhat reduced. Nevertheless, investigation in the plains to the north and in the Diamaré to the south (Gronenborn and Magnavita 2000; Marliac et al. 2000) show how archaeological research can yield significant advances in our understanding of cultural processes into even very recent times, and among both literate and non-literate societies.

During this period, human landscapes in and around the northern Mandara Mountains have been transformed through the effects of two separate, but almost certainly interlinked, processes. In the first place, the northern Mandara Mountains themselves came to be occupied at high population densities by populations practicing intensive agriculture, ancestral to modern montagnard populations but related in material terms to earlier plains groups. Available linguistic evidence indicates that the Chadic languages spoken by these montagnard populations have been separated for significantly longer than five centuries (Barreteau and Jungrathmeyer 1993: 111, 124-5). This implies a situation in which groups living along the edges of the Mandara highlands, and in areas like Oupay on the heights of the massif itself, began expanding their occupation of the mountains at this time. This greatly accelerated the transformation through clearance, terracing and construction of highland environments into the domesticated landscapes of the ethnographic present. Local oral histories and similarities in material culture indicate that there was a significant contribution from migrants deriving from plains communities as well, populations who adopted the languages of these autochthonous occupants of the mountains and their peripheries (MacEachern 2003 [1991]: 251-76). The traces of this process are now visible throughout the Mandara Mountains, in the ruin and refurbishment of houses, terraces, tombs and other structures. While the remains of household occupations are regularly redistributed over quite short time periods, rendering difficult the job of the archaeologist, the entire landscape is an artefact of this period.

The second process evident in Mandara archaeology is the reorganization of communities on the surrounding plains. In particular, this involved abandonment of a large number of the mound sites that seem to have served as foci of settlement for the previous thousand years or more. The estimation of time of final site abandonment is always difficult, especially on mound sites that are subject to considerable erosion and weathering in their upper levels. We thus cannot assume that mound abandonment coincided with the appearance of predatory states on the plains around the Mandara Mountains. As noted above, the last radiocarbon determination from Aissa Dugjé is from horse remains buried in a pit on the site (MacEachern et al. 2001). The dates of *ca* AD 800 - 1000 from the upper levels on two of the units excavated on the site (and at Ghwa Kiva [Table 2.1]) must be considered indicative of the lower bounds of the period of abandonment, not of the most likely time for that abandonment. Mehe Djiddere (David and MacEachern 1988; Wahome 1989) was probably abandoned over the same period, as were a number of other mound sites in the Chad Plains and Diamaré (Gronenborn 1998; Lebeuf 1969; Marliac et al. 2000: 75).

Not all such areas were abandoned. At Doulo, Gréa and Kirawa, settlement around the inselbergs has persisted until the present, albeit taking rather different forms through time. Our best archaeological evidence for such developments comes from the constellation of sites around Doulo (Jones 2001). At the Doulo

Chefferie site (PMW 635), in an area of the modern settlement of Doulo historically associated with elite occupation, a sequence of three radiocarbon dates (Table 2.1) indicates rapid accumulation of cultural deposits over a period commencing only within the last few centuries. Excavations in this area uncovered abundant evidence of domestic construction similar to that seen in the village today, with evidence for floors, mud-brick walls, pits and burials. Ceramic assemblages continue to be dominated by twisted-string rouletting, burnishing and slipping, but with a significant addition of twisted strip roulette decoration through the units, and especially in the most recent levels. Rare examples of *sgraffito* decoration are also found in this site. In broad terms, similar assemblages are found at other sites around Doulo as well (PMW 631, 675 and 678), in contexts not associated with elite status. The Doulo Chefferie site is also within the earliest defensive walls at Doulo, built according to historical sources about 400 years ago.

Both twisted strip rouletting and *sgraffito* are characteristic of Kanuri ceramics historically produced on the plains further to the north and especially the northwest (Gronenborn and Magnavita 2000: 51). This almost certainly indicates contacts with the state-level societies that were by 500 years ago expanding their control over the land between the Mandara Mountains and Lake Chad. It may also reflect a process of 'Kanurization', much more marked among populations closer to Lake Chad. Such contacts are also indicated by the marked increase in the numbers of artefacts indicative of foreign contacts recovered in the course of excavations at Doulo dating to this period. These include glass, quartz and carnelian beads, cowry shells and tobacco pipes (Jones 2001: 84-96). These artefacts are not restricted to the elite contexts of the Doulo Chefferie site, but are found at the other Doulo sites as well (as some such materials were in earlier times at DGB-1). Such artefacts, and the contacts they imply, were not characteristic of the plains around the massif during earlier periods. The archaeological evidence coincides with ethnohistorical and historical evidence for the transition at Doulo between 'Maya' (non-state-level, indigenous) occupation and the rise of the Wandala state, with far more significant external relationships, after AD 1600 (Forkl 1983). Furthermore, the patterning of occupation, with different *quartiers* occupied simultaneously around the inselberg, possibly by different ethnic groups, is recognizably akin to the modern situation (Lyons 1990, 1996)

Similar processes seem to have taken place around other inselbergs as well. At both Kirawa and Gréa, a number of mound sites with surface collections dating from before AD 1400 are abandoned, while other small sites persist into the historical period. At the same time, historical evidence indicates that areas associated with elite occupation existed at both inselbergs. (As noted above, we do not know the date of construction of the walls at Manaouatchi-Gréa.) All three of these inselbergs are associated in different ways with the rise and expansion of the Wandala state from the sixteenth century onward, and it is likely that these processes of

amalgamation and differentiation were related to the increases in social hierarchy that accompanied state formation.

It is tempting to resolve the conundrum of disappearing mound sites on the plains and emerging populations in the mountains with a straightforward claim: populations abandoned plains sites and moved up into the Mandara Mountains (MacEachern 2003 [1991]: 320-31). The resemblances between modern montagnard ceramics and prehistoric ceramics from the plains are consistent with such a scenario. At the same time, the process should not be thought of simplistically, in part because of the chronological uncertainties already noted. There is in any case no proof that a large scale transfer of populations took place, and the existence of massif and massif-edge sites indicates that communities already existed in at least some areas of the highlands. As noted, ethnohistorical data suggest that people moved into the highlands in a multitude of small-scale migrations, from different places and often as individuals or family groups (MacEachern 2003 [1991]: 202-42; Müller-Kosack 2008). They were incorporated into the communities of people already occupying the mountains and their peripheries, linguistically, culturally and (eventually) as members of their ethnic groups. The requirements of land clearance, terrace agriculture, inter-group conflicts, and defense against outsiders would have encouraged high population growth rates. Instead of a unitary population turnover, from plains to mountains, we thus see the recent occupation of the highlands as the result of demographic processes that took place over centuries. Although the characteristics of prehistoric plains settlement at first glance contrast strongly with that of recent montagnard groups, I have argued elsewhere (MacEachern 2002) that the former may in fact map on to the latter in interesting ways.

One impetus for these demographic processes might well have been impingement by predatory state-level societies – the ‘cavalry states’ of this part of the Central Sudan – that are first historically attested northeast of the Lake Chad Basin over a thousand years ago. The initial evidence of contacts dates from the thirteenth century AD (Lange 1980). Between the fifteenth and eighteenth centuries, those contacts became far more intensive and more damaging – first through slave raids and eventually through the absorption of the southern Lake Chad Basin into the ambit of such predatory states (Gronenborn and Magnavita 2000; MacEachern 1993b). These included both foreign units such as the Kanuri state centered at Birni Ngazargamo, the Baghirmi of southern Chad, and indigenous polities like that of the Wandala, which appears to have developed out of pre-existing plains groups that took advantage of contact with these foreign states. Only a part of the plains population moved into the highlands and became *du kunde*, ‘people of the rocks’ in order to escape slave-raids and the imposition of elite control associated with the Wandala and other states; others became subject peoples of those states, and in some cases members of their elites.

David and Sterner (1999) documented different levels and forms of social and political centralization among a variety of Mandara communities. The transitions between those forms are complex and appear to relate to variable historical relations, both between mountain populations and with the polities inhabiting the plains below. They could apparently involve decreases as well as increases in degree of social hierarchy and centralization. In some cases, as at Sukur (Smith and David 1995) and at the DGB sites (David 2008, MacEachern in press), these political developments resulted in the construction of remarkable stone architectural features. Further investigation of the chronologies and utilization of these sites will no doubt teach us a great deal about political and cultural developments in the highlands through the last five centuries. We must anticipate that historic trajectories of political change on the plains around the Mandara massif would have been equally complicated, and not well captured by unilinear, upward-and-onward models of centralization and state formation. They certainly indicate that there is far more to the history of the Mandara Mountains than simply settlement by refugees from the plains half a millennium ago.

Conclusions

We are still almost at the beginnings of our examination of Mandara history, with much left to learn. Most strikingly, we still know very little about the conditions under which the Mandara Mountains themselves were occupied, beyond the hints that we can gain from ethnohistorical sources and very limited archaeological work to date. It is sobering to remember that the extent and importance of the DGB site phenomenon, probably the most striking archaeological remains in the region, was not appreciated until 2001, although the DGB sites had first been reported two decades earlier (Seignobos 1982). On the plains around the massif, cultural processes of the first millennium BC are not well understood, particularly the circumstances through which sedentary settlements were introduced to the region and, later, iron technologies adopted. Given the topics and aims of this book, we should particularly note that the lack of archaeological data informing on origins and histories of montagnard furnace types (see chapter 1). We need to know much more about the development of social and political hierarchies south of Lake Chad, given that a number of cultural elements sometimes associated with such hierarchies – expanded site sizes, iron technologies, horses and possibly defensive walls – appear in the region significantly earlier than has been assumed to this point. There remains a great deal of work to be done, and it is very unlikely that the Mandara region has exhausted its capacity to surprise researchers at this point.

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My Father René Gardi & Co.: Truadak and Rabash, Hans Eichenberger and Paul Hinderling

Bernhard Gardi

Gardi, René, *Bern 1.3.1909 - 8.3.2000, travel writer and author of children's books. As a secondary school teacher he undertook his first travels to Scandinavia from 1936. During the war years he published a number of widely read boy's adventure stories ..., which were influenced by his experiences as a teacher and his activities in the Scout movement. In 1945 he became independent, and the ensuing 40 years took him on numerous travels to West Africa (Southern Sahara and North Cameroon) and also to New Guinea (1955/56). His travel books convey personal views and experiences, accompanied by outstanding photographic material ... He had a lasting influence on the Swiss view of 'foreign lands and people'. He received a number of awards, including ... an honorary doctorate in ethnology from the University of Bern (1967) ... (Schweizer Lexikon 1991, Vol. 2: 814-15 (translated by John Skinner)).¹

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1. Basically, my father was an autodidact. His two years studying of biology, physics and mathematics at the University of Bern is not really connected with what he did later. His father who died rather early was a tramway driver in Bern. Most of my father's work can be understood as an attempt to escape the narrow social milieu in which he grew up.

It was in 1952 when my father, then 42 years old, came to North Cameroon for the first time. Traveling in a VW bus, he and his two friends Harry and Happy² had come down through the Sahara by the Bidon Cinq route reaching the river Niger at Gao. They had then driven over to the Lake Chad, had crossed it on hired boats and had visited the natron sites at Bedra on its Northern shore. They had left their native town Bern, capital of Switzerland, at the beginning of the previous December, and now, two months later, they still had some time left before further Swiss friends would fly in to drive their car back home.³

In those days, in Fort Lamy (today's Ndjamena) everybody met at the Mickey Bar. That is where a French veterinary told the three Swiss travelers about the Mandara Mountains where they could still encounter true and traditional forms of life. Instead of waiting for their friends, they drove southwards to these Mandara Mountains. Within seven days they made the acquaintance of Mr. and Mrs. Hans and Gertrud Eichenberger-Geiser (then based in Sulede), climbed up Ziver mountain, photographed and filmed a Kapsiki funeral at Sir and visited several compounds. They realized - or were told - that all those young girls and men with painted faces visiting the weekly market were looking for a husband or wife and they were impressed and fascinated by the nudity of the Mafa. Iron furnaces are mentioned several times in my father's diary, for instance for Mokola near Mokolo, however none were working at the time.⁴ Just one huge furnace was photographed (probably at Mokola) as well as an ensemble of extremely charming childrens' furnaces outside Sulede.⁵

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2. Harry, Dr Harald Widmer (1904 - 1995), was a lawyer working at a federal office for aviation. Happy, Dr. Franz Moser (1900 - 1992), was a historian working as a librarian. Both were well-to-do bachelors. The three met during the 1920s when they were active boy scouts. Together, they traveled to the Lake Chad region at several times. In 1957-58, Widmer and Moser visited Relly in Poli on their own and then drove up north to Mokolo with Hans Eichenberger. In 1983, Moser donated all his photographs to the ethnographic department at the Historical Museum in Bern, including his diaries. There are 3800 black and white negatives, 6 x 6 cm, and prints. Among these images there are ca 640 photos from the Mandara Mountains, taken in 1952, 1955 and 1958. In 1988, Widmer donated all his 3200 photographs (black and white negatives, 6 x 6 cm, and prints) to the Museum der Kulturen Basel (Inv. Nr. (F) III 18,352 – 21,581). There are ca 670 photos from the Mandara Mountains, equally taken in 1952, 1955 and 1958. Widmer never kept a diary.
 3. That journey in 1951/52 was my father's third trip to Africa. His first in 1948 led him to Southern Algeria (Tamanrasset), his second in 1950 to Southern Algeria again (Djanet) and Western Libya (Ghat), then to Chad, the Central African Republic and, by plane, to Katanga. This crossing of the Lake Chad in 1951/52 led to my father's second book on Africa: *Tschad. Erlebnisse in der unberührten Wildnis um den Tschadsee* (Gardi 1952).
 4. On all his journeys my father kept a typewritten diary. Composed in a very spontaneous way, his diaries contain what he considered to be useful for later works – and also what his wife could digest, as he sent home carbon copies. For the trip in 1951/52, Moser's diary, also typewritten, is often more accurate.
 5. In fact, my father did not photograph them but Widmer. The very same toy furnaces were photographed by Hinderling in 1953. According to Moser's diary from 1957 they were part of the blacksmith Kotyā's compound in Sattala.

By then I was five years old, my sister seven and my brother eight. I got acquainted with the name 'Mandara', hitherto completely unknown to my father – as well as to a general audience in German-speaking Europe.⁶

I do not really know what happened to my father within these seven days – but they must have been crucial to him. He took the enormous amount of 850 photographs not to mention his filming (16 mm). In his diary, that week of traveling to Mokolo and Rumsiki is covered in ten rather boring pages, full of names of places, regions and people he had newly met. Eichenberger is certainly one of these names. This missionary from the Mission Unie du Soudan was quite a bit younger than he was and – as a missionary – very different in character. It was only years later that they became closer and called each other by their first names.

However, another name turns up too, that of Henri Relly, a French administrator of Alsatian origin (that means, Relly spoke German), stationed at Yagoua at the Logone river. It was Relly who, a few years later, invited my father to visit him at his new post in Poli, and that is how my father came to the Alantika mountains in 1955.⁷

So, in 1952 my father had met the Eichenbergers, got well acquainted with most of the French administrators and – most important of all – he had seen people and landscapes that highly attracted him. Did he feel 'at home'? Somehow, yes, I think so. Going through all the diaries which he wrote over the years, he must have spent more than 360 days in the Mandara Mountains.⁸ He loved North Cameroon, and right from the beginning he felt that there was work for him to do as a 'Reiseschriftsteller'.⁹ Already in the thirties, when he traveled three times to northern Scandinavia, he was looking for societies that were as little as pos-

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6. Quoting Christraud Geary: 'No writer and photographer of Africa made such impression on German-speaking countries from the fifties through to the seventies. ... Like no other writer and photographer of his generation [René Gardi] knew how to convey a picture of Africa that has its roots in age-old notions about that continent and its inhabitants. He shared many attitudes with his contemporaries who had grown tired of civilization ... and dreamed of paradises in other parts of the world.' (Gardi 1995: 36, 38).
 7. Relly, a peasant's son, introduced French cows to the Poli region. My father brought him cast cow bells from Switzerland as a present, and that certainly reinforced their friendship. Relly arrived in Cameroon in 1927. His small collection from the Cameroonian Grassfields, assembled in the thirties, was later bought by Hinderling for the Museum der Kulturen Basel.
 8. He was in the Mandara Mountains in 1952 (7 days), 1953 (55), 1955 (10), 1959 (at least 60), 1964 (10), in the 1970s (110), in the 1980s (90) and in the 1990s (35). However, he never was there during the rainy season. On most of his trips after 1970 he also went to the Alantika mountains. And he always photographed. In his archive, there are something like 12,000 black and white photos on North Cameroon.
 9. That's how he called himself throughout his life. For many years, as a freelancing photographer and traveler he could hardly live from the revenues of his books. So, he publicly spoke about his travels, always accompanied by his slides and 16 mm films. His radio emissions and later his shows on Swiss TV were widely heard or watched, and as he did not speak in high German but in his Bernese dialect he was very popular for maybe three decades.



Figure 3.1. René Gardi at Ldamszay with a young Mafa woman. He is holding a pot representing Zhigile (the chief god) and the woman an ancestor pot representing a grandfather. The pots were probably made by Waydam, Truadak's wife. *Photo: Paul Hinderling (1953/82/11).*

sible influenced by the European civilization. And that was also the case with the Matakam, as he called them, well into the seventies.

Therefore, an expedition to the Mandara Mountains was immediately planned, and as he was well acquainted with Professor Alfred Bühler, director of the ethnographic museum in Basel (now Museum der Kulturen Basel), it was arranged that an anthropologist would come with him. That anthropologist was Paul Hinderling, his junior by fifteen years, then scientific assistant at the museum. Hinderling had already been to Ghana. They arrived in Mokolo towards the end of January 1953 and stayed there till the very end of March. During their stay Hinderling acquired a well documented ethnographic collection for the Basel museum consisting of 545 inventoried items.¹⁰

10. Inv. Nr. III 12,122 – 12,666. In 1953, there were places where people did not want to sell anything, as for instance in Tala Zulgo.

Of course, both of them photographed. My father had a Rolleiflex for the format 6 x 6 cm and an Alpa for the small format. All together he took about 2000 black and white images.¹¹ The museum in Basel holds 645 pictures (black and white, 4 x 4 cm) taken by Hinderling.¹² And both of them had a 16 mm film camera! This is an outstanding corpus of images we have from the Mandara Mountains of that time. Although agriculture is altogether lacking, a very wide range of topics and areas are covered, the most spectacular images being certainly those illustrating the iron smelting complex.

In his good years, my father was a rather huge and heavy man (Fig. 3.1). He loved people, was very communicative and liked to organize. His strength was certainly not painstaking detailed research – on the contrary. Although his right eye was very weak he had high visual capacities. Besides his own observations (and interpretations) he got much of his information through French administrators and missionaries. In 1953, Eichenberger spoke Fulfulde but not yet Mafa.

My father and Hinderling had no car, for which they were dependent on the good will of the French administration. Very often they were on foot. Once they accompanied Monsieur Duc, the sous-préfet of Mokolo on a five day census tour. Starting at Tourou, they went to N'Dourouk, then to Ngossi before turning eastwards to Ridoua. Eighteen porters carried the luggage.¹³ On another tour my father went with the Belgian geologist Lormont who was looking for gold.¹⁴ Again they started in Tourou, came to Dengdeng, went up the valley of the Moskota, reached Ziver and then crossed over to Upai.

'We went up to a place called Ldamzay. Paul Hinderling had found it.' my father writes in 1953.¹⁵ Forty-five minutes outside of Mokolo and after 20 minutes walking

11. In later years he had a Hasselblad. This means, he kept to the format 6 x 6 cm, but took his pictures looking down into the camera. Such a viewpoint has the tendency to make things or human beings bigger than most shots taken by a SLR camera. The color slides are much faded. I do not know how many have survived. In those days, he usually had two thirds black and white film and one third color slide film. My father's photo archive consists of thousands of film sheets. Each sheet is of thin cardboard, with 12 contact prints (one film) pasted on it. My mother (who was never in Africa) labelled the negatives. As color slides have only very small margins they are not labelled.
12. Hinderling's black and white photos are in the museum in Basel, inventoried as (F) III 3,825 – 4,468.
13. A porter was paid 20 francs a day (ca 55 US cents). For their meals they had to look after themselves. In his diary my father ponders how many Europeans had been behind the Upai before their tour. Lavergne was there in 1943, he was told, and maybe once or twice another French administrator in order to settle quarrels. One of the results of that first census ever made was that almost three times more people were living there than M. Duc had estimated.
14. Lormont had a radio with him which he set up at nights. My father describes the reactions of village people who could not understand what was going on as they could not find a hidden human being on the backside of the radio.
15. The diary has 104 pages. Having arrived in Mokolo January 20, they went up to Ldamzay for the first time on February 7. So, shortly after the beginning of their stay in the Mandara Mountains they were in contact with iron smelting. M. Meslé, the then director of the IFAN in Douala was up north too, and it was he who took Hinderling with him to Ldamzay for the first time.



Figure 3.2. A moment early in the smelt by Truadak at Ldamszay in February 1953. Behind the furnace shield, a smith, his forehead smeared with red ocher, pumps pot bellows and is egged on by the songs of a smith playing the harp. Below and to the right Truadak and his brother, the latter wearing a hat of hyrax fur and holding a child, are seated on a rock. They are observing the color of the gases driven out of the vent at the base of the mud wall reinforced by bent withies that seals the furnace shaft. Shade provided by a mat improves their view of the gases. A sacrificed cock roasts on a stick leant against the furnace. *Still from film by René Gardi (processing by Elias Kreyenbühl, Media Laboratory, Universität Basel).*

uphill from the road they met the Mafa smith Truadak¹⁶ whose iron smelting was documented – a process of seven to eight hours (Fig. 3.2). My father took 85 photos in black and white, Hinderling 18, including scenes of the washing out of the ore and some forging. My father filmed in color. Hinderling's black and white film runs for 122 m or 15 minutes, title and subtitles included. It is at the Museum der Kulturen Basel.

One month later, at another Mafa furnace in Sulede, the whole iron smelting process took 24 hours (Fig. 3.3).¹⁷ Here the work of Rabash and his two younger

16. I find two different spellings for the name of this important man: T'rradak and Truada. Hinderling uses Truadak.

17. Hinderling was mistaken when – years later – he wrote that the whole iron smelting process in Sulede took seven to eight hours, as it was the case in Ldamzay (1984, vol. 3: 238). Early next morning, the three brothers were still working at the furnace. Hinderling (pers. comm. 2002) agrees.

brothers Moqwal and Toltay was again systematically photographed (Gardi taking 62 and Hinderling 64 black and white photos), even at night.¹⁸ My father concentrated on filming, Hinderling did not film at all. The bloom measured 120 cm in height and almost 40 cm in diameter. Due to its great diameter, the three brothers had some difficulties getting the bloom out of the furnace (Fig. 3.4). 'It is amazing how primitive their tools are. Nothing but a few heavy sticks, and in the forge that we visited yesterday the men worked with stone hammers, the anvil being a rock. Just the iron tongs were a real tool. Knowledge and skill, that is all.'

A third furnace was documented in Teleki among the Tchede (Gardi taking 24 and Hinderling 19 photos, including forging, but no film). Less than four hours were spent there.¹⁹

Since 1955, my father's film on Truadak's iron smelting has been publicly available in black and white, although it was recorded in color. It runs over 135 meters (or 12.5 minutes).²⁰ Now, the intriguing fact is that in this film a sequence from Sulede was incorporated, namely the taking out of the huge bloom which was more dramatic than in Truadak's case.

Among all the photographs taken in 1953 there are four or five breathtaking Rolleiflex films in my father's archive. I doubt that he was aware at the time that he was taking just about the most thrilling images of iron smelting ever recorded in sub-Saharan Africa. As he was very busily filming too, some of these photos were actually taken by Hinderling with my father's Rolleiflex. However, there are no photographs or film sequences of the construction of a furnace. 1953 seems to have been the last year when iron was smelted in Ldamzay.

It is not altogether clear to what extent my father arranged these two iron smelting processes. In Ldamzay he must have influenced the situation – at least everything was ready when he and Paul Hinderling arrived. The day started at eight o'clock with the introduction of the tuyère which was made the day before. As predicted – when

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18. Hinderling's spelling for Rabash is Rrbath. I was told the two other names – Moqwal and Toltay – in 1995 on the basis of the published photos in Gardi 1995: 21, 49. Toltay was the first born, Rabash the second. One of Toltay's daughters is married in France.
19. In this case, my father and Paul Hinderling had accompanied M. Toutedou, a French administrator who had to go to Tchévi in order to collect taxes. That took one day during which the all-potent Frenchman had a messenger sent to Teleki saying that they – the Europeans – would like to see iron production the next day. The blacksmiths in Teleki indeed fired one of their two furnaces and a small bloom was produced. M. Toutedou, probably following my father's wish, then ordered a man to produce a tobacco pipe and a bracelet in wax which were cast in brass. My father's diary mostly mocks M. Toutedou and his wife, their cook and their whole 'popote' that had to come along also. 'And Madame insisted that we had hors d'oeuvre, chicken, potatoes, salad, coffee and the dessert ...'
20. Institut für den Wissenschaftlichen Film (IWF), Göttingen, Germany (C 665). No sound. The original color film is still in good shape. It also shows Truadak's wife, Waydam, as a potter. During a firing, four ritual pots are to be seen. They had been ordered for the Museum der Kulturen Basel.

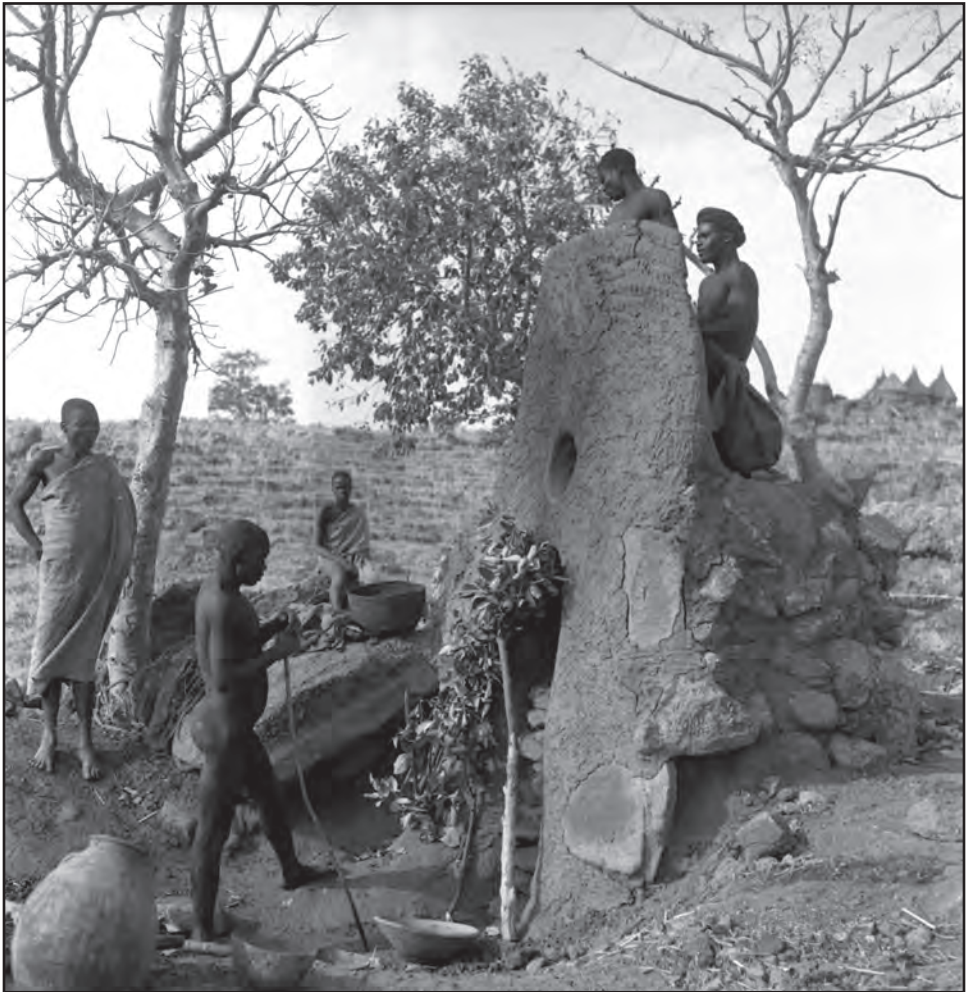


Figure 3.3. Towards the end of the smelt at Sulede in March 1953. While two smiths remain on the platform behind the shield to pump the bellows and play the harp, smelter Moqwal judges the progress of the smelt. A wall of rocks has now replaced most of the shaft seal as the vent has been progressively raised to keep pace with the top of the bloom mass growing in the shaft. Here a leafy branch fulfils the same function as the mat seen in Figure 3.2. *Photo: René Gardi (1953/80/1).*

the sun would stand over there – the furnace was opened at three o'clock in the afternoon. One hour later the bloom, measuring 44 cm, was carried to Truadak's compound. For this day, there are five over-enthusiastic pages in my father's diary. 'Fantastic', he writes, 'Dante's vision, especially that moment when the furnace got opened. A naked fellow, completely naked, just a hat of the fur of a mountain rat on his head. Fire, smoke, the smell of sulfur and charcoal – a devil.' He was equally fascinated by the young and powerful man on the bellows, the upper part of whose

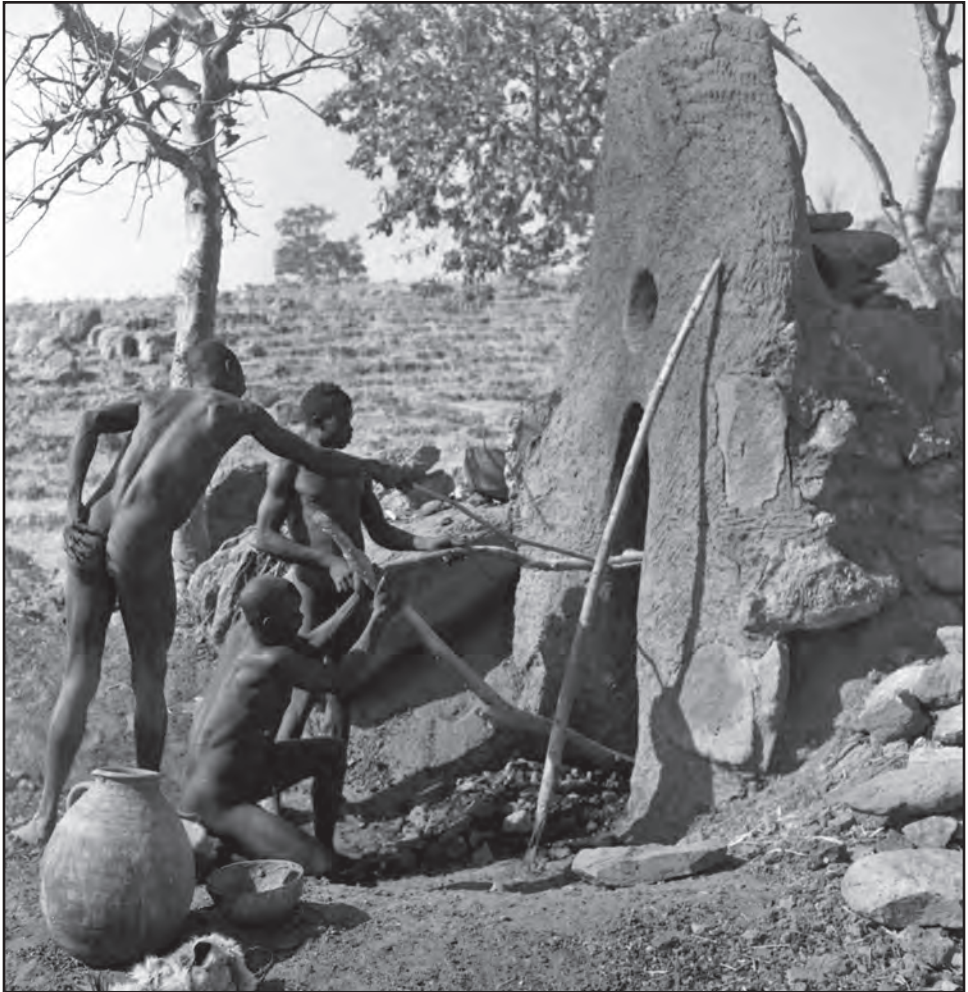


Figure 3.4. The end of the smelt at Sulede in March 1953. In order to remove the bloom mass, the three smelter brothers, from left to right Rabash, Moqwal and Toltay, are breaking down the wall of rocks built up in the shaft opening in the course of the long smelt. *Photo: René Gardi (1953/87/4).*

face was painted red and with two white feathers in his hair. 'Wild cries from time to time. Sweat.' He was accompanied by a second man playing the harp. 'That mixture of iron technology and sorcery is very impressive. Sorcery is as self-evident as the mixing of clay in order to build a house. They are part of it, those sacrifices of a chicken, the blood, the guts hang over the furnace and the millet or all the plants added as grisgris to the ore or elsewhere. It is like any craftsman's trick. Sorcery is not discussed, not questioned, it must not lack, it is part of the work like a tool.' The next day they observed how an iron bar was forged. 'It sounds magnificent when it falls on the rock.' The rest of the bloom was carried to the museum in Basel.

The material from Ldamzay and Sulede had been published by Hinderling and by my father – each in his own way. The same year, my father published his book *Mandara* and shortly afterwards his two other volumes (being rather art books), *Der schwarze Hephästus* and *Kirdi*, all of them destined for a wider public.²¹ At the same time he used his splendid photos for innumerable articles in newspapers and revues throughout Europe. Hinderling, being on the scientific side, covered the same topic in several articles.²²

Although my father and Truadak could not communicate directly with each other – the hired cook, Lulu, son of a blacksmith himself, was the interpreter – they had sympathy for each other. And there is a beautiful story that touches me: On his own initiative and very spontaneously, Truadak had made a small furnace for my father, ‘about the size of a flower pot.’ My father was more than pleased, begged Truadak to have it fired and asked for a second one. Two years later, in 1955, when my father passed through Mokolo on his way to Poli and was distributing to all his friends the photos he had made in 1953, Truadak came down from his mountain slope to greet my father, bringing the customary chicken and the second (fired) miniature furnace.²³ I do not know what happened to the first one. Throughout my father’s life, that small furnace had a prominent place near his desk. Later, he photographed furnaces or iron smelting in Tourny, west of Banfora, Burkina Faso (Gardi 1970: 24) and in Koni, just North of Korhogo in Côte d’Ivoire (Gardi 1970: 26-40). In 1983 he had a Panon smelt reenacted just east of Poli.²⁴ It is my guess that in these situations he always recalled his first and strong experiences he had with Truadak.

Hinderling made a survey of all the houses within Truadak’s compound and drew a plan. Truadak’s wife Waydam was a potter. Her work was documented in photos and films. Waydam produced a whole series of different ritual pots (in

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21. *Mandara*, 1953. The 1st edition started with 7000 copies and a 3rd edition appeared in 1964. There are translations in Spanish (1956), Italian (1957), Dutch (1958), Japanese (1961 and Catalan (1998). Ldamzay is covered by figures 43, opp. p. 113, 47, 50, 51 and 56-59. Sulede is covered by figures 44, 46, 48, 49 and 52-55. *Der schwarze Hephästus*, 1954. This book was never available in the book-trade. 1000 copies were printed, with a later print run of 500 copies. Ldamzay is covered by pp. 47 (Truadak is sitting to the right, a brother whose name is not documented to the left), 49, 51, 53, 55, 59, 63, 69, 73, 75, 91, 99 (Truadak to the right), 103, 131, 133 (the old man in the center: Dakna, chief of Ldamzay), 145 (Truadak’s wife Waydam) and 151. Sulede is covered by pp. 57, 61, 65, 67, 71 (Rabash’s younger brother Toltoy), 77, 79, 81, 83, 85, 87 and 89. *Kirdi*, 1955. Hardcover, with 86 figs. (6000 copies were printed). *Kirdi*. 1957. Softcover with 128 figs in a second and considerably enlarged edition. Translations in Danish (1956), Swedish (1956), French (1957) and Italian (1961). Ldamzay is covered by figures. 67, 68, 70, 81, 82, Sulede by figure 69. A later book *African crafts and craftsmen*, 1970, contains a chapter on iron (pp. 14-45).
 22. See bibliography. In 1954, Hinderling organized the exhibition ‘Negerschmiede’ at the Museum der Kulturen Basel in which Truadak’s furnace was reconstructed.
 23. Now inventoried at the Museum der Kulturen Basel under the number III 27,668.
 24. Samples of that Panon iron smelt are in the Museums of Basel and Bern.

his diaries, my father calls all of them *vray*) which are now in the collections in Basel and Bern.²⁵ These ritual pots are often mentioned in my father's diaries. In 1953 they must have been all over but could not be bought when still in use. In 1972 that had changed, 'now Fulbe dealers are selling *vrays* at the campement in Mokolo...' he complains.

In 1955, my father filmed the iron smelting process in Sulede for a second time, again with Rabash and his two brothers. Of course, he had asked them to do it. The quality of these images do not match the ones taken in 1953. One feels that my father knew already what was going to happen; emotions were lacking. Strangely, my father did not take a single photo. His two friends Happy and Harry who were present took a few snapshots. Again, in 1973, my father had a third reenactment of a smelt in Sulede organized. Well over 150 photos were taken.

My father was deeply impressed by the imposing, self-assured people from these poorly accessible mountain regions in the heart of Africa, and by their way of life so little influenced by Europe. Dissatisfied with his own amateur films, he wanted to make a real, major film that would do justice to his experiences.²⁶ And in 1959, in collaboration with the film-maker Charles Zbinden from Bern, he made the 35 mm documentary 'Mandara' which ran over 90 minutes. Over 80,000 people saw that film in Swiss cinemas at a time when television was almost non-existent.²⁷

Eichenberger was a member of the film team. Of course, iron production would have to play a major part.²⁸ Surveying the region, in Sidim Mofu they met some blacksmiths 'smelting iron like the Matakam.' However, they decided to turn most

25. In 1961, the ethnographic department of the Historical Museum in Bern acquired 140 objects from my father, all collected in North Cameroon in 1955 and 1959 (Kam. 263-402). There are at least 10 ritual Mafa pots as well as objects documenting the iron complex (cf. Kaufmann 1979). In 1981, the same museum bought a collection of 103 pieces from Hans Eichenberger (Inv.Nr. H.E.81.331.27-129). The Museum der Kulturen Basel has 11 ritual pots (Coll. Hinderling, III 12,511 – 12,521).

26. In the 1950s independence was in the air. Europe wanted more information on Africa. At the same time, in 1955/56 my father had spent half a year in Papua New Guinea, accompanying Prof. Alfred Bühler as photographer. Here he met quite a different kind of culture but one equally confronted with the ever growing influence of western civilization – as Mafa society was and still is.

27. The original 35 mm version, measuring 2395 m, does not exist any more. In the 1980s, a new mother copy had to be made as the colors had started to deteriorate. The film is on 16 mm now: 930 m, ca. 82 minutes, narration in German. They had 10,000 m of Eastman color film with them. During the two days when iron smelting was filmed, 1100 m were used. Altogether over 8000 m of film was exposed. As far as I know the cuts not used for the film do not survive. Fritz Maeder was the camera assistant and Roland Kölla responsible for the sound. The cook was the same man my father and Hinderling had hired in 1953: Lulu Rkma, himself a blacksmith and valuable informant and interpreter. For several weeks they were visited by Viktor Surbek, a 72-year-old well known painter from Bern. His thirty two charcoal drawings of the Mafa world were published in 1962.

28. The iron sequence runs for 18 minutes. Throughout the film blacksmiths are mentioned or shown in relation to with burials or oracles.

parts of the film a few kilometers from Sulede, at Ndamseray in the Sattala valley. There, the blacksmith Godé and his sons were engaged. In the film, however, Godé's name becomes Truadak. Besides Godé there were Glagay ('the man with the negative parting of the hair'), Kokovay ('Glagai's brother'), Savay ('one of our porters but blacksmith'), Sagatay ('as Kokovay playing the harp') and Madyovua ('the old man'). Godé had prepared everything well, and when he was building the tuyère, my father noted: 'Everything as usual: The upper part of a used pipe is re-utilized, put upside down on the soil. To mix his fire-clay (Schamottenerde) he uses the debris of a used pipe which he pounds. It is very red. Then he adds dry grass. He must not eat before the pipe has been finished.' The furnace was lighted at 09.00. Shortly after 23.00, when the film crew had left, Godé and his men must have stopped their bellows. The bloom, tools, samples of the magnetite ore and the like were brought home to Switzerland.²⁹

Of course, the real Truadak and my father met again in 1959. Truadak came down to Mokolo to greet my father. 'He brought three eggs. He is now wearing trousers, a shirt and espadrilles.' And visiting Ldamzay: 'The furnace is in ruins (verlottert).' And, a few years later in 1964, they met briefly again. 'Truadak's beautiful furnace, the center of my Hephästus book, is now decayed, full of weeds. There is no forge anymore. Truadak is old, he does not work any more.' However, he still had his crab oracle at the back of his compound. And a few days later, at the market day in Mokolo: 'Truadak comes greeting, together with his wife and his sister – and in what dress: a blue-white European silk coat, a towel around his neck, a huge Fulani hat on his head and white plastic sandals.' Afterwards, Truadak is not mentioned in my father's diaries. He must have died towards the end of the sixties.

After a lengthy interruption, my father resumed his travels to North Cameroon in 1970, making twelve trips altogether from then until 1991. Usually, he now visited both regions which he loved so much: the Mandara and the Alantika mountains.³⁰

In 1970, another artist from Bern – Hugo Wetli – travels with him, producing his own book. The same year, my father photographs a furnace in Mabas, destined to attract tourists. Two years later he notes: 'The blacksmith in Mabas who burns

29. Fourteen objects – small parts of the bloom and some iron tools – were sold to the Deutsches Museum in Munich, (Inv. Nr. 74190 a-o). The major part of the bloom and other tools were given to the Historical Museum in Bern (see note 24).

30. All his late trips to North Cameroon were related to projects which he personally promoted. Two of them were developed by Hans Eichenberger: 'Zebu and Plow' started in 1973. With CHF (Swiss francs) 500 (today USD 490) two zebus and one plow could be bought and be given to a farmer as a loan. After four years, the farmer had to give back two zebus to a pool but could keep the plow. Today, after thirty years, over 1500 Mafa farmers own a plow. This basic idea has long since been organized by a Mafa cooperative. The second project is called 'OPE-CAS' (Organisation Parents d'Elèves pour un Centre d'Accueil Scolaire). An ensemble of houses with dormitories, kitchen and the like was constructed in Mokolo, so that Mafa children from far away could eat and sleep in Mokolo before joining their parents at weekends. Together with further projects, my father was able to raise almost one million Swiss francs for 'his' North Cameroon.

wood in his furnace for the tourists has received an order from the government for his promoting tourism. The front of his furnace was decorated with white colors by a German TV crew.' And: 'The blacksmith Godé from Sattala, filmed in 1959, does not live any more.' My father is annoyed by all the tourists (mostly from Germany) who – as he writes himself in his diary – have come to the region because of his own books. In Rumsiki the wife of the smith casts brass for a tourist group, as her husband is away. In Jingliya the Catholic father had a new furnace erected, not more than 100 meters away from the old one. However, the front of the furnace is not oriented to the north, as it used to be, but in a way that it is more suitable for the tourists. He observes what is going on, and all the different furnaces constructed for tourists attract his curiosity. He photographs them all, but in his diaries he compares them critically with the ones he has seen in the fifties and he notes how a human face had been modeled into the front or that meaningless amulets were put all over. Only one furnace attracts his positive attention: '8 km outside of Mokolo, at the tarred road, a clever blacksmith has constructed a much better furnace than the one in Mabas.' That furnace was constructed by Dokwaza, whose work was well documented by Nicholas David.

To end my contribution I would like to come back to Truadak. I was in Mokolo just once, in 1995, for eight days only. A hundred copies of my catalogue 'René Gardi. Everyday moments' which I had produced the same year were distributed.³¹ Of course, the Eichenbergers were there and helped, and we showed my father's film 'Mandara'. At last I met many people whose names were familiar to me since my childhood, or their descendants.

A few days before the distribution of the catalogue, Ganday, the son of the former cook Lulu, had put me in contact with Waydam, Truadak's widow, who had been living in Mokolo for many years. When I met that small elderly woman she was busily preparing millet beer for sale. Her daughter Devet, born in 1943 and the only surviving child of Truadak, was nearby. The same afternoon, Ganday and Devet took me up to Ldamzay.³² It was easy for Devet to find the place where she had grown up. The catalogue in my hand, I compared the situation which I was facing: the tree was there ('that's where your father used to take a rest', Devet

31. In March to October 1995, at the Museum der Kulturen Basel, I realized an exhibition with my father's images: 'René Gardi. Everyday moments. Documentary photographs from North Cameroon, 1950-1985 (Lake Chad, Mandara, Alantika).' One hundred and thirty photographs were shown. The exhibition travelled to Bern in 1996 and to Yaoundé at the Goethe-Institute in 1997. In fact, I owe my visit to Mokolo to Dr. Helga Schmidt from the Ciba Geigy (now Novartis) Foundation of Sustainable Development. She had the good idea to buy and then to distribute in Mokolo 100 copies of the accompanying catalogue. I am very grateful to her.

32. Claude Weill, a journalist from Zurich was with us too, as well as a local tourist guide, Bou-bakar Zra, who had a video camera with him. Weill covered our visit to Ldamzay in two Swiss newspapers, the *Tages Anzeiger* (Zurich, 26.1.1996, p. 69) and the *Basler Zeitung* (Basel, no. 28, 13.7.1996, pp. 12-13).

explained to me), the two peculiar rocks had not moved either and, of course, the skyline of the mountain en face was unchanged as well. Besides that nothing was the same any more. There, where Truadak's compound had been situated 42 years previously, a harvested millet field stretched all along a cultivated terrace. The stones used to build the houses had been integrated into the terraces. There were millet stalks everywhere. Between the two peculiar rocks, on the very spot where Truadak's furnace once proudly stood, I found just two or three – but not four or five – broken pieces of fired clay, no bigger than my hand. There were no further traces to be seen. Those two rocks which had sheltered Truadak's furnace were now monoliths in a cultivated landscape. A few steps away, beside the path, Devet bent down and pointed to a not really peculiar looking stone in the terrace, claiming that it was her father's anvil. If I had not had my father's photographs I would not have believed that two generations ago a furnace had been standing there.

A few days later, after we had shown the film and distributed the catalogue, I met Philippe, born in 1949 or 1950. We were at Mejmeh's place, not too far away from the campement 'Le Flamboyant' where the ceremony had taken place. Many people were present, all of them drinking beer. Philippe had had plenty already. He was the son of Toltoy, Rabash's brother, the blacksmith of Sulede. Philippe kept the catalogue under his arm, well close to his body and he told everybody that all his fathers were in this book. Although he was completely drunk he wanted to explain me how iron smelting was done, the way he had seen it as a small boy, and he started to draw a furnace in the sand. With his finger he first traced an upright oval. Then he drew a horizontal line through the upper third of the oval. In the lower part – two thirds of the oval – he drew something like a long slit. 'That's the opening of the furnace,' he said, before he marked the tuyère with one single stroke within that slit. 'Now you have drawn a woman,' I remarked. All the people standing around us watching what Philippe was doing exploded laughing, including the young women. 'No, that's not what I wanted to show you,' Philippe exclaimed and he immediately erased his sand drawing. But Philippe's heart was filled with happiness and he wanted to carry on. So he told me about the tuyère. 'It was made of a very special kind of clay,' he explained. '100 different plants and roots had to be mixed into it.³³ You see, it has to disintegrate as the iron is born and it has to fall apart. The clay of this tuyère has to fall down as tears, 'comme des larmes', in order to become iron.' 'Comme des larmes' -- yes indeed.

In the last text my father wrote for an international public I find the sentences: 'When I look at my pictures from earlier years, a great sadness often creeps up on me. The magnificent farmers with all their cares and woes, their joys, and their stubborn behavior; those artisans who do not even know that's what they are; all

33. I had visited Pokpok, Dokwaza's son, the day before. Pokpok showed me the furnace which Dokwaza had built for Nicholas David (well off the tarred road). In explaining the old art of iron smelting to me, Pokpok insisted that '100 plants and roots' had to be added to the clay.

those wonderful mothers who calmly and courageously accept their destiny and master it – soon all these people will only live on in the memories of those who knew them.’³⁴

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Part II

Society and Economy



Smith and Society: Patterns of Articulation in the Northern Mandara Mountains

Nicholas David and Judy Sterner

Introduction

By articulation we mean the manner in which ironworkers are integrated into their societies; this involves the nature and forms of specialization and the economic, social, political and cultural relations linking ironworkers to each other and the larger society. A pattern of articulation offers a perspective on the social and technical relations of production which, combined with the productive forces, constitute the mode of production. Two such modes are to be considered in the next chapter.

In 1972 Renate Wentz-Lukas published “Eisen und Schmied in südlichen Tschadraum” (Iron and smith in the area south of Lake Chad). This survey, based on a close reading of the then available sources and her own fieldwork among the Guduf, Zulgo, Mada, Bana, and Muyang, covered the non-Islamic peoples living in an area on both sides of the Nigeria-Cameroon border from the northernmost tip of the Mandara Mountains south almost to the Adamawa plateau and from the plains to the west of the mountains across to those on the east. She describes the technology of iron and cuprous metals, smelting and blacksmithing, and the varied tasks and social status of the smiths and their families. Her paper is most useful for bringing together a mass of scattered materials, for both her theoretical approach and sources are now dated. Substantial advances in the understanding of technology, society, and culture history have led us to shy away from bold syntheses based

on fragmentary data. However, much new information has accumulated, especially in the northern Mandara Mountains, and in that region it is now possible to attempt a finer analysis (Fig. 1.1). Thus this paper brings together old and new material, the latter including some unpublished results of primarily ethnoarchaeological fieldwork undertaken between 1984 and the present by members of the Mandara Archaeological Project. In it we characterize the various patterns of articulation of smiths and society found in the northern Mandara Mountains before the disappearance of iron smelting in the 1950s (see David, chapter 4), and model their emergence on the basis of the limited ethnohistorical and distributional evidence. We have not extended our analysis to groups living further south. However, in chapter 9 James Wade considers the smiths of Nigerian Fali, who live west of the Bana, in a wider context. Technical, socio-cultural, and symbolic aspects of metallurgy are the subjects of other chapters.

In the small scale, Chadic-speaking, societies of the northern Mandara Mountains of northeastern Nigeria and north Cameroon, the people commonly termed blacksmiths are often responsible for a wide but varying range of crafts and professions. They may or may not form an endogamous caste, but are always to a greater or lesser extent differentiated from other members of society. At one extreme they monopolize certain arts and crafts; elsewhere the work of the forge may be the only craft with which they are particularly associated (Table 4.1). In earlier publications and films on Mandara montagnards, we have described the technology and practice of smelting and smithing (David et al. 1989; David and Le Bléis 1988) and potting (David, Sterner and Gavua 1988; David 1990; Sterner and David 2003). In another paper (Sterner and David 1991) we argued that iron working and potting are at the core of the package of specializations that, in a sub-region centered on the modern town of Mokolo, results in the differentiation of its practitioners from the rest of society, the non-specialists' defining activities being farming and, formerly, men's participation in warfare. The differentiation takes the form of the division of the population into two endogamous castes, that of the smith-potters being regarded by the farmers with some ambiguity – and vice-versa. While the farmers respect the talents of the smith-potters, they also regard them as in some way “dirty”, “smelly” – or in anthropological jargon, “polluted.” In the paper cited, we argued that the ambiguous attitude of the farmers towards the smith-potters was a result of their transforming functions, their liminal position, and their status as permitted social deviants. We went further: the differentiation was modeled upon gender relations, the smith-potters being assimilated to the female gender by the farmer caste (and vice-versa as van Beek shows in chapter 10).

We stand by this analysis so far as it went while accepting the need both for its development and elaboration (see James Wade's chapter 9) and for consideration of an expanded database. New elements notably include Jeanne-Françoise Vincent's (1991) two volume monograph, *Princes montagnards du Nord-Cameroun*, on

Table 4.1 Craft and professional activities of some Mandara montagnard smith-potters (including, for comparison, the Nigerian Fali, with information supplied by James Wade). In the northernmost part of the region, specialization extends only to smithing and formerly smelting. *Primary sources: Sirak and Sukur: J. Sterner and N. David fieldnotes; Mofu-Diamaré: Vincent 1971, 1991; Mafa: N. David fieldnotes, Genest 1976; Kapsiki: van Beek 1982, 1991; Margi: Vaughan 1970; 1973; and Fali: Wade 1989, 2005, chapter 9.*

	M OFU-DIAMARÉ	MAFA	SIRAK	KAPSIKI	SUKUR	MARGI	FALI OF NIGERIA
NATIVE TERM	<i>mbidla</i>	<i>ngwazla</i>	<i>ngwazla</i>	<i>rerhe</i>	<i>d̥ay</i>	<i>əjkyagu</i>	<i>mihin</i>
Forging	♂ monopoly	♂ monop.	♂ monopoly	♂ monopoly	♂ monopoly	♂ monopoly	♂ monopoly
(Smelting)	♂ practice	♂ monop.	♂ monopoly	♂ monopoly	♂ practice	♂ practice	iron imported
Potting	♀ practice	♀ monop.	♀ monopoly	♀ monopoly	♀ monopoly	♀ monopoly	♀ monopoly
Funeral direction	♂ monopoly	♂ monop.	♂ monopoly	♂ monopoly	(♂ monopoly)*	♂ monopoly	♂ monopoly
Divination	♂♀ specialists	♂ special.	♂ specialists	♂ special.	♂ specialists	♂ practice?	♂ monopoly
General medicine	♂ practice	♂ special ♀ practice	♂♀ specialists	♂ specialists	♂♀ practice	♂ practice	?
Magical removal of foreign objects	♂♀ monopoly	?	?	♀ practice	♀ specialists	?	?
Midwifery	♂♀ specialists	♂♀ specialists	♀ specialists	?	♂ specialists	?	♀ specialists
Pediatrics	♂ practice?	♂ special.	♂ specialists	♂ specialists	♂ practice?	?	?
Formal music	♂ practice	♂ practice	♂ practice	♂ monopoly	♂ specialists	♂ specialists	♂ specialists
Other			♂ brass casting	♂ brass casting	♂ (brass casting)	♂ leatherwork ♂ cicatrization	♂ brass casting ♂ weaving ♂ leather & woodwork ♂ cicatrization
Chief/ chief smith complementarity	no	yes	yes	yes	very limited	yes	yes
'Castedness'	+	+++	+++	+++	++	+++	+++

* Sukur former monopoly of burials limited to important elders.

Key: ♂ men, ♀ women

monopoly: includes cases of near monopoly

specialists: indicates smiths or potters are not exclusive practitioners () : indicates practiced in the past (including all cases of smelting)

"Castedness": the extent to which smiths are socially and morally separate from farmers, is crudely indicated in the table by '+' signs, ranging from one to three.

practice: indicates that practice is optional

? : uncertain or information unavailable

the Mofu-Diamaré, and data obtained during the twelve months of fieldwork we conducted in Sukur in 1992-93, 1996 and 2008. The position of smiths amongst these groups differs substantially from the pattern earlier described. Furthermore, we have in this chapter extended our range to include the societies of the northernmost mountains, and can now attempt a more general synthesis of the articulation of smiths and society in the northern Mandara region.¹ Our initial approach is through three case studies.

The first focuses on **Sirak**, a community of about 1900 persons who live south of Mokolo and who speak Mefele, a language of the Mafa-Mofu sub-group of Central Chadic. Since van Beek is contributing two chapters on the Kapsiki to this volume, we do not discuss that group in any detail, referring the reader to his chapters and to the wealth of information that he has already provided (e.g., 1978, 1982, 1987, 1991, 1992). Nor, for similar reasons, will we give separate consideration to the Mafa for whom there is a comparable wealth of material (Podlewski 1966; Martin 1970; Genest, 1976; Hinderling 1984; Müller-Kosack 1987, 1988, 1991, 2003; David 1992; David and Le Bléis 1988; David, Sterner and Gavua 1988; David et al. 1989). However, despite differences between them as regards the economic and social roles and statuses of smiths and potters, the Sirak, Mafa and Kapsiki stand as a group in marked contrast to the second and third of our case studies, the Sukur and the Mofu-Diamaré.

The **Sukur** live in Nigeria only 25 kilometers west of Mokolo. They now number approximately 15,000 and speak a language (*sakun*) not yet satisfactorily classified but closely related to if not actually part of the Higi-Bana sub-group. The **Mofu-Diamaré**, more precisely those of Duvangar, Wazang and Durum, the three chiefdoms (“princedom”) most intensively studied by Vincent (1991), are located some 25 km east of Mokolo, and constitute a population of approximately 20,000 who speak a language of the Mafa-Mofu subgroup.

By extending our geographic scope to include the northernmost Mandara Mountains and inselbergs, it becomes possible, despite the limited data available, to discern, though by no means fully define, delimit and establish the characteristics, of three further patterns of articulation of smiths and society. Others may well exist just south of our area of coverage. The paper concludes with a speculative scenario of the differentiation of these patterns that serves to contextualize other papers in this volume.

Sirak

Sirak is a dispersed settlement located on and around a small mountain of the same name. Three of its six clans have sections that are of the smith-potter caste, their

1. We thank Gerhard Müller-Kosack for information on the peoples of the Gwoza hills based on his unpublished fieldwork.

members making up about 5% of the total, within the 2.5% to 5% range typical of the Mafa (Podlewski 1966; Genest 1976). The smith-potters constitute a division of society complementary to that of the farmers. There is a village chief of the farmer caste who exercises negligible secular authority but initiates annual and biennial ceremonies on behalf of the village with the advice and assistance of the elders of each of the six clans and of the chief of the smiths. The latter personage, as among the Mafa, inherits his position through the patriline, and plays a vital role in village ceremonies. No important village-wide ritual takes place without his participation, and he is called upon to divine on all such occasions.

The complementarity of farmers and smiths is expressed in Sirak myth. Long ago all men were brothers – until one day the youngest of a group of brothers made the mistake of eating something “bad”, either a rat or the meat of a goat in the skin of which he had wrapped a relative’s corpse. His wife shared the meat. The other brothers proclaimed their brother and his wife to be *ngwazla* – casted – and they took on the smith-potter roles of undertakers, smiths and potters. Consequently, smith-potters, more so men than women, are regarded with ambivalence by members of the farmer caste who consider them dirty – they deal with corpses, and eat forbidden animals (monkeys, snakes, donkeys, etc.). On formal occasions smith-potters must eat and drink apart, using their own vessels. Despite these differences, the farmers acknowledge their importance, recognizing them as clever and able to make the iron tools and pots without which no one could survive. The sibling relationship of the two castes is expressed during the lengthy initiation of Sirak male elders when smiths, having undergone a process of purification, drink together from the same calabash with their initiation partner, who is most often of the farmer caste. During this nine month period they must refrain from divining, burials, and sacrifices, but smithing is allowed because “the forge is the granary of the smith.”

By tradition the smiths do all the blacksmithing, smelting and funeral direction, in which latter activity they can also be said to act as priests. They are the most important diviners, and are heavily involved in healing. The women potters monopolize that craft, are sometimes specialist midwives and healers, and are directly involved in placation of certain disease spirits. This package of arts and crafts justifies, in our view, their being designated as “transformers,” responsible for the transformation of fetus into person, ore into iron, clay into ceramic and person into ancestor. On the other hand caste members are not specialist musicians, as they are among the Kapsiki, woodworkers or leatherworkers. The word used by French-speaking Sirak to translate *ngwazla* is “forgeron,” but its connotations go far beyond the practice of the forge.

In death, smith-potters are treated as are others; there are no differences in mortuary rites. Marriage between smith-potters and others is proscribed, though perhaps not in practice absolutely, for it was presumably necessary on occasion to

adjust the numerical balance between the castes. However, it is said that, if such a union was attempted, two smith-potters, one with a goat and the other with a sheep, would walk in opposite directions around the village. Where they met the animals were sacrificed to demonstrate that sheep (associated with the smith-potters) and goats (with farmers) should never be mixed.² The offending couple would then be banished. Some say that long ago they were put to death.

As part of the payment for their funerary services (preparing the body, digging the tomb, directing both the burial and the ceremony that later ends the period of mourning), smith-potters receive the carcasses of the animals whose skins were used to cover the body. In addition to the meat, the funeral director receives grain and several jars of beer. The work also involves other members of his family. His senior wife makes the special pot that represents the deceased and will be used to communicate with his or her spirit. She and her co-wives are present at the funeral rites. It is normally the senior smith of a particular clan (preferably of the clan of the deceased) who conducts the funeral ceremony while his juniors dig the tomb and carry the body on their shoulders.

Old men and women are normally buried three to four days after death. On the day of burial the smith dances with the corpse on his shoulders, accompanied by the eldest daughter of the deceased. The smith's duties are not over until, with the inheriting son and his brothers and sisters at the tomb, he has made the final offerings. This occurs weeks or months after burial. However, unlike some of their closely related Mafa neighbors (Podlewski 1966), Sirak smith-potters do not instruct an inheritor in his first sacrifice to his father ancestor. Rather, this is the task of a son of a sister of the deceased.³

Few smith-potters are engaged in all and some in none of the crafts associated with them. At Sirak in 1990 there was only one caste member engaged in blacksmithing, a Mafa who had settled some thirty years before who also buries, divines and makes sacrifices. The last Sirak smith who regularly practiced in the forge died in 1989 before his two sons had completed their apprenticeship. The chief of the Sirak smiths told JS that his father and uncles were smelters and smiths but that, because his father died when he was young, he learnt neither to smelt nor to fashion iron in the forge, even though up to his death in 1992 he did occasionally make repairs to tools. There are other members of the caste who engage in other caste specialties but who have never smithed themselves and claim that neither had their forebears.

2 Sheep are said to be like smiths because, under the conditions in which they live, their wool becomes matted with dung – in contrast to goats whose shorter hair remains much cleaner. In Sukur on the other hand, different play is made with the contrast between the species: goats are like women because they cry out and squeal when they are slaughtered, while sheep maintain silent dignity.

3 At Gousda, a Mafa village complex, smiths do instruct farmer inheritors in the matter of rites (G. Müller-Kosack pers. comm. 2000)

At Sirak smelting was done only by smiths, sometimes assisted by those of neighboring, including Mafa, settlements. In return for their work, helpers received food, beer and enough iron to make a hoe. Smelts were also occasions for caste members to seek out wives. Despite frequent hostility between villages, smith-potters were relatively free to travel without molestation, so important was iron as a factor of production.

The women of the smith-potter caste play a role in funerals and other ceremonies, but their primary role is as potters. Pots are not only used for cooking, storing and carrying, but also to house and contain spirits: of disease and natural forces, of dangerous animals, of enemies killed in warfare, of ancestors, and of God. While all female smith-potters may make utilitarian pots, only older women who have married and borne children make those that contain spirits. Some potters are also specialist midwives and traditional healers. We have only heard of one smith-potter woman in Sirak who has never potted; she is however a midwife. In addition to making the pots that represent the ancestors, these women also make those that serve as clan shrines, and they instruct clients in the proper offerings to placate spirits of disease. Amongst the neighboring Mafa, smelting was accompanied by a complicated series of rituals, some of which are designed to teach the furnace – which possesses some female attributes, though these are not explicit – how to transform its food, ore and charcoal, into iron bloom and slag (David 2001). This was almost certainly the case at Sirak and we may be sure that the building and work of the forge was also accompanied by ritual. Potting has its own rituals, and at Sirak a senior potter acts as the chief of these craftswomen, with special responsibility for the location of clay sources and the placation of associated spirits.

It is clear from the sources on the Mafa and Kapsiki cited above (and see van Beek, chapters 10 and 11) that, despite cultural and economic differences between the three groups and individual similarities to others,⁴ their smith-potters can also be classed as transformers. We will refer to this form of articulation of smith-potters with society as the “Transformer pattern.”

4 For example Kapsiki male smiths fall into three categories, burying smiths, brass smiths, and iron smiths, and few used to smelt (van Beek, chapter 10). At Sukur, where the last brass smith was of Kapsiki origin (James Wade’s Sukur fieldnotes 1984; pers. comm. 1992), a somewhat similar division once existed but this cultural similarity is for present purposes regarded as less significant than that men of the farmer caste were smelters on an industrial scale. According to Genest (1976: 137), writing of the Mafa, “Les forgerons reconnaissent volontiers que le travail de fonte ne leur a jamais appartenu en exclusivité. Plusieurs *vavi* [farmers] connaissent également le processus. Cependant les témoignages donnent à penser que, sur la plupart des massifs, la présence du forgeron conditionnait le succès de l’entreprise, même si le *vavi* en prenait l’initiative.” This statement would appear to refer rather to transformer smiths’ knowledge of smelting practices elsewhere, for example at Sukur and Mabas (see below), than to the division of labor in societies characterized by the Transformer pattern of articulation. In our fieldwork in such societies we never heard of non-smiths taking a more than accessory role in smelting.

Sukur

The position of the smith-potters among the Sukur is very different especially in its economic aspects from among the Kapsiki, who are nonetheless close to them in terms of geography, social interaction and, we believe, language (see Table 4.2, note 2). There are several striking differences between Sukur and its mountain neighbors. First, it has long had a reputation as a powerful chiefdom – though it was never a divine kingdom (David and Sterner 1995, 1996 *contra* Kirk-Greene 1960; Smith and David 1995) – with a complex array of titleholders. Second, while there are two castes, its smith-potter caste (*d'ay*) now monopolizes only smithing and potting. Although burial ceremonies, especially of important elders, were once directed by a representative of one section of the Tuva smith-potter clan, this is no longer the case. Sukur smith-potters do not preferentially specialize in divination, funeral direction, healing or midwifery, although they include expert practitioners of these and other crafts.⁵ Significantly, the social complementarity of smith-potters and farmers seen at Sirak and among Mafa is not found at Sukur, where only one clan of the 21 presently resident includes members of both castes. Nor is there a chief of the smiths with a vital role to play in annual or biennial rituals held on behalf of society at large; nor at a familial level do smiths act as priests in rituals on behalf of farmers. Furthermore, over the past decades, Sukur caste boundaries have become less distinct.

Until the 1950s, when imported metal and scrap began rapidly to replace bloomery iron, Sukur was a producer and exporter of iron on an industrial scale (David 1996 and chapter 5; David and Sterner 1996). The iron was used for the manufacture of tools and a variety of weapons, ornaments and ritual objects, and of iron bars exchanged in marriage payments and in trade with neighbors and northern groups such as the Kanuri of Borno. The quantity of iron exported was substantial, sufficient in normal years to manufacture over 50,000 hoes (see chapter 5). Unlike among the Sirak, Mafa, and Kapsiki, virtually everybody was engaged in iron smelting, and this was conducted by small “firms” consisting of family and close neighbors. During the smelting season (primarily the month of April), furnaces were in constant use. Women not only collected and cleaned ore and brought water and food and beer for the smelters and to douse the blooms, but on occasion worked the furnace bellows. This was inconceivable where smelting was restricted to smith-potters. Blacksmiths and their families smelted themselves, but their main work, carried out throughout the year, was to fine the blooms and forge them into currency bars and other artifacts. The magnitude of this task helps to explain both the much higher than normal proportion of smith-potter households that we recorded in 1992-93, 9.4% as against the usual Mandara range of 2.5% to 5%,

5 It may be that smith-potters specialize in or even monopolize certain medical treatments, for instance cupping and the removal of foreign objects magically inserted into the body, but we have not investigated the matter.

and the eagerness to incorporate smith-potters into Sukur society, often under the patronage of clans of the farmer caste. Thus Kwosha are regarded as the smith-potters of Yena clan, and the Kozhuwa of Shagwom.

Among the Sukur titleholders four are of the smith-potter caste. *Tlagama* and *Tligum* are the chief's drummers, and the former also the chief's barber responsible for dressing the hairlock that marks his office, and those of neighboring chiefs with close relations to Sukur. *Day kurba* and, formerly, *Tlid'i d'ay* are the heads of the two sections of the Tuva smith-potter clan, traditionally the first to settle at Sukur. *Day kurba* has primary responsibility for the burial of the chief of Sukur; once installed, he cannot look again upon the chief in life. This is the extent of chief : chief smith complementarity in this society. Until the last *Tlid'i d'ay* died in about 1985 and was not replaced, he was responsible for other funerals of importance, and he also carried out sacrifices for persons under attack from a certain kind of spirit. He and his clan section, which in 1996 included a well-known healer whose wife was an expert in the removal of objects magically inserted into clients' bodies, come closest to being transformers in the sense defined above, and were regarded with special ambivalence.

A smith of the *Tlid'i d'ay* section explained the change in funeral direction by saying that burial became no longer worthwhile when the earlier payment of a goat plus a basket of threshed sorghum and pearl millet was reduced to the grain only. Others told us that the smiths refused to bury. In their place sisters' sons and sons-in-law carry out the duties performed elsewhere by casted smiths. These include preparation of the corpse, digging of the grave, dancing with the corpse, transportation of the body, and its placing in the tomb. It is noteworthy that even though a farmer may dance with the corpse of his mother's brother (or MB's wife) on his shoulders before carrying it to the grave, he is dirtied but not in any deeper or long-lasting manner polluted by such tasks.

Meek (1931) was the first to mention the Sukur tradition that the chief marries at least one smith-potter woman. No other non-smith could do so, not, so we are told today, because of pollution but because he would appear to be competing with the chief, an offence formerly punishable, it is said, by confiscation of property, exile or death. Some smiths agree that this was true in the past, but state that as long as sixty years ago smith men had married non-smith women. This would indicate a lesser degree of separation of the castes even before the end of smelting.⁶

Not all smiths work in the forge. As Margi and Higi smiths on the nearby plains now have better access to the raw materials required, this can to some extent be explained in terms of economics (cf. David and Robertson 1996). The situation with regard to potting is somewhat different. We were surprised to find at Sukur not only young smith-potter women but some in their forties and fifties who had

6 We documented several cases of smith women married to non-smiths, and met one smith who had been married to a non-smith woman – all after the end of smelting.

never potted. This is despite a demand for pots such that potters are able to sell their wares as soon as they remove them from the firing pit. Women of the smith-potter caste were formerly much more heavily involved in assisting their menfolk in the forge than those in communities that did not specialize in smelting. Thus *d'ay* women, employed as smiths' assistants, would have had less opportunity or economic incentive to pot than smith-potter women elsewhere. Pots were among the craft items brought to the Sukur iron market where they were exchanged for iron in various forms, from blooms to finished products. This may also explain why pots, and especially ritual vessels, are at Sukur so much less a focus of elaboration than amongst groups associated with the Transformer pattern. Sukur potters make few ritual vessels (and indeed their pottery is inferior to that of the Sirak and Mafa). The ritual pots that are produced are smaller and less carefully made, and potters are not, so far as we were able to determine, importantly involved in any of the offerings associated with them. More recently, since groundnuts have become a woman's cash crop, the involvement of smith-potter women in farming maintains their relative inactivity as potters, while Margi women with better access to large markets have become ceramic specialists, shipping their wares to Maiduguri and beyond.

The Sirak and Kapsiki, as mentioned above, say that their smiths are "dirty" or "smell" either because of the culturally repulsive animals they are reputed to eat and/or on account of their work with the dead (van Beek 1992 and chapter 10). In contrast, the Sukur state that their smiths are not like those of the Kapsiki or Margi, whose "eyes are like pepper and their children ... ugly". Sukur smiths "don't eat useless things." The gulf separating smith-potters and farmers is clearly much less marked at Sukur than in societies characterized by the Transformer pattern, and we can define the constellation of economic and cultural traits observed there as constituting a "Sukur pattern" of articulation.

Mofu-Diamaré

At first sight, there is a striking difference between Mofu-Diamaré and their montagnard neighbors to the west and south in that there is no endogamous smith-potter caste.⁷ Marriages are formally restricted only by rules prohibiting marriage between certain categories of kin. However, the situation is in fact strongly nuanced. Smiths are not just smiths; concepts of dirtiness by no means absent.

In the most general sense, the Mofu-Diamaré *mbidla* "is first and foremost the man who forges ... and the term *mbidla* can, depending on context, be simply

7 Instead, some Mofu-Diamaré, specifically those of the chiefdoms of Wazang, Durum and Duvangar, are classed as nobles (those of the clans of the princes) and commoners (members of other clans). But this is also the case at Sukur, and to some extent among Sirak, Mafa and Kapsiki, where the clans of the chief are distinguished as *gwalibay* or *kamazə*, both literally meaning clan of the chief. The hierarchical principle is all-pervasive if variably expressed in the Mandara Mountains.

translated as smith” (Vincent 1991: 440 [our translation here and below]). The term *mbidla* functions at several levels, not always distinguished by Vincent, whose primary interest is to explicate Mofu-Diamaré politics. For this reason, she uses various glosses – diviner, blacksmith, specialist – in addition to *mbidla*. It is not clear precisely how these categories overlap. Some *mbidla* do much more than forge: they monopolize divination and those aspects of funerary rituals that result in the transformation of the deceased into ancestor. These persons, whom we shall call “full *mbidla*,” obtain their expertise through a process of possession by spirits (“genies”). Becoming a full *mbidla* begins at an early age, the child (male or female) beginning to show signs of possession. If the child is a boy, his father, aware of his son’s proclivities, takes charge of his apprenticeship as a blacksmith; the child will later assist in burial. Possession by the full complement of spirits is only completed after his father’s death, after which the candidate undergoes initiation under the tuition of full *mbidla*. Only then is he qualified to manipulate the stones of divination. Possession by the spirits enables the full *mbidla* to carry out his work, excepting that of the mundane aspects of burial, for “the *mbidla* spirits manifest the same repulsions as the Mofu ... For the corpse [the spirits] do not come, on account of its smell” (Vincent 1991: 441). In fact many full *mbidla* cease to carry out tasks that involve handling the cadaver, only directing funerals, in which their role in divination and in transforming the deceased into ancestor through a series of rituals remains essential.⁸ Thus it would seem that full *mbidla*, most if not all male, can fairly be described as transformers, specializing in divination, funeral direction, and here the detection and cure of sorcery.

One full *mbidla* also appears in a role complementary to that of the chief, as whose personal diviner he serves. Despite this, no *mbidla* is designated chief of the smiths (ibid. 449). Although the chief’s diviner is “indispensable to the chiefdom, he does not enjoy a defined status” (ibid. 451). Nonetheless a full *mbidla* may claim, “I am prince! Even if the prince in person was there, I’d continue to say that I’m prince!” (ibid. 449).

What is not clear is the extent and limitation of *mbidla* expertise. We learn for example that male or female *mbidla* (for women can be similarly possessed by spirits) may also be consultant midwives (ibid. 444), and that they can – beneficently and not malevolently – render women sterile. But are these necessarily full *mbidla* or are they selected in some other way? Some *mbidla*, we are told, only work with iron and deal with physical aspects of burial, but are full *mbidla* perhaps only members of certain clans, or can any *mbidla* become a full *mbidla*? This is not clear.

As in Sukur, where there is differentiation within the smith-potter caste, so among the Mofu-Diamaré certain *mbidla* can be classed as transformers while

8 Vincent (1985) notes the role of the uterine nephew in the funeral, as is found in variant forms at Sirak and Sukur.

others are merely specialists.⁹ It is unclear to what extent women *mbidla* monopolize any art or craft. Who are the potters of the Mofu-Diamaré? Vincent does not discuss pottery other than to point out that Mofu-Diamaré pots differ significantly in shape (more amphora-like) from those of their Mofu-Gudur neighbors (spherical). It seems most probable that some *mbidla* women, and disproportionately those of clans that have immigrated from casted societies, engage in potting, but that they do not monopolize the craft.

As to smelting, the Wazang-Durum-Duvangar population, amounting to 13,000 in 1967 though less in the early part of this century, was served by about ninety furnaces (Vincent 1991: 44, 286), barely enough one suspects to supply themselves and a tribute of hoes paid to the plains-dwelling Fulbe in order that the latter might restrict their raiding to a tolerable minimum. While some *mbidla* engaged in smelting, so did some farmers. Members of all clans were entitled to build furnaces and to smelt (ibid. 441). The chief himself organized work parties to obtain ore and charcoal, farming out these materials to others for smelting. He accumulated stocks of hoes, in part to pay off the Fulbe (ibid. 287), and he was also associated with iron in another way, being buried with a number of hoes proportional to his time in office.

The Mofu-Diamaré articulation of smiths into society is clearly aberrant in terms of the casted Transformer and Sukur patterns. Perhaps some part of the explanation lies in demographics. *Mbidla* constitute less than 1% of the population. At Duvangar there are 18 clans of which two are specifically stated to include smiths, while another, the Mariyam, consists entirely of smiths. The latter are recent immigrants and elsewhere casted. At Durum, the 15 or 16 clans include only one that has smiths, plus another, Sebe, composed of smiths who are casted elsewhere. At Wazang, where there are 17 clans, we are told only of Mariyam smiths. Thus the proportion of *mbidla* is remarkably low in the overall Mandara context and it should be no wonder the Mofu-Diamaré captured smiths and their families. One chiefly clan found “a man busy forging and gathered him up with his family,” while another clan’s story relates that “The smiths constitute prime game, and it is legitimate to capture them for one’s clan” (ibid.171).

What about marriage? While *mbidla* and others can technically intermarry, there are puzzling inconsistencies. Among the chiefdoms of Wazang and Durum there is a tendency for *mbidla* to be marginalized and to marry amongst themselves. Vincent (ibid.446) attributes this to proximity to the strictly casted Mafa and Mofu-Gudur. The prince of Wazang has no *mbidla* wives, whereas the prince of Duvangar took wives from the *mbidla* clan (*sic*) of Durum (ibid.446). Negative attitudes towards *mbidla* are, on the other hand, present at Duvangar where the

9 On the other hand Vincent (1991: 441) tells us that one can not forge without the assistance of *mbidla* genies. This would indicate that all *mbidla* were in some way possessed.

prince and his clan refuse to eat with them. The question arises, therefore, whether all or only certain categories of smiths are discriminated against in marriage?

In conclusion, the reputedly uncasted Mofu-Diamaré possess many of the attributes and attitudes of Mandara caste societies. Rather than disassociation of the smithing and potting elements in the caste complex, it may be the importance of *mbidla* possession by spirits that constitutes the prime distinction between the Transformer and Sukur patterns and what we shall term the “Mofu-Diamaré” pattern of articulation characteristic of the chiefdoms of Duvangar, Durum and Wazang. Clearly it is inappropriate to regard caste – an anthropological concept deriving from Hindu culture reaching English via Spanish and Portuguese, and for which the montagnards have no word – as a state that is either present or absent in Mandara mountain societies. Rather than a binary distinction, there is a range of attitudes and behavioral correlates that imperfectly correlates with varying packages of specializations, marriage preferences and proscriptions, and with the perceived “dirtiness” of segments of society. Writing of the central portion of the region, Vincent (1971: 104) describes a gradient in space: “From east to west [Mofu-Diamaré to Mafa], we recognize the appearance of a relationship between divination, the art of the smithy, and responsibility for funerals; the specialists concerned becoming progressively more socially distanced and then casted.” At the scale of the Mofu-Diamaré pattern there appears to be an internal gradient in attitudes regarding *mbidla* that is evident in increasing *mbidla*-farmer intermarriage as one moves north and east from Wazang and Durum, the chiefdoms closest to casted societies, towards Duvangar and the other Mofu-Diamaré groups (Vincent 1991: 261, 446).

Patterns of articulation and their distribution

In the light of the overall similarities in smelting and blacksmithing and the integration of the iron economy in the central portion of the region under study, the social articulation of smiths into montagnard societies is more varied than might perhaps be expected. Six patterns and a possible seventh can be identified with varying degrees of confidence (Fig. 4.1), although available data do not permit assignation of every ethnic group to a pattern, and there are ethnic groups that do not appear to fall within any of the defined patterns. Thus, for example, according to Juillerat (1971, 31, 61), the Muktele of the northeastern Mandara Mountains did not smelt and all their smiths are of a single descent group that claims to have arrived ten or more generations ago from the Waza hills located on the plains 60 km northeast of Mora. However, there is no indication in Juillerat’s brief description that their blacksmithing is in any way differentiated from the montagnard norm.

The northwestern horn of the Mandara Mountains is a little-studied sub-region in which there appears to exist an unspecialized or **Primitive pattern** characterized by the transmission of smithing, unassociated with packages of other arts and crafts, within families that are neither casted nor attached to localized descent

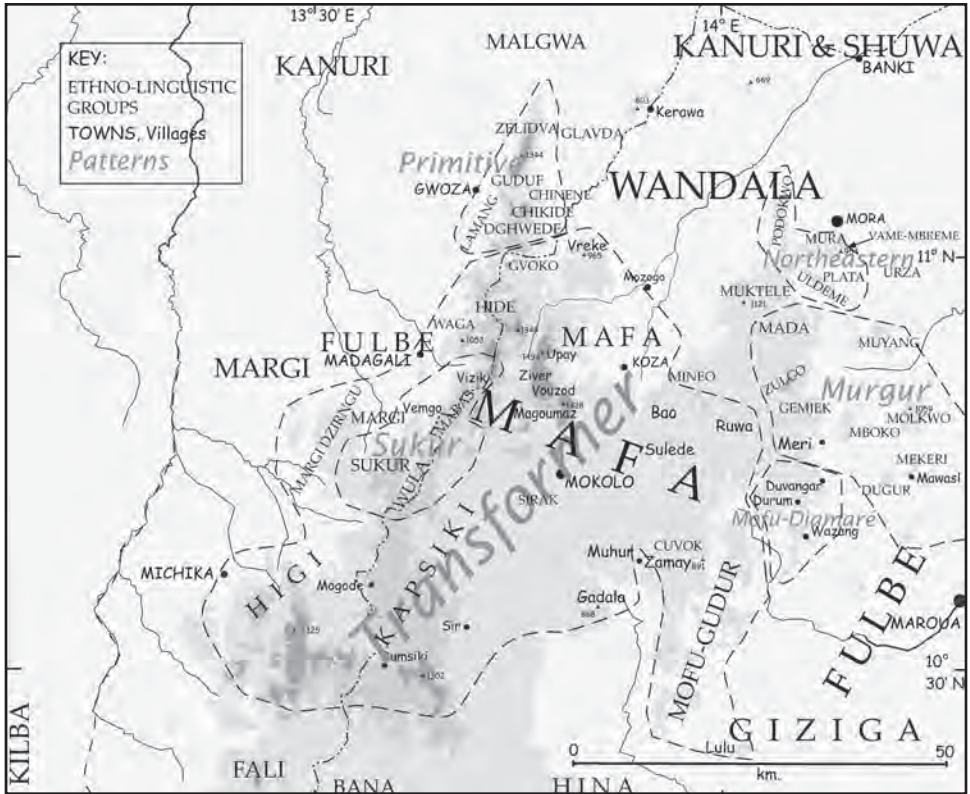


Figure 4.1. Patterns of articulation of ironworkers and society in the Northern Mandara region.

group territories. Among the Dghwede smelting might be practiced during the dry season by anyone who had acquired the skill (G. Müller-Kosack, pers. comm. 2000). Despite the archaeological evidence previously noted of what appears to be the ethnographically known form of smelting in this area going back some 600 years, intensity appears to have been significantly less than among, say, the Plata of the northeast, where remains of furnaces are frequently encountered.

A degree of craft and ritualist specialization by descent groups, usually described as lineages and sometimes localized, appear characteristic of the pattern of articulation found among the peoples of the northeastern Mandara Mountains immediately south of Mora. Unfortunately, ethnographic accounts of the peoples of this sub-region have paid little attention to smiths but it is clear from MacEachern's (2003, 266-8; 1992) synthesis of the meager sources that smithing descent groups are neither endogamous, nor is there any association between iron working and potting, nor with other crafts or professions (see also Sterner 2003, 208). Among the groups studied by MacEachern (1992: 217) in the northeast, 30-50% of women make pottery, some for auto-consumption and exchange, and others

Table 4.2 Classification of Chadic languages spoken in and around the Mandara Mountains according to (a) Barreteau and Jungraithmayr (1993) and (b) the *Ethnologue* catalog of the languages of the world (Lewis, ed., 2009). This uses a somewhat different terminology and classification, however its Biu-Mandara A branch overlaps to a considerable extent with the Division Bure-Pèlalsa of Barreteau and Jungraithmayr's Chadic Central Branch.

BARRETEAU-JUNGRAITHMAYR	ETHNOLOGUE	MAIN GROUPS MENTIONED IN THIS CHAPTER
Chadic Central Branch, Sub-branch Tera-Dzəpaw, Division Bura-Pèlalsa	Chadic, Biu-Mandara branch	
Subdivision Bura-Guðe	Biu-Mandara A	
Group Bura-Bana		
Sub-group Bura-Margyi	A2	Margi
Sub-group Higi-Bana	A3	Kapsiki, Wula, Higi, Bana, and Sukur ²
Group Zizilivəkən-Guðe	A8	
Subdivision Xədi-Mofu		
Group Xədi-Wandala	A4	
Sub-group Xədi	A4 Lamang	Hide, Mabas
Sub-group Parəkwa-Wandala	A4 Mandara proper	Wandala, Mura, Podokwo, Plata
Group Matal-Mofu		
Sub-group Maða	A5	Mada
Sub-group Matal	A5	Mukhteile
Sub-group Maða-Mofu	A5	Maða, Mofu (all), Sirak, Cuvok, Gemjek, Zulgo, Uldeme
Subdivision Pèlasla	A5	Plata

Notes:

1. Barreteau and Jungraithmayr's work can be seen as a development of the Dieu, Renaud et al. (1983) coverage of our region.
2. The Sukur state that their language, *sakun*, is much more closely related to Kapsiki and Higi than it is to any others. *Ethnologue* (Gordon 2005) places *sakun* in its own A6 group of Biu-Mandara while Crozier and Blench (1992) align it with Wandala and Mafa. These attributions must be regarded as provisional inasmuch as *sakun* only began to be studied in depth in 2008 by Michael Thomas, a graduate student at the University of Colorado, Boulder. See <http://www.sukur.info/Lang/langindex.htm> for data earlier available on *sakun*.

for markets set up mainly in the colonial period.¹⁰ That particular skills should be associated with certain patrilineal societies, in these patriarchal montagnard societies, no surprise. What is apparently distinctive about the **Northeastern pattern**, is the association of blacksmithing, and in the Plata case smelting, with descent groups that own particular territories. Within the Plata Kapa lineage some smelted and forged, some one or the other, and some neither. Ajokfa, the Plata master smelter seen in the video *Black Hephaistos* (David 1995), had never forged.

The **Transformer pattern** is not limited to the Sirak and other speakers of *mefele* formerly known as Bulahay, the Mafa, and Kapsiki, but extends south to the Bana and, as discussed below, perhaps other groups. It extends west to the Higi, close cousins of the Kapsiki (van Beek 1987: vii), and to the Margi Dzirngu, Nigerians speaking a language of the Bura-Bana group (A2) and living in and at the feet of the westernmost Mandara Mountains in Madagali Local Government Area (Vaughan 1970, 1973). Transformers to the north include the Hide and Gvoko, speakers of languages in the Xêdi-Wandala group (Biu-Mandara A4), while to the east among the Mafa-Mofu group (A5) there are the Cuvok and, as evidenced by Barreteau (1988, vol. 1: 13) and our own limited work amongst them in 2004 and 2005, their Mofu-Gudur neighbors (Table 4.2). Finally, the pattern extends to the nearby Giziga of Lulu, an inselberg on the eastern fringe of the Mandara Mountains (Pontié 1973: 83-85) with a population that, according to the same author (1981: 258), includes many originally Mofu-Gudur elements. However Pontié's statistics (1981: 74, Table 4.3) suggest that only about 78% of the 190 Lulu households are included within the caste system and that other clans, for example the Giziga Muturua, remain outside it, despite, in the case of the Muturua, a notionally Gudur origin.

A notable feature of the Transformer pattern is that their potters all use the tamper and concave anvil method for forming at least the bases of their vessels (Sterner and David 2003). This pot-forming technique is characteristic though not diagnostic of this and the closely related Sukur pattern, and it is of significance that Delneuf's (1988: 100-154) ceramic survey indicates that the same technique, present at Lulu, is not found among plains-living Giziga but that is practiced by potters of the casted Hina and their neighbors to the southwest, the Daba (Vorbrich 1989: 273-74), and by a nearby "Fali" group, presumably the Djimi since they are the only Chadic-speaking Fali in Cameroon.¹¹ It would seem that traits character-

10 The reasons behind the at first sight uneconomic involvement of so many women in the household production of ceramics in this sub-region are unclear, but probably relate to the proximity of Wandala markets and the lack of alternative sources of income for women in this poor and densely (*ca* 135 persons/sq. km.) settled area.

11 Brunetière, an ethnologist who studied the Djimi for her doctoral research, states that their potters form their pots by coiling (1982: 69). This is certainly true of the upper part of larger pots. Delneuf (1988) also states that castes and the tamper and concave anvil technique are found among the Gidar who inhabit the Mayo Louti valley. The Gidar are a complex and little studied ethnic amalgam that came under Fulbe rule around 1830 (Collard 1981).

istic of the Transformer pattern are variously present among groups inhabiting the southern margins of the northern Mandara Mountains but the evidence is insufficient to attribute them to a Transformer pattern defined in terms of expressions of caste among the Mafa and their neighbors. The Nigerian Fali use the tamper and concave anvil technique to form their pots, continuing by coiling (M. Galántha-Wade, pers. comm. 2010) and are similar in other ways to Transformer pattern societies. However, their smiths always form kinship groups of their own (Wade, chapter 9) and for this reason alone they cannot be assigned to the Transformer pattern. Amongst the Fali the elaboration of caste appears greater than elsewhere and it may one day be possible to define and delimit a Fali pattern of articulation of smiths and society.

Whereas most groups characterized by the Transformer pattern were barely or not self-sufficient in iron, the **Sukur pattern** is characteristically associated with smelting by smiths and farmers alike, practiced intensively with a view to production for trade. At Sukur itself, village industry and participation as a player in the northeastern Nigerian iron trade was associated with routinization of smelting, increased division of labor, and the development of a chiefdom with secular powers evidenced *inter alia* by major public works. There is ethnohistorical evidence that this phase was preceded by one in which the articulation of smiths was more similar to the Transformer pattern (David and Sterner 1995, 1996).

The industrial Sukur phase was characterized by specialization within the smith-potter category (e.g., the *Tlid'i d'ay* “funerary smiths”), and by significant secularization. This is seen in the de-emphasis of family, patriline, and clan-based ritual in favor of rites that seek to ensure the well-being of Sukur as a whole, or to support the political hierarchy. If divination had ever been the monopoly of smiths, this became no longer the case. While the smith-potter and farmer-smelter symbiosis became even more important economically, farmers lost their dependence on smith-potters’ transforming capabilities. Any complementarity of *Day kurba* and the chief that may previously have existed became limited to the *Day kurba* being installed by him and later taking responsibility for his burial.

Once again the pattern crosses language group boundaries. Our inquiries among the Wula, speakers of a Kapsiki dialect, and Mabas, whose Xèdi-Wandala group (A4) language is closely related to that of the Hide, suggest that their smith-potters are articulated with society in a manner similar to those of Sukur. Despite linguistic differences, these groups share some traditions of origin. So too do the Margi Dzirngu, at least as regards the descent from Sukur of the chiefly houses of Gulak and Duhu. However, although some Gulak Margi appear to have been active in smelting (Vaughan 1973; but see David, chapter 5), local historian Aji Medugu informed us that Gulak was not self-sufficient in iron, and that while farmers participated in smelting, their jobs were to collect raw materials and to assist smiths in the work rather than smelting for themselves (ND interview, Gulak, 3 Nov.1992).

While many Margi Dzirngu have now converted to Islam and Christianity, it is clear that formerly they were characterized by a Transformer and not the Sukur pattern of articulation.

South of the Kapsiki, the casted Bana, and we infer also the Teleki, practiced smelting as a village industry, but we do not know enough about other aspects of their culture to assign them to a specifically Sukur pattern of articulation.

The **Mofu-Diamaré pattern** as inferred from Vincent's (especially 1971, 1991) works and described above appears to be characteristic only of that group's major chiefdoms though we might expect varying degrees of overlap of both attitudes and practices with some of the simpler, "acephalous," Mofu-Diamaré. However, many of these were caught up for a considerable period preceding colonization in a sixth and very different pattern.

The **Murgur pattern** of articulation, present in the scatter of inselbergs east of the northern part of the Mandara chain, is identified from a detailed account of the history of the Murgur recovered by Christian Seignobos (1991a) using oral traditions and ethnological analysis. The Murgur are specialist smiths and smelters linked by their crafts and by a common but complex and peripatetic history. Latecomers in the long term flow of immigrants into the Mandara region from the Logone river and Chadian plains, they washed up – Seignobos (*ibid.* 172) suggests in the period 1675-1725 – on the inselbergs north and northwest of Maroua, where their subgroups became incorporated into the region's multiplicity of Mofu- and Giziga-related ethno-linguistic units. Losing their original language and much of their plains culture, they adapted their metallurgical skills to regional circumstances, for example elaborating the Sukurian type of furnace, and became the most successful smelters in the area. From centers in the massifs of Mekiri, Mboko and Molkwo and other settlements they furnished iron in the form of blooms, ingots and forged artifacts to their communities and to other groups, including for example the Gemzek and Zulgo, Mada and Muyang, all or most of whose smiths gave up smelting. Murgur exported iron also to the Wandala and the Fulbe. Although often regarded with ambivalence, they were neither casted nor endogamous, nor despite some expertise in divination did they monopolize this or any other craft or practice, including smelting and smithing. Although they became Mofu and Giziga, they retain a Murgur identity founded on their history and craft.

The emergence of specialist packages and castes

Smelting and forging iron are crafts that require lengthy training and regular practice to achieve and maintain competence. To ensure both the transmission of metallurgical skills from generation to generation and access to this critical factor of production, the montagnards relied on two primary strategies: the manipulation of kinship and alliance, and the incorporation whether by force or by favor of special-

ists into their communities. In a situation in which iron technology was everywhere transmitted primarily through the patriline, access to iron products was obtained in a variety of ways, ranging from

- a) a linkage of consumers to producers by associating them as sections of the same or closely linked clans, so that iron was ideally obtained from clan brothers,
- b) the establishment of affinal links, so that iron was paradigmatically obtained from in-laws, to
- c) acquisition of iron from non-kin, usually members of the same or a related community, and from smiths and others at markets that were established in some instances before the colonial period, though more generally afterwards, and finally
- d) recruitment of smiths by enticement or by force.

The Transformer pattern favored the first solution as an ideal, although fluctuations in clan and caste numbers in practice militated against farmers being serviced by smiths of their own clan. Where, as in communities with a component of Murgur residents, smelters married into non-smelting families, their in-laws would have had privileged access to iron. The third solution was undoubtedly the most common. The fourth is well-documented in Mofu-Diamaré ‘principalities’ and among the Sukur, in the latter case sometimes taking the form of a farmer clan acting as the patron of smith immigrants. Amongst the Mofu-Diamaré the urgency of acquiring smiths, if necessary by force, may well, as noted above, have been stimulated by the need to produce hoes for tribute. Their “princes” involvement in organizing these payments may similarly have been a factor in their achieving or maintaining secular power greater than that of the Sukur chief, and far greater than that of the priest-chiefs often associated with the Transformer pattern (David and Sterner 1999).

An explanation of the various articulations of smiths and smelters with their societies requires a regional and inter-regional approach. Regarding the latter, it is for example certainly not the case that Mafa potters invented the widespread tamper and concave anvil pot-forming technique, and it is important to recognize that the form taken by caste in the Mandara Mountains is very different from that described by, for example, Tal Tamari (1991) in West Africa (Vaughan 1970). Our approach assumes that

- a) except in the case of the Murgur, more specialized patterns emerged within the area under study from the less specialized and thus from something comparable to the Primitive pattern, in which iron working is, like

other crafts and specialist activities, associated with and normally handed down in certain families but with some provision for other community members to learn and practice craft skills, and that

- b) the primary driver of pattern differentiation and elaboration was the development of complex, state- or near state-level, societies on the surrounding plains that interacted with the montagnards in various forms of asymmetric exchange including trade, extraction of tribute and armed raiding.

Although there were other macro-factors including droughts and locust infestations that affected the whole or large parts of the area at various times over the past half millennium, none, we believe, had greater influence than that of states on the demand for iron, a prime factor of production and destruction, and thus on the articulation of montagnard smiths and their societies. If this is the case then the bulk of development of more specialized patterns occurred over the past half millennium.

The Northeastern pattern differs from the Primitive primarily in the association of some crafts and other skills with territorial descent groups. The dominance within the area covered by this pattern of Plata smelters (Seignobos 1991a: 151) is unexplained. Perhaps specialization became advantageous to these northeastern groups as they came under pressure following the rise of the Wandala state. Unfortunately we do not understand the role in iron production and trade played by Mehe Djiddere, a site on the plain 19 km east of Mora at which there are numerous mounds, a test on the largest of which produced a Neolithic to Iron Age sequence (Wahome 1989 and see chapter 2). There is plentiful evidence over the site for iron working including smelting (David Killick pers. comm. 1989) dating to the second millennium AD. There was in the area of the Northeastern pattern no further development of a specialist package in the mountains. However, ethnically and linguistically-related plains-dwelling smiths were incorporated into the Wandala state, and perhaps as early as the 17th century introduced to smithing practices associated with the Islamic world, adopting the spike anvil stuck into a buried log and bag bellows (Robertson 1992).

As to the Transformer pattern, in which ironworkers are most distanced by caste and practice from the rest of the community, one may make a good 'functionalist' case for the rationality of the smith-potter association in terms of scheduling of activities and in particular the competing demands on time for farming, smithing and potting. Since the demand for smiths' work is highest in the late dry season and early rains when fields must be cleared, planted and weeded, smiths can not also be much engaged in cultivation. Potting is also carried out in the dry season, with pots purchased most intensively towards the end of the dry season when housewives are concerned to build up their stocks before the rains set in and potting more or less ceases. At that time, with farmers busily occupied in their fields, smiths' wives and

daughters are frequently called on to assist them in the forge. Thus the technical demands and seasonality of pottery manufacture combine with those of the forge to minimize smith-potters' opportunities to farm. As it is said, "The forge is the granary of the smith" (Sterner 2003: 55).

Not only is complementarity of blacksmith and farmer, potter and farmer's wife beneficial from economic and craft transmission perspectives, but accretion of other crafts and professional activities related to birth, death, sickness, and divination, can be explained in similar terms. This is less clear in relation to several of the other crafts variably associated with the smithing and potting core (Table 4.1). Transformer smith-potters are thus the most specialized of any in the Mandara Mountains. We suggest that this is so because under circumstances of increasing population density and agricultural intensification over the past four centuries the differentiation of farmers and smith-potter proved an efficient and productive socio-economic strategy, and because the groups characterized by this pattern were, generally speaking, the least affected by the incursions of the plains states. This might account for the apparent paradox of a caste system that is apparently unrelated to those found elsewhere in West Africa, but which makes use of a widely distributed pot-forming technique that everywhere in West Africa, and usually beyond, is associated with specialists, though not always with castes (Sterner and David 2003).

The complex of crafts and professions practiced by the smith-potters is of course analytically distinct from the attitudes the rest of society takes towards them. In 1991 JS and ND argued that, in the Transformer pattern, concepts of cosmology, of transformations of persons and things from one state to another, of gender relations and of social control underlie an ambivalent relationship between farmer and smith-potter, modeled on that between the sexes. James Wade's 'structuralist' development of this suggestion (2005 and chapter 9) based upon his work amongst the Nigerian Fali is that the development of a smith-potter caste involved the progressively closer association of specialists practicing a variety of crafts. As specialists and non-specialists tended more and more to marry amongst themselves, the two categories came to be regarded as both socially and morally distinct. Ideologically, specialists are both marginalized like women and central in that, like the chief, they mediate between the positive/normative and the negative/anti-normative. As such they exist in a zone of inherent ambiguity, manifested in their case as pollution, and of complementarity to the chief.

Langlois (chapter 8) addresses the question of the emergence of a smith-potter caste from a much needed historical perspective, one that marshals the available archaeological evidence relating to migratory and political events affecting the southern Lake Chad basin over the past millennium while giving explanatory weight to cultural values. It is not in conflict with functionalist and structuralist approaches and it places caste emergence in the period of state development. Nonetheless, before it can be fully accepted, this interpretation requires fuller instantiation and

better chronological control of migrations at various scales, besides extension of archaeological coverage from the eastern inselbergs and Mandara Mountains piedmont into the heart of the area in which caste is present.

Turning to the Sukur pattern, there is ethnohistorical evidence that Sukur's industrial phase was preceded by one in which the articulation of smiths was similar to that characteristic of the Transformer pattern (David and Sterner 1995, 1996). We conclude that the Sukur pattern is rooted in the latter emerging – in the context of increasing areal demand for iron consequent upon the development of complex societies – as the result of economic specialization in iron production that kept smiths so busy with the processing of blooms that others became as competent in certain specializations such as divination and ritualism, while smiths' wives and daughters found that participation in smelting and the fining and forging of bloomery iron was often more profitable than potting. Under such circumstances, smith-potters have over time tended to lose their transformer identity, and, as one might expect, ambivalence towards them has become less marked. At Sukur the rapid decline of smelting and accelerated migration from the mountain settlement to the plains, where land was still plentiful in the 1950s, has led to ever greater approximation of smith-potters to the farmer norm.

The Mofu-Diamaré pattern is best understood as a contact phenomenon, developed on a Primitive base in interaction with both the Northeastern and Transformer patterns and some Murgur contacts (Seignobos 1991: 156-63). While we do not fully comprehend the importance of *mbidla* possession and its significance for *mbidla*-farmer relations and attitudes, it is clear from Vincent's work that Mofu-Diamaré principalities were at pains to incorporate smiths, whether originally casted or not, into the princely chiefdoms. However, pottery manufacture did not become a craft firmly linked to iron working, perhaps because, as at Sukur, pots never achieved the same degree of elaboration as they do in societies characterized by the Transformer pattern where still today, in communities that have not capitulated to a world religion, there is very limited division of ritual labor, with each household head his own priest. Social and economic interaction with less inegalitarian Mofu-Diamaré and other groups to the north are also likely to have inhibited any tendency towards development of full castedness.

Unlike the others, the Murgur pattern developed from the migration into the area from the east of a group of refugee smelter-smiths that rapidly integrated themselves into the plethora of small-scale ethnic groups in the inselbergs north and west of Maroua, rapidly adapting their technology and skills to local conditions. Rather than replacing existing ironworkers in the massif and foothill villages in which they settled, they often combined forces to create centers of iron production that out-competed those on the pattern's peripheries where for the most part only a few smiths continued to practice. Murgur host communities also showed considerable skill in managing relations with the Wandala and, in the 19th

and early 20th centuries, the Fulbe. The rulers of these complex and notionally at least state-level societies appear on the whole to have valued Murgur centers more as tributary suppliers of iron than as potential conquests. How stable the pattern would have proved in the absence of European colonization is uncertain. Seignobos (1991a: 151) mentions deforestation at Molkwo leading to problems of defense.

In summary, while political and economic factors underpin the socio-cultural contexts of iron production and iron producers in the Mandara, they have been variously interpreted and elaborated among montagnard peoples by processing through a conceptual matrix of which the basic coding or schemata are in large part shared, the symbolic reservoir of which we have written elsewhere (Sterner 1992; David and Kramer 2001: 216-8). This common fund of ideas and practices, which came to be shared even by immigrant Murgur, has been affected and manipulated in different ways in response to diverse historical stimuli both endogenous and exogenous. We have sketched the resulting patterns and their emergence but are still far from able to explicate or document their development in any detail. We are only too aware that however productive the pattern of articulation is as conceptual tool, two of the six patterns proposed are built upon shaky evidential foundations. As always we need more data, ethnographic, historical and archaeological. There are still major gaps in both topical and ethnic ethnographic coverage; historians have shown little interest in the pre- and early colonial past; and archaeological data in the mountains are hard to come by due to the destruction and dispersal of sites consequent upon the combination of non-nucleated settlements with high population densities and a common pattern of compound abandonment for both economic and ritual reasons. We can only welcome the opportunities for research and attempts at synthesis that this situation offers and will continue to offer *Mandarisants* of all stripes.

Acknowledgments

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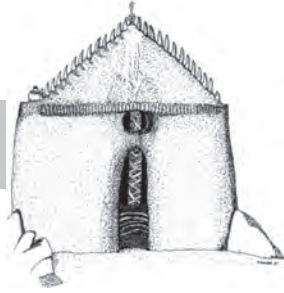
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Ricardo in the Mandara Mountains: Iron, Comparative Advantage, and Specialization

Nicholas David

In the previous chapter David and Sterner described six patterns of articulation of ironworkers and their societies. While such patterns are not coincident with modes of production they offer a perspective on the social and technical relations of production that, combined with the productive forces, constitute the mode of production. Two such modes are considered in this chapter.

Wherever iron is a critical factor of production and destruction, its flow into, through, and between societies interacts with environment and society in a way that is mutually structuring. Since factors of production including land, labor and capital and local attributes such as climate, ore deposits and skills differ, specialization is a likely consequence. Specialization, as Warnier (1985) showed in his analysis of the political economy of nineteenth century Bamenda, is usefully studied in the context of David Ricardo's comparative advantage model (Thomas 2003: 495-8). Whereas earlier authorities explained specialization in terms of absolute advantages enjoyed by nations or comparable entities, Ricardo held that even if one of two countries had no absolute advantage in producing any commodity, both it and the advantaged country benefit from specializing in and trading the thing that each



Figure 5.1. A selection of blooms, iron bars and, in the jar, bloemery iron fragments retained for over thirty years by a Sukur smelter in 1993.

is best at producing.¹ I explore this thesis in the context of the northern Mandara Mountains of Cameroon and Nigeria, approaching it through a reconstruction of iron flows within and beyond the ethnically and politically diverse northern Mandara region (Figs 1.1 and 4.1). These appear to conform to Ricardo's model, which cannot however explain the forms that specialization took in the Mandara Mountains. Von Liebig's law of the minimum is of relevance in this regard.

My and colleagues' field research for this paper took place mainly in the period 1986-93, however the paper is set in the 1930s and 40s, the latest period of active iron making to which, through human memory, I had access at the level of individual furnace masters. In the 1950s, when René Gardi (1954, 1955, 1959; B. Gardi, chapter 2) and Paul Hinderling [1953, 1955]) were producing their pre-

1. The numerous assumptions of the model, for example that capital and labor are mobile within but immobile between the two entities, that trade is free and prices proportionate to labor value (see Morishima 1989: 131-36), hold reasonably well for the societies of the Mandara in precolonial and early colonial (or League of Nations mandate) times despite forcible transfer of labor from mountains to plains under slavery prior to 1920. The reader is referred to a paper by Shennan (1999) and to Warnier's monograph (1985, especially pp. 185-88) for further exposition of Ricardo's law and justification of its application to ethnographic and archaeological materials.

scious records of Mafa smelting, bloomery iron was being replaced by recycled scrap metal and industrial stock. Smelting declined so rapidly in the late 1950s that some local producers found themselves unable to market their blooms (Fig. 5.1). The smelting that Sassoon (1964) observed at Sukur in 1961 was already a revival, stated to have been carried out in reaction to what they perceived as the low quality of European iron. I infer that smiths were discovering the impossibility of welding imported iron alloys.

The total area covered is approximately 3500 sq. km², extending beyond the Department of Mayo Tsanaga in the Extreme North Province of Cameroon and the former Madagali District in Adamawa State, Nigeria. Within these administrative entities I focus on certain settlements within what I will term the “Mokolo cantons” in Cameroon and on Sukur and its neighbors in Nigeria (Figs. 5.2 and 5.3).²

While my results are of analogical value, they are applicable to the precolonial history of the region only with extreme caution since it is doubtful whether smelting was ever practiced during the twentieth century under what passed in the Mandara for normal conditions. As Beauvilain (1989) has demonstrated, during the nineteenth century and as far back as there are records, the peoples of north Cameroon, and by extension their Nigerian neighbors, were beset by droughts, plagues of locusts and other insects, epidemics and epizootics. Besides natural disasters, there were also raiding and slaving, mainly targeted by plains states against montagnards. Even so, the twentieth century was exceptional, largely because of the guns and particularly rifles that were the common weaponry of the dominant powers, whether indigenous, imperial, or mandated. Probably soon after his accession in 1902 and certainly before March 1911 (see Weiss 2000: 192-3), Hamman Yaji, the Fulbe ruler of Madagali, was engaged in predatory raiding directed against non-Muslim groups on the plains and in the mountains. His sphere of influence extended across the boundary between the British and French Mandated Territories and over the future Mokolo cantons. Between September 1912 and October 1920 Hamman Yaji's diary records the killing of over 200 montagnards and the capture of almost 2000 slaves, mainly women and children, as many cattle, and almost as many small stock (Vaughan and Kirk-Greene 1995). He suborned some communities and harassed others. At one time a large part of the Sukur population fled, taking refuge with Kapsiki and Higi. Sukur finally capitulated to Hamman Yaji,

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2. The demographic data have been presented by Beauvilain (1989) and others in terms of the Cameroonian administrative units of 1981-90. While conforming to that standard, I have grouped as the “Mokolo cantons” the cantons of Matakam-Sud from which our most detailed information on smelting is drawn, and Mokolo-Fulbe (or Mokolo-Peul) cantons. The latter entity, variably defined through time and poorly delimited geographically, comprises the Fulbeized component of the region: Mokolo town and other Fulbe and mixed settlements encysted in the western part of primarily Mafa Matakam-Sud. Similarly, although the Borno and Adamawa states are those of present day Nigeria, the Madagali and other district entities recognized on that side of the border relate to the early to middle 20th century.

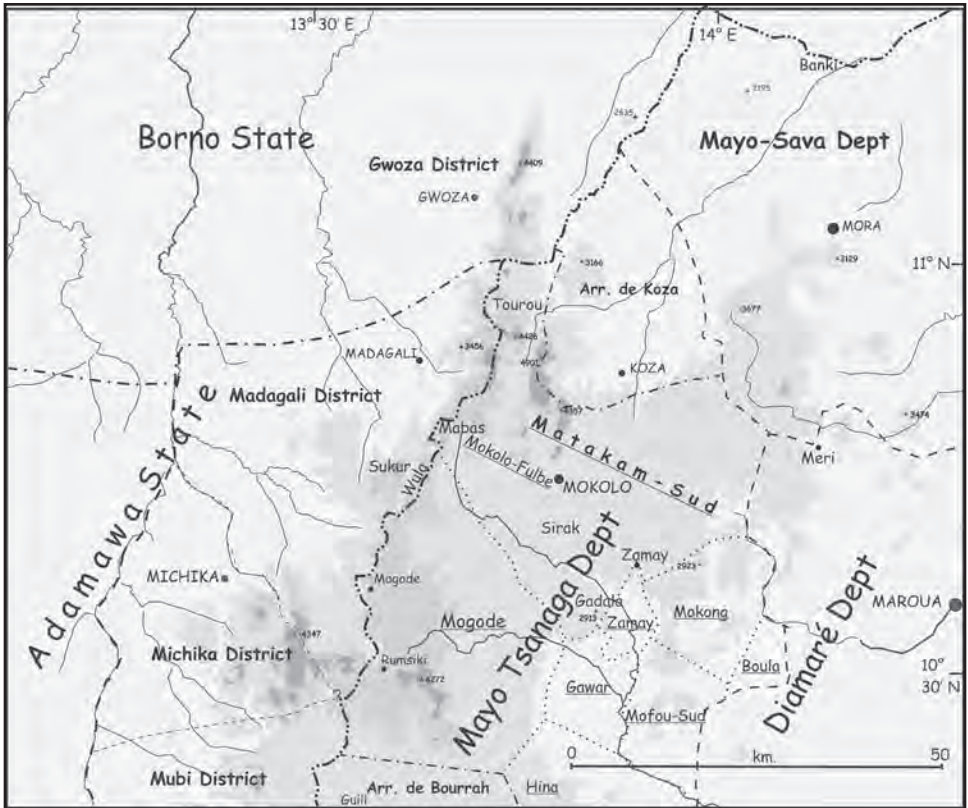


Figure 5.2. Map showing the area treated in this chapter. Contours (simplified) at 2000, 3000 and 3500 feet (610, 914 and 1067 m.). Nigerian districts after a sketch map drawn by ADO. D.H.F. MacBride that appears in a 1935 report on Madagali district by J. H. Shaw (NAK SNP 17-25073). Cameroonian administrative boundaries are taken with minor modifications from Iyébi-Mandjek and Beauvilain (2000). The names of cantons are underlined.

by then a District Head under a distant British administration, probably in 1922, the same year the French established a military post at Mokolo. Yaji was finally deposed by the British in 1927. However, through most of the 1930s plagues of locusts and ensuing famines retarded the population recovery that relative peace might otherwise have offered (Beauvilain 1989, vol. 1: 129). So severe were the famines that some Mafa and other montagnards relinquished or sold their children to Fulbe rather than see them starve (Martin 1970: 130). Partly in order to provide famine relief, the French and British initiated large road building projects (Beauvilain 1989, vol. 1: 207), at the same time continuing aggressively to collect taxes (*ibid.* 329). How these various political and natural events affected the iron

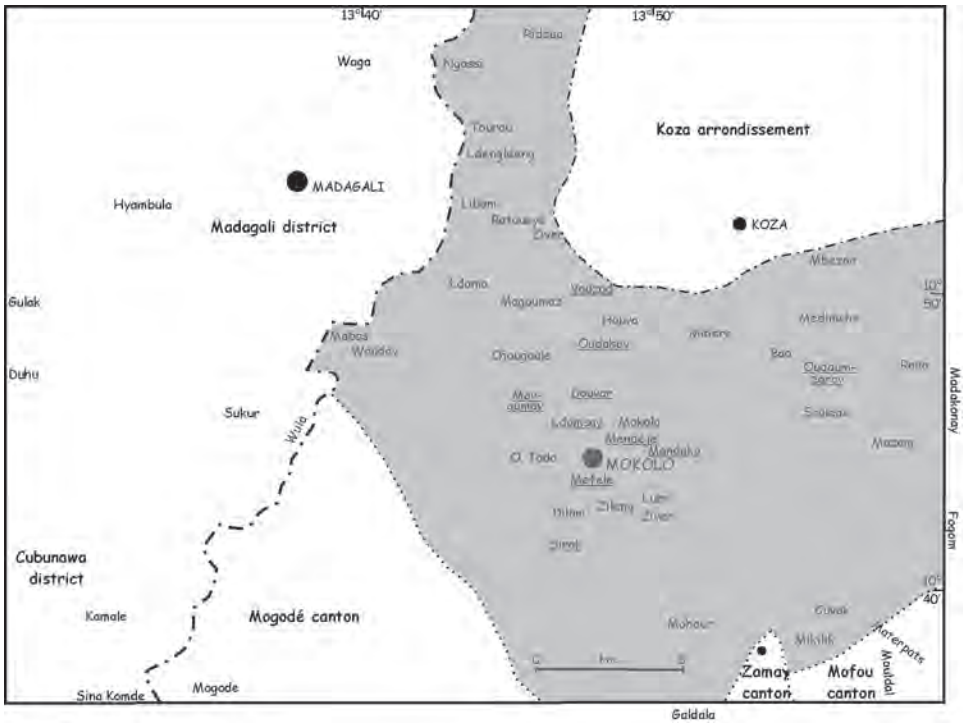


Figure 5.3. Villages of the Mokolo cantons and selected other settlements. Names of villages in the Circum-Mokolo sample are underlined. Some settlements listed in the census figures (Table 5.2) are not identifiable (some are wards of other settlements). Probably as a result of changes in administrative boundaries through time, there are minor, unresolved, conflicts between cantonal boundaries and the census data.

industry we do not know,³ but there is evidence that from the mid-1930s montagnard populations had begun a sustained period of increase, and we may suppose that their furnace masters were called on to supply an expanding market. Unfortunately even Sukur's iron industry virtually escaped European notice. There is no contemporary study of iron production and trade in the Nigerian, Cameroonian, or "metropolitan" archives relating to the mandated territories. In short, although reconstruction of the iron economy of the 1930s-40s represents the best achievable means of generating materials for use in analogy, we can relate changes in the iron economy to broader historical developments only in the crudest manner, and

3. While it is possible that locust infestations led to increased smelting as one of the rare forms of economic activity not immediately affected by the destruction occasioned by these insects, we know of one Cameroonian furnace master of the time who emigrated temporarily to Nigeria. In the famines of the early to mid-1930s regional stocks of iron bars would have shrunk significantly as they were used to buy grain at inflated prices and to pay taxes.

the evidence is lacking that might enable us to pursue those changes back in time. And yet, as Stahl (1993) has so cogently argued, the economy of inner Africa has for centuries been influenced by the emergent modern world system. *Ergo caveat analogiae emptor!*

In what follows I first use a case study approach to describe the two main modes of iron production in the Mokolo – Madagali region, and attempt to quantify production and consumption in the 1930s and 1940s. I then discuss the extent of and variation within these modes and establish the nature and size of the flows of iron within the region and across its borders. Ricardo’s Law of Comparative Advantage is invoked to explain patterns of specialization, and I conclude with a discussion of the extent to which, in the first half of the 20th century, iron and another scarce resource, time, structured relationships between farmers and craft specialists in Mandara montagnard society.

On Methodology

A note on methodology is required. While I have access to demographic data, themselves often impressionistic and subject to systemic biases, the evidential base insofar as it relates to iron is for the most part qualitative, consisting of information obtained primarily by myself between 1986 and 1996 during interviews, unstructured or semi-structured, with smelters, smiths and others including women who reached adulthood in the 1930s and 40s, or who were for other reasons well-placed to provide information relevant to that period. Ethnoarchaeological and laboratory checks on their testimonies, especially when derived from re-enactments of smelting and forging (e.g., David et al. 1989), and ethnographic observations assist in controlling the quantitative estimates that are essential to my argument. Nonetheless, quantitative estimates – and doubly so comparisons of phenomena observed by representatives of different European and African societies – are fraught with pitfalls. Apparently simple questions – how many iron bars can be made from an average bloom? – may, depending upon the chain of smelting and fining operations and the degree of standardization of the product, be answerable only indirectly. Minor changes in assumptions can result in substantially different quantitative results. While I have often found it necessary to revise calculations, it is a small step from revision to massaging the data to suit tentative inferences. Resistance to such temptations is best achieved by pursuing “vertically” and “horizontally” independent lines of evidence (Wylie 1994: 755). These often point in the same direction and provide mutual support. For example the number of furnace masters I recorded as operating in certain villages near Mokolo in the 1930s-40s is not at variance with the number that might be expected given the probable percentage of smith-potters in the general population and the size of those villages inferred from demographic sources. Conversely, some informants’ statements, for example regarding the past value of special purpose iron currency, conflict both with others and with records

made at the time by careful European observers. They can therefore be disregarded – as can on occasion the remarks of Europeans. Third, although estimates, for example of the production and consumption of iron, can be easily adjusted up and down, this is true only within a restricted range beyond which the implications, economic, social or other, become grossly inconsistent with informants' testimony and with generations of researchers' observations of life in the Mandara Mountains.

Throughout the development of my reconstruction I have set forth my assumptions and explicated the argument in order that others can check the reasoning and, varying the assumptions, recalculate estimates of production and consumption. I am reasonably certain that the central values of critical estimates are off by no more than a factor of two, and satisfied that the broad outlines of the economy of iron sketched in this paper are sufficiently near the truth to support the inferences founded upon them.

The Transformer Mode of Production in the Vicinity of Mokolo, Cameroon

Generation of the database

After a season of archaeological and ethnoarchaeological prospecting in 1984 (David and MacEachern 1988), Judy Sterner, Kodzo Gavua and I worked in the Mokolo region for much of 1986. Gavua and Sterner worked intensively in, respectively, Sulede, a Mafa settlement, and Sirak, a village of Mefelespeakers. I carried out a broader survey, working with members of several ethnic communities, but engaging also in focused research into iron smelting and smithing by Dokwaza Kawa, a Mafa master smith living in Lum-Ziver, a recent settlement southeast of Mokolo (David et al. 1989; David and Le Bléis 1988). Sterner and I returned in 1989 for a three month season during which we were joined by archaeometallurgist David Killick. We collected more data and organized two further smelting re-enactments, one by Dokwaza and the other, facilitated by Scott MacEachern, by Ajokfa, a Plata smelter. In 1990 Sterner and I returned for six weeks during which we visited the Kapsiki-related Bana of Guili, formerly active smelters living 50 km SSW of Mokolo (David 2010).

Before and after my research with Dokwaza Kawa and his family, I visited many communities in the vicinities of Mokolo and, between 1991 and 1996, Sukur, questioning smiths, smelters, and others regarding iron production, consumption and distribution. Great differences between the two sub-regions were obvious. To the east around Mokolo, transformer smiths had forged and smelted at widely varying intensities while further to the west there were communities in which much larger quantities of bloomery iron had been produced by all or most families for fining and forging by their own smiths and for export both within and beyond the region.

Regarding the Mokolo cantons, while I am unable to provide a complete census of furnaces and forges operating in the 1930-40 period, I found sufficient linkages between smiths of the various settlements to permit reconstruction of the network of specialists that supplied the local market at that time. In all and with the help of colleagues, I obtained information regarding over 40 furnace masters in the vicinity of Mokolo. Data from these villages constitute the basis of the first case study. In these and other settlements, many compounds and forges were visited, and smiths and farmers interviewed. Markets offered further opportunities for the study and comparison of iron tools, weapons, and decorative items. Interview data relating to prices and consumption past and present were found to be consistent with the results of censuses of metal objects in two compounds. As to disposal, all agreed that in earlier times iron was intensively recycled by welding and re-forging, and was intentionally discarded only as small fragments or in exceptional circumstances, for example as grave goods, perhaps most commonly of chiefs (David 1992: 210). This material is interpreted in the context of what is known, culled from a variety of sources, of regional ethnography and history.

Quantification of production

Production is a function of the numbers and organization of producers, inputs of labor and raw materials, and their productivity. Regarding productivity it should be recognized that, while the traditional technologies under review allow considerable play for individual initiative and adaptation to circumstances, the range of variation is limited. As described in chapter 1, there are only three main forms of furnace in the Mandara Mountains. Two smelts in a Mafan furnace reenacted by Dokwaza at our instigation, and another in a Sukurian furnace conducted by Ajokfa (David 1995) provide some basis for estimates of the potential productivity of the two processes (Figs 1.2 and 1.3). A convergence of these with oral testimonies (e.g., David 1996; David and Sterner 1996) and metallurgical studies of blooms produced in the latest phase of the traditional industry (David et al. 1989; D. Killick pers. comm. 1994) encourage us to believe that our estimates, while approximate, are usable.

Estimation of numbers of furnaces and furnace masters requires very different approaches in societies characterized by a Transformer pattern of articulation of smiths and society, and in Sukur, subject of the second case study, where most men and women were involved in smelting. In the former we need to identify individual smelters and obtain estimates of their production. In Cameroonian transformer societies a happy consequence of the small numbers of smelters, endogamy, and their relative freedom to travel or take up residence in other communities is that smiths knew and know their counterparts – often kin or affines – in other settlements, and their testimonies can be checked against each other, and against the remains of furnaces and smelting debris, the location and attribution of which to

particular iron masters offered an obvious point of entry into my topic. If it is probable that a few smelters in the settlements most intensely studied have been omitted, it is unlikely that they were resident for long or that they smelted regularly or frequently. Moreover, any bias introduced by underestimation of numbers is in part countered – since we cannot control the time factor in oral testimony at all precisely – by its inverse. It is unlikely that all the smelters identified were actually smelting at the same time.

The frequency of smelting is difficult to estimate. Some men were near full-time specialists for much of the year and might smelt four times a month in the dry season though less frequently in the rains. While the 20-30 smelts a year claimed by or for a few verges on the excessive, some may have smelted up to 3 or 4 times a month during the dry season, possibly achieving 25 smelts per annum (though for purposes of estimation I have set a still generous 20 as the upper limit). A considerable number are said to have smelted only once or twice a year, perhaps mainly for auto-consumption or as much to demonstrate their skills and enhance their reputations as for economic gain. Others reasonably active in this specialty would seem to have smelted 7-10 times a year. Where the question of frequency was not asked, I have used smelters' reputations as indicators of their activity, assigning their production to categories of 2, 6, and 10 smelts a year.

Estimation of the larger population served by the Cameroonian smelters is fraught with difficulties. I have relied on published data which I have not, except in one minor instance where settlements were inappropriately grouped, sought to correct or modify. Table 5.1 shows population figures through time for the area of the Department of Mayo Tsanaga, and for the two Mokolo cantons: Matakam-Sud, from which our most detailed information on smelting is drawn, and Mokolo-Fulbe. The first national Cameroonian census was conducted only in 1976. Previous administrative censuses, conducted by the crude means of assembling and then counting the inhabitants of settlements (see Gardi 1995: 38, photo 17), are unreliable. In 1960 the demographer Podlewski's (1961: 16fn.) sampling indicated to him that some 15% of the population had been missed in the 1959 administrative census. Beauvilain and Gubry argue that the administrative census of 1967 underestimates the population of Mayo Tsanaga department by 29.6% (Boulet, Beauvilain and Gubry 1984: 147). Thus, although the figure of 31,637 for the population of the Mokolo cantons in 1945 is almost certainly an underestimate, and no figure is given for the population of Mokolo-Fulbe canton, which must however have been small at the time, I shall accept it as an estimate of mean population for the cantons over the period 1930-49.

The relatively rapid increase in population in Matakam-Sud canton after 1945 suggests that while substantial expansion of Mokolo town did not begin until the late 1960s, it tended to attract people to its environs.⁴ Table 5.2 shows a part of

4. Differential emigration to the plains is also a factor (Boutrais, Pontié et al. 1984).

Table 5.1. Census data and population densities for the Department of Mayo Tsanaga (4393 km²) and the Matakam-Sud and Mokolo-Fulbe cantons (1050 km²) 1945-87.

	1945	1956	1959	1962	1967	1976a	1976b	1982	1987
Department of Mayo Tsanaga	135,161	167,754	177,491	181,852	205,341	303,896	255,540	No data	391,983 / 425,428
Pop. /km ²	30.8	38.2	40.4	41.4	46.7	69.1	58.2	No data	89.2/96.8
Matakam-Sud canton	31,637	51,934	53,481	56,006	59,033	Not distinguished	95,286	89,398	88,586
Mokolo-Fulbe canton (incl. Mokolo town)	No data, but small and/or included in Matakam-Sud	3737	3698	3578	6097	Not distinguished	3424 + 7143 (town)	9467	21,730
Mokolo cantons combined	31,637	55,131	57,179	59,584	65,100	103,851	105,853	98,865	110,316
M-S + M-F cantons	30.1	52.5	54.5	56.7	62.0	98.9	98.9	94.2	105.1
Pop. /km ²									
Density over remainder of department	31.0	33.5	36.0	36.6	41.9	59.8	44.8	No data	84.3/94.3

NOTES

1. Sources: **1945-1976a** from Beauvilain (1989: 590); **1976b** from Hallaire 1991: 24; **1982** Administrative census data provided in 1990 by the Sub-prefect, Arrondissement de Mokolo; **1987** National census data (preliminary) provided in 1990 by Dr O. Iyébi-Mandjek excepting total population of the department which is given as 391,983 by Seignobos (2000: 651) on the authority of the Provincial delegation of the Ministry of Economic Affairs, Programming and Regional Development (MinPat), and as 425,428 by Beauvilain (loc. cit.). Some figures represent raw administrative returns, others their authors' differential application of factors intended to compensate for under-reporting and other errors.
2. The administrative nomenclature is taken with minor modifications from Beauvilain (1989) and Iyébi-Mandjek and Beauvilain (2000).
3. In 1945 Mokolo-Fulbe canton was not yet an administrative entity. While Fulbe settlements such as Wanday certainly existed, their inhabitants were counted in tens rather than hundreds. Mokolo itself was a military post from 1922 until 1939 and would have remained very small during World War II.

this development and that the circum-Mokolo sample of villages on which we have more detailed data on furnace masters consistently represented approximately 25% of the Matakam-Sud canton total in censuses taken between 1962 and 1987. This constitutes a justification for applying that relative frequency to the 1945 data, and thereby estimating at 7909 the population served by the 43 furnace masters from those villages in the 1930s-40s (Table 5.2, item e). Of that population we might, according to demographic estimates (Podlewski 1966a: 36), expect 5% or fewer, i.e., not more than 395 persons in all, to have been members of the smith-potter caste. If smith-potter households averaged five persons in contrast to the general average of six to seven, we are dealing with no more than 79 households, by no means all of which were headed by a furnace master.⁵ In 1972-73 Genest (1976: 173) found that less than half the male members of the Mafa smith-potter caste had ever participated in smelting, and only some of them as furnace masters. Genest's figure, obtained a decade or more after smelting had ceased and during which smelters had died, may be an underestimate. Nonetheless, the number of furnace masters identified in the circum-Mokolo villages is not at variance with the number that might be expected in a sample of this size.

The circum-Mokolo furnace masters

Furnace masters were always male household heads of the smith-potter caste, but not all such heads had the requisite knowledge or desire to smelt. Married sons who had established their own households might still smelt, at least for a time, with their fathers. Table 5.3, which presents data on the 43 furnace masters who worked during at least part of the 1930s and 1940s, relies heavily on information

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5. Household size is difficult to establish as demographers treat humans as statistics while anthropologists regard them as bearers of structure, neither disciplinary group integrating numbers and social arrangements. Podlewski (1966a: 6) notes that in his "Matakam" sample that there is one smith for every 100 persons, and that as smith-potter households contain 5 people on average, "5% de la population mafa est 'forgeronne'." Elsewhere Podlewski (1966b: 99) gives six or seven as the size of the average household. Genest (1976: 165) agrees on the size of smith-potter households, but found that smith-potters constituted about "2¼ to 3%" of the 35 Mafa villages in which he conducted a census in 1972 (Genest 1974: 495; 1976: 6, 10). The smaller mean size of smith-potter households may reasonably be explained in terms of the smith's lesser tie to fixed capital in the form of land. It is easier for a young smith, whether practicing as a metal worker or in other specialties, to set up on his own, than it is for a young farmer in a land-hungry region. At Sukur, censuses carried out by myself and Judy Sterner in 1992-3 showed a household size of 8.38 (which we attribute to a conscientious assistant obtaining the names of the smallest babies and of the young men absent for seasonal labor). Smith-potters constituted 9.4% of the total, the higher proportion reflecting the former demand for smiths to fine the bloomery iron produced by village industry. For heuristic purposes I use a household size of seven throughout the chapter, and a figure of 5% for the relative frequency of smith-potters in Cameroonian societies characterized by a Transformer pattern of smith-potter articulation.

Table 5.2. Population of the Mokolo cantons according to the 1963, 1982 and 1987 censuses (see notes for sources).

MATAKAM-SUD

- a) The circum-Mokolo villages for which we have data on furnace masters relating to the period 1930-49

SETTLEMENT	1962	1982	1987
Douvar	817	1108	1231
Ldamsay	2023	2060	2173
Mandaka	2222	2208	4154
Mavoumay	1295	3260	2814
Mefele	1880	1847	1909
Mendeje	1059	1405	Counted w/Mandaka?
Mokola	2581	3279	3363
Oudahay	1674	2398	3822
Oudoumzaray	803	1082	1435 est.
Sirak	1209	1568	1859
Vouzod	716	1611	645
Totals	16,279	21,826	23,405

- b) Other settlements. Redrawing of census zone boundaries accounts for the apparent gaps in the 1987 census records.

SETTLEMENT	1962	1982	1987
Bao	4001	4057	4467
Batoueye	396	291	
Chougoule	1994	2482	3441
Douloum	203	428	
Fogom	809	1476	
Gadala	1488	1833	
Ldabam/Libam	1280	1764	1908
Ldama	1252	2956	3297
Ldeng-ldeng	498	1245	1481
Ldileng	163	89	
Madakonay	1089	2138	3154
Magoumaz	2896	4474	5435
Mabas (incl. Maksi)	453	506	586
Materpats	195	776	
Mazam	1614	3477	3398
Mbalda	79	218	
Mboua	1165	1991	
MEDIMCHE	912	954	
Midere	3281	4102	5441
Mikilik	216	383	

Mohour	554	1388	506
Mouldal	322	657	
Ngossi	498	863	
Ouro-Tada	898	576	837
Ridoua/Hidoua	851	724	736
Roua	4185	5138	4907
Sulede	2505	5369	7122 est.
Cuvok	1890	5105	3968
Tourou	5656	9221	9102
Zileng	300	1030	2362
Ziver	957	1861	3033
Totals	42,600	68,112	65,181

- c) **MOKOLO-FULBE CANTON** (the town of Mokolo and mixed Fulbe and montagnard settlements to the west)

Mokolo-Fulbe Canton	6099	9084	21,730
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- d) **TOTALS AND OTHER STATISTICS**

a + b	58,879	89,398	88,586
a / a + b	0.276	0.243	0.264
a + b + c	64,978	98,482	110,316
Mokolo cantons combined pop. densities per km ² ((a+b+c)/1050)	61.9	93.8	105.1

- e) Estimate of mean 1930-49 population of circum-Mokolo villages listed under a) above = $31,637 * 0.25 = 7909$.

NOTES

1. Sources: 1962 Administrative census data reported by Martin (1970: 4-9); for 1982 and 1987 sources see Table 5.1.
2. For 1962, Beauvilain (1989: 90) gives figures of 56,006 for Matakam-Sud, as against Martin's 58,879, and 3578 for Mokolo-Fulbe. The difference is probably due to the application of a correction factor intended to compensate for systematic underreporting (Martin 1970: 59).
3. In 1987 some settlements were apparently amalgamated for census purposes; thus for example it seems probable that Mendeje was counted with Mandaka, and Oudoumzaray with Sulede. The 8557 total for Sulede has been distributed between it and Oudoumzaray on the basis of the relative sizes of the two settlements in 1982.
4. The figures for Mokolo-Fulbe canton are unreliable; Martin's figures are problematic and, probably for technical reasons relating to the coding of rural and urban zones, the population of Mokolo town is reported as increasing from 5593 to 17,489 between 1981-2 and 1987.

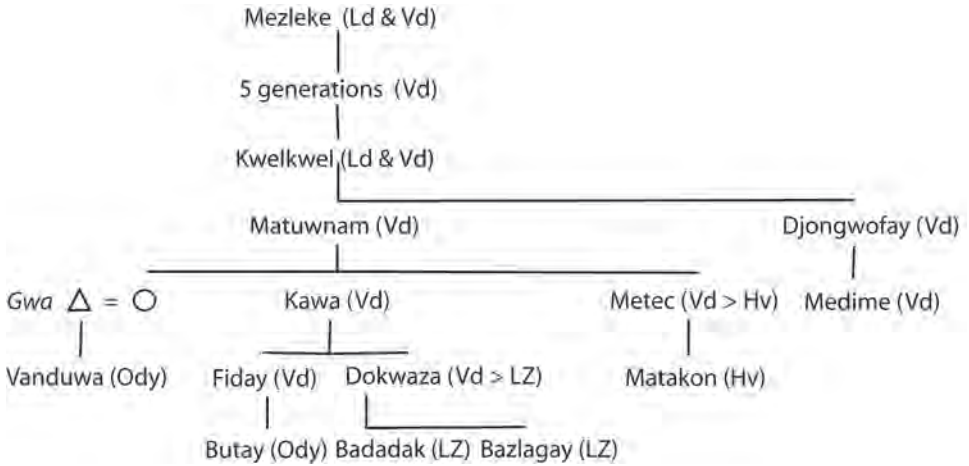


Figure 5.4. Dokwaza Kawa's Shebe clan line showing practicing smiths and one marriage to a man of Gwa clan. There are many other affinal linkages to smiths of other clans in other villages. Villages of residence are shown in parentheses. Ld = Ldama; Vd = Vouzod; Ody = Oudahay; Hv = Houva and LZ = Lum Ziver.

provided by a small number of smiths: Dokwaza Kawa, Gwelgwel Ngwova and his first cousin Ndewelem Mazina of Mokola, and Waydam Kotye of Oudoumzaray near Sulede, a member of the smelting family most photographed by René Gardi (1954: 46-91). Besides being active smelters, these were all members of large transformer families with members or affinal links in several villages (Fig. 5.4). Table 5.3 also indicates the movement of smiths from one settlement to another, and the number of smelts conducted per annum. Only in Sirak, which has connections to the Kapsiki and Sukur areas, were there Sukurian furnaces; the remainder were all of Mafan type. I estimate that these furnace masters conducted a total of 212 Mafan smelts and 22 days Sukurian smelting a year.

Ore and charcoal supply

All montagnard furnaces are designed to use ore consisting mainly of magnetite. Collected as sand-sized particles during and immediately after the rains, it is widely but neither universally nor always abundantly available. Winnowing and panning or the use of a sluice are required before it is clean enough for successful reduction. Ore collection and cleaning were mostly carried out by smith-potter families, particularly women and children (Wente-Lukas 1972: 120). Within the two cantons ore appears only to have been available in quantities significantly greater than were needed for local consumption around the Buhol settlement of Gadala, in the south, where it was collected by their smith-potters (who used Sukurian furnaces) and sold to Mafa and to the Mofu of Zidim. Mafa furnace masters also went there to collect on their own behalf. Gwelgwel said that he would walk there in a day,

climbing trees from time to time to look out for Fulbe raiders, and then spend about four days gathering and washing ore before returning. A more important ore source was Mbezaio (Mbusao) to the east of Koza, where ore was collected by resident smith-potters and farmers alike and exchanged with Mafa smelters for mahogany (*Khaya senegalensis*) oil and forged iron artifacts. A basket of ore constituting a headload, unlikely to be less than 20 kg., was exchanged for a hoe, probably weighing about 250-350 g.

Charcoal is today made by both smiths and farmers, amongst whom there are occasional, at least part-time, specialists. Then and now, clients regularly bring charcoal with them to the forge in part payment of the smith. Care taken in charcoal production is likely to have increased with population density and demand for wood for lumber and fuel. In both 1986 and 1989 Dokwaza and his family took great pains to cut trees and branches into short lengths, to dig burning pits, and to cover the burning wood first with hay that quickly carbonized to form a partial seal and later with earth. Burns were tended over a period of days, with removal of the charcoal up to a week later. Although we may suppose that less care was taken in earlier times, it does not appear that the supply either of charcoal or of ore constrained the amount of smelting carried out in the Mokolo cantons.

Smelting and estimates of productivity and production

Smelting was carried out under a furnace master of the smith-potter caste and by members of his immediate family and kin, sometimes with the assistance of other caste members who would visit for the purpose from other villages.⁶

Earlier research centered on Dokwaza Kawa's 1986 smelting re-enactment indicates that "a successful smelt in a [Mafan] furnace of the size observed might have produced about 17 to 21 kg of recoverable metal from 40 to 50 kg of ore (David et al. 1989: 199). With this range taken as the basis of estimates, annual mean output from the estimated 212 smelts in Mafa furnaces in the smelters' villages would have amounted to between 3604 and 4452 kg of bloomery iron. This has to be fined, welded, and forged into artifacts (tool iron), during which sequence of processes the weight of the product is reduced by about half. Estimates of the production of Sirak Sukurian furnaces rely upon those developed at Sukur (see below). These data suggest that the average bloom would produce about 1.2 kg of bloomery iron, sufficient to forge two and a quarter small bars, flattened iron rods with splayed ends that prove their malleability, each weighing approximately 270 g. At Sukur furnace

6. Genest (1976: 137) suggests that farmers may have played a more important role, sometimes taking the initiative in smelting, but that "the presence of a smith affected the success of the enterprise." While it is always unwise to underestimate the amount of variability existing among Mafa, we found that while farmers sometimes provided labor for furnace building and other accessory tasks, including the pumping of bellows (which they often do in the forge), they never controlled the rituals and magic that were an integral part of smelting technology.

masters practiced smelting for weeks each year and were accustomed to producing between seven and eleven blooms a day. The less professional smelters of Sirak are, I suggest, likely to have attained only the lower portion of this range. At seven blooms a day they would then have produced on average 8.4 kg of bloomery iron, a significantly smaller quantity than achieved by a Mafa furnace, though the coherent nature of the bloom meant that parts could be forged directly without the necessity of an intermediate welding phase. Thus the 22 days of smelting we estimate to have taken place in batch furnaces at Sirak would have produced 185 kg of bloomery iron, bringing annual production in our circum-Mokolo village sample to a total of 3789 – 4637 kg, sufficient to manufacture between 7017 and 8587 small bars.⁷

Iron consumption

As the literature contains little or nothing on iron consumption, I rely upon our field observations and informants' testimonies. During the 1980s, industrially manufactured metal products were still rare in village settings. There were a very few ploughs, drawn by donkeys. Certain smiths had purchased sledge hammers. While some households possessed radios, there were no household appliances, nor the electricity to run them. Bicycles were owned by some better off, usually younger, men. Wrist watches and mass-produced jewelry were sought after. Disposable cigarette lighters and matches had largely replaced forged strike-a-lights. Enamelware, imported from Nigeria and China, and Cameroon-made aluminum cauldrons and stewpots were not uncommon, especially in the towns, but were replacing ceramics and gourds and not metal. Hurricane (bush) lamps, found in a proportion of compounds, also came from China, as did some machetes, perhaps the only item that represented a significant, if still partial, industrial replacement of an item previously manufactured by local smiths.

Mafa elders were consistent in holding that, in the first half of the twentieth century, there used to be many fewer people and fewer hoes owned per person. Today every adult has at least two hoes, one for cultivation, the other for weeding. In the old days people cultivated less and diet was supplemented more by gathering and hunting, and probably also (see Hamman Yaji's raiding statistics above) by the products of domestic livestock. There may have been on average one hoe

7. I did not collect or weigh currency bars in Cameroon. Gardi (1954) illustrates two of classic form and a third shorter and thicker bar without expanded ends. The central bar (III 12, 408, Museum der Kulturen, Basel) is 38 cm long by 2.1 cm wide in the middle portion, and 4.0-4.4 mm thick. It weighs 361 grams. The example on the left, which does not form part of the Museum's collection is about 37.5 cm long and likely weighs about the same. The piece on the right (III 12397), 24 cm long, 11-14 mm thick, weighs 385 g, and is, I suspect, a bar collected while in process of being reforged into another artifact. These data, kindly provided by Bernhard Gardi (message of 6 July 2001), might be taken to suggest that Mafa preferred larger bars than were the standard element of exchange at Sukur. However this may be, I will in this paper retain the Sukur 270 g bar as the unit of comparison.

Table 5.3. Furnace masters working in a sample of circum-Mokolo villages in the 1930s and 40s. (Continued on next page.)

SETTLEMENT (AND SUB-SETTLEMENT OR WARD)	#	SMEALTER NAME & F'S NAME IF KNOWN	DESCENT GROUP	SMEELTS PER ANNUM	KINSHIP	MOVED TO (>) OR FROM (<) IN HIS LIFETIME	PRIME INFORMANT; ND OR J. STERNER FIELDNOTE REF.	NOTES
Vouzod	1	Kav Matuwnam	Shebe	9			Dokwaza Kawa; ND90-2: 16, 38-41	Abbreviations: Mf = Malan; Sk = Sukurian Furnace locations: UTM 33N
Vouzod	2	Dokwaza Kawa	Shebe	7	#1's S	>Lum-Ziver	As #1	
Vouzod	3	Friday Kawa	Shebe	8	#1's S		As #1	
Oudahay	4	Vanduw	Gura	4	#1's ZS		As #1	
Oudahay	5	Matakon Gibay	Gibay	1			As #1	
Oudahay	6	Bedam,	?	1-2		<Midre	As #1	
Vouzod	7	Bazlaga Djekete	Shebe	2			As #1	
Oudahay	8	Gellaw Tavawa	Shebe	2	#7's BS		As #1	
Oudahay Houva	9	Metec Matuwnam	Shebe	3	#1's B	<Vouzod	As #1	
Oudahay Ldama	10	Ngwaya Keveled	Shebe	2	#1's FFFFB descendent		As #1	
Mavoumay	11	Fanday Fulotay	Juwe	5		>Midre	As 1 + Tewoshe Ngrdubay; ND90-2: 59	
Mavoumay	12	Friday Fuwed	?	1		<Medimshe nr Oudoumzaray	As 1 + Tewoshe Ngrdubay; ND90-2: 59	
Mavoumay	13	Ngrdubay Nduvna	?	1			Tewoshe Ngrdubay; ND90-2: 59	Last smelt about 1947
Mavoumay	14	Meniy Jekete	?	1		<Ldama	Ndukwobay Ngaybay; ND90-2: 61-3	
Mavoumay	15	Bedam Lalaw	?	1		<Midre		
Ldamsay	16	Trodak Vice	Dugolay	4-6			Vaydam; ND90-2: 43, 102; Hinderling 1955	Smelted for Paul Hinderling (1955) in 1953 Mf furnace at 369.5/1189.9
Ldamsay	17	Zaywa	?	2 est.			Gwelgwel Ngwova and Ndewelem Mazina; ND89-4:48	
Douvar	18	Ngha Tuldugay	Jele	3			As #1	

SETTLEMENT (AND SUB-SETTLEMENT OR WARD)	#	SMEITER NAME & F'S NAME IF KNOWN	DESCENT GROUP	SMELTS PER ANNUM	KINSHIP	MOVED TO (>) OR FROM (<) IN HIS LIFETIME	PRIME INFORMANT; ND OR J. STERNER FIELDNOTE REF.	NOTES
Mefele	19	Vugaliya	Gwo-libay	10 est.		<Mokola	As 17 + Degenjef Vugaliya; ND89-2: 26-7.	Abbreviations: Mf = Mafan; Sk = Sukurian Furnace locations: UTM 33N MF furnace 368.2/1184.9
Sirak	20	Deluvey Gombara	Golibay	6 est.		<Sir	As 17 + Zera Peje & Dokwaza; JS89	Sk furnace on top of Mt Sirak
Sirak Kilbe	21	Dele	Golibay	6 est.			Jewalde Dele; JS86-860622	Sk furnace in Kilbe (near Goray). Last smelted ca 1951
Sirak	22	Peje Vavara (F of Zera)	Ketende	2 est.			Zera Peje; JS86-3	Sk furnace incorporated into a terrace wall on smallish peak/plateau to NW of Mt Sirak
Sirak	23	Koyang Goza	Ketende	2 est.	#22's BS		JS 89	Sk furnace same as or v. close to Peje's
Sirak Goray	24	? Baray Koskosay	Mokoje	2 est.			Zera Peje; JS 89 890610	Sk furnace
Sirak	25	?	Wazum	2 est.			JS 89 890610	Sk furnace at E end of Mt Sirak
Sirak	26	Kosoya	?	2 est.		<Chougoule	JS 89	Sk furnace assumed
Sirak	27	Songola	(a Mafa)	2 est.			Mongoshe Dele; JS90	Mf furnace assumed
Oudounzaray Zatala	28	Kotye	Teme	10			Waydam Kotye; ND90-2: 79-84	24-30 all descendants of a man from Midre. Furnace filmed by Gardi and last smelts after his visits.
Oudounzaray Zatala	29	Givekeme Votsuna	Teme	2			As #28	Mf furnace
Oudounzaray Zatala	30	Gawaka Wuva	Teme	10			As #28	Mf furnace
Oudounzaray south	31	Vileukw Gwalday	Teme	10			As #28	
Oudounzaray south	32	Dangway Gwaya	Teme	10			As #28	
Oudounzaray south	33	Takwuzlam Takwudama	Teme	10			As #28	

SETTLEMENT (AND SUB-SETTLEMENT OR WARD)	#	SMEITER NAME & F'S NAME IF KNOWN	DESCENT GROUP	SMELT'S PER ANNUM	KINSHIP	MOVED TO (>) OR FROM (<) IN HIS LIFETIME	PRIME INFORMANT; ND OR J. STERNER FIELDNOTE REF.	NOTES
Oudoumzaray south	34	Jakdave Guraddek	Teme	10			As #28	Abbreviations: Mf = Mafan; Sk = Sukurian Furnace locations: UTM 33N
Mokola Mpolldok	35	Gwelgwel Ngwowa		20 (20-30)			Gwelgwel Ngwowa; ND89-4: 48, 55-59	Mf furnace 373.5/1189.6
Mokola Mpolldok	36	Neighbor of #35		10			Gwelgwel Ngwowa; ND89-4: 48	Smelted frequently but less than #35
Mokola Mpolldok	37	Man at N end of Mt Mpolldok		10			As #35	Smelted frequently but less than #35
Mokola Mandaka	38	Ndewelem Mazina		20 (20-30)	#35's FBS	<M. Mendeje	Ndewelem Mazina; ND89-4: 48	
Mokola Mandaka	39	Wasa Geme	Teme	10		<Midre	ND90-2: 42	Smelted frequently but less than #35
Mokola Mendeje	40	Sakava Ndenama	Jele	10		<Douvar	Dokwaza Kawa; ND90-2: 42	
Mokola Mendeje	41	Gaya Huikawa (FF of Warda)	? Mendeje (Keleshe Viva)	10			As #17; ND90-42	Smelted frequently but less than #35
Mokola Mendeje	42	Lahay Sakketa	? Mendeje (Keleshe Viva)	10			As #17	Smelted #frequently but less than 35
Mokola Baragoua	43	Hemham Bildagam		12	#35's FB	>M Mendeje	As #17	Smelted frequently but less than #35
Smelts per annum				Mf = 212 Sk = 22				

Table 5.4. Census made in 1986 of iron objects in the house of an elderly Mafa couple with estimation of tool iron purchased per annum (data from David and Kramer 2001 : 352), and iron artifact inventory suggested for a household of 7 persons in the 1930s-40s, with an estimate of tool iron purchased per annum under conditions of careful recycling.

TOOLS, WEAPONS, AND ORNAMENTS	1986 CENSUS							1930s-40s ESTIMATE						
	N FOUND IN HOUSEHOLD OF 2 IN 1986	EST. USE LIFE (YRS)	EST. WEIGHT RANGE FOR SIMILAR ITEMS (g)	EST. MEAN WEIGHT OF ITEM (g)	EST. ANNUAL REPLACEMENTS	NEW IRON REQUIRED FOR REPLACEMENTS (g)	N EST. FOR HOUSEHOLD OF 7 IN 1930s-40s	EST. MEAN WEIGHT OF ITEM (g)	EST. PORTION OF TOOL REQUIRING REPLACEMENT	EST. ANNUAL REPLACEMENTS	NEW IRON REQUIRED FOR REPLACEMENTS (g)			
"Dog's head" hoe (with integral neck and socket)	5 (various states of wear)	2-3 (formerly new blade welded on every 2-3 years)	365 (much worn) - 650	500	0.1 (may never be replaced)	50	3	500	0.5	1	250			
Tanged hoe	2 usable; 6 worn out	2-3	250-415	340	0.8	272	0	0	0.6	0	0			
Socketed hoe	1 worn out	2-3	230-365	290	0.5	145	2	275	0.6	0.5	83			
Ax	2	10+	250-300	275	0.2	55	1	250	0.5	0.1	13			
Adz (reworked by smith from worn out hoe)	1	?	150-220		replaced from existing stock of hoes	0	1	150	0.9	0.1	14			
Socketed billhook	2	10+	300-400	350	0.1	35	0.5	350	0.5	0.1	18			
Sickle	2	2-4	100-200	175	0.7	123	4	150	0.5	1.3	98			
Basketry sickle + awl	1	10	10-20	15	0.1	2	3	15	0.9	0.3	4			
Dance sickle	1	25-?	300-400	350	0.05	18	2	350	0.8	0.05	14			
Mafa knife with metal handle	2	3-10	uncertain; now a rare item	60	will be replaced by Muslim types	0	3	60	0.9	0.25	14			

TOOLS, WEAPONS, AND ORNAMENTS	1986 CENSUS						1930s-40s ESTIMATE					
	N FOUND IN HOUSEHOLD OF 2 IN 1986	EST. USE LIFE (YRS)	EST. WEIGHT RANGE FOR SIMILAR ITEMS (g)	EST. MEAN WEIGHT OF ITEM (g)	EST. ANNUAL REPLACEMENTS	NEW IRON REQUIRED FOR REPLACEMENTS (g)	N EST. FOR HOUSEHOLD OF 7 IN 1930s-40s	EST. MEAN WEIGHT OF ITEM (g)	EST. PORTION OF TOOL REQUIRING REPLACEMENT	EST. ANNUAL REPLACEMENTS	NEW IRON REQUIRED FOR REPLACEMENTS (g)	
Muslim butcher's knife (tang in wood handle)	1	3-10	100-150	125	0.15	19	0	0	0.9	0	0	
Muslim men's knife blade often decorated; tang in wood handle	2	3-10	50-75	65	0.3	20	0	0	0.9	0	0	
Arrowhead	ca 20	1-20 (variable loss)	8-15	12	2	24	36	12	1	6	72	
Small items (razor, tweezers, awl, amulets, orna- ments, etc.)	not counted					40	20	20	1	4	80	
Spearhead	0	15+	160-250	180			1	180	0.5	0.07	6	
Machete	0	5					0.5	500	0.5	0.25	63	
Dance sword	0	15+					0.2	500	0.5	0.02	5	
Smoking pipe	0	10					1	200	0.9	0.1	18	
Carpentry adz	0	5					1	160	0.7	0.2	22	
Large tree-felling ax	0	10+	700-900	800			0.2	700	0.5	0.02	7	
Pick	0	10	500-650	575			0.2	500	0.5	0.02	5	
Bracelet, armlets, anklets	0	10+	35-50	40			20	35	1	2	70	
Pubic shield	0	10+	780-120	100			2	80	1	0.2	16	
Total tool iron required per annum (g):						801					870	

per person, but some were forced to cultivate with worn out tools that would be thrown out today.⁸ An assistant's mother remembers using a hoe made of ebony (*D. melanoxylon*). Hoes were also smaller in size. Axes were not found in every household. Adults all owned a sickle, the indispensable multipurpose tool, and every woman possessed the small sickle-awl used in basketry. Knives were rare and heavy picks very rare. Multi-barbed spearheads were handed down from generation to generation, as were presumably the hybrid throwing knives/sickles used in war and ceremonially at dances. Besides wooden clubs, men's main weapons were bows and iron-tipped arrows. A small amount of iron was used for women's pubic shields, musical rattles and bells, and small items, for example tweezers and razors besides ornaments and amulets. All in all the household inventory was very limited.

In 1986 I made a census of the iron objects in the house of a Mafa couple in their sixties and with no resident children (Table 5.4).⁹ The statistics suggest that this particular couple would even today purchase less in a year than one kilogram of tool iron forged by local smiths (nor did the household possess any industrial metal items beyond two copper alloy spoons). Although the estimate of 801 g tool iron purchased by this family per annum is impressionistic, it is evident that even in the mid-1980s Mafa household purchases of locally forged iron were quite restricted.¹⁰ I have suggested elsewhere that, "The figure must have been a great deal lower in former times when recycling was much more intensive; we doubt that in 1930 an average family would have consumed more than 500 g of tool iron in a year or around one kilogram of impure iron direct from the bloomery." (David and Kramer 2001: 351). Further consideration, including restudy of relevant sections of Boisseau and Soula (1974: vol. 2: 445-513), who describe 47 types of artifacts forged by Mafa smiths, and reassessment of fieldnotes, suggest that 500 g is an underestimate, reflecting insufficient attention paid to the extent of the artifact inventory and the likely effects of recycling, and the inappropriate extension of an analogy based upon a declining family of two to a household of seven people, at least four of whom would be playing a significant role in farming.

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8. David Killick (pers. comm. 2001) points out that there is also the tricky issue of the rates at which bloomery iron and recycled mild steel wear away. Some tools made of bloomery iron have essentially no carbon and would have worn away very quickly; a few have high carbon content and are more wear resistant. If low carbon tools were, as seems likely, in the majority, then it may be that I underestimate consumption but it is likely that in former times farmers would make do with worn tools long after they would have been discarded in the 1980s.
 9. The census was non-exhaustive in the sense that the house was not thoroughly searched, but nonetheless each room and courtyard was visited. My assistant and I looked under each granary but did not climb into them. We are unlikely to have missed any large items, although some jewelry, amulets, needles, and the like will have escaped our attention.
 10. The estimate, miscalculated as 764.85g. in David and Kramer (2001: 353), is comparable to one I calculated on the basis of data gathered in 1967-69 of 740 g. of tool iron purchased per annum by a settled Fulbe family of five at the village of Bé (see David 1971), children in both groups accounting for very little demand.

Such considerations inform a revised, but not greatly different, estimate of 870 g new tool iron required *per annum* by a household of seven persons in the 1930s-40s for replacement of artifacts. This results in a calculated excess of metal produced by the master smelters of our circum-Mokolo village sample as against the replacement requirements of the village population of which they formed part (Table 5.5). However this apparent surplus takes no account of furnace masters' expenditures on ore, the only significant input from beyond the area of our circum-Mokolo sample, nor of an important artifact type, the iron bar, sometimes used as currency and the form in which iron was commonly exchanged and traded in the region. Bars constituted both a reserve of metal and an easily convertible form of wealth, often forming part of bridewealth payments. I see no way to estimate their frequency in the average household. Such questions are best treated as part of a regional study of iron production and consumption, for which description of a competing mode of production, that of Sukur, is prerequisite.

Table 5.5. Calculation of bloomery iron production in relation to requirements for replacement of tools, weapons, and ornaments, but not bars, in the circum-Mokolo village sample.

Population	7909
Mean household size	7
N households	1130
Tool iron (kg) purchased <i>per annum</i> per family	0.87 kg
Total tool iron (kg) purchased <i>per annum</i>	983 kg
Bloomery iron (kg) equivalent	1966 kg
Min. and max. kg bloomery iron produced per annum	3789 – 4637 kg
Min. and max. kg bloomery iron produced above replacement requirement	1823 – 2671 kg
Surplus expressed as kg tool iron	911.5-1335.5 kg
Surplus expressed as small (270 g) iron bars	3375-4946 bars
N households notionally suppliable from this surplus	1048-1535

The Sukur mode of production¹¹

Generation of the database

From August 1992 to March 1993 and again from May to September 1996, Judy Sterner and I lived at Sukur in the Nigerian Mandara (Fig. 5.5). Although our methodology was similar to that earlier employed in Cameroon, in this little known community (Kirk-Greene 1960) a good part of our efforts was necessarily devoted to ethnographic and historical research (David and Sterner 1995, 1996; see also www.sukur.info).

11. The following description of the Sukur industry draws upon an already published but not easily accessible account by David and Sterner (1996).

Here, where smelting had been a village specialization engaged in by men, women, and children of both castes, identification of individual smelters was unnecessary; instead semi-structured interviews allowed me to establish the basis for estimates of output by “firms” comprising families and close neighbors. Five former furnace masters in their late 60s and 70s gave me lengthy interviews about iron production and several others offered further information. In the course of these interviews I attempted, amongst other things, to elicit standardized information that would allow extrapolation to the annual production of Sukur as a whole, and to quantify its exports. However, the information regarding productivity and production proved extremely difficult to compare from one informant to another. Each interview taught me more about smelting and the organization of production, and enabled me to ask more appropriate questions in the next. Some lack of comparability between data sets also results from difficulty in applying standard measures to behavior that changed from year to year, different kinds of pots used to store ore and fragments of bloomery iron, varying sizes of pots of the same named type, and so on. Depending upon changing familial circumstances, ironworkers made choices as to the fraction of their output that would be made into bars (Fig. 5.7c), in which form a considerable portion of the metal was exchanged and traded. Sassoon (1964: 176) describes variation in smelting practice, one furnace master producing a bloom in 40 minutes after five charges of ore, another charging seven times and removing the bloom after about an hour. This would affect the size of the bloom and the number of bars that could be made from each.

The intensity of past production is materially evident in the extraordinary density of smelting debris, including numerous furnace remains, over most inhabited and some presently uninhabited parts of the Sukur plateau (Fig. 5.6), and by the numerous pitted boulders used in the process of mechanical fining of blooms (David 1998). Brief inquiries in the much smaller communities of Damay and Kurang which share the Sukur plateau, and in Mabas and Wula Mango produced further evidence of village industry.

Quantification of production

Production teams

At Sukur the scale of the industry required that the chief negotiate with those of neighboring communities for his people’s access to ore and hardwoods for charcoal burning (David 1996; David and Sterner 1996). Apart from this facilitation, smelting teams comprising kin and often close neighbors operated effectively independently. Subsequent forging of iron remained the monopoly of smiths.

Although it is said that a furnace required three men to work the bellows, Sukur smelting teams varied within limits, changing as families developed individually and as parts of neighborhood clusters. Behe Besanba described working

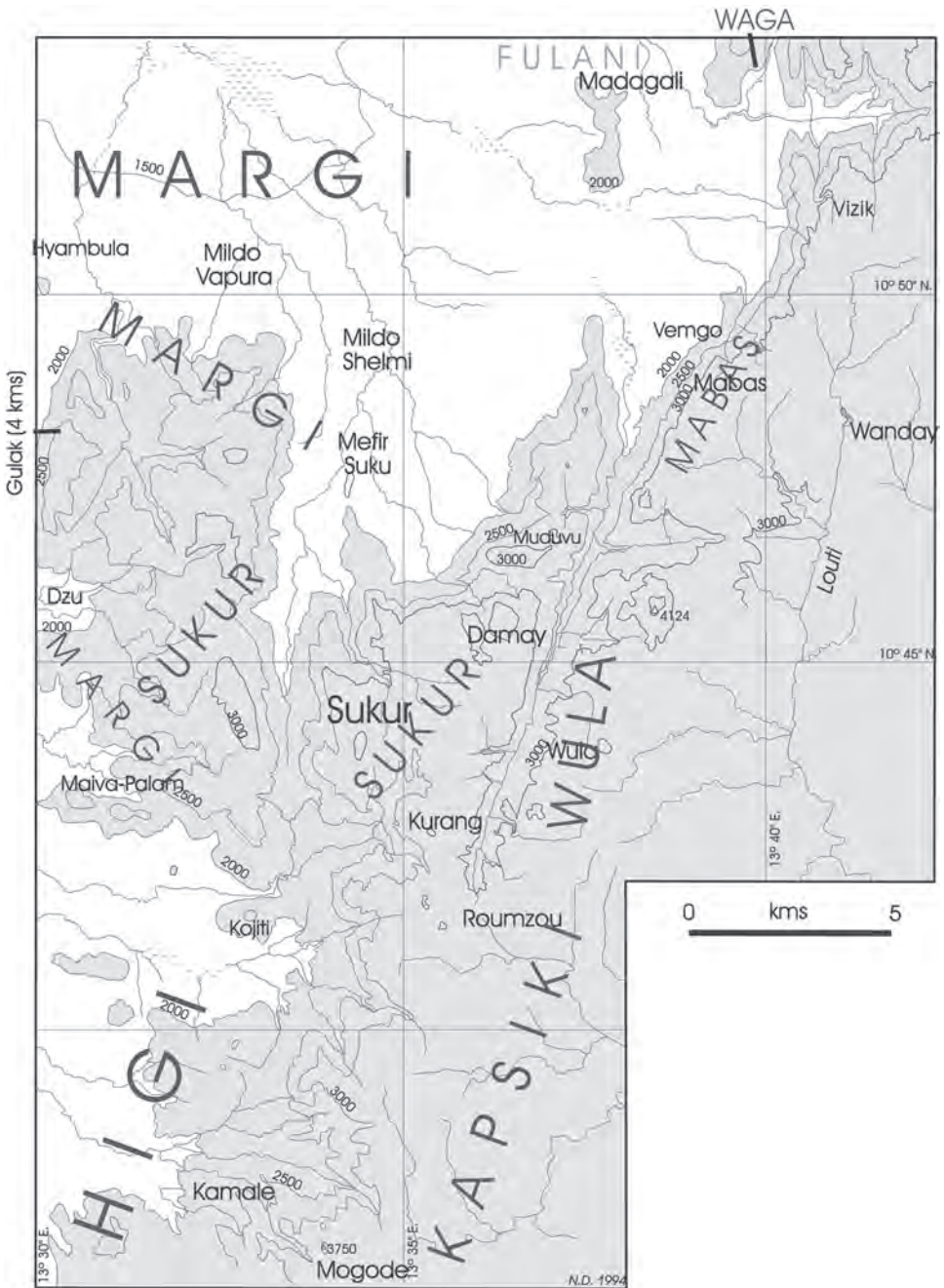


Figure 5.5. Map of Sukur and its region. Ethnic territories are indicated by upper case labels, settlements by lower case. Contours in feet.

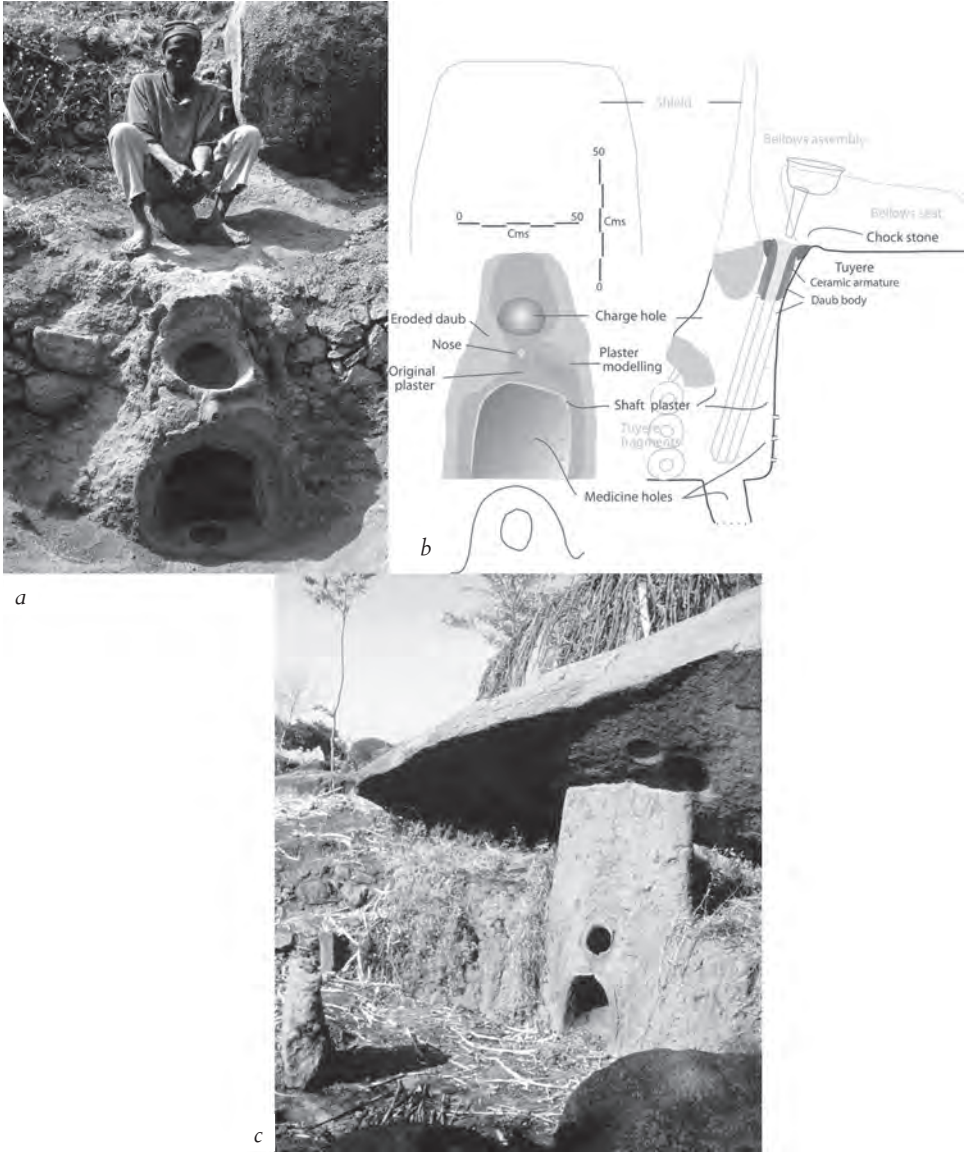


Figure 5.6. a) a Sukur furnace cleared in 1993; b) diagram showing details and positions of missing parts; c) a furnace refurbished *ca* 1988 for a re-enactment organized by the then Gongola State Arts Council. The Sukur furnace (c) is said to be of male ritual gender while (a) is female. Those parts measurable in both furnaces show little difference in size.

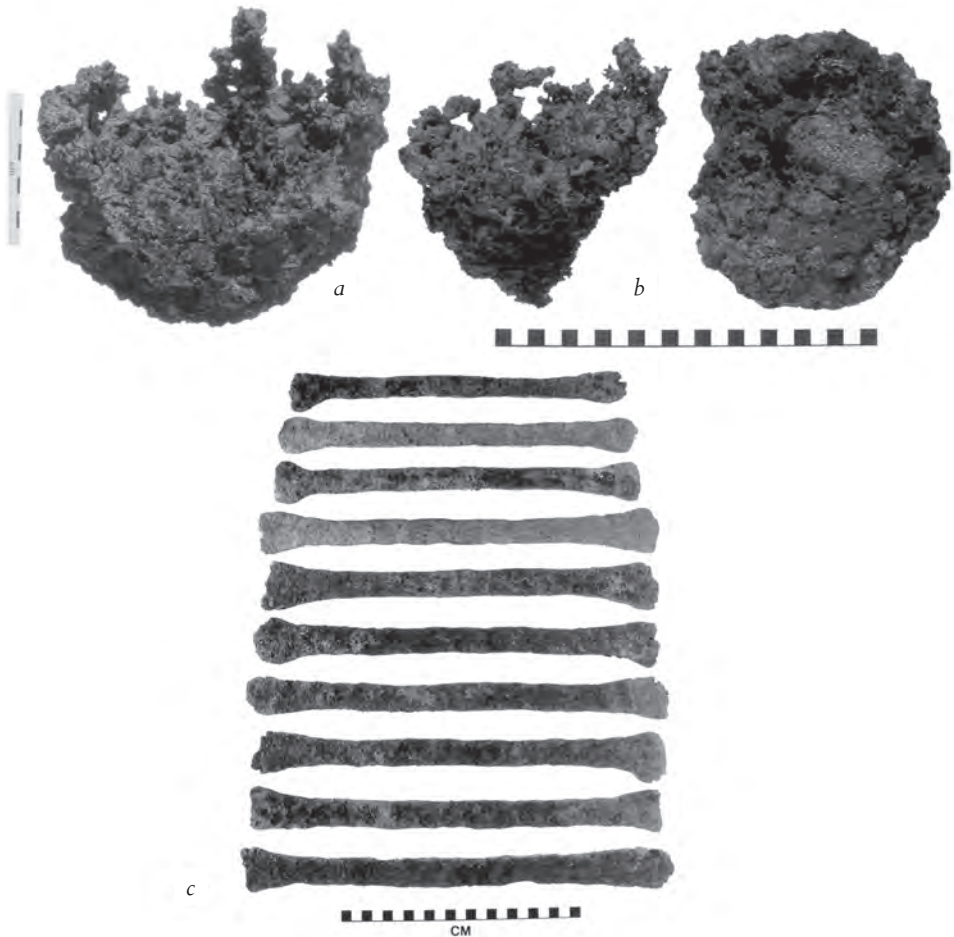


Figure 5.7. a and b) Sukur blooms showing horns, the top view of (b) showing incorporation of part of the tuyère; c) 10 iron bars showing the range of sizes.

in the 1930s as an unmarried youth with his father, who had six wives at the time, a married brother, and four of their neighbors, also married. His father, a noted iron master who sometimes built furnaces for others, used at this time to direct simultaneous smelts in two furnaces located in enclosures a few meters apart. It is reported that chief Matlay also operated a pair of furnaces. Teams were composed as often, it seems, of near neighbors as of close agnatic kin, together with their wives and children. The adult male team size per furnace varied among our five main respondents between three and five with a mean of three and a half, representing three bellows men and half a furnace master. It seems that if there were more than five in a team they might build two furnaces and operate them either

simultaneously or in sequence. A team of three, with one member both pumping the bellows and acting as furnace master, appears to be the smallest viable, though here again the contribution of women might exceptionally have allowed a team with a complement of only two adult males to operate a furnace.

In practice men with several wives and/or healthy adolescent children could produce and sell far more iron than men without or with only one wife. This was due to the very great importance of women in iron production and their lack of significant participation in the iron trade. Wives carried charcoal for long distances and were expected to collect and wash at least a large storage jar of ore for their husbands. Those who gathered over one and half jars could generally sell or otherwise dispose of the excess; thus there was ore available for men without wives to participate in smelting. Besides pumping the bellows on occasion, women also supplied food and drink during the work.

Ore and charcoal supply

Although actual smelting took place for the most part in April, preparations for smelting, including ore collection and washing and some tree felling, took place in the rains and in the earlier part of the dry season, mainly in September through November between weeding of the millets and harvest. Women's collection and cleaning of ore took place over an area far greater than the home territory of Sukur. Similarly men went considerable distances into neighbor territories to cut and burn suitable trees for charcoal. Ore and charcoal supply were the subjects of institutionalized arrangements between the Sukur chief and his counterparts, and between himself and his people. The Sukur paid their chief an indigenous tax and supplied him with sufficient charcoal, ore, and labor to run up to three pairs of furnaces. The chief was thus a significant supplier of metal to the iron market.

The chief of the Higi village of Kamale, Arnado Vandi Slatu, and an advisor informed us that relations with Sukur, focused on the iron trade, were long term and friendly. Sukur women would come and spend two to three weeks or more collecting and washing ore in the streams near the foot of the mountains, lodging with Higi women friends. The friend would provide her guest with a large pot to store her ore until ready to return home. Meanwhile Sukur men burnt charcoal in the area. In exchange the Sukur women brought iron bars for their friends and the chief sent four to six blocks of iron (each may have represented three blooms) to the chief of Kamale. When Kamale men and women went to Sukur, their friends and partners would give them hoes. The Higi made no iron themselves.

Similar arrangements were made with the chiefs of Mildo Vapura and Mildo Shelmi, Hyambula (Sabon Gari), and possibly with Gulak and Duhu. The Margi of Maiva Palam and Zu also allowed Sukur ironworkers, some of whom resided in their territories, to supply themselves with ore and charcoal, though this does

not appear to have been mediated by the Sukur chief. A similar situation, again confirmed by their chief, obtained among the Waga. Sukur collected ore in the mountains and at their feet over an area extending north 20 km to the Waga beyond Madagali, west 10 km to Waanu near Duhu, and south 12 km to Kamale and beyond. To the east, since the Mabas and Wula were themselves producers of iron, ore gathering was limited to the Sukur side of the Ticini valley trench.

Men cut trees suitable for smelting charcoal over an area of some 500 km² and burned the wood with less concern for wastage than among the Mafa. According to a former furnace master:

Trees were chopped into pieces small enough to be carried. A pile was then built up over grass tinder, the timbers being laid in all directions [rather than parallel as in the Mafa example]. The pile was fired in the very early morning, at perhaps 3 am, and allowed to burn for some hours, say until 8 am, with the person tending it pushing unburned ends into the fire. When all the wood was well alight, earth was shoveled over and it was left for 24 hours before being opened up again. Once cooled, the charcoal was brought to a central place until enough had been made to smelt the ore. The man then went home and called his family and others [as a form of work party] to come and help him collect it in large, specially made, baskets.

The extent of the area exploited by Sukur for ore and charcoal and the formal enabling arrangements between Sukur and other polities are convincing evidence both of the degree of specialization in iron making by Sukur and of the scale of its industry. A less obvious source of evidence regarding the intensity of smelting is mentioned here only in passing. It is clear from Sukur informants' accounts that ritual and plant medicines associated with smelting were much simpler and more routinized among the Sukur than among the Mafa (David 2001).

Smelting and estimates of productivity

Behe Besanba's team would work for about 40 days a year during the April-May smelting season. After working on the furnace master's ore for a fortnight or so, they would smelt some or all of each neighbor's before continuing with that of the master. It took four days with two furnaces to smelt a large storage jar (*duguzuwa*) of ore, three days for a smaller vessel. If the ore in such a storage jar (75 - 100 l or 187.5 - 250 kg) required eight furnace days to smelt, this at 9 blooms/diem would mean 72 blooms. Each bloom would therefore require 2.6 - 3.5 kg of ore. This would suggest about 10 jars of ore smelted as against the 12 or more that Behe reported, six in all for Behe and his father, and one to one and a half for each of the other five participants. This is not a major discrepancy: the sizes of jars varied and

other informants suggested much shorter times of 3-4 days to smelt a jar of ore in a single furnace.

Sassoon's (1964) description of Sukur furnaces and smelting practice is excellent and is confirmed by our work in almost all details, and by Vaughan (1973) for the Margi. Unfortunately, a storm aborted Sassoon's attempt at measurement of inputs and outputs.¹² His estimates of production, combining his observations and measurements with one smelter's statements, are impressionistic. He suggests that in a day's work a furnace would require 102 kg of charcoal and 91 kg of ore to produce nine blooms weighing about 2.25 kg apiece, each sufficient to manufacture two bars, or three if the bloom was particularly rich.¹³ The charcoal : ore : bloom weight ratios he suggests are thus about 5 : 4.5 : 1. We may assume that the blooms weighed by Sassoon were dry and that, while any adhering slag and charcoal had been knocked off them, they still contained some slag and charcoal, approximately one third by weight. The charcoal : ore : bloomery iron ratio would then be about 7.6 : 6.7 : 1. Comparable estimates for Mafa smelting have been calculated as 8 : 2.4 : 1 (David et al. 1989: 199). Although the processes differ, these data suggest that Sassoon overestimated the amount of ore required to produce a given quantity of bloomery iron. This is in part because the blooms he weighed are likely to represent only part of the iron produced in each smelting episode. When a Sukur bloom (Fig. 5.7a and b) was pried out of the furnace, some of the upward projections from the body of the bloom, the "horns of iron" (*tom cukuri*), broke off,

- 12 Sassoon's (1964: 175) statement that the lower end of the tuyère reaches down to somewhere near the middle of the shaft refers to a tuyère the tip of which has already melted some way back in the course of smelting. At the start of a day's work the tip of the tuyère would reach down to a few centimeters above the base of the shaft. Tuyères were replaced daily. Vaughan (1973: 175), who describes smelting as "largely a routine process," observed at least part of one smelt, carried out in a furnace and in a manner very similar to Sukur. He observed a bloom or blooms being removed 90-120 minutes after "the making of the fire" and doubts that nine blooms could have been produced in a day as this "would undoubtedly require several bellows operators." As the charcoal and the furnace itself have to heat up, the interval between first firing and removal of the first bloom is significantly longer than between subsequent blooms.

When Sassoon (1964: 74) visited Sukur in April 1962 he recorded the following statistics:

Number of smelters working in 1954	50
Number of smelters working in 1961	15
Number of smelters working in 1962	19
Number preparing to smelt in 1963	30

It is improbable that many of the thirty smelters supposedly planning to work the year after his visit actually did so. Around the mid-fifties prospective fathers-in-law were becoming unwilling to accept more than token numbers of iron bars as part of marriage payments and demanded cash instead. The suspiciously round figure of 50 smelters working in 1954 does not reflect the intensity with which the industry had been practiced before imported metal became a factor. Many Sukur born in the 1950s do not remember smelting.

13. Vaughan (1973: 176) says that it takes about two blooms to make a bar rather than the other way round, but this is contradicted by all the other material and oral evidence.

and were considered the perquisites of the assistants. Other fragments, possibly including droplets of cast iron, did not form part of the bloom but were recovered either from the red hot charcoal removed with it, or at the end of the day's work from the ash and other materials in the base of the shaft. Such droplets accrued to the furnace master. Any fragments of iron that fell off the bloom into the bowl of water in which it was doused and cooled were kept by the women of the team. Other projections might be broken off later and kept for family use. Very likely they could be forged directly. While it is impossible to estimate the contribution of these various detached fragments to the total iron produced in one episode of smelting, more than one informant indicated that they were sufficient to satisfy the household's needs and that the majority of the metal in the bodies of the blooms was destined for the market. For purposes of argument, I accept this as fact.

Estimates of daily bloom production by our informants are in agreement with Sassoon's, ranging from seven to eleven with nine as the median value. I use nine as the basis of estimates. Once the blooms had been removed from the smelting enclosure to the house, they were usually broken up into fragments and stored in pots.¹⁴ They were broken up before being fined in the smithy and forged either into bars or into tools, weapons or ornaments. Thus the question of how many bars could be made out of each bloom does not fit with Sukur practice – and our attempts to use the number of pots of iron converted into liters as the basis of estimates gave, as might be expected given the variable size of pots classed in the same native taxon, divergent and unreliable results.¹⁵ Iron bars provide the key to estimation of productivity and production, but through a different route.

Iron bars

Sassoon and his informant estimated that blooms contained enough iron to make two and exceptionally three bars. He appears unaware that bars were produced in three size classes of which the smallest was by far the most common and, it seems, the standard for exterior trade. The small (*debul dluwi*) or meat bar is so named because at some time in the past it was exchanged for a lump of meat; the medium (*debul oy* or *d. mpadle*) was worth a joint of neck meat or a jar of beer; and the large bar (*debul takur*) was valued at two chickens. These are notional equivalents. Bar sizes were not closely standardized, in part because of the technique of production. The smith puts bloomery iron fragments into the firebox, and these are welded together and slag and other impurities expelled by hammering with a

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14. I have seen such pots still containing fragments of iron of various sizes. Some Sukur still keep numbers of old blooms, over 50 in one case (Fig. 5.1); that they are kept as blooms rather than as fragments is indicative of the sudden collapse of the industry.
 15. Though, if we ignore pot type and volume (estimated from modern vessels of the same named type) and accept informants' estimates of the number of small bars that could be made out of each pot of fragments, the estimates approximate those reached through other calculations.

stone hammer. The metal is then drawn out into a thick bar. The smith could not predict exactly how much iron would be present at this point, but had, depending also upon on the wishes of the client, several options open to him. He might divide the iron into two bars, perhaps of different sizes. He might decide instead to make one large or one medium bar, or might cut off part of the metal and use it to forge another artifact. The results, from smith to smith and from client to client, were such that there is considerable variation in the weight of bars attributed to the same category. Of course not all bloomery iron was made into bars; some was fined and/or forged directly into tools and other articles.¹⁶

Iron bars are still kept by Sukur and are used in marriage payments, now more for sentiment than any other reason, and are occasionally forged into tools. There is some disagreement as to the relative sizes of the small, medium, and large forms. My measurements indicate that

- a) a 1 : 1.5 : 2 ratio is the best approximation, but that
- b) there is considerable variation within categories, and perhaps between the products of different smith-client pairs, although
- c) the small bars, with a mean weight of about 270 g, appear more standardized than the medium (mean *ca* 400 g) and large (mean *ca* 530 g) classes.

Three blooms collected weighed 1.47, 2.04, and 2.31 kg. Although they contained significant quantities of slag, charcoal and other impurities, the smallest should have contained sufficient iron to make two, and the largest three, small bars. We can accept, as applying to the small size category, the estimate of two to three bars per bloom arrived at by Sassoon and his smelter informant. A very rough estimate of the numbers of small bars (or their equivalent) each producer would have had available for export would thus be between two and three times the number of his blooms. As the mean would seem to have lain near the lower end of this range, for purposes of extrapolation I take 2.25 bars as the mean product of each bloom.

Despite the scale of their inputs, women received very little iron from their husbands, though they received other “gifts” in recognition of their work. They seem never to have sold iron in the market. What iron they got they kept, later commissioning a smith to make articles for them. Table 5.6 offers estimates, based upon the testimony of our primary informants, of blooms and small bar equivalents produced per annum. The estimates vary but within a limited range, and the overall ranking agrees with the reputations of these men as former smelters. Given these data and in the light of the

16. According to David Killick (pers. comm. 1994) bars from the Mandara Mountains tend to be of wrought iron with very low carbon content and thus to be unsuitable for the manufacture of tools such as hoes or axes that are preferentially made of higher carbon steel. On metallurgical grounds, blooms and bloom fragments would seem more likely to have been traded than bars, but this is denied by our Nigerian sources.

foregoing discussion, the average Sukur adult male ironworker in an average year may be supposed to have possessed, in addition to metal retained for household consumption, between 100 and 200 small bar equivalents to dispose of annually.

Table 5.6. Estimates of production of blooms and small bar equivalents per annum at Sukur based on information supplied by selected former furnace masters regarding their team's production.

INFORMANTS	BLOOMS PER ANNUM (INFORMANTS' OR CALCULATED ESTIMATE) ¹	CALCULATED SMALL BAR EQUIVALENT (RANGE)	INFORMANTS' ESTIMATES OF SMALL BAR EQUIVALENTS PRODUCED PER ADULT MALE SMELTER PER ANNUM	OTHER ESTIMATES OF SMALL BAR EQUIVALENTS PRODUCED PER ADULT MALE SMELTER PER ANNUM ²
Behe Besanba	80-120	180-270	200-250	---
Makandow Mamanda	90	203	150-300	225-300
Gezik Po	54-81	122-182	200	180-210
Besanba Viguw	35-70	79-158	---	---
Kwajimte Dleku	---	---	---	133-170

NOTES

1. Days of smelting times nine blooms/day.
2. Calculations based on the number of pots filled with bloomery iron per annum and the number of small bars that could be made from the iron in each pot.

Besides their use in commercial exchanges, bars also formed part of marriage payments, 300 small bars formerly being demanded of young Sukur men by their prospective fathers-in-law.¹⁷ The stock of bars accumulated for this purpose served also as a reserve that could be used to balance supply and demand in the commercial sector.

The intensity of smelting at Sukur

Oral traditions: numbers of furnaces

Sukur traditions speak with one voice. Everybody of both castes was involved in smelting. We neither met nor heard of any family that did not participate. Furnace enclosures were usually close to the house and elders can point to their former sites and name their owners, but the furnaces themselves have mostly been destroyed by cultivation and rebuilding of terraces. Behe Besanba, born in the mid- to late 1920s, told us that when he was a small boy there were five furnaces in the ward

17. At Sukur, 300 bars seems to have been the standard sum "in the old days," though actual payments would have varied considerably. At Wula the rate was 50 bars, among the non-smelting Waga 100, 200 being considered a very high payment. Such figures cannot be used as an index of the cost or availability of bars since they formed only one element in a complex set of prestations.

in which he lived; by the time he married there were eleven. The depredations of Hamman Yaji, whose last raid he himself recorded in October 1920, explain the smaller number of furnaces Behe remembers as a small boy. By the time he married in 1936, smelting would have been edging up towards earlier levels. As Behe named the furnace masters, his estimate is likely to be accurate or an underestimate. In 1992 that same part of DzuvoK ward had 14 households, 6.5% of a total of 215 in the Sukur plateau settlement. If this proportion of households in 1992 is applied to furnaces in 1936, we arrive at an estimate of 169 furnaces. However, since there has been greater emigration to the plains from several other Sukur wards, this figure is likely to be an underestimate. Other, in our view less trustworthy, estimates extrapolated to the settlement from respondents' information on their neighborhoods or wards are: considerably over 133, 230 and 325 furnaces.¹⁸

While we did not carry out a systematic census of furnaces, there is a far wider distribution and greater density of slag and other smelting debris in the Sukur plateau settlement, especially around areas presently occupied, than anywhere else we have been in the Mandara. In an now unoccupied part of Dunggom ward there are, within a few tens of meters, the remains of six furnaces aligned along a small ridge where they might catch any breeze from the west. These and other field archaeological observations are entirely consistent with elders' testimonies as to community commitment to iron smelting.

Annual production

Having considered the organization of producers, their inputs of labor and raw materials, and their productivity, the missing factor required in order to estimate production is the number of male smelters, furnace masters and others, working in the 1930s and 40s. Here we draw upon David and Sterner's (1996) arguments regarding the changing population of Sukur through time. These take account of censuses carried out by themselves both on the plateau and in daughter settlements on the plains, archival evidence, the carrying capacity of the Sukur plateau, present and former habitation areas, and the dates of abandonment of houses still standing on the plateau.

Whereas the majority now live on the plain, in the 1930s the Sukur were largely restricted to the mountain plateau. Older informants told us that when smelting was still being intensively practiced there were many more people living on the mountain and that houses were packed densely together. The valleys and plains, now almost entirely cleared for cultivation, were then forested. Leopards

18. Kwajimte Dluku claimed that there had been 30-33 furnaces in two subwards of Dalak and named eleven in the vicinity of his house. Ganeva Zavacera, headman of Daza ward, stated that in the early 1940s there were 50 furnaces in Daza ward. The chief of the smiths remembered 13 furnaces in a part of Gwasa ward now occupied by less than a third of the ward's current total of 21 families. Extrapolating to Sukur as a whole, Kwajimte's estimate suggests that there were more than 230 furnaces in Sukur, the chief of the smiths' considerably more than 133, possibly three times that number. Using Ganeva's estimate we arrive at a total of 325 furnaces.

were a threat. However, Meek (1931, vol. 1: 312), who visited Madagali around 1927 states that the Sukur “group” then numbered only about 1300. Although this is likely a considerable underestimate, Assistant District Officer MacBride reported that, “As a result of much emigration and the raids of HammanYaji during the period 1915-23 the population of Sukur itself is [in 1932-34] much diminished, and many of its compounds are ruinous and deserted.”¹⁹ Except through the return of refugees, population would not have rebounded significantly until the late 1930s and 1940s. Unfortunately, on the question of population numbers, “The District records are absurd,” as H.H. Wilkinson, then Assistant District Officer, remarked in a memo dated November 1927.²⁰ Until that year, HammanYaji had successfully kept several villages, including Damay and Sukur, off the official tax rolls, concealing from the British the very existence of “Arnado Sukur, an important pagan head.” Fifteen years later, the annual report on the northern part of what was then Trust Territory gives the *adult* population of ‘Kapsiki-Sukur’ in 1942-43 as consisting of 1595 men and 1615 women.²¹ However, these figures can scarcely be taken seriously, those of women falling to 1305 in 1944-45 only to rise to 2110 the next year! If an adult population represents persons aged 15 and upwards and we apply the adult : sub-adult ratio of 54.7 : 45.3 found in the David-Sterner census of 1992-93 (identical to the 54.6 : 45.5 reported by Podlewski [1966b: 02] for the so-called Matakam), the total 1942-3 “Kapsiki-Sukur” population would have been 5873. However, what this figure actually represents in terms of settlements cannot be determined. We have more confidence in Kirk-Greene’s (1960: 68) statement that the population of the “original village” of Sukur was 5033 in 1953. This figure, according well with David and Sterner’s (1996) expectations, testifies to over a decade of population increase.

If the actual mean population of the hill village of Sukur during the 1930s and 40s was, as seems probable, nearer 4000, then, applying proportions of males to females and adults to sub-adults derived from David and Sterner’s 1992-3 census, there would have been 963 males between the ages of 15 and 70 years, capable of serving a maximum of 275 furnaces in teams averaging 3.5 male members. This result is not at variance with the four independently derived estimates of >133, 169, 230 and 325 furnaces presented above. Given that, even in a situation of village specialization, not all would have smelted in any one year, it is most reasonable to propose that, according to the calculations set out in Table 5.7, in the 1930s and 40s between 170 and 200 furnaces were operating in Sukur and that, besides metal required for local consumption, they produced between 16,065 and 37,800 kg of tool iron, equivalent to between 59,500 and 140,000 small bars, for purposes of payment to hosts in other communities, intra-societal exchange, exterior trade, and to add to reserves. It is worth noting that, although impressive, Sukur’s pro-

19. MacBride, D. F. H. 1937. “Mandara District: village histories.” NAK Yolaprof J21, p.2.

20. NAK [Arewa House] SNP Box 1 (1927) K4637, p. 136.

21. NAK Yolaprof 4747.

duction pales in comparison to the 150-200 tons produced in the Togolese township of Bandjeli in the early 20th century (de Barros 1986:168).

Table 5.7. Calculations of estimated annual production of small bars by Sukur in the 1930s and 1940s. Estimate j, which uses informants' testimonies as to numbers of furnaces, and which implies that from 62% to 73% of males of 15-70 years were engaged in smelting in any one year, is preferred.

a) Population	4000
b) Proportion of males of smelting age (15-70 years)	.241
c) Males of smelting age (15-70 years)	964
d) Small bar equivalents produced per male smelter per annum	100-200 bars
e) Small bar equivalents produced per annum assuming all males of smelting age smelt (c*d)	96,400 – 192,800 bars
f) Mean male smelters/furnace	3.5
g) Max. furnaces serviceable if all males smelt	275
h) Estimated furnace numbers	170-200
i) Small bar equivalents produced per annum: (d*f*h) _{min} – (d*f*h) _{max}	59,500 – 140,000 bars
j) Equivalent to (i) in bloomery iron (kg) (i*0.54)	32,130 – 75,600 kg

Note that at Sukur iron needs for replacement of artifacts other than bars were largely satisfied by metal that broke off blooms during extraction from the furnace and cooling, or which did not form part of the bloom proper.

The Extent and Interactions of the Transformer and Sukur Modes of Production

The transgression of linguistic and national boundaries by the Transformer and Sukur patterns of articulation is described in chapter 4. The Sukur mode of production is characteristic of the small Sukur-speaking Damay and mixed Kapsiki-Sukur Kurang communities on the Sukur plateau, of the Cameroonian Mabas, and of the mainly Nigerian Wula (Fig. 4.1). In the south of the Mayo Tsanaga department, beyond the Kapsiki, the Bana of Bourha arrondissement and probably the Teleki resemble the Sukur in practicing smelting as a village industry but cannot be confidently assigned to a mode of production (David 2010). The Fulbe, who live both in Nigeria and in Cameroon, where they are concentrated in Mokolo-Fulbe canton, have no traditional school of iron working, obtaining their metals and the smiths to work them from other groups.

The correlation between pattern of articulation and mode of iron production is not perfect, at least as regards the association of transformers with Mafan furnaces, for among the Hide of Tourou transformer smiths worked Sukurian furnaces, with teams of five producing, according to one former furnace master, as many as 12 blooms a day. In the course of several visits during which I covered only a small part of Tourou's sizeable area, I noted furnace remains relating to this type

in four separate clusters, and also one of undetermined type, here called a Gudalu furnace.²² I did not ascertain who worked such furnaces, whether Hide, or Gudalu or Mafa immigrants. It is also unclear whether or to what extent Hide of the farmer caste were engaged in smelting. Kirk-Greene (1956: 371), writing of Zira, a small, primarily Hide settlement on the Nigerian side of the border, implies that some farmers smelted in the early 1950s. I got no hint of this in Tourou but failed to elicit a specific statement. It is doubtful that Hide farmers were themselves furnace masters. The strong Mafa influences evident in many aspects of Hide culture and material culture are consistent with these views and the assignment of the Hide to the Transformer pattern of smith-potter articulation, even if their mode of iron production incorporates elements typical of Sukur.

The correlation between pattern of articulation and mode of iron production is also qualified in cases where there was no or very little production. Some Mafa communities – Magoumaz was one according to Dokwaza Kawa (cf. Martin 1970: 132) – had smiths but no furnace masters, not on account of an absence of raw materials but as a matter of choice or perhaps lack of metallurgical knowledge. Vemgo (Wemngo), a Mabas colony located in Nigeria at the foot of the escarpment, may be tentatively attributed a Sukur pattern of articulation, but according to Kirk-Greene (1956: 372), in 1954 among 140 taxpayers (able-bodied males of 16 years and above) there was only one smithing family willing upon request to smelt iron for the bars that were still “an essential element of brideprice throughout this area.”

Production deficit in the Mokolo cantons?

Among Mafa communities with transformers on which I have field data, Vouzod, Mokola, and Oudoumzaray were substantial producers of iron. Furnace masters among the Hide were also definitely producing for export. However, as according to several censuses the Hide represent only about 10% of the population of Matakam-Sud canton, their adult male smith-potters are unlikely to have numbered more than 38 in 1945. If all practiced with the intensity of Sukur smelters, making from 100 to 200 bars apiece, they would have produced between 3780 and 7560 bars weighing between 1021 and 2041 kg. There is very limited information, whether ours or in the literature, on the production of other transformer communities in the two cantons, but none have a reputation comparable to the those named above, and it is probable that none achieved much more than community self-sufficiency and many considerably less.²³

22. The “Gudalu” are a group said by the Hide to live in Nigeria, perhaps Dghwede (see Müller-Kosack 1996) from the settlement of Gúdálé (Wente-Lukas 1985: 76). Their furnaces were almost certainly Sukurian in type.

23. Podlewski (1966a: 20 fn.) notes that the eastern Mafa village of Roua had numerous smelters but provides no data on their production.

Table 5.5 shows that the circum-Mokolo furnace masters produced a surplus amounting to the equivalent of between 3375 and 4946 small bars over that required strictly for artifact replacement. However, this surplus is notional in that it relates only to the demands of their home villages and not to those of the two cantons as a whole. A portion of the metal they produced was paid to ore collectors of Gadala and lesser cantonal sources, thus helping to satisfy local replacement needs. A larger and equally unquantifiable amount went north, sometimes in the form of hoes, beyond the cantonal boundaries to the ore collectors of Mbezao. This cost of production must be placed on the negative side of the cantonal balance. Nor do we have any idea of year to year variation in the stock of bars held by the population at large and used by them in bridewealth and other exchanges and as a short term reserve of iron stock. While recognizing that iron rusts and that population increase would normally call for some increase in reserves, we may for present purposes regard the stock of bars as a constant after its recovery from the time of the locusts. Nonetheless it is clear that the apparent surplus of the circum-Mokolo smelters would in fact have satisfied the demands of considerably fewer households than the figures might suggest.

The circum-Mokolo village sample population constituted about a quarter of the total of the two cantons. The annual tool iron requirements of the remainder, totaling some 23,728 people or 3390 households, would have amounted to 2949 kg of tool iron, of which substantially less than half could have been provided by the circum-Mokolo iron makers. Could this amount have been produced elsewhere within the two cantons, and if so by whom? The contribution of other Mafa furnace masters appears to have been small, the difference being made up by, on the one hand, the Hide, and on the other by Mabas and, to a lesser extent, Wula, both communities with a Sukur mode of production, as is consistently confirmed by oral testimonies. According to a senior Hide smith, Hide transformers traded bars to many Mafa villages in return for goats, groundnuts, chicken and sesame (but not sorghum or pearl millet), and also west to the Waga. Hide and Mafa smiths intermarried and the partial integration of Hide into the Mafa economy led to the suffusion of the formers' culture and material culture with Mafa influences, as is for example evident in their architectural style (though not compound layout), and their celebration of a bull ceremony modeled on the Mafa *maray* (David 1990).

Mabas and Wula exported iron, largely if not entirely in the form of bars, into the Mokolo cantons, both as traveling ironmongers and by receiving small armed parties of clients who came driving herds of goats. This was volunteered by the chiefs and other representatives of Mabas and Wula. Mabas sold to Ldama, Mavoumay, Ldamsay, Oudahay, Mokolo, and other Mafa and Bulahay villages including, according to Martin (1970: 320), Ziver and Chougoulé. Wula's contribution to the two cantons was relatively small as most of its production was going to supply the Kapsiki and, according to one report, the Buhol of Gadala. In Houva, a small village bordering on Oudahay, the son of a furnace master named Metec, Dokwaza Kawa's father's

brother, informed me that his father, the only smelter in that village, did not satisfy local demand, and that his stock was supplemented by bars brought by Mabas (known to them as Mbuzom) and Wula smiths who traded for skins and red peppers of a variety little grown nowadays. It is significant that exports to Mavoumay, where there were several Mafa smelters (see Table 5.3), are confirmed by residents of that village.

Table 5.8 sets out tentative calculations regarding the production of the Hide and Mabas. For the Hide I have used statistics developed in the analysis of the Sukur mode of production, applying them only to the smith-potters. It is assumed here that either all adult male smith-potters smelted or that, if they did not, the assistance of farmers made up the difference. Mabas calculations are similar, though here it is assumed that, as argued for Sukur, two thirds of the adult males who might potentially have smelted actually did so in any one year. I also assume that local replacement needs were satisfied, as at Sukur, by fragments broken off the blooms.

Table 5.8. Calculation of iron production of a) the Hide of Tourou and b) the Mabas in the period 1930-49.

A) HIDE OF TOUROU

a) Population of Tourou as percentage of that of Matakam-Sud canton	10%
b) Estimated population in 1945	3164
c) Estimated percentage of smith-potters	5%
d) Estimated number of smith-potters	158
e) Estimated number of adult male smelters ($d \cdot .241$)	38
f) Min. and max. production/smelter/annum in iron bars	100–200 bars
g) Min. and max. annual production (bars)	3780–7560 bars
h) Min. and max. annual production in kg of tool iron	1021–2041 kg
i) Kg tool iron required by Hide for annual replacements ($(b/7) \cdot .87$)	390 kg
j) Min. and max. kg tool iron notionally available for export (h-i)	631–1651 kg

B) MABAS

a) Population of Mabas as percentage of that of Matakam-Sud canton	0.8%
b) Estimated population in 1945	253
c) Estimated number of potential adult male smelters ($b \cdot .241$)	61
d) Estimated number of actual smelters ($c \cdot .67$)	41
e) Min. and max. production/smelter/annum in iron bars	100–200 bars
f) Min. and max. annual production (bars)	4100–8200 bars
g) Min. and max. annual production in kg of tool iron	1107–2214 kg
h) Kg tool iron required by Mabas for annual replacements	Supplied by bloom fragments
i) Min. and max. kg tool iron notionally available for export	1107–2214 kg

Table 5.9. Calculation of iron balance in the Mokolo cantons by comparison of annual requirements of tool iron for replacement of artifacts, excluding bars, and the contributions of the main suppliers. Note that neither the production of other communities in the cantons nor imports from Wula are taken into consideration in these statistics.

TOOL IRON (KG) PRODUCED ANNUALLY BY:	MINIMUM	MAXIMUM
Circum-Mokolo villages	1895	2319
Hide	1021	2041
Mabas	1107	2214
Total kg	4023	6574
Total kg tool iron required for artifact replacements by population less Hide: $((31,637-3164/7)*.87)$	3539	
Notional annual surplus kg	484	3035
Notional annual surplus as percentage of total production	12.0%	46.2%

With these very approximate statistics a balance can be calculated that, although it takes account neither of the contributions of furnace masters living in communities beyond our circum-Mokolo sample nor those of the Wula, appears to show the Mokolo cantons in surplus (Table 5.9). However, the table ignores three factors that worked in the opposite direction and a fourth that to an unknown extent affected the local pattern of supply and demand. First, I have ignored the loss of iron to reoxidization during the reforging of iron bars into other artifacts. This involves something approaching a 10% loss in weight, and rather more than this when it is considered that the same metal would often have been rewelded and reforged in the course of artifact recycling. Second, by no means all the Mabas production for trade went east to the Mafa. They also supplied Waga in Nigeria, and I suspect also their Vemgo colony in return for ore gathered at the foot of the escarpment and in the Ticini valley. Third, no account has been taken of any build up of the stock of iron bars such as might have been expected during the 1940s as conditions improved and population increased. The fourth factor is the potential but undemonstrated stimulation of iron production by the French administration's head tax.²⁴ Both the process of converting bars into cash, which might involve the exchange of iron for Fulbe livestock, and likely the occasional payment of tax in iron bars (Martin 1970: 135) would have resulted in export of iron from the two cantons, thus contributing to its removal from local circulation, unsatisfied demand, and higher prices.

24. The capitation tax Mafa for Mafa males and females was 1 Ffr. (or about US\$0.27 in 1986 dollars) each from 1922-34 and 2 Ffr. (roughly \$0.90) from 1935 to 1939 (Beauvilain 1989: 465). Here and below I converted francs to United States 1986 dollars information on the home pages of the Global Financial Data (<http://www.globalfindata.com/>), the Economic History Service (<http://www.eh.net/ehresources/howmuch/inflationq.php>), and the Banque Centrale des États de l'Afrique de l'Ouest (<http://www.bceao.int/>). The 1986 dollar values are very approximate as I had to use United States rather than local inflation rates.

Given these and other uncertainties, it is impossible to determine definitively whether the inhabitants of the Mokolo cantons were in the 1930s and 40s producing more or less iron than they consumed each year. The evidence presented above and the silence of the literature on neighboring peoples to the north, east, and south regarding a metal trade to or from the Mokolo cantons (see Wente-Lukas 1972: 129) are strong indications that communities with a Transformer pattern of articulation of smiths and society were on average collectively achieving less than self-sufficiency. Without the contribution of Mabas the two cantons would very probably have been in deficit. Gwelgwel, one of the most active of the Mafa furnace masters, told me that iron bars were not made in Mokola: this would suggest that local production was directed towards artifact replacement.

Evidence of high demand and relatively inelastic supply of iron supports this argument. According to Martin (1970: 132) in the precolonial period a bar was exchanged for a chicken (costing about \$2 in 1986) or a goat (\$23) “according to the state of saturation of the market.” Comparable comparisons indicate that in 1930s and 40s Mafa hoes with integral shaft and socket varied in price from \$6.55 to \$23 and possibly up to \$30, that is to say from 3.9 to 12.8 or even 16.7 times their 1986 value. Wide variation in price is characteristic of other goods; for example 1 French franc bought 20 kg of millet in 1917, only 400 g in 1927, 3.5 kg in 1932, presumably before the locusts, and 2.5 kg in 1938 (Beauvilain 1989: 465). The effects of rapid replacement of bloomery iron by imported scrap and stock may be evident in an apparent fall of the price per bar to about \$0.75 in 1963 noted by Podlewski (1966a: 1 fn.) among the Daba, and in 1966-67 to \$0.55 in Wanday market where they were being sold by Mabas (Martin 1970: 137 fn.).

Perhaps, however, the most significant conclusion to be drawn from the involved arguments advanced above is not that the Mafa and other transformer societies were not exporters of iron, but that they consumed so little, very probably less than 200 g per person per annum.²⁵ Nonetheless the acquisition of so small a quantity and its subsequent maintenance in the form of tools, weapons and ornaments plays a significant role in the structuring of society and, as suggested by the rich imagery and symbolism associated with smelting (David 2001), in the elaboration of its intellectual culture.

Surplus and exports from Madagali District

The Fulbe were not iron producers, and groups with the Transformer pattern of articulation resident in Madagali District either did not smelt or made iron for autoconsumption. The Higi, mainly settled in Michika District but extending

25. Less than one two thousandth of the 453 kg apparently consumed per person in the United States in 1930 (data from <http://pubs.usgs.gov/openfile/of01-006/ironandsteel.html> and http://sociology.about.com/library/bl_censusyear.htm).

northwards into Madagali, did not smelt. Instead they traded livestock, foodstuffs, and crafts, including pottery and basketry, for Sukur iron. Few Margi smelted, although some Sukur men resident in Zu practiced there, and at least some of the Margi of Gulak smelted on a considerable scale. According to Vaughan (1973: 172), who worked in and around Gulak in 1959 and 1960:

Each [smelting] family – more properly each compound head – has its own furnace, and . . . there are many smelting furnaces for each village. While mapping a valley not more than a mile long, over two dozen furnaces were found.

In fact this description probably applies only to a few of the hamlets that constituted the Gulak “kingdom” (population *ca* 7000 in 1960), and possibly those of its neighbor, Duhu, both of which claim descent of their chiefly houses from Sukur.²⁶ Vaughan (1973: 171) wrote that Margi smelting “is not – and apparently never has been – the prerogative of the [smith-potter] caste.” This is questionable. Aji B. Medugu of Gulak, a local historian interviewed on 3 November, 1992, told me that while farmers would collect ore and assist in smelting, they were never furnace masters. Medugu denied that the Margi of Gulak were even self-sufficient in iron, saying that tools were regularly bought from Higi smiths (though it is conceivable that the Higi smiths were forging Margi iron). All in all it would appear reasonable to suggest that the production of those Margi who did smelt supplied at least half the total Margi annual replacement requirement. In the northern part of the District, the Waga and (I believe) Vemgo were primarily supplied from Mabas. The mixed populations of Zira (mostly Hidi) and nearby Vizik (mainly Mabas) may have been more than self-sufficient in iron, but their small size – a few hundred individuals at most – precludes them from having added much to the quantities available for export (see Kirk-Greene 1956).

The Sukur community was by itself capable of exporting the equivalent of some 16,065- 37,800 kg of tool iron per annum, less any metal retained to increase its bar reserves. Other than the Sukur, the only substantial producers of iron in Madagali District were the Wula, practicing a Sukur mode of production and numbering perhaps 2680 in 1942-43 (Table 5.10). According to Depda, chief of Wula, interviewed with several elders on 21 January 1993, both farmers and smith-potters could, and many did, smelt iron. Ore was obtained locally, but expeditions traveled as far east as Gawar to burn charcoal. While the Kapsiki were the main purchasers of Wula iron, the chief claimed that a Wula iron market also attracted long distance traders from the north. However, as he also denied the existence of the Sukur iron

26. James Vaughan worked mainly in Gulak and extrapolates from there to a larger entity, his “Marghi Dzirngu” or Margi of the mountains, amongst whom he sometimes includes Sukur, which he also refers to as proto-Marghi. Thus generalizing statements he makes regarding the Marghi Dzirngu are best read as applying to Gulak and Duhu.

market (see below), this claim must be regarded with suspicion. My suggestion would be to attribute to Wula (including its daughter hamlet of Muduvu), with something over half the population of Sukur, one third of the latter's production, which is to say that they contributed some 5355-12,600 kg of tool iron annually to the larger market. The small, politically independent but Sakun-speaking, village of Damay also produced iron in the Sukur manner, though it would seem at lesser intensity. Neither their output, nor that of Kurang, the third village on the Sukur plateau, occupied by a mixture of Kapsiki and Sakun speakers, can have added much to exports from the district, but they perhaps together justify adding 500 kg to the quantities of tool iron produced for export by villages in the Sukur cluster.

Table 5.10. Best estimate of population of Madagali District in 1942-3, derived from partial data in Nigerian Archives, Kaduna (NAK) and 1952 census data.

COMMUNITY/ ETHNIC CLUSTER	ESTIMATED POPULATION	NOTES
Sukur, Damay, Kurang	4716	Number established using a) data on 1942-42 adult numbers and 1947-48 adult: subadult ratio of 43.4: 56.6 provided in NAK Yolaprop 4747, p. 36, and b) relative proportions of Sukur versus Wula clusters derived from 1952 census data reported by Kirk-Greene (1969: 2)
Wula, Muduvu	2680	ditto
Tur, Vizik, Wemngo	2989	as above, relative proportions of Tur versus Waga clusters being established in the same manner
Waga	2080	ditto
Margi	18,525	as above
Fulbe, Hausa, other Muslims	9579	by subtraction of non-Fulbe from total
Total	40,569	estimated using adult : subadult ratio (see above and note)

NOTE: The 43.4: 56.6 ratio of adults to subadults (<16 years) is improbable, reversing the proportions found by Podlewski (1966b) in Cameroon among the Mafa and Mofu, and by David and Sterner in their 1992 census of Sukur. However, as the effect of this error is to *increase* the estimated population, and thus to compensate for undoubted under-reporting, I have let it stand.

The resulting iron balance calculated for Madagali District (Table 5.11) is fundamentally different from that of the Mokolo cantons just across the border (Table 5.9). Whereas in the French mandated territory in the 1930s and 40s there was no more than a bare sufficiency of iron, Sukur and Wula appear to have been able to supply not only the other communities in their district, but a further clientele from 3.8 to 9.6 times larger than that of the district itself. Such an output must have left some historic trace.

Table 5.11. The iron balance in Madagali District (1930s-40s) by community cluster, calculated by comparison of estimated production by producers within the district and annual requirements of tool iron for replacement of artifacts, excluding bars, .

COMMUNITY/ETHNIC CLUSTER	ESTIMATED POPULATION	PRODUCTION IN DISTRICT (METRIC TONS)	TOOL IRON REQUIRED FOR ARTIFACT REPLACEMENTS (KG)	CALCULATION OF DISTRICT SURPLUS (DEFICIT) IN METRIC TONS
Sukur, Damay, Kurang	4716	17.1 – 38.9	586, supplied from bloom fragments	16.5-38.3
Wula, Muduvu	2680	5.7 – 12.9	308, supplied from bloom fragments	5.4-12.6
Hirde (Nigeria), Vizik	~2600	0.3	323, supplied by own production	0
Vemgo	~389	0	48, supplied by Mabas	0
Waga	2080	0	259 of which half supplied by Mabas	(0.1)
Margi	18,525	1.2	2302 with half supplied by own production	(1.2)
Fulbe and associated Muslims	9579	0	1191	(1.2)
Totals	40,569	24.2-53.3	5.0 metric tons of which 4.8 supplied by producers in district and 177 kg by Mabas	19.4-48.4 metric tons or 71,793 –179,366 small bars, sufficient to supply 22,280-55,666 households

Historical evidence for the distribution and trade in iron from Madagali District

In 1851 Heinrich Barth (1857: 376, cited by Vaughan 1970: 82) met a smith in the northern borders of Margi land “who told him that his iron was brought from Madégéle in Búbanjidda.” Vaughan sensibly suggests that Barth has the wrong Madégéle, and that the Madagali some 80 km south of where Barth met the smith is the more likely to have been the source of supply than the one in Boubanjida lamidate (Fulbe chiefdom), located some 440 km to the south east. Remarkably this less than precise piece of documentation is almost all that history has to offer. As noted above, while it is well known that montagnards were exporting iron to the plains states (Barkindo 1989: 182), there are no studies of the trade. Neither did Hamman Yaji, whose diary testifies to his desire to bring Sukur under his control (Vaughan and Kirk-Greene, 1995), ever mention the possibility of cornering the regional iron market. In the early years of the League of Nations mandate, the missionary H.S. Kulp was not alone in noting Sukur’s commitment to iron production, but no one commented on distribution of the product.²⁷ The closest we come to a statement on this topic is a remark of MacBride dating to 1937 to the effect that:

Local monopoly of iron may have contributed in the past to Sukur’s pre-eminence in the Area. So far as I am aware it is smelted in none of the other villages [NO has been added in the margin by another hand], supplies being obtained either from French territory or Benue trading stations.²⁸

Ethnographic sources are somewhat richer. Van Beek (1989: 617, and chapter 10) informs us that “Surrounding villages, like the Kapsiki ones, bought their iron from Sukur.” Elsewhere (1981: 117, my translation) he states that

In the northern part of the region, iron was the wealth of the Kapsiki. . . . On the local scale, between neighboring villages, there was intensive circulation of iron bars, but this commerce, despite its importance, was not one of long distance trade.

Van Beek is writing from a Kapsiki-Higi perspective, and my interviews with Higi and Margi elders living south of the Sukur plateau confirm his findings for that area. Their testimonies and those of the Sukur themselves make it clear that in its smelting days Sukur was a net importer of foodstuffs and of craft products other than those made of iron. Sukur’s brass came from the Kapsiki (J.H. Wade field-

27. Kulp, H. S. 1935. “Notes taken on a tour in Madagali District in company with the Touring Officer, Mr W.R. Shirley, June 14-22.” NAK, Yolaprop J21.

28. Op. cit., see footnote 30.

notes 1984). However, there was also an important trade linking Sukur to the north. The Sukur are proud of their former iron market, served by a spur off the northern paved way and located close to Ndilloy ward, atypically occupied only by smith-potters. To this market, held on Mondays, came Kapsiki, Wula, Margi, Mabas, and others from round about besides long distance traders, known to the Sukur as “Vuwa.” These we may regard as Bornoans though not necessarily ethnic Kanuri. Fulbe also came to the market to obtain iron, and jewelry was mentioned by one informant as sold by them. Except in the rains when travel was difficult, the traders arrived with loaded donkeys and camels, and ascended the mountain via the northern paved way. Next to the house of the chief, some 850 m beyond the market, some spent the night and were looked after through his good offices.

Neither the Vuwa nor anyone else appear to have paid a market tax. We may suppose that traders repaid the chief’s hospitality in various ways, in part by offering him favorable rates of exchange and first choice of their goods. Zerma, a Sukur title holder who serves as herald, is said to have acted as the chief’s sales manager. One informant stated that another title holder, Tlagama, of the smith-potter caste and one of the chief’s drummers, was responsible for maintaining order and cleaning up the market, but this was denied by the present holder of that office. Indeed we have learned very little about the organization of the market, though information regarding imports appears reliable. Salt, natron, dried fish, onions, clothing, cattle, beads, large northern sheep, the occasional horse, and snacks made of groundnut paste were, in order of the frequency of their mention, the prime items brought by Vuwa. The traders returned north with iron bars, other iron manufactures and a special kind of chili pepper grown only in the hills. It is probably this *karmasa* pepper that features prominently in Kirk-Greene’s (1956) account of tax and travel in this part of the world, and which was mentioned by the Houva smith as being sought by Mabas.

The iron market folded before the abdication of chief Matlay in 1960. From Kirk-Greene and Vaughan we can glimpse something of the changing value of iron bars through time. According to Vaughan (1973: 176), “Government records from the nineteen thirties indicate [bars] were worth about 3 shillings each [about \$5.28 in 1986 dollars]; however, they seem to be worth much less today. At Sukur bride-wealth [presumably in 1959-60] consists of more than 300 bars.” Shortly afterwards bars began to constitute an ever smaller, and by the 1990s symbolic, portion of the bride-wealth. In the early 1950s, 300 bars would purchase 10 goats or 3 bulls according to one informant, who may well be underreporting livestock prices. By 1954, when the “general tax incidence” was 18s, iron bars were valued at 1s to 1s 3d, the cost of a chicken, or about 58 to 73 cents in 1986 dollars (Kirk-Greene 1956: 371-2).²⁹ This is in line with values recorded on the Cameroonian side (see

29. In 1947 tax rates for pagans (able bodied adult males) were 7–12 shillings (\$7.05–12.10 in 1986 dollars) according to the estimated wealth of inhabitants (NAK Yolaprof 4747).

above), though the nature of the monetary calculations involved makes comparison dangerous. Towards the end of the 1950s, according to a Sukur informant, his father-in-law refused to accept 200 bars as part of the bridewealth, forcing him to sell bars at 6d apiece and to raise more money by going off to make grass matting in the dry season.

To summarize, the furnace masters of Sukur would have been well able to service the Higi-dominated population of Michika District, whose population in 1942-43 may be estimated at 50,000, and, together with the Wula, also the Kapsiki, who probably numbered 13,000 at the time.³⁰ Some Kapsiki were however being supplied by Bana to the south (ND 1990 fieldnotes), who were also shipping iron across the border to Fali and others in the Mubi and Uba areas (Wade, chapter 9; marginal note in A. D. O. Vereker's 1914 Uba District report).³¹ But even if the Bana made no such contribution, there still remained, according to my calculations and assuming there was no increase in locally held stocks of iron bars, sufficient iron produced in Madagali District to service both its own population and a further 13,000 - 47,000 households beyond it at the consumption rate estimated for Mafa households. Only further research in Madagali and points north, and particularly in Borno, can confirm that the major flow of metal was directed northwards to the *firki* plains south of Lake Chad, stoneless and lacking in exploitable metals.

Conclusions

Mandara iron and the Law of Comparative Advantage

It remains to demonstrate that the production and exchange of iron and other goods and services conformed to Ricardo's law with consequences involving the development of inequalities and social hierarchies. This is what Warnier (1985) achieved in his ground-breaking treatment of exchange in the Cameroonian Grassfields. It would be most satisfactory to prove that, for example, the Mafa farmers of Oudahay and Houva and the smelters of Mabas both benefited more from specialization and the production and exchange of the formers' peppers and skins for the latters' iron than each would have from producing such commodities for themselves, and that the production of the region overall was thereby raised – even if the benefits of this specialization accrued disproportionately to the Mabas. Unfortunately, while we have a fair general knowledge of the factor endowments involved, I am unable to establish past opportunity costs of production of commodities in different parts of the Mandara. Thus rather than testing the law of comparative advantage against Mandara data, I consider our material in its light. First and foremost, this means

30. The same sources and methods were used to estimate the population of Michika (Cubunawa) and Madagali Districts. In 1960, the Kapsiki population was about 22,000 (Podlewski 1966b: 151).

31. S. Vereker, Uba District Assistant, Report January 1914. NAK SNP17/1 1412.

that, since specialization in commodity production increases overall production, *it is not specialization per se but rather its absence that requires explanation*. Other implications of the law suggest likely explanations for differential production of commodities in the region and assist in understanding their consequences. Meanwhile it is important to remain alert to the existence of forces and factors, whether “traditional cultural imperatives” or others perhaps related to the League of Nations mandate, the global crash of 1929 and the locust plagues of the early to mid-1930s that distorted or counterbalanced the law’s effects.

But if the data are inadequate for economic analysis, are they worth anything at all? The reader must judge whether the claim made in the introduction as to the general validity of my estimates is justified. It is apparent that a year by year reconstruction of the iron economy of the 1930s and 40s, no doubt fluctuating wildly in the wake of locusts and tax collectors, would require a body of historical information that does not exist and that is now irrecoverable. Instead I have developed a normalized representation, sketched through the rose-tinted spectacles of old men’s memories. Gwelgwel remembered one tuyère breaking in the course of a smelt, but the existence of a procedure for recovering from such a disaster would indicate that failures were not unheard of. There were times when a Sukur furnace master failed to achieve even five blooms in a day, seasons when a man or his wife were too sick or burdened with other responsibilities to burn charcoal or clean ore. Therefore, despite underestimation of population size, I suspect that mean production during the 1930s and 40s lies towards the lower ends of the ranges proposed. While critics may legitimately dwell on the rickety scaffolding of assumptions, data, and extrapolations that allows the edifice to be built, I insist that quantitative estimates such as those developed in this paper are hugely better than no estimates at all.

For it is only when we recognize the minimal scale of iron consumption that we can grasp how it was that the ancient smelting industry so quickly collapsed. Unlike in some parts of colonial Africa, in this out-of-the-way border region smelting was neither forbidden nor actively discouraged by European administrators, nor do we have any indication that European stock was reaching local markets in quantity. On the contrary, the replacement materials that toppled a tradition over two millennia old were byproducts, scrap, the debris of “modernization” and quasi-colonial political regimes. At Sukur and elsewhere the opportunity costs of iron production became too great. Men turned to mat-making and migrant labor and women to groundnut cultivation. Conversely, the magnitude of the formerly substantial exports of Sukur, Wula, and Mabas – three communities that (despite their linguistic differences) emphasize common interests by sharing an origin story (see <http://www.sukur.info/Soc/Legends.htm>) – raises interesting questions. Transport and marketing of iron to northern end users, for example, must have required capital and management, but this has so far gone unrecognized in the

history of Borno. Third, within the region studied, the incontrovertible west to east flow of iron must have links to other aspects of culture and have led to counter flows, but of what besides the products of mixed farming?

While such questions are not answerable with the data to hand, others relating to the production and distribution of iron can be usefully approached from a Ricardian perspective. It is hardly necessary to reemphasize that, despite lack of detailed knowledge of the contemporary availability of ore and the hardwoods required for smelting charcoals, environmental factors were far from determining modes of production and whether particular communities engaged in smelting or relied on others for access to metal. Remarkably, only the Hide among the exporters of iron seem to have been particularly favored by the quantities of ore, though probably not of hardwoods, available in their territory. Other factors, including historical contingencies of which we are and will remain ignorant, must be invoked to explain the regional picture, but the model assists in the formulation of relevant questions. Thus, given that specialization is likely to be generally beneficial, we should seek to explain why Sukur became the center of iron production in the western part of the region, and may ask why further to the east specialization took a different form.

Neither Sukur, Wula, nor Mabas had any intrinsic advantage over, say, the Higi in the *production* of iron but rather a comparative advantage in *marketing* conferred, especially in the case of Sukur, by the combination of proximity to the markets reached via western plains with defensible locations that enabled them to maintain their independence until the introduction of new military technology in the twentieth century. This supports the view of Sukur's remarkable paved ways as a means of channeling access to its market while simultaneously impressing foreign patrons. Hamman Yaji's lust to conquer the mountain polity and the special brutality with which he treated its inhabitants was likely fueled by a desire to corner the iron trade. The trading partners with access to exotic goods and of most interest to Mandara montagnards were the plains states to the north and west (Wandala, Borno, and the Adamawa province of the Sokoto caliphate). Industrial specialization did not develop further to the east on a village basis. Sukur, not greatly developed hierarchically, was the main manufacturer and distributor of iron, and the even less inegalitarian Mafa and their neighbors peripheral producers of agricultural commodities who, like the palm oil producers of the Grassfields, worked longer and harder, benefiting less from their exchange relations, than those to the west. The Kapsiki, living in an area of lower population density, may well have enjoyed a comparative advantage in the production of so-called dwarf cattle. The historical data surveyed above, and in particular the information on prices provided by Kirk-Greene (1956) provide some support for this view.

The law of comparative advantage will only be fully expressed if all exchange partners know where the cheapest goods can be found. It is therefore of interest

that, in the absence of any central political or economic planning, and under the continual threat of violent disruption of people's daily lives, the iron economy was integrated on a sub-regional and to some extent larger scales. A critical element in this is likely to have been the dense network of social ties that linked communities and that was underpinned by a shared symbolic/conceptual reservoir (Sterner 1992, 2003; David and Kramer 2001: 206-8). Ties of friendship, sometimes institutionalized, for example by shared participation in initiation, and of kinship and affinity, ensured that, although individuals might travel only very short distances from home during their lifetimes, sufficient information was transmitted through the network for communities to benefit by participating variously in or through the iron economy. The acquisition and trading of this factor of production was by such means integrated with the exchange of other goods and services. Thus, for example, the Wula and Mabas, who brought both iron and salt to Oudahay, and Hide iron producers were all middlemen in the other trade from Nigeria to Cameroon. While non-Muslim chiefs, particularly in Madagali district, facilitated the operation of the industry at the inter-community scale, the social agency of individuals was predominant in achieving regional integration. Men and women made economic choices in the context of prevailing sociocultural structures and as they did so induced change in those structures, among them caste in its various manifestations. Indeed, the iron industry constitutes a particularly clear demonstration of practice at work in a situation where individual agency was not constrained by the presence of guilds, unions, bosses, or comparably potent economic institutions.

In summary, while I cannot prove the applicability of Ricardo's comparative advantage model, it is of considerable assistance in reading the data and contributing to explanation of different forms of community specialization in the region. Many remaining questions, for example the reasons why the inhabitants of Mbezao were ore producers, are potentially answerable in such terms. But the law can not be invoked to explain specialization within communities, and in particular the type of specialization associated with caste. For that other approaches are needed. These may incorporate economic factors but they must also go beyond them (see chapters 8 and 9).

The economy of time

In concluding this chapter, I turn to a question raised in the introduction, the extent to which iron, even though consumed in very small quantities, constrained and channeled societal form and growth. Was it in order to ensure access to iron that smith-potters were to a lesser or greater extent, culminating in a caste distinction, separated from the remainder of society? I think not. Such an explanation accounts neither for the frequent though variable association of other craft and professional specializations with iron metallurgy, nor for the disassociation, particularly under a Sukur mode of production, of smelting and forging. Both can, however,

be explained in terms of another scarce resource, time itself, and particularly the time not of smith-potters but of farmers. Agriculture in the Mandara Mountains is not only labor intensive but also highly seasonal. Referring to the exceedingly narrow window of opportunity, from April/May to July/August, during which farmers must struggle to sow and weed the main crops, Antoinette Hallaire (1991: 102, my translation), an authority on the agriculture of the region, writes, "Lack of time is thus the major bottleneck in the system." A farming family that fails to put in the back-breaking labor required at the appropriate time has lost the year's crop and may be ruined. Because montagnards' limited resources discourage them from obtaining equipment before it is needed, these months are also those in which there is the greatest call on smiths to forge new tools and repair old ones.

Such considerations lead us to the functionalist case for specialization discussed in chapter 4. While this explanation says nothing about the ambiguity of their social position, it accounts, as other explanations can not, for cases of disassociation of smelting and smithing. Unlike smithing, smelting was preferentially carried out in the dry season, at a time when farmers tend to be, relatively at least, underemployed. Indeed the restriction of smelting to smith-potters is probably exceptional, being characteristic only of certain societies with a Transformer pattern of articulation, and even there, as the dissenting statements of Vaughan and Genest noted above suggest, admitting of exceptions. Explanation of the differing patterns of smithing and smelting characteristic of the contrasting Transformer and Sukur modes of production therefore requires both an element, that of community specialization, that is explicable in terms of Ricardo's law, and the demonstration that, in accordance with von Liebig's law of the minimum, not iron (nor land for that matter, but we shall not argue that here) but time, more precisely labor at a critical agricultural bottleneck, was the limiting resource in the montagnard economic system.

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Competition and Change in Two Traditional African Iron Industries¹

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This chapter offers a report and interpretation of two competing traditional technologies and the spread of one at the expense of the other. Archaeologists frequently observe evidence of such processes in the archaeological record, and indeed technological contrasts and successions are *par excellence* the phenomena in terms of which entities such as cultures are delimited and defined. This case study also has implications for those involved in rural animation and development in that it demonstrates that a holistic approach is required to make sense of technological change.

The Mandara highlands of North Cameroon are occupied for the most part by small scale societies ranging in complexity from egalitarian villages to petty chiefdoms, and which practice local religions (see Fig. 1.1). We refer to such societies as montagnard in contrast to plains-dwelling Muslim societies, primarily the inheritors of the precolonial Wandala state and of various Fulbe (Fulani) chiefdoms, the latter formerly (and often only formally) “feudal” dependencies of the Sokoto Caliphate. In precolonial times, the highlands were regarded by the Muslims as a reservoir of slaves, to be obtained by raiding or by trade with those montagnard groups willing or pressured to act as middlemen. The Fulbe raiding from the west and east were not entirely predatory, engaging for example in the exchange of cattle for grain and other

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montagnard products (Mouchet 1944: 58). The Wandala, settled on the plains around the northern end of the mountain chain, maintained close relationships at least with the montagnard Mora (Muraha), amongst whom they were on occasion constrained to seek refuge while escaping more powerful invaders (Barkindo 1989; MacEachern 2003). In general, however, not only Muslim-montagnard but also intra-montagnard relationships were characteristically strained. Competition for farmland and wives among the hill peoples contributed to an endemic state of hostility that pitted village against village but nonetheless did not preclude peaceful economic interaction, nor even interdependence between Muslims and montagnards.

This paper addresses only the sharply contrasting Wandala and montagnard traditions of iron working, and not that of the Fulbe. The latter have long obtained their iron and their ironworkers from various sources and do not represent a distinct, coherent metallurgical tradition. Although there are now Fulbe wholesalers of iron stock, their iron working has had no significant impact on this area.

In the area around Mokolo that is the southern part of our research area, among the Mafa (Martin 1970), Kapsiki (van Beek 1987) and many other ethno-linguistic units including those once improperly categorized as Matakam (Lembezat 1950), the smiths form an endogamous caste (Podlewski 1966; Genest 1974, 1976) that is regarded with ambivalence as is common elsewhere in West Africa (e.g., McNaughton 1988). Its members perform a variety of specialist functions; these commonly practiced by men include besides smithing also the smelting of iron, disposal of the dead and divination; women are potters and often medical practitioners. In the northern part of the range, the smiths of the Mofu-Diamaré (Vincent 1991), Uldeme (de Colombel 1986), Dghwede (Müller-Kosack 1996) and related montagnard groups are not casted, nor do they customarily fulfill other of the southern smiths' traditional functions (David and Sterner, chapter 4).

Among the Wandala, iron working is hierarchically organized. There are two major production centers: Manaouatchi, where Robertson concentrated his work, is the senior; the other is Kerawa-Assigassia on the Nigerian border (see Fig. 7.1). Manaouatchi, a town of 300-400 inhabitants, contains the largest concentration of Muslim smiths in the Mandara region. Situated 12 km southeast of the Wandala capital of Mora and 10 km east of the major Uldeme market at Mayo Plata, this town has been a focus of Wandala iron working since the reign of May Aji Bukar (1731-53) (Seignobos 1986: 34; Mohammadou 1982: 11). The hereditary chief of the Wandala blacksmiths resides here, and there are at present about 30 active blacksmiths. Not all Muslim smiths enjoy the benefits that a guild town of this sort affords. Many craftsmen, perhaps born and raised in Manaouatchi, now work in other small towns and villages, serving the more immediate needs of their local clienteles. Whatever the truth of the matter, the smiths of Manaouatchi regard their town as the headquarters of the Wandala iron trade, and the forges in the second level of the hierarchy as branch establishments.

According to Forkl (1984: 11-12) Wandala blacksmiths are, along with butchers, “despised and situated at the lowest of social levels. Before Cameroonian independence in 1960, people hardly ever married into their families” (our translation). However, Robertson found no evidence to suggest that they are presently held in low regard. On the contrary, they are respected and important members of their communities. Instances of marriage between blacksmiths and the daughters of Muslim leaders not only corroborate this interpretation, but suggest that it holds for more than one generation into the past. The discrepancy, Forkl (pers. comm.) suggests, probably results from lingering conservative attitudes in Mora, the Wandala capital.

Wandala smiths are best described as members of a guild with its own rules and responsibilities, governed by its own chief, and into which members are recruited through a rather formal apprenticeship. Although apprentices are most commonly sought among the Wandala smithing community, some are recruited elsewhere. In at least two recent instances, montagnard apprentices have been taken on and, given the requisite talent and conversion to Islam, may eventually become fully-fledged blacksmiths. The degree to which this may have occurred in the past is unclear; a current shortage of suitable apprentices results largely from a greatly expanded field of career options in the modern world. Members of the guild claim that none of the qualified smiths working in Manaouatchi are of non-Muslim or non-Wandala origin.

Up to the 1940s and early 1950s, most of the iron consumed in the Mandara region was locally smelted by montagnards using a unique type of bellows-driven, downdraft furnace and high quality magnetite ore eroded from local granites (David et al. 1989). Because the ore originates in the mountains, the montagnards had a natural logistic advantage. Although Wandala ironworkers have told us that they sometimes traded with the montagnards for ore that they smelted themselves, their production was, it seems, quite insufficient to supply all Wandala forges. Denham (Bovill 1966: 356-7), visiting the region in 1823, was told that the area around Kerawa was the main source of iron supply. In describing a Wandala forge he mentions that, “Large masses of the iron, as nature produces it, were lying about; and they appeared to me as so many rusty earthy masses.” Almost certainly what he saw were blooms that had been carried down from the hills. The Wandala smiths fined and forged them into various goods for local distribution and into “hinges, small bars and a sort of hoe used to weed the corn, and send them for sale to the Bornou towns.” The rich iron ore of the Mandara region and the iron trade north to the southern margins of Lake Chad were first reported by Lorenzo Anania in the mid-sixteenth century (Lange and Berthoud 1972: 343, 351; Hunwick 1971: 210). The trade may be as old as the Iron Age and is still of some importance today.

Not all montagnards produced iron; certain villages and groups specialized in smelting (David, chapter 5). Among these were the Sukur, Wula, Mabas, Hide, and a few Mafa villages in the south, and the Uldeme, Plata, Molkwo, Podokwo and Murgur (de Colombel 1986; Cuingnet 1968; Lembezat 1950; Seignobos 1991b)

further north. We do not know how the prices of ore and blooms were set, but presume that they could be manipulated to some limited extent by the montagnards, and that by such adjustments they could and would have resisted any attempt by Muslim smiths to obtain a share of their market in finished tools.

Starting before World War II and increasing rapidly in the late 1940s, the importation of vehicles and other machinery from the industrialized West offered a new source of metal, that by the early 1950s had put almost all of the montagnard smelters out of business. Scrap replaced bloomery iron and steel, and the flow of metal was reversed. The larger towns, all except Mokolo situated on the plains, became the entrepôts of iron stock. For the first time the Muslim smiths found themselves closer to the source of supply than their montagnard counterparts. In spite of occasional attempts by the latter to free themselves of a debilitating dual dependence on Muslims and Western steel through a revival of smelting (see Sassoon 1964 for an example from Sukur), they have been unsuccessful. The Muslims now have a near monopoly of iron supply; we suspect that in Mokolo, the seat of the prefecture that covers most traditional Mafa territory, Mafa converts to Islam control it. The Wandala smiths were quick to exploit the newly favorable terms of access, benefiting both directly and from substantial markups on stock sold to montagnards.

Montagnard smiths have on the whole persisted in their traditional roles; Western industrial products in particular have made few inroads. Nevertheless changes have occurred; the reversal of the flow of iron and the establishment of the modern market system are perhaps the two main factors that have placed montagnard products in direct competition with those of Muslim smiths. While in the south, largely due to the presence of Mokolo as a secondary entrepôt, the hill peoples still obtain the majority of their iron goods from blacksmiths of their own group, this is less and less the case in the north where an increasing number of items, particularly those associated with agriculture, are produced in the forges of Manaouatchi.

Wandala smiths stressed forging over smelting even prior to the general availability of industrial scrap metal. They have since shown remarkable technical and managerial initiative in responding to the increased opportunities offered by improved access to raw materials and by a more open national society. The potential for increased sales accompanying market centralization has been realized through the adoption of improved smithing and marketing techniques. Individual smiths vary their products according to their age and abilities and to changing patterns in the supply and demand for apprentices, assistants and metal.

Approximately half the local markets, including Mayo Plata, have a significantly non-Muslim, ethnically diverse clientele. Shoppers are offered a wide range of products, some specially targeted towards specific ethnic groups. The development of distinct ethnic markets and the movement of hill peoples onto the plains has also created a need for new modes of product distribution. Wide sales territories are now serviced from Manaouatchi by two men, who, although from the smithing commu-



Figure 6.1. In their typical Mafa forge, Bazlagay Dokwaza uses light blows with a boulder hammer to weld an iron ingot held by Dokwaza Kawa. *Photo: Nicholas David.*

nity are non-smiths who act as specialist dealers, distributing finished products to the various markets. They are the middlemen for most of the Manaouatchi blacksmiths. Anyone accepted as a smith can expect to have his products purchased by one of these two, who will then take them to the appropriate markets, which may be quite distant. Although blacksmiths could realize a higher unit profit by selling the goods in person, their time is more profitably spent at the forge, doing what they do best.

We exemplify the organizational and technical advantages of the Wandala smiths by contrasting aspects of their profession with those of their montagnard counterparts. First are the simple facts of their concentration in Manaouatchi and their membership in the brotherhood of Islam, which offer numerous benefits, facilitating their ability to act as a unit under the guidance of a guild chief, to obtain the best possible prices for raw materials, and to plan production in such a way as to maximize output of a full range of goods while minimizing internal competition. The montagnard smiths on the other hand live in compounds that are widely dispersed, and have only limited regard for social ties that are not kin-based. Smiths



Figure 6.2. An Uldeme forge, showing the position of the bellows man. The striker is sitting on the anvil. *Photo: Scott MacEachern.*

of other clans and lineages, even if of the same community or linguistic group, may be regarded with a degree of suspicion that precludes major cooperative endeavor.

Many of the Wandala smiths approach fulltime employment as blacksmiths; they specialize individually in the production of a limited range of types and do so to sell to specific groups of clients. Many montagnard smiths both engage in a number of other specialist activities and are or were until very recently prepared to reproduce the complete toolkit to order. While markets located in the hills are a colonial introduction, smiths did forge tools for sale with the assistance of their unmarried sons, whom they trained in this manner. Whenever, depending on the political situation, northern montagnards dared to attend, they would sell some of their wares at Mora and other Wandala markets at the feet of the mountains.

Due to their more primitive forging equipment, the montagnards are less efficient blacksmiths than the Muslims. Heavy forging is conducted with massive (about 6 kg), unhafted boulder hammers, either wielded by an assistant, or, especially when a tool is being made to order, by the client (Fig. 6.1). The smith directs the blows and does finer forging with small cobbles or an iron bar hammer. In Uldeme forges the bellows are worked by a second assistant; the placement of this apparatus is such that



Figure 6.3. Smith (left) and bellowsman/striker beat out a hoe in a Manaouatchi (Wandala) forge. The latter's body obscures the bellows but the shallow hearth can be seen beneath his left elbow. Note the sledge hammer on the main anvil. *Photo: Ian Robertson.*

its operator is effectively prevented from contributing further to the forging (Fig. 6.2). Although the layout of some montagnard forges allows the bellows operator to double as striker the physical effort involved cannot be maintained for very long. A third worker, often a lad, is therefore needed for sustained production.

The Wandala smiths normally work in pairs, and always do so when manufacturing the better quality of hoes (Fig. 6.3). The apprentice or mate blows the bellows and both he and the smith collaborate on the forging. Their roles are well defined by custom and practice, and they are generally expert. Because Muslim smiths are colleagues, as montagnard smiths are not, and because particular smiths tend to specialize in certain products, technical innovations seem to occur and spread more easily. An example is the addition of Western style sledge hammers to the traditional repertoire of forging equipment. Within the memory of practicing smiths, heavy forge work employed the same boulder hammers still used today in the hills. The energy expended by the Wandala striker is much less than that of his montagnard competitor, as is the time in which a hoe can be forged to shape.

Tool production is further streamlined through the use of highly standardized and efficient ways of cutting up stock into tool blanks. The number of hoes, for

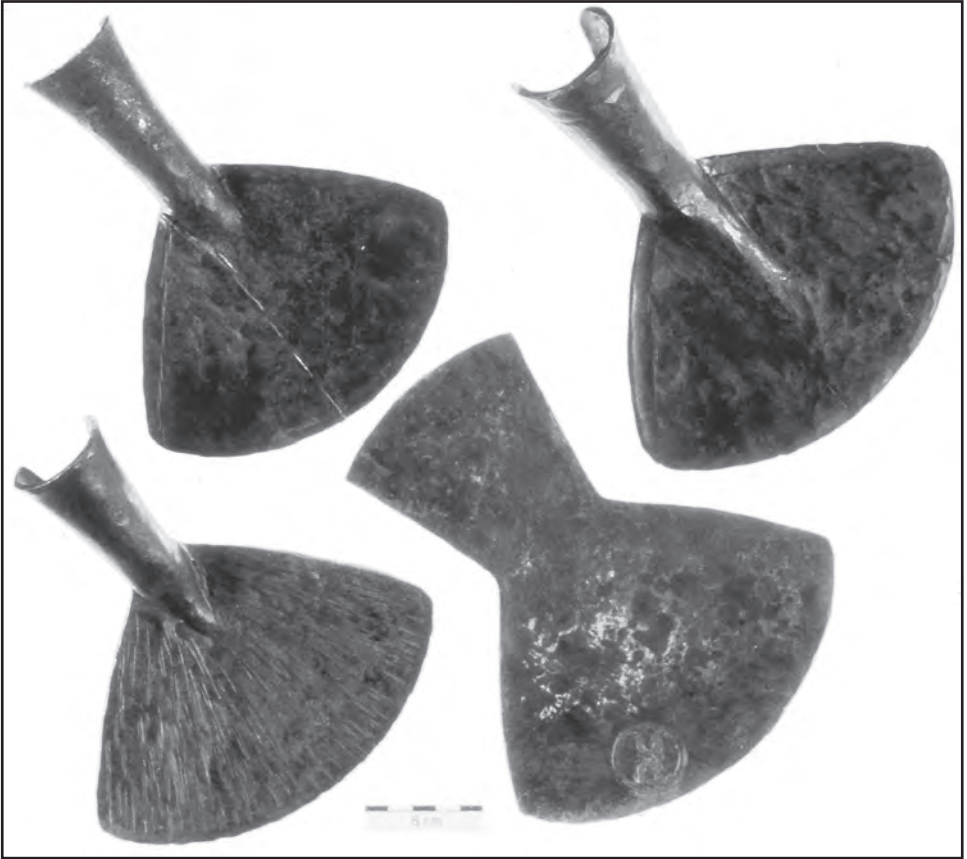


Figure 6.4. Three named Wandala hoe types and their common template. The scale is 5 cm long.
 Photo: Ian Robertson.

example, that can be expected from a given truck wheel rim can be estimated quickly and exactly, and the amount of steel wasted is minimal. By such means they are capable of manufacturing 20 quality hoes in a day; a traditional montagnard forge with a greater input of labor can produce only about twelve.

Muslim smiths, small businessmen animated by the profit motive and able to monitor market trends and demands through information provided by their iron-monger colleagues, also appear far more willing to innovate in other ways. Robertson (1992, and chapter 7) has described how they have developed a range of hoes targeted at various ethnic markets. These are differentiated on the one hand functionally, in part to supply tools adapted to the stony soils of the terraced hillsides, and on the other stylistically, in order, or so the Wandala suppose, to appeal to differing ethnic tastes. The forms of these various types are maintained through a set of sheet metal templates that, largely as a teaching aid for new apprentices, promote standardization in a form of ethnic packaging of which they are the inventors (Fig. 6.4).

We strongly suspect that historical, cultural and economic factors have facilitated the penetration of montagnard markets by Wandala blacksmith middlemen. At the time of the mid-eighteenth century conversion of the Wandala elite to Islam, their smiths fled from Doulo, where they had been established, to Bogo, 77 km east of Mora. They were persuaded to return by the Sultan, Aji Bukar. However, they settled neither in Doulo nor in the capital but at a discreet distance in Manaouatchi (Seignobos 1986: 34). This tradition betrays a tension between the Wandala state apparatus and the smiths that sets the latter somewhat apart from the bulk of the population. We hesitate to speak of submerged ethnicity, but ironworkers whose profession was profoundly embedded in an autochthonous ideology cannot have converted wholeheartedly and without retention of an important residue of their former beliefs. It would appear that one by-product of their liminality and ambiguous status was an ability to operate on both sides of the major ethnic divide.

In precolonial times, before the decline of the traditional smelting industry, ironworkers of diverse ethnic origins interacted and were to an extent exempt from the immanent threats of violence and enslavement that inhibited travel. From the Wandala viewpoint, iron was too critical a commodity to justify either killing or alienating those with the knowledge and the skills to obtain and work it. Similarly, the montagnards could not afford to lose access to certain necessities – salt and dried fish being the most often mentioned. Most interaction between montagnard and Wandala ironworkers was, we believe, occasioned by Wandala going to the mountains either to purchase ore or bloom, or to carry out a smelt. If this is so, the Muslims, favored in any case by the colonial administration, would have been preadapted through knowledge and experience to expand their sales into the territories opened up by pacification.

Montagnard responses to Muslim initiatives are various. By 1940 the Mukulehe, a Podokwo subgroup, were obtaining most of their iron tools from Wandala smiths, probably those of the Kerawa-Assigassia center (Lembezat 1952: 162). Several montagnard groups no longer have any practicing smiths to serve them. In the northern part of the area, the Podokwo, Mukhtele and Mada are no longer producing their own iron tools, but supply themselves at the Mayo Plata, Mora, Tala Mokolo and lesser markets. Indeed, perhaps because of their relative ease of access to Mora and Mokolo and of the importance of the Mayo Plata market, Uldeme smiths appear to be the only northern montagnard ironworkers still in full production. But their 20-odd forges are unable to satisfy local demand, and even their home market has been invaded by goods from Manaouatchi. Some 20 km further south, the Gemjek obtain their iron tools either from the weekly market at Meri, now in large part supplied from Manaouatchi, or at their own market to which some Mafa smiths, who we suppose can obtain iron relatively cheaply from Mokolo, bring their wares. A little further from the sources of supply, there is still

a smith among the southern Zulgo, but he works irregularly and serves mainly to sharpen and repair tools manufactured elsewhere.

The acceptance of a dependence upon others, even upon Muslims, for basic tools thus constitutes one montagnard response to changing circumstances. Some of their smiths are attempting to retain market share by investing in new technology. A sledgehammer allows a smith to forge tools with only his wife or a child to assist in blowing the bellows, a significant reduction in labor costs (Fig. 6.5). The actual cost of the sledge is not great, perhaps the equivalent to the gross returns of two days smithing, but it requires at least one relatively expensive day trip into Maroua, the provincial capital and uncertain source of supply. Thus some montagnard smiths are modifying their traditional practices, albeit slowly, with a view to increasing productivity and reducing labor costs.

In conclusion, the foregoing sketch suggests some generalizations that, albeit near truisms, may be of some use to prehistorians confronted with technological successions in the archaeological record. First, context is crucial. In this case the factors that set the stage for the competitive success of Muslim technology are economic (the reversal in the tide of iron), social (the liminal status of the Wandala smiths) and political (the colonial pacification). More proximately, the organization of production – centralized on the plains and fragmented in the hills – plays a critical role, one that appears to repeat a pre-Wandala pattern on the plain detectable archaeologically at the site of Mehe (David and MacEachern 1988; Wahome 1989). Next, the two technologies are in genuine economic competition: neither is being imposed, nor is the market distorted by state intervention. In such situations we may predict that whereas the artisans of the expanding system will innovate by expanding both the stylistic and functional ranges of their products in the hope of attracting a wider clientele, the craftsmen of the threatened group are likely to be forced to make changes in their technology, usually towards that of their rivals, in order better to compete. (This is a slight oversimplification; the Uldeme smiths are indeed expanding their repertoire of hoes, largely to fill niches vacated by smiths of neighboring montagnard groups.) Conversely, were one society dominant over the other and imposing its technology, we would expect that, along with the disappearance of one school of craftsmanship, there would be substantial stylistic continuity in the products of the other.

Finally, let us look to the future. Muslim blacksmiths efficiently and cheaply satisfy a demand that is if anything likely to increase in the next decades. As they control recruitment into the profession, their immediate future as specialist craftsmen is probably secure. Some of the casted southern montagnard smiths, those centered on Mokolo, will survive through increased professionalization, limitation of the formerly broad range of their socio-cultural roles, and by accepting technological change. The roles of these smiths' womenfolk have changed little and appear in the foreseeable future likely to change less than those of the men. Pots

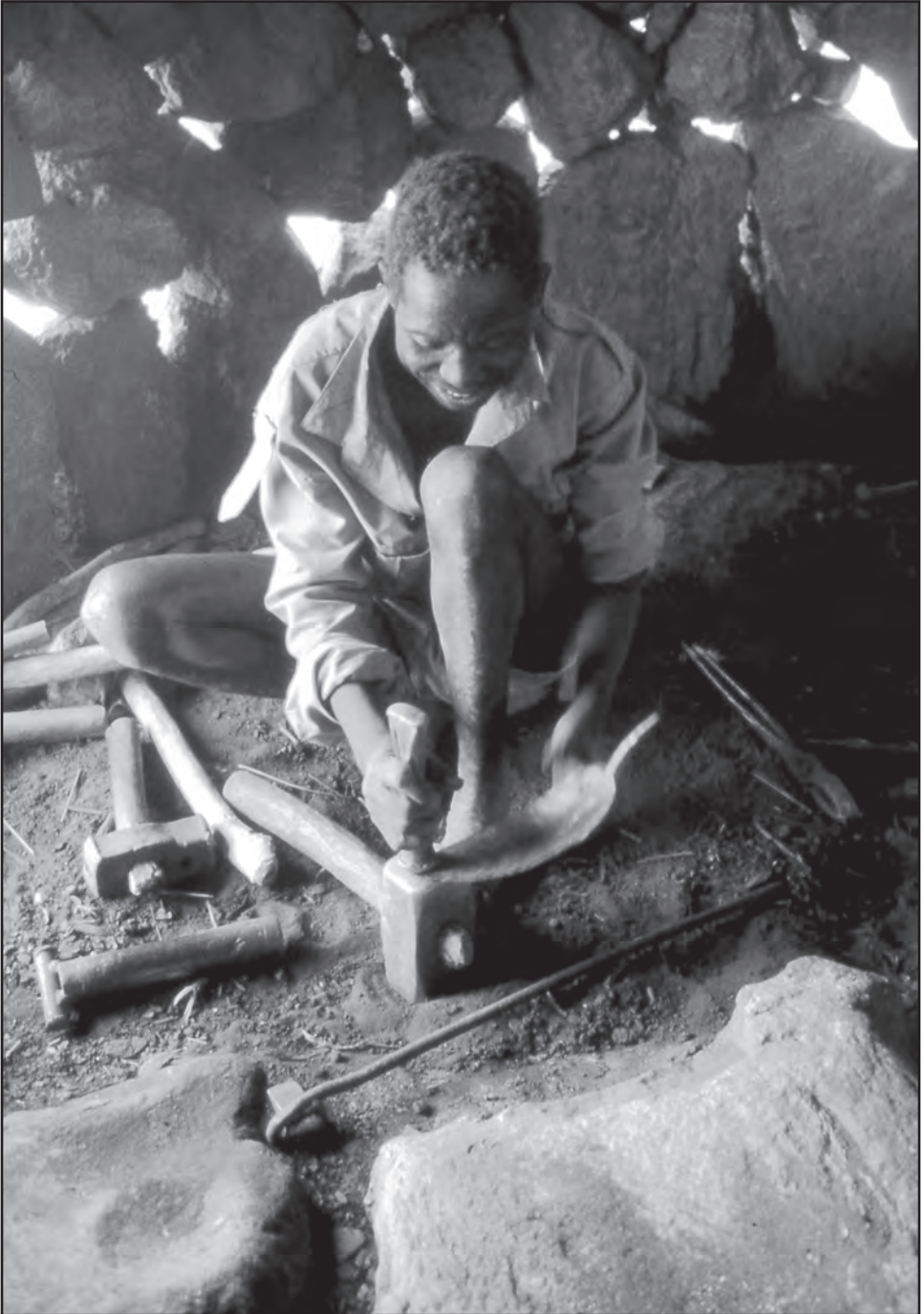


Figure 6.5. A Mafa smith who often works alone with his wife on the bellows, here using a bar hammer on a hoe. The small sledge hammer is for heavy forging. *Photo: Nicholas David.*

are still produced in quantity and few women give birth in hospital. This should translate into an improvement in the status of women, though less so than in the north where montagnard women potters, in marked contrast to male smiths, now monopolize pottery supply to most Wandala markets.

While in precolonial and colonial times some division of labor occurred among montagnard smiths, the 1950s and independence periods have seen the loss of the smelting specialization and, locally, of other prerogatives – of burial as a result of the spread of the influence of Christian missions, and of some healing with the increased availability of Western health care. As the task of directing funerals is closely bound up with ritual practices that are unacceptable to the growing numbers of Christian and Muslim converts, there is little possibility of adjusting this speciality to new circumstances. However, this is not the case with either divination or curing, especially of ailments with an important psychosomatic component. Peaceful conditions enabling people and information to move about more freely have allowed certain experts in these skills to establish reputations that transcend their own villages and even ethnic groups. But the number of such consultants will remain limited. Underemployment of smiths is already a reality. Some casted montagnard smiths are turning to full-time farming, an activity denied to them in the past, and more will do so in the future. Over time such persons, no longer practicing any of the specialties reserved for smiths, become scarcely distinguishable from their neighbors. This is the likely fate of the vast majority of the members of the smithing lineages in the northern mountains. Even in those societies where smiths are casted, their children, despite remarkably persistent cultural attitudes towards them, will eventually lose their distinct status (Sterner and David 1991). Meanwhile it remains to be seen whether the remaining specialists, diviners and healers, will retain one foot in the forge and thereby their connection to the potent set of symbols associated with iron working, or whether, as increasing division of labor might seem to render inevitable, there will be further disassociation of their once interrelated roles.

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Form, Style, and Ethnicity: Iron Hoes and Knives in the Mandara Region, Northern Cameroon¹

Ian G. Robertson

Fieldwork with the Mandara Archaeological Project

In the 1980s a primary aim of the largely ethnoarchaeological Mandara Archaeological Project (MAP), directed by Nicholas David, was to describe and elucidate stylistic variation in the material culture, both past and present, of populations living in the northern Mandara Mountains and the adjacent Mora plain of the Extreme North province of Cameroon (David and Kramer 2001: 206-18, 349-55; David and MacEachern 1988).

As a member of the MAP in 1986, I carried out an eight-month ethnographic study of traditional ironworking in this region, much of my research time spent working as a participant observer with blacksmiths in the Wandala town of Manaoatchi. I began, however, by collecting data more broadly, creating a census of ironworkers, merchants, and products in regional markets, local markets, and

1. This paper draws significantly on a more narrowly focussed discussion of stylistic variation in Mandara region iron hoes (Robertson 1992). The current paper has been updated with previously unpublished information about formal and stylistic variation in iron knives from the same region, collected during the same 1986 field season of the Mandara Archaeological Project (MAP). Unlike my other MAP colleagues who have contributed chapters to this volume, I have not done active research in the Mandara region since this time. Although I suspect that much of the smithing behaviour I describe still holds today, the “ethnographic present” for this study, as for chapter 6, is really the mid to late-1980s.

workshops located in other towns. Particularly important in this survey were the settlements of Manaouatchi and Mayo-Plata. Less intensive research was carried out in the nearby towns of Memé and Mora, several other towns further to the north (especially Touchki, Doublé, and Magdemé) and a handful of other settlements (Fig. 7.1).

For reasons that will become clear, I became particularly interested in a hotbed of Wandala blacksmithing named Manaouatchi. Two blacksmiths in one particular shop were especially generous in dealing with my repeated visits and persistent questions. Because of significant prior blacksmithing experience in Canada, I frequently and increasingly over time helped with minor smithing tasks. I learned to operate their bellows and later started to assist them in forging iron hoes. I was eventually invited to work and train there as a novel kind of apprentice, and it was in this shop that I concentrated a great deal of my remaining research time in Cameroon. Given this opportunity of working closely with two blacksmiths possessing high levels of skill in traditional Wandala forging methods, my research in the Mandara region became increasingly focused on the facilities, equipment and techniques that modern smiths use to craft the various iron tools and weapons that are still so important in the day-to-day lives of local peoples. Some of the data that I collected also bear on stylistic patterning and the relationship between ethnicity and material culture. The latter are the issues that I concentrate on here.

The Region

The area around the northern tip of the Mandara Mountains is diverse in terms of both cultural and natural resources. It lies near the boundary between the Sahelian and Sudanic environmental zones south of Lake Chad and exhibits vegetation patterns characteristic of both. The broader region can be divided into two contrasting topographic units. The highlands consist of the Mandara Mountains, an extensive granitic range that contains a number of internal plateaus. These mountains are delimited by piedmont and plain deposits containing colluvial and alluvial materials that draw both on the highlands and on lacustrine sediments associated with ancient fluctuations in the level of Lake Mega-Chad. The surrounding lowlands are dotted in places by steep-sided and visually impressive inselbergs. Summaries of the geology, geomorphology and ecology of the region are provided in Boutrais et al. (1984), Seignobos and Iyébi-Mandjek, eds, (2000) and by Wilson (1988) and MacEachern (2003).

The highland zone is the primary domain of a large number of small-scale societies, most of which practice local (non-Muslim and non-Christian) religions and engage in subsistence economies that revolve around the cultivation of sorghum and pearl millet. Although this region encompasses a remarkable amount of linguistic and ethnic diversity (MacEachern 2003), its inhabitants are frequently referred to by the collective denominations *kirdi* and *montagnard*, outsiders' terms derived



Figure 7.1. The Mandara region, northern Cameroon.

respectively from Kanuri and French that are often used to contrast these peoples with the largely Muslim societies inhabiting the adjacent and surrounding plains. Montagnard society has conventionally been divided into a number of variably-sized

ethnic groups. MacEachern (1993, 1998) has argued that these have been reified in ways that overstate their importance as local social units or sources of social identity. Nevertheless, a number of these groups are relevant to the theme of this paper: in particular the Plata, Ouldémé, Vamé, Podokwo, Mada and Mukhtelé (Fig. 1.1).

The Islamic lowlanders that concentrate in settlements clustered around the edges of the massif are primarily descendants of the now much diminished pre-colonial Wandala state and various Fulani chiefdoms. More recent additions to the Muslim milieu are the Kanuri and Shuwa (Choa). Until relatively recently, the better organized, horse-equipped Islamic peoples were successful in exploiting the highland zone as a ready source of slave labour, and Muslim raiding parties were a perennial source of danger for montagnard peoples (MacEachern 1993, 2001). Violent conflict was not confined to the plains-mountain interface. Villages in the mountains frequently fought among themselves in an effort to gain and control access both to scarce farmland and to wives.

I cannot address questions of recent and current inter-ethnic relations in northern Cameroon at a level that matches their complexity or inherent importance. However, while armed conflict is much less common now than it was even a few decades ago, a discernable tension still characterizes much interaction between Muslims and montagnards. In part, this is the legacy of the pre-colonial past; the terror of Muslim slave raids has not been forgotten by the montagnards. Moreover, many Muslims view their traditionally illiterate “pagan” neighbors as cultural subordinates, sometimes to the point of treating them with open contempt. Most of the economic and political power arising from the national policies of the modern state has in northern Cameroon fallen to the hands of the Muslims. This has engendered some reciprocal resentment on the part of montagnards toward the regional Islamic population.

Blacksmiths, iron and hoes in the northern Mandara region

Because of the quality and ubiquity of natural, iron-rich sands in and around the Mandara Mountains, the surrounding region was historically important for smelting iron and forging and trading iron tools (MacEachern 1993). The economic importance of hand-forged tools continues to this day, and local markets feature a wide range of iron tools and weapons made by regional smiths using essentially traditional methods. Depending somewhat on the season, a visitor to such markets is likely to see hoes, axes, sickles, machete-like tools, barbed arrowheads, spearheads, razors and knives.

On several occasions, the Wandala blacksmiths with whom I worked impressed on me that the short-handled, socketed hoe that they specialize in forging is the single most crucial element in the predominantly agricultural economy of the northern Mandara mountain region—the tool that literally makes it possible for

all people, Muslim and non-Muslim alike, to feed themselves. My informants were visibly proud of their profession and work, careful to convey to an outsider such as myself an appropriate appreciation of their importance to the local economy and society. I think they are essentially correct in this assessment: for centuries, hoes may well have been the single most crucial production item for smiths working in this region.

Significantly, it is difficult to forge a good hoe blade. Not all blacksmiths acquire the necessary skill to make hoes, and in Wandala smithing circles, this distinction separates an “anvil man” (*jilúgthla*, sometimes described in Cameroonian French as *un forgeron vrai*) from lesser kinds of ironworkers. Strong, well-forged hoes made by such craftsmen are prized by farmers and bought up quickly in local markets.

Blacksmiths at Mayo Plata

In this paper I concentrate mostly on two traditions of hoe-making that are, at least in modern times, quite distinct. One of these is exemplified by the Plata smiths of Mayo Plata, the other by the Wandala smiths of Manaouatchi.

Within the mountainous Mayo Plata area (Fig. 7.1), the traditional territory of a number of so-called montagnard peoples, the Plata and Madavar are the only ethnic groups that continue to engage in an appreciable amount of iron tool production. This was not the case as recently as the 1960s, and the modern clientele of the Plata include peoples that were formerly well-known for their own blacksmithing activities, including the Podokwo, Mukhtelé, and Mada. The reason for this is likely complex, but it is probable that the rapid shift toward the use of modern industrial scrap steel (beginning around the 1940s), with a concomitant loss of reliance on locally smelted iron (an industry that had largely been controlled by non-Muslim groups) were critical factors in reducing the numbers of montagnard groups involved in traditional forms of iron working (David and Robertson 1996 and chapter 6).

In contrast to several Mandara montagnard peoples, the Mayo Plata smiths do not constitute formally casted groups. Current blacksmithing activities are largely confined, however, to a few named lineages subsumed by larger social units (MacEachern 2003: 266-7). This fact reflects recent historical factors rather than a system of social proscription. It is clear that, in the quite recent past, iron working was less restricted even among the Plata, and larger numbers of Plata lineages included practicing smiths. It is probable that their numbers have been thinned by much the same factors that reduced the number of montagnard groups engaged in iron work in the broader region.

The smithing methods employed by Mayo Plata workers represent a technological style and tradition that contrasts sharply with what is seen in nearby Muslim towns (David and Robertson 1996). Particularly distinctive is the use of large

boulders for conducting heavy forge work. These hammers are unhafted, grasped directly by both hands in order to deliver heavy blows to heated iron stock; a large, flat-topped boulder is the most common anvil for this sort of forge work. The most elaborate form of boulder hammer is made of hard, black rhyolite imported from Mada territory, some kilometres south of Maya Plata, and exhibits a carefully pecked and polished ridge on its main working surface (Fig. 7.2). This ridge functions in the same manner as the cross-peen on a modern blacksmith's hammer, used in particular to spread heated iron or steel into the wide, flat sections that eventually become the blade and socket of finished hoes. The feature that most readily distinguishes iron hoes made in this area from those produced by Muslim competitors on the plains is the distinctive pattern of parallel striations and ridges left on the surface by ridged-boulder hammers (see examples in Fig. 7.3). Lighter forge work, usually associated with later stages of manufacture, is typically done using a cylindrical steel bar, roughly 20 cm in length and 4 cm in diameter. This simple kind of hammer is held vertically in the fist; striking consists of an up-and-down, piston-like motion in which the circular lower end of the cylinder—the striking surface—is brought directly and forcefully down onto the stock. The more efficient, swinging motion possible with western-style, wood-hafted hammers is not feasible with either the boulder or cylinder hammers used by the Plata. This places significant limits on the productivity of Plata workshops (David and Robertson 1996: 135).

The Plata hoe inventory includes several readily discernible types, each loosely connected with one or more of the non-Muslim groups settled in the surrounding region. Three of these hoes are illustrated in figure 7.3. The largest hoe is traditionally associated with Mukhtelé farmers living to the west of Mayo Plata; the hoe with the broad edge is associated with the Vamé, mostly to the north. The medium-size hoe with the narrow edge is conceptually tied to the Podokwo, who farm to the north-west. The formal attributes that principally distinguish these types are overall size and width of the working edge. The socket component is identical in all three cases.

Although the local smithing vocabulary does not seem to differentiate these various types of hoe in a very formal or rigorous way, it is generally accepted that they constitute distinct forms, and that, at least historically, their association with farmers of specific ethnic groups was rooted to some degree in real-world behavior, expressed both in the market place and in the fields. However, both smiths and farmers agree that a critical factor when choosing a hoe blade is to match soil conditions (specifically its relative hardness and the quantity of cobbles and other rock present) with the width of the working edge. They readily admit that these practical considerations increasingly override ethnicity. Soil and field conditions vary a great deal throughout the study area, but correlate most strongly with relative elevation. In the past, with most montagnard ethnic groups occupying tracts of land corresponding to reasonably distinct elevation ranges, field and soil types were probably more closely tied to specific ethnicities. Recent events, particularly



Figure 7.2. Ridged-boulder forging hammers. These particular tools are from the shop of a Mafa smith, but they are essentially the same as those used by the Plata.

the Cameroonian government's policy of resettling montagnard people onto the plains, have disrupted this relationship, weakening what was presumably a previously stronger correlation between montagnard ethnicities, soil types, and hoe styles. As more non-Muslim farmers move out onto the plains, and away from the rocky and relatively unconsolidated soils of the massif, the more critical become the mundane, mechanical considerations of function, efficiency and durability. For example, a hoe with a wider working-edge (such as that associated with the Vamé) is proving more generally useful for farming on the piedmont and plains, and is thus becoming popular with an increasing number of montagnard peoples, regardless of their ethnic identity. It may be that the persistent tendency to verbalize an association between specific ethnic groups and modern hoe types partly reflects historical precedent and partly the need for convenient descriptive tool labels, rather than highly patterned behavior in modern markets.

Most of the Plata-made iron products are sold at Mayo Plata, in a weekly market that is regularly patronized by both Muslims and montagnards. Although in the heart of Plata country, it is here that Plata smiths compete most directly with ironworkers from other parts of the Mandara region.



Figure 7.3. Hoes made by Plata smiths for Vamé (top), Mukhtelé (left) and Podokwo (right) farmers, each showing the wide, shallow striations left by the ridged-boulder hammers that are used to spread the blade area. The fourth hoe (bottom) was made by a Wandala smith at Manaouatchi, but intended for sale to montagnard farmers. Both the form and the narrow blade striations created by the use of a cross-peen hammer are intended to attract consumers who might otherwise buy a Plata-made hoe. *Photo: Dave Brown, University of Calgary Imaging Services.*

The Wandala “anvil men” of Manaouatchi

The Wandala are no longer the only Muslim group in the Mandara region to have practicing blacksmiths, but Wandala smiths are certainly more numerous than those of the Shuwa, Kanuri or Fulani, all peoples who only recently took up iron working, at least in this part of West Africa.

The main concentration of Wandala smiths is located at a small town called Manaouatchi, a well-known smithing centre that has been the focus of Wandala iron working for many generations. According to oral traditions, all the Wandala blacksmiths left Doulo, then the capital of the Wandala state, after a dispute with the paramount chief (*tliksé* or “Sultan”) over whether or not they and their work should be subject to taxation. The disagreement resulted in the sudden departure of the smiths, who eventually founded the new town of Manaouatchi at the base of a prominent inselberg called Ourza, about ten kilometers east of Mayo Plata and a slightly greater distance south of Doulo. The *en masse* shift of smithing activities from the capital south to Manaouatchi probably occurred in the mid-eighteenth century. Manaouatchi is still occupied primarily by blacksmiths and their families, all of whom are Muslim and almost all of whom describe themselves as ethnically Wandala. Population increase at Manaouatchi has contributed to the growth of a secondary but important branch of Wandala smiths at Keroua, a town located to the northwest on the Nigerian border and coincidentally also a former Wandala capital.

It is notable that to this day, very few smiths live in Mora, the present Wandala capital, located some ten kilometres northwest of Manaouatchi. In part a legacy of the historical factors discussed above, this may also reflect a long-term tension between broader Wandala society, especially its ruling elite, and Wandala blacksmiths (David and Robertson 1996, and chapter 6). At one time, Wandala smiths constituted a kind of caste; along with butchers, they have been described as a more-or-less “despised” sector of society into which non-smithing families would not marry (Forkl 1984: 11-12; but see MacEachern 1994). My observations in the mid-1980s suggest that this is no longer the case. Blacksmiths seem well integrated into their neighborhoods and communities, and command high levels of respect for their work in general and more specifically for the vital contribution that their agricultural tools make to the regional economy. I do not know what factors initiated the shift to what appears to be a more elevated status for blacksmiths, but it probably started some considerable time ago. This is consistent with examples of marriages between blacksmithing families and local Muslim religious leaders at least one or two generations prior to my research.

At present, there are about 30 smiths actively working in Manaouatchi. Although many blacksmiths own and work at least some farmland, iron-related work is a full-time occupation for most, at least for much of the year. Production activities are loosely organized around a kind of guild structure. Ironworkers operate under the direction and leadership of the “Anvil Chief” (*ildakwúgthla*), a

practicing smith said to hold some level of authority over all the smiths in the region—including, some assert, the non-Wandala smiths working out of Mayo Plata. I suspect that the latter part of the claim would be disputed at Mayo Plata, and that it is at least partially a legacy of times when the Wandala state was a strong political force in the region. In and around Manaouatchi, however, the chief is clearly a highly respected individual possessing unusual authority and influence.

Two men from the community operate on behalf of the town as full-time middlemen and dealers. Making the rounds of the smiths' workshops at regular intervals, they purchase finished tools that are briefly stored before being transported to a number of local and regional markets for resale. According to my informants, these individuals do not discriminate strongly between the output of the most skilled and the least skilled blacksmiths in Manaouatchi; although they pay slightly more for the former, they attempt to sell everyone's work. However, those with limited skills are under pressure not to make products (above all, hoes) that lie beyond their abilities. They are encouraged and rewarded for concentrating on relatively simple items (such as barbed arrowheads) compatible with their skill levels.

Overall, however, Manaouatchi is justly famous throughout the Mandara region for the skill of its blacksmiths, as well as for their sheer numbers and output. The tools and methods that the Wandala use in their smithies (including western-style, hafted sledgehammers) are more efficient than those of the Plata, and their production levels are significantly higher (David and Robertson 1996). Regional connections that are mediated through the religious affiliation shared with other Muslim ironworkers give the Manaouatchi smiths ready access to relatively cheap sources of steel, some of which they now resell to the smiths at Mayo Plata at strongly marked-up prices. This is a reversal of the earlier pattern, in which montagnard ironworkers mostly provided iron to plains-dwelling peoples (MacEachern 1993).

Wandala hoe making

Approximately half of the markets where products from Manaouatchi regularly appear, including Mayo Plata, have a significantly non-Muslim clientele, and this has had an important effect on smithing practices at Manaouatchi. Until fairly recently the Wandala smiths did not produce the wide variety of blades for short-handled hoes that they do today. Their speciality was the *helle*, the type of hoe that the Wandala used in their own fields. *Helle* has no ready translation, but the term can be reasonably glossed as "Wandala hoe," a phrase that is also used in the Wandala language (*uza wandala*; *uza* = "hoe") to describe this same tool. Prior to the recent adoption of iron working in this region by the Kanuri and Shuwa, the Wandala also sold the *helle* to these peoples in the northern market towns that cluster on the present border with Nigeria. The Kanuri also used a hoe that Wandala smiths call *bagum*, a term that I was told is derived from the Kanuri language and means "with a nose." It is not clear if the *bagum* hoe was made by Kanuri smiths located further



Figure 7.4. Wandala-made hoes: *helle* (left), *bagum* (right), and *manzakhla* variant of the *helle* (bottom-centre). The latter shows striations made with a special kind of sharp-edged, cross-peen hammer. Photo: Dave Brown, University of Calgary Imaging Services.

to the west, or by another, neighboring group such as the Hausa, but in the eyes of the Wandala the tool is strongly identified with Kanuri ethnicity and perceived as the hoe type with which Kanuri farmers are most strongly associated. The main difference between the *helle* and the *bagum* lies in the length and usually the form of the blade-ridge (the “nose”) that extends from the socket down onto the blade of the hoe. This feature provides rigidity and strength both to the blade and the blade-socket juncture and is longer and more salient on a *bagum* hoe than a *helle*. There is also a slight difference in overall size, the *helle*, usually by a slight margin, being

the smaller of the two (Fig. 7.4). I was told that the type of *helle* in current use is significantly larger than the one that was made a few generations ago.

Some twenty years prior to my fieldwork, following requests from their Kanuri clients, the Wandala blacksmiths began to make the *bagum* hoe as well. Since this time, many Wandala farmers have started to use this tool in their own fields, adopting the Kanuri word for it. It has not replaced the *helle* in Wandala country, however, and there is no indication that it is going to do so. It is nevertheless likely that the increased size of the most recent form of *helle* is a response to the popularity of the *bagum*. This may also reflect a reduction in the cost of iron that has come with the ready availability of western scrap steel.

At approximately the same time that the Kanuri hoe was added to their repertoire, the Manaouatchi smiths started to make a series of hoes for the people they call the *kirdi*, the montagnard farmers who live in the vicinity of Mayo Plata. The exact reasons for this are unclear. It is likely that, with their montagnard clientele starting to expand around this time (and their own numbers shrinking) Plata smiths were unable to meet all of the local hoe demand, thus creating a niche for new competitors. The Manaouatchi smiths also claim that montagnard farmers were aware that they had started making a new type of hoe for the Kanuri, and that it was at the request of the montagnards that they further expanded their line to include various versions of the *uza kirdi* or “kirdi hoe.”

The result was a number of new hoes that copied the general form of the indigenous Plata tools and mimicked the distinctive blade striations left by the ridged boulder hammers of their Plata makers. Because they had stopped using similar stone hammers several generations before, the Wandala smiths invented a special tool (essentially a sharp-edged, cross-peen hammer) that they use to create thin, linear striations on hoe blades that they otherwise forge using their normal methods. In Wandala the word for these marks is *manzakhla*, also used to describe any hoes so marked or decorated. In essence, all *manzakhla* hoes are skeuomorphs, created by transforming one aspect of variation on Plata-made hoes into a new kind of design element on Wandala-made hoes. The marks have a specific social referent, strongly connoting “kirdi” to the Wandala. An example of a *manzakhla* hoe is included in figure 7.3 (bottom).

Eventually, several other hoes, most of the *manzakhla* variety, were created for other members of the non-Muslim farming community. In a manner similar to the Plata, these are conceptually linked to specific ethnic groups, but even more strongly so. The connection between hoe form and the ethnicity of farmer-consumers is a matter of significant interest to the Wandala smiths: at least around interested outsiders, a frequent topic of discussion in their workshops is how to forge the “correct” kind of hoe for any of the numerous ethnic groups to whom the Wandala ironworkers now sell their products.

In contrast to the Plata smiths, who distribute much of their output in person, the Manaouatchi smiths leave most direct interaction with clientele in the hands of specialist ironmongers who do not themselves do any forge work. Some of the markets they service are quite far from Manaouatchi. These factors serve to buffer most blacksmiths from the realities of the market, and may help explain the persistence within the Wandala smithing community of the notion that specific hoe types are made for, and purchased by, specific ethnic groups. Nevertheless, it was acknowledged by several of the smiths that I interviewed that farmers are increasingly willing to experiment with hoes of different shapes and decoration, something that they attribute primarily to a rise in ethnic interaction that has come with the more peaceful climate of colonial and post-colonial Cameroon. The Wandala smiths are aware that certain hoe styles are more efficient and more durable in some types of fields than in others. The presence of a central blade-ridge, for example (a feature entirely absent in the Plata product), increases the life-span of all hoes but in particular those used to farm the harder soils of the Mora Plain. Accordingly, and largely for the use of non-Muslim farmers that have left the highlands to settle and cultivate the plains, the Manaouatchi smiths have invented a kind of “generic *kirdi*” model based on the shape of their own *helle* and incorporating its characteristic form of blade-ridge. The main difference between the older, traditional Wandala hoe and this more recent innovation lies in the addition of *manzakhla* blade striations, as well as the lack of *ichéyarra*, a concentric socket decoration normally exhibited by *bagum* and very often by *helle* as well. The result is a strong, wide hoe, decorated in a manner that the Muslim blacksmiths regard as appropriate for a “*kirdi*” farmer now cultivating the soils of the plains. The hoe sells well in local markets. Interestingly, it is now sometimes purchased by Wandala farmers as well as montagnards. The *manzakhla* version of the *helle* is illustrated in figure 7.4.

Metal and mental templates

Another interesting innovation among the Wandala smiths is the use of templates to record the form of the various hoe types included in their expanded repertoire (Robertson 1992). Particularly evident at Manaouatchi, these templates are cut out of thin sheet metal, and show the outline of the hoe blank as it appears towards the end of the forging process, just prior to giving final shape to the socket—i.e., when it is completely flat, and without any decoration on either socket or blade.

Since experienced blacksmiths have long since internalized clear “mental templates” for the form of tools they make regularly, the metal ones are seldom seen in normal, day-to-day work. In some smithies they are kept tucked away, barely visible, in the inner thatch of the roof; other smiths store their templates outside the actual workshop. They are readily fetched to instruct apprentices, however, and on one occasion, I saw two of the most senior smiths I knew consult a template before beginning to forge a large batch of hoes of a type they rarely made.

Informally speaking, hoes made in the same shops appear to exhibit a high degree of uniformity and I suspect that this may be due in part to the use of these templates, an enduring record of a key aspect of their form. It would be interesting to know if templates are ever consulted, copied or exchanged at a level beyond individual shops, thus perhaps contributing to higher levels of standardization within broader communities or regions. While I saw templates fairly often visiting workshops other than the one I worked in, as well as outside of Manaouatchi, this is not an issue I was able to investigate further.

About five templates record the basic outline of all of the hoes normally forged in Manaouatchi. Since over ten distinct types are now made there, most templates are tied to the form of more than one hoe. The majority of distinct, named hoe types are created by combining the basic outline of a given template with different types of blade or socket decoration, and altering the form or size of the blade-ridge. Less common types may require slight adjustments in the angle between the socket and the blade. Figure 7.5 includes the common template underlying the form of three distinct (and the most important) Manaouatchi hoe types: the *helle*, *bagum* and the *manzakhla* variant of the *helle*.

Figure 7.6 shows in an idealized (and abbreviated) way how the basic form represented by this template becomes incorporated into a finished hoe. The actual production sequence followed by the smith varies depending on which of the three types is the desired end product. This is predetermined. A key distinction comes right at the beginning, with the cutting of the trapezoidal steel blank that will eventually become the hoe. A heavy sledgehammer and a hafted chisel are used for this, subtle decisions about the amount of metal cut from the parent stock reflecting whether a *bagum*, or either a *helle* or *manzakhla* is the target. Assuming the blank is of “normal” size, a knowledgeable bystander can make a good guess as to whether a *helle* or a *manzakhla* will emerge by about the time the socket area has been forged and is ready to be closed—hammered into the open, slightly tapering tube that will eventually join the hoe to its handle. If *ichéyarra* decoration is added before the socket is closed, the hoe is almost certain to be a *helle*; if not, most likely a *manzakhla*.

One other technical issue arising from the procedure recorded in figure 7.6 deserves a brief comment. As a near-final stage in forging, the blades of *bagum* and *helle* are almost always marked with one or more kinds of linear grooves, known collectively as *deharra*. The different kinds of *deharra* are fairly standardized in form and have their own specific names. Said to be fundamentally decorative, specific types and configurations of *deharra* are loosely adopted by some smiths as a kind of “mark.” The differences between variants are often quite minor in purely formal terms, but they are accentuated at the forge by individual-level variation in skill and execution. The outcome is an interesting example of “assertive style” (Wiessner 1983: 253) that is said to make it possible to distinguish the work of specific smiths. In practice many of these marks seem so subtle that I suspect very few,



Figure 7.5. Two examples of Wandala hoe templates. The template on the left records the form of the type of hoe shown in Figure 7.3 (bottom). The template on the right records the form of all three hoes in Figure 7.4. Photo: Dave Brown, University of Calgary Imaging Services.

beyond perhaps their own makers, can actually read their content. Some blacksmiths, however, go well beyond decorative and assertive use of *deharra*, forging marks on blades and sockets that are so distinctive and idiosyncratic that they are clearly intended to serve as full-blown makers' marks. This interesting topic goes beyond the scope of this paper, however—absent or at least rare at Manaouatchi, these most elaborate forms of makers' mark are generally seen on tools originating from non-Wandala forges to the northwest, around and across the Nigerian border.

Constraints on innovation?

As previous discussions should indicate, Wandala smiths (like their montagnard counterparts) have shown that they are ready to innovate, to create new products in order to meet changing demands in the regional iron market. In light of this, it is interesting to consider what limits, if any, might constrain the creations of new kinds of tools in the future. Are all potential combinations of shape and decoration culturally viable?

My evidence bearing on this issue is suggestive but essentially anecdotal. On one occasion, while demonstrating forge work to a visitor (MAP director, Nicholas David), I raised the possibility of adding *ichéyarra* socket decorations to a hoe,

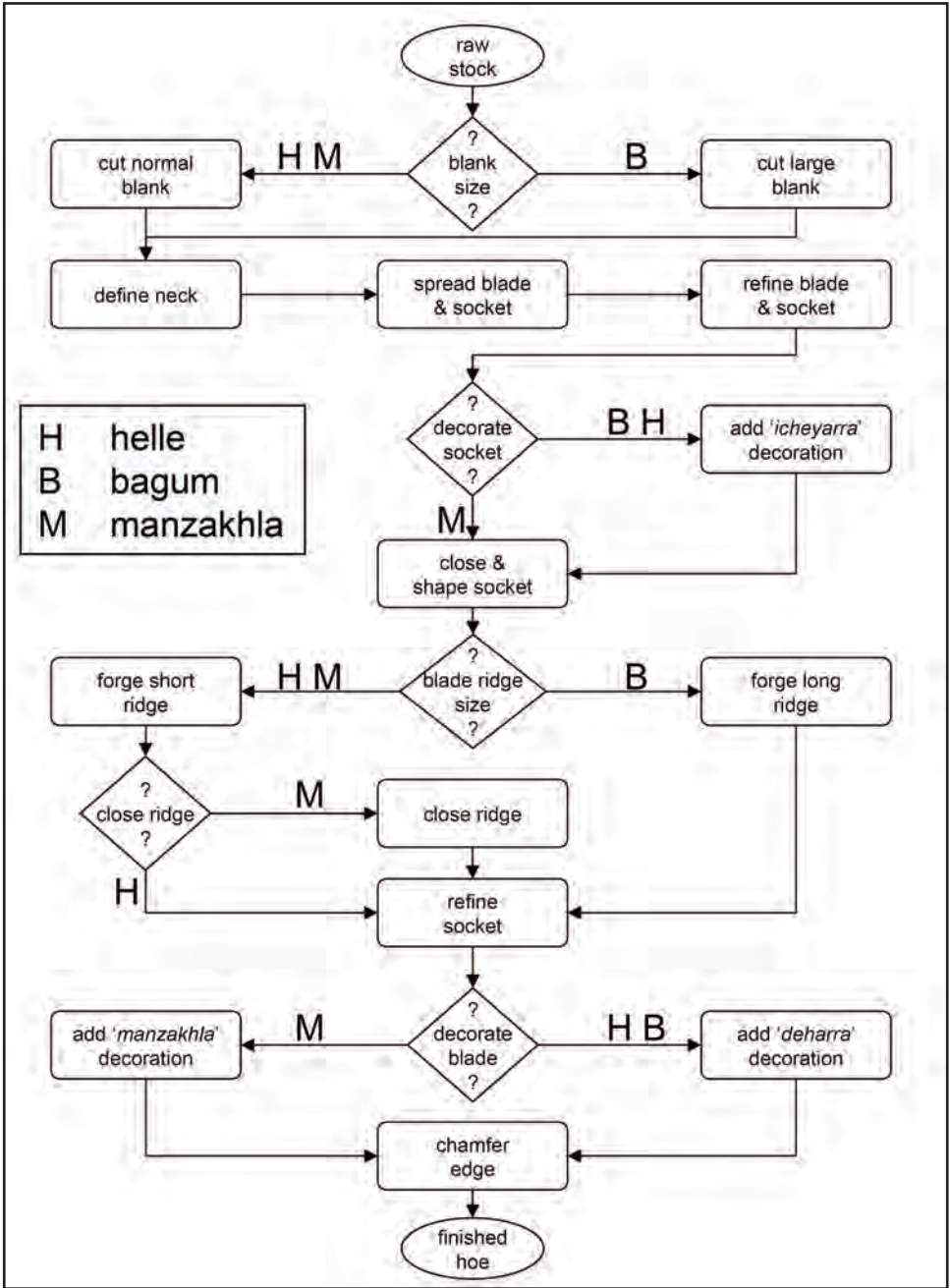


Figure 7.6. Decision tree flow chart showing the main steps in forging the three key hoe types shown in Figure 7.4. The diamond-shaped elements mark conditional procedures, determined by whether a *helle*, *bagum* or *manzakhla* hoe is the desired end product.

which by prior agreement was destined to be of the *manzakhla* type—the goal to demonstrate a broader range of features and techniques while making the same tool. In spite of the fact that both *ichéyarra* and *manzakhla* are essentially “adjunct” design elements *sensu* Sackett (1990: 33), meaning that they have no known effect on the utilitarian function of the final tool, this suggestion surprised, puzzled and ultimately seemed to disappoint the Wandala smiths present in the shop. I was told to finish the hoe as I had been taught.

I never elicited a clear explanation as to why the proposed combination of formal elements was negatively viewed. My apparent lack of knowledge about fundamental smithing practices may simply have embarrassed my Wandala teachers. This, in fact, seems likely, but something more may have been involved. My suspicion is that what I suggested doing cross-cut, and therefore violated, certain perceived associations: between *ichéyarra* decoration and Kanuri (and perhaps more generally, Muslim) ethnicity, on one hand; and between *manzakhla* decorations and montagnard ethnicity, on the other. To reiterate, *ichéyarra* socket decorations will often be seen on *helle*, but are even more characteristic of *bagum*-style hoes. This is especially true of hoes destined for sale in markets frequented by Kanuri farmers: *bagum* made for local consumption by the Wandala may exhibit these marks less often. Wandala smiths describe *ichéyarra* as an element on the “real Kanuri hoe,” a form reputed to be made by blacksmiths in the region of Bama, many of whom are now Kanuri themselves and serve a clientele that is largely Kanuri. I speculate that, for reasons having to do with the perception of strong cultural connections and commonalities among fellow Muslims, it seems reasonable to the Wandala smiths to add this decorative element to hoes that are likely to be used by their own Islamic farmers. In contrast, adding *ichéyarra* to “*kirdi*” hoes, distinguished by *manzakhla* and destined for montagnard farmers, would create an unwelcome contradiction.

I may or may not be right about the symbolic connotations of *ichéyarra*, but a more general lesson would seem to hold regardless: the form of new artifact types can become conventionalized quite rapidly through daily practice. The “*uza manzakhla*” may have been a relatively new hoe to the Wandala (and their own invention!), but by the time I worked among them there was a right way and a wrong way to make one.

Traditional sheath knives

The most important iron tools are strongly seasonal in manufacture and use. By around May, both producers and consumers have become highly focused on artifacts related to agriculture, with implements such as hoes beginning to dominate iron-related commerce. In the months prior to the beginning of the active farming season, however, a greater diversity of iron goods is available in Mandara region markets, usually including two or three types of locally-forged knives. The most common and the most visible of these is a fairly standardized kind of fixed-blade sheath knife, a typical example of which is illustrated in figure 7.7. Because of the

distinctive shape of the handle of such knives, I will occasionally refer to them as “I-shaped” when it is important to distinguish them from other forms.

These knives are primarily used by men and serve various purposes, ranging from miscellaneous cutting tasks, around the house compound and out in the fields, to the less frequent slaughtering and butchering of domestic animals. Knives have presumably become less important as weapons over recent decades, but they are still particularly likely to be carried by men who are travelling. In that context they fill a perceived need for a means of defense while away from home and friends. Although smaller in size, the form of the I-shaped knife (the handle above all) is reminiscent of the locally forged swords carried by many mounted Islamic horsemen during festivals such as the Eid. They are similarly regarded as weapons, at least situationally.

Knife form

The length of these sheath knives, including both blade and handle, averages around 30 cm. Blades are invariably double-edged, and usually made of relatively low-carbon steel that permits the last and lightest stages of hammering to be carried out “cold.” This reduces consumption of increasingly expensive, hot-burning types of hardwood charcoal needed to fuel a blacksmith’s forge; cold-working also has the effect of slightly hardening the knife edge by molecular compression, a process known to western blacksmiths as “packing.” The margins and surface of blades are frequently engraved using hardened steel burins. Designs are mostly geometric and abstract, but one representational motif recorded on a number of knife blades is a stylized rifle. Handles are carved of wood using a small hand-adze, the surface then characteristically smoothed and blackened using a special forming-iron that is heated in the forge. Specific zones of the handle may be decorated with simple pyrographic designs, lines burned into the surface using the sharp edges of the same tool. Knife blades are encased in a simple leather sheath (made by leather workers, rather than by blacksmiths) that is covered by a wrapped and braided layer of cotton lampwick. The free ends of the wicking are long enough so that they can be used to suspend the knife from the user’s shoulder or waist. Knife sheaths, like sword scabbards, may have small leather charms attached to them that are intended to protect the owner from violence and injury. The few charms that I was able to view under construction incorporated folded sheets of paper inscribed with lucky signs and snippets of pseudo-Koranic text.

Compared to hoes, knives are relatively simple objects to forge, but nonetheless provide plenty of scope for displaying high levels of craftsmanship. While blades are carefully examined by blacksmiths comparing or assessing the quality of knives, the main focus of artisanal elaboration is the wooden handle—the only part of the knife that is visible when it is housed in its sheath. Although most knives conform quite closely to a standard compositional layout (compare examples in

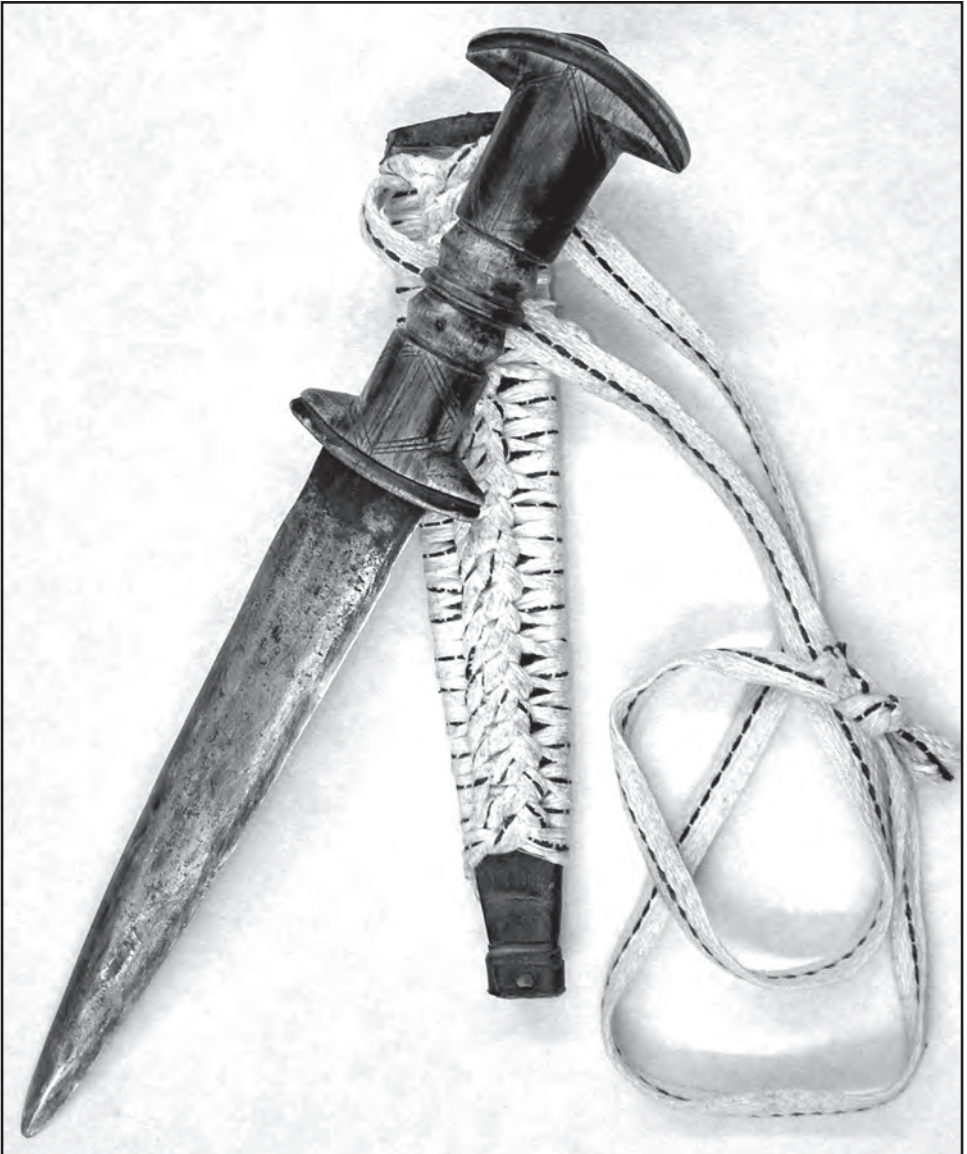


Figure 7.7. Mandara region sheath knife, resting on its leather sheath. This is a second-hand knife that has seen significant use; the dark black surface seen on new knives has largely worn off.

Figs 7.7 and 7.8), handles vary in subtle but interesting ways. The best of them have a deep black color, a smooth finish and pleasing symmetry. Knives are appreciated for their aesthetic value and those made by more skillful and talented smiths command higher prices in the markets. A particularly good knife reflects on, and may enhance its owner's status. Tellingly, on one occasion a young acquaintance

of mine was chided for wearing a knife that bystanders regarded as too fine for someone of his age and status.

Production and distribution

The great majority of blacksmiths that make I-shaped knives belong to one of the ethnic groups identified as Muslim—Wandala, Shuwa, Kanuri, or Fulani. I encountered only a few examples that were attributed to montagnard smiths; these appeared to be formal outliers within the broader pool, emulations of a type with which their makers were not very familiar. Other examples of montagnard-made knives that I observed in the highlands were formally quite distinct. Their handles were cylindrical, lacking the two sets of protruding “ears” that give I-shaped knives their characteristic profile. I suspect that such knives have a stronger historical connection with montagnard peoples, and that, conversely, the I-shaped knives have a stronger historical connection with plains-dwelling Muslims.

One of the drawbacks of my smith-centric research was that I did not adequately investigate how Muslim/non-Muslim differences might play out among consumers. It is probably significant that the kind of sheath-knife illustrated in figure 7.7 is seen in larger numbers in markets where Muslim clients appear to be numerically dominant. Nevertheless, they also appear at markets where the majority of consumers are montagnard, such as at Mayo Plata. While I observed non-Muslim men wearing these knives, this practice may have begun in relatively recent times. In previous generations, both the high cost of iron and the fact that montagnard men traditionally made significantly greater use of sickles than knives means that the latter may have been somewhat rare among highland peoples in general. Within montagnard society the heavy reliance on sickles persists into modern times (N. David, pers. comm. 2009; see David and Kramer [2001: 350] and David [chapter 5] for evidence bearing on pre-modern levels of iron consumption among the Mafa).

The Wandala smiths working out of Manaouatchi specialize in hoe-making and produce comparatively few knives. As far as I know the shop I worked in never made any knives at all. Nevertheless, the two iron merchants living in Manaouatchi sold large numbers of these tools, as did another Wandala iron merchant based to the north, in Mora. A few of these knives came from Wandala forges. The Manaouatchi merchants sometimes bought and sold knives made in the Wandala town of Memé (a kilometre or so away) and occasionally dealt in knives made in Manaouatchi itself. The great majority of their stock, however, came from the forges of mostly Kanuri and Shuwa smiths settled in the vicinity of the Bama Ridge, a prominent geographic feature some 20 to 30 kilometres to the north of Manaouatchi. The Mora/Manaouatchi region iron merchants usually bought such knives directly from their makers, but they also sometimes purchased them (particularly those made on the Nigerian side of the border) at markets and through other intermediaries like themselves.

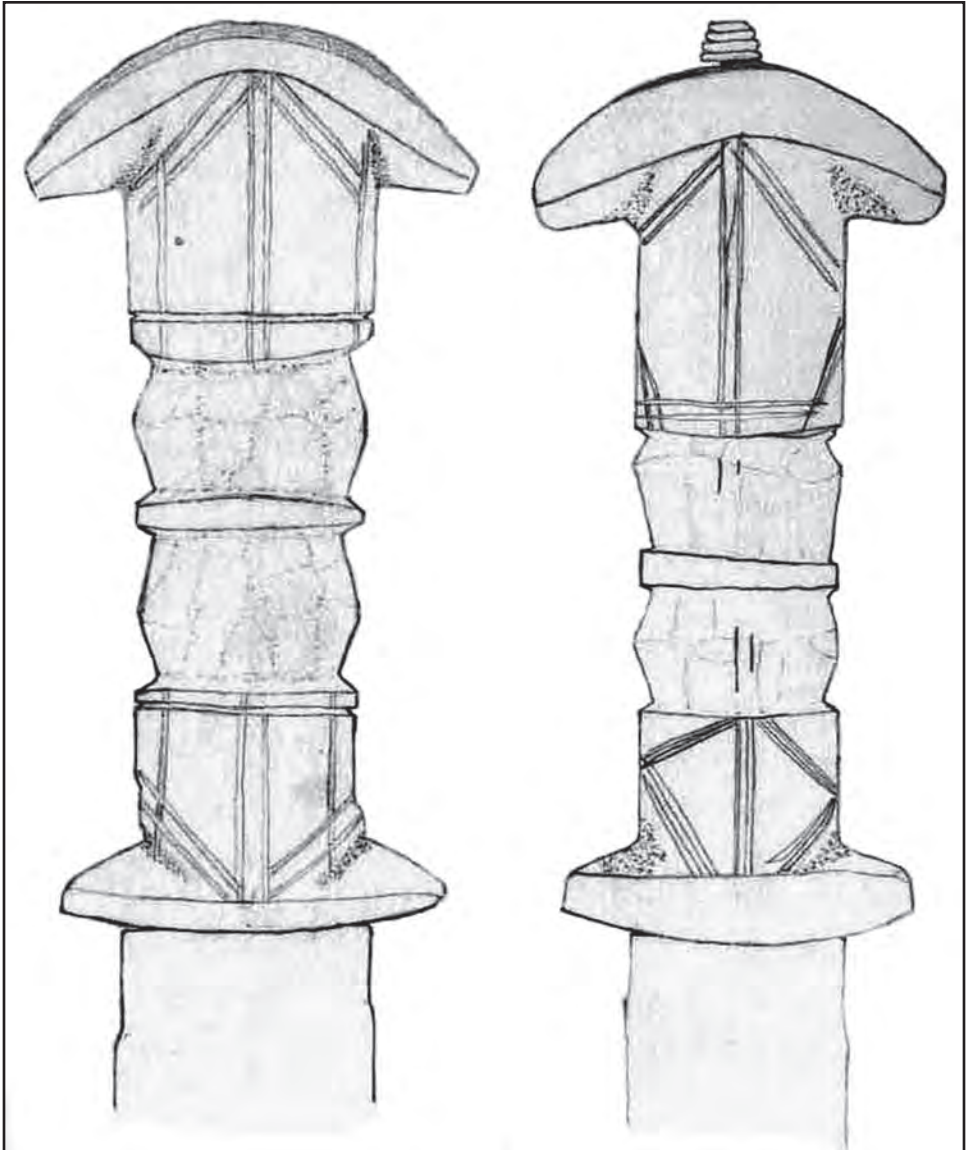


Figure 7.8. Field sketches showing handles from knives made in the towns of Manaouatchi (left) and Banki (right).

I was eventually able to locate and talk directly to some of the Kanuri and Shuwa blacksmiths living in the Cameroonian side of the Bama Ridge area, and on several occasions observed them at work at the forge. Although some of these smiths also made hoes, most were seasonal specialists in knife making. To learn about emic perspectives on knife style, I sometimes asked them to comment on the

form of knives that I had purchased in the Mora/Manaouatchi area, as well as on their probable origins and makers. Occasionally, I brought them knives that, as it turned out, they had made themselves, weeks or months prior.

I made similar kinds of inquiries of the Wandala merchants, sometimes in reference to knives that I had purchased, from them or others, but also with reference to unsold stock that they were kind enough to let me examine. They were usually able to provide detailed information about the original provenience of knives that were recently acquired, and/or purchased directly from the maker. Details about knives that were not recently purchased, that came through other hands, and/or from far away, tended to be more shaky—mistakes were sometimes revealed by repeating questions on multiple occasions, and crosschecking attributions with others, including, when possible, the putative maker.

Morphological variation

Regardless of the inevitable uncertainties about provenience, all informants who were asked to comment on the general morphology of Mandara region sheath knives confirmed that they constitute a much more homogeneous class of artifact than hoes. In contrast to hoes, no knife varieties are made to target specific ethnicities among consumers and there is no evidence for a classification system (recognized either by smiths or knife-users) that breaks down the range of formal variation into named or otherwise recognized types used as a basis for targeting consumer subgroups.

Nevertheless, knives from different workshops do show subtle differences in shape and sometimes decoration. These differences are accentuated by the fact that, within workshops, knives tend to be quite standardized, even when multiple smiths are involved in their production. The blacksmiths I talked to were always confident (as far as I could tell, reliably) about recognizing their own products and could often identify the work of other knife makers who were sufficiently well known to them—usually smiths who lived nearby. This is not surprising, and in addition to the workshop-level standardization or uniformity referred to earlier, surely just reflects the intimate and largely intuitive familiarity that specialist craft workers tend to have with their own work habits and products, as well as with those of other craft workers to whom they are regularly exposed.

Perhaps more interesting were the occasions when smiths were able to suggest the probable region of origin for knives made by smiths that they did not know or whose work they could not identify in more specific terms. The iron merchants from Manaouatchi had similar kinds of knowledge that, if anything, was broader and more detailed than that of smiths. As noted above, while the merchants were sometimes uncertain (and sometimes wrong) in attributing knives to specific makers or workshops, they could always suggest a more general origin correspond-

ing to some part of the broader Mandara region, usually described in reference to an important town—“around Bama,” or “around Magdemé,” for example. My occasional and opportunistic attempts to crosscheck these sorts of general statements almost always confirmed them, supporting the idea that knife form exhibits spatial variation at this sub-regional level.

Neither smiths nor merchants were able to provide a clear description of the criteria they considered when making such attributions. Presumably the merchants based their hunches on years of experience buying and selling knives and a broad familiarity with the rather minor range of variation that these tools exhibit. Over time, I was able to tap into what I imagine were some of the same intuitions. For example, when I encountered knives in markets with handles that struck me as notably long and narrow, I would anticipate an origin in one of the towns to the northwest, towards or across the border with Nigeria. This was usually confirmed through further questioning.

Morphometric analysis of knife form

For the purposes of this paper, the most crucial contrast between formal variation exhibited by hoes and knives has already been made. Hoes show a number of relatively standardized variants keyed to important ethnic divisions within the Mandara region. Knives exhibit no such variation. This difference is not subtle and can be documented simply by reference to descriptive information provided by local informants and personal observations of artifacts made in shops and sold in local and regional markets.

As noted above, however, the ability of iron merchants and ironworkers to identify the general origin of otherwise unknown sheath knives is consistent with the possible existence of intraregional stylistic variants. Discussions with informants generated no deeper understanding as to why this was or what it might mean. Compared to hoes, minor variation among knives seemed to be of less interest.

Nevertheless, there are issues and questions here that would repay investigation, both for methodological and theoretical reasons. With respect to the latter, for example, it is possible that formal variation in knives, however subtle, reflects spatial differences in the distribution of blacksmiths of different ethnic affiliation, each associated with slightly different styles of knife making. If that were the case, the subtlety of the variation would itself be interesting, especially in light of much more overt stylistic discontinuities in the region that mark ethnic boundaries. On the other hand, patterned differences among knives may have little or nothing to do with ethnicity, and simply reflect the outcome of stylistic “nudges” from copying error—minor differentiation caused by the fact that most craftsmen work alone or in small groups, and are not regularly exposed to the full range of variation within the region.

Although I am not in a position to do justice to these issues here, some relevant insights emerge from a morphometric analysis of Mandara region sheath knives. As part of my fieldwork there, I recorded a long series of metric and non-metric observations for approximately 55 knives made by blacksmiths of several different ethnic affiliations, living and working in several different places. I gathered information on both handles and blades, but here concentrate exclusively on metric observations of handles. The recording scheme for these observations—18 measurements recording the linear distance between pairs of standard landmarks—is presented in figure 7.9. Collectively, these data describe variation in the overall shape and size both of handles and of the decorative zones that almost all handles are divided into.

Because my access to most of these knives was through intermediaries and sometimes after they had entered the market, the information that I collected on provenience and circumstances of production was uneven, even with the crosschecking I allude to above. Because of this, I focus as well on a subset of the 55 cases, excluding knives for which I was never able to ascertain reasonably firm source or provenience data. A single knife attributed to a Mada smith believed to work in the mountains somewhere south of the Mayo Plata region is also excluded. This leaves a study set of 41 knives, all made by Muslim, plains-dwelling blacksmiths (see Table 7.1).

Table 7.1 Knives included in study, broken down by maker ethnicity and location.

	SHUWA	KANURI	WANDALA	COMMENTS
Touchki	10			Three smiths in a single shop, all of whom make knives.
Banki	10			Multiple smiths; multiple shops?
Double		14		Majority of 14 cases made by a single smith?
Bama		3		Multiple smiths and probably multiple workshops.
Memé			3	Multiple smiths working in different workshops.
Manaouatchi			1	Single smith.

As has been noted, Mandara region knives vary within a relatively narrow range of shape and size parameters. Because of this, it is predictable that the large number of metric observations that I used to record their form would be characterized by high levels of measurement redundancy. In fact, all of the variables shown in figure 7.9 share high linear correlations with at least some other variables. This means that whatever information they may contain about patterned variation in shape would likely be more easily and efficiently described if both the high levels of dimensionality and redundancy inherent in the original observations were reduced.

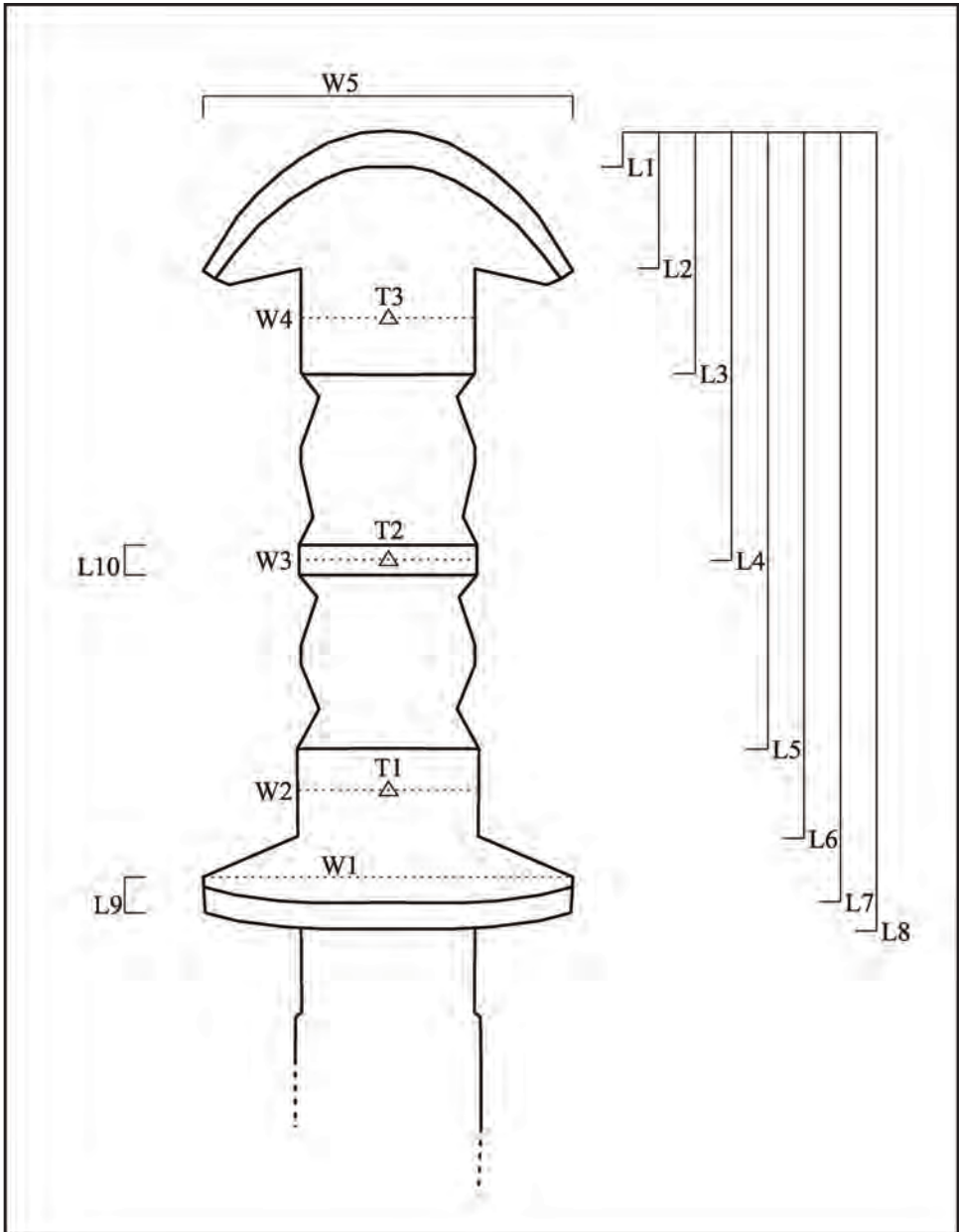


Figure 7.9. Metric recording scheme for knife handles. Three orthogonal sets of measurements are indicated: length measurements (i.e., running parallel to the main axis of the knife) have the prefix “L”; width measurements begin with “W”; and thickness measurements begin with “T.”

A number of statistical procedures can be used to carry out multivariate “dimension reduction” (Madsen 1988) depending on the specific data types and goals of analysis. In this study, principal components analysis (PCA) was implemented using the “princomp” procedure from the open-source statistical package R (R Development Core Team 2009). In a nutshell, PCA is a multivariate statistical procedure that seeks to relate original observations to a new set of underlying dimensions called “principal components”. The principal components are as numerous as the original variables, but organize the data more “efficiently”; among other desirable characteristics, they are statistically uncorrelated with one another. If the original data contain significant levels of inter-variable correlation, a small number of components can usually capture a high proportion of the variance inherent in all of the original variables. Frequently, scoring cases on the first two or three components makes it possible to display and identify patterns that may only be visible at much higher levels of dimensionality in the original data.

Figure 7.10 shows scores for the 41 cases included in this analysis on the first two principal components identified by PCA. Together, these two components capture around 66% of the variance associated with the original 18 observations. Point locations in the two-dimensional space that they define therefore capture a reasonably high proportion (about two-thirds) of the information about morphological relationships inherent in the original 18 measurements. Figure 7.10a shows cases labeled according to the ethnicity of the knife maker. Figure 7.10b shows the same scores for the same cases, broken down according to provenience codes describing the locations of makers’ shops.

The main point illustrated by these graphs is that many knives appear to form point clusters within the space defined by the first two principal components, representing groups of knives sharing similar formal characteristics. The degree of internal cohesion and external isolation of such clusters is variable, however, and overall, possible subgroups in the sample seem more clear when polygons (mostly defined as “convex-hulls”) are added that encompass cases sharing common maker-ethnicity (Fig. 7.10a) and provenience codes (Fig. 7.10b). (Note that, in figure 7.10b, an ellipse has been fitted by eye around the three cases from Bama, located along one edge of the larger cluster from Banki. Because they happen to fall almost in line, they define a convex hull that is difficult to see and obscures rather than illuminates their proximity. Also note the use of a circle to mark a single, Wandalamade, knife from Manaouatchi.)

The size and arrangement of the various polygons shown in figure 7.10 highlight differences in the degree to which provenience and maker-ethnicity map on to shape variation reflected in principal component scores. Subgroups of knives associated with the provenience codes (Fig. 7.10b) mostly form smaller, more compact, and more isolated clusters than those associated with the ethnicity codes

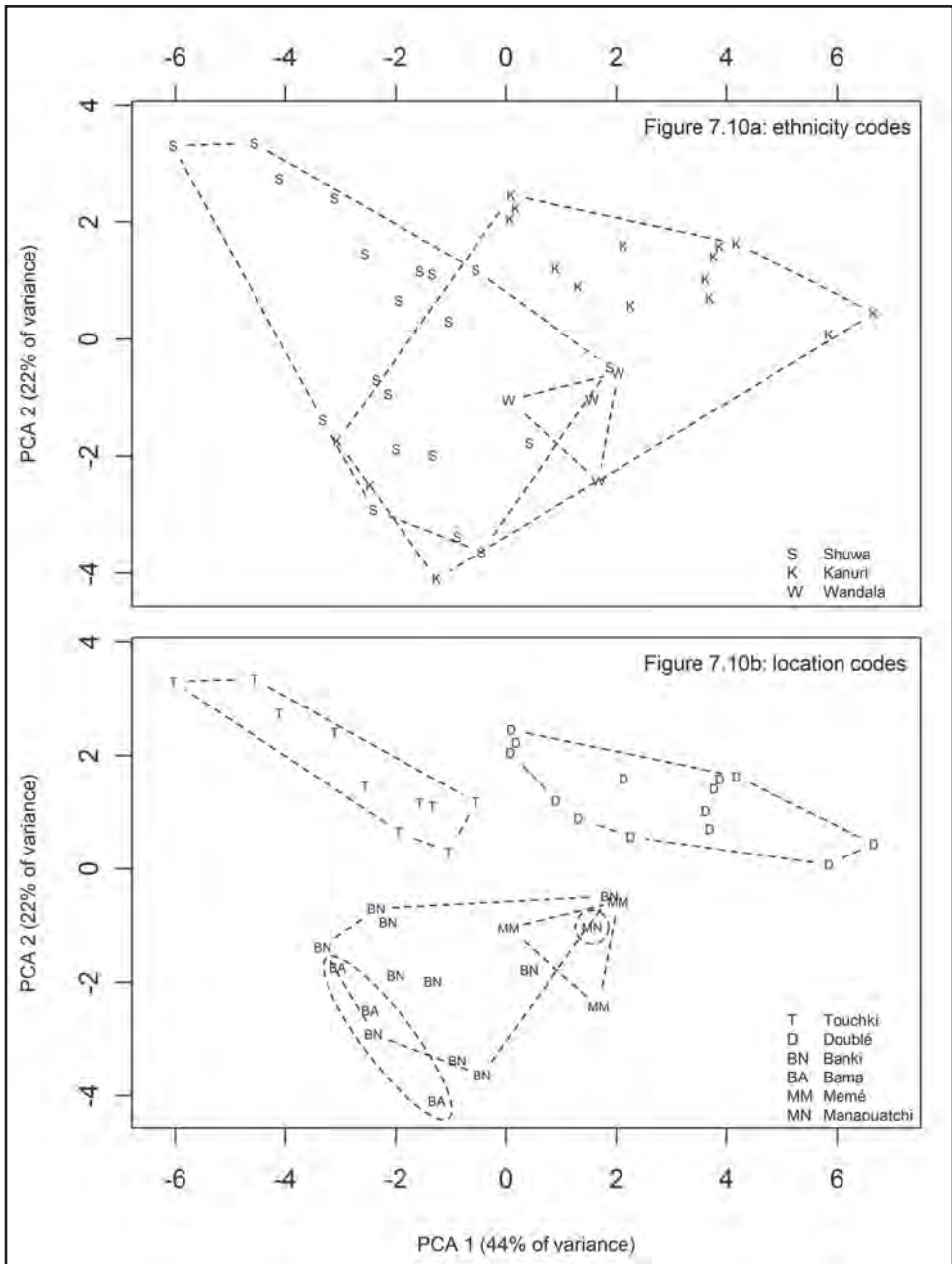


Figure 7.10. The first two principal components based on metric observations in Figure 7.9. Figure 7.10a shows cases broken down by the ethnicity of the knife maker, Figure 7.10b by the location of the workshop. The components shown capture 66% of the variance in the original data.

(Fig. 7.10a). The latter, conversely, are larger, show significantly more overlap, and cross-cut groups associated with the provenience codes. Stated in more specific terms, polygons from the two graphs in figure 7.10 indicate that the Shuwa-made knives consist of two groups, one corresponding to the single workshop at Touchki, the other to knives from workshops in the Banki area. Similarly, the knives made by Kanuri smiths exhibit two distinct groups, one corresponding to the Doublé source and the remaining three examples from workshops at or nearby the town of Bama, in Nigeria. Interestingly, the only cases that show essentially the same configuration in both plots correspond to the four Wandala-made knives, with the single Manaouatchi case falling right in the middle of the group from the adjacent town of Memé.

Taken as a whole, the configuration of PCA point locations is consistent with the interpretation that formal variation in knives maps more closely onto differences in source or provenience than onto differences in the ethnicity of their makers. This claim seems both reasonable and consistent with a visual assessment of point clusters described above. To test the claim more rigorously, however, a formal examination of the relationship between knife form and maker location and ethnicity was carried out. Again using the program R, euclidean distances calculated between all pairs of points shown in figure 7.10 were regressed on two “dummy variables” recording whether individual point-pairs were associated with knives made by makers 1) from different locations, and 2) having different ethnic identities. The purpose of this test was to determine which (if either) of the variables “location” and “ethnicity” is most important in explaining morphological variation in knife handles. The latter was measured by proxy using interpoint distances, which served as the dependent variable in the regression.

The results of the linear regression strengthen the conclusions sketched out previously, and accordingly, an abbreviated discussion is presented here based on information summarized in table 7.2. The crucial point made by the first half of the table is that, in a regression including both ethnicity and location as possible covariates of morphological distance (model 1), location emerges as a highly significant predictor ($p < 2 \cdot 10^{-16}$), while maker ethnicity does not ($p = .30$). The model is therefore over-specified by the inclusion of information on ethnic differences and needs to be simplified. When ethnicity is cut from the regression (model 2) all remaining coefficients are significant, while the R^2 value suggests that around 20% of the variance in interpoint distances is “explained” by variation in maker location. The coefficients from the simplified regression show that the average distance between knives from the same location is around 2.5 units, as defined by the space represented by PC1 and PC2. This distance increases by an average of about 2.3 units (i.e., by a factor of almost two) if knives happen to come from different locations.

Table 7.2. Regression analysis of location and ethnicity effects on knife shape. The dependent variable “distance” is an inter-knife distance from the PCA analysis. Values explicitly cited in the text are shown in bold.

MODEL 1: DISTANCE ~ ETHNICITY_{DIFFERENT} + LOCATION_{DIFFERENT}				
	coefficient	std. error	t value	P(> t)
intercept	2.55	0.15	17.0	<2·10 ⁻¹⁶
ethnicity:different	-0.20	0.19	-1.0	0.30
location:different	2.48	0.23	11.0	<2·10 ⁻¹⁶
MODEL 2: DISTANCE ~ LOCATION_{DIFFERENT}				
	coefficient	std. error	t value	P(> t)
intercept	2.55	0.15	17.0	<2·10 ⁻¹⁶
location: different	2.33	0.17	13.6	<2·10 ⁻¹⁶
multiple R-squared:	0.19			

This analysis carries two caveats, the first concerning other types of stylistic patterning that may potentially exist in these knives. As noted earlier, most knives exhibit pyrographic designs on handles, and incised designs on blades. I recorded both whenever possible. Because an informal review of these data did not reveal any obvious patterns, however, I did not follow up with more formal analyses. This is probably regrettable—it would be interesting to know, for example, if adjunct decorative elements vary in accord with, or crosscut, the morphological differences revealed by the PCA study. Potential future work aside, it should be emphasized that the results presented here were generated by an investigation of only one aspect of knife form (although possibly the most overt or salient), and not an exhaustive study of all lines of variation.

The second caveat stems from the kinds of uncertainties alluded to above about the origins of these artifacts. As already mentioned, while I rejected knives for which I felt the most basic provenience data was uncertain, the last column in table 7.1 indicates that doubt remains about important aspects of the production contexts, above all the number of smiths and workshops represented by specific locations. This was inevitable given how fieldwork was organized, but it has interpretative implications. For example, if *all* (rather than just most) of the knives from Doublé were made by a single craftsmen, the corresponding cluster of knives would mean something quite different from a similar cluster generated by the activities of multiple smiths (and/or multiple workshops) tied to the same locality. It would obviously make sense to regard the former cluster as an expression of individual level patterning, the latter as evidence for a broader kind of patterning shared at the level of the locality or

workshop, depending on specific circumstances. To the extent that this kind of uncertainty remains, describing the sets of knives that constitute the rows in table 7.1 as corresponding to a “locality” is shorthand for what may be a more complex situation. Having said this, I believe that most localities (perhaps all, with the obvious exception of Manaouatchi) are represented by the work of more than one smith. While more detailed fieldwork and analysis would certainly be desirable here as well, I suspect that the general conclusions distilled from these data would hold up.

Summary and discussion

While over-simplifying complex processes, some key points about recent historical changes in the broader iron industry are revisited in the following summary, which focuses mostly on hoes, returning briefly to knives at the end. I do not claim that the numbered sections used to organize the discussion are based on clearly sequential, well-bounded or even well-defined time units; they are intended to convey a few important trends and changes:

1. Before the colonial era, a climate of regional violence meant that much of the Mandara region was characterized by less inter-territorial mobility than exists today. Smiths were still widespread in the mountains; among montagnard peoples, it is likely that most iron tools (including hoes) were made by local smiths for consumption by local farmers. Often, perhaps mostly, maker and consumer would have shared the same general ethnic affiliation—Mada smith, Mada farmer, etc. The basic shapes represented by the hoes depicted in figure 7.3, as well as their association with montagnard ethnic groups may have emerged during this period. On the plains, most iron working was done by the Wandala, who concentrated their hoe production activities on an early version of their own *helle*.

In the latter part of the colonial era and recent, post-colonial times, at least two things were happening, possibly overlapping in time and reactions to similar historical processes involving changing settlement practices and the adoption of new sources of raw materials for the traditional iron industry:

2. Toward the end of the colonial period, a widespread shift to the consumption of western scrap steel reversed the earlier flow of iron from the mountains to the plains and led to a significant reduction in the number of blacksmiths operating in the highlands. Montagnard smiths that continued forging (in the northeastern part of the massif, mostly specific lineages of the Plata) expanded their product line to include hoe types used by neighboring peoples who now lacked local blacksmiths. This process would probably have been most visible between around 1940 and 1960.

3. Out on the plains, Wandala smiths started to make hoes favored by other Muslim groups (above all the Kanuri, but also the Shuwa and Fulani). This may have been around 1965. A little later, they added hoes to their repertoire based on types that contemporary Plata smiths were making, both for Plata farmers and for those of other montagnard ethnic groups. By slightly modifying the basic form of a hoe favored by their own farmers, and adding skeuomorphic elements referencing forging techniques used by montagnards, the Wandala smiths invented a new hoe intended to be of broad appeal among montagnard farmers—many of whom were leaving the mountains to farm in the surrounding piedmont and plains.

In recent times, the fit between ethnic ascriptions of these tools and the ethnicity of the actual consumers has been decreasing. The various types ostensibly created to supply different ethnic groups generate a range of forms that farmers may choose from when seeking a hoe that matches personal preferences. The latter may still be significantly informed by perceptions of identity, including the broad ethnic categories that have been under discussion here. Increasingly, however, personal preferences emphasize practical and functional factors, above all the specific conditions of agricultural fields and individual strength.

There is considerably less to be said about sheath knives than hoes. I have suggested that montagnard use of I-shaped sheath knives may be fairly recent—possibly, such use corresponds mostly to the last of the three periods discussed above. The key synchronic pattern is clear, however: these knives form a fairly homogenous group and can be regarded as part of a regional style. That stated, it is important to acknowledge that the spatial limits of the style, defined either in terms of manufacture or use, have not been identified. I only note that, toward the northwest, manufacture extends at least as far as the town of Bama, Nigeria, and presumably the use of the knife goes well beyond this.²

Formal differences that crosscut the regional style are fairly minor, and probably reflect micro-traditions of manufacture that have simply emerged over time and are not much noticed, either by makers or consumers. It is worth pointing out that, while the kind and scale of stylistic variation exhibited by hoes is absent in knives,

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2. Arbousse Bastide (2003:Figure 39) illustrates a clear example of what I have called the I-shaped knife in his survey of African edged weapons. It is described as a “Dague Hausa-Peul,” but little other information on origin or context is provided. Due to a typographical error (there are conflicting references on pages 42 and 196), it is unclear if this particular knife is classified as belonging to Arbousse Bastide’s Type Da5 or Type Da6. I suspect the former is intended, a category attributed to the Fulani, Hausa and other peoples of northern Nigeria and southern Niger. The range of formal variation subsumed by Type Da5 is difficult to assess on the basis of the published description, but it appears to be a fairly general class, potentially including knives that are quite distinct from the one actually illustrated. While a welcome “sighting” of an I-shaped knife, Arbousse Bastide’s account does not help in determining the spatial extent of their use or manufacture.

we cannot assume that the opposite is also true. In fact, a fine-grained, morphometric study of hoe form would probably reveal subtle distinctions analogous to what has been documented for knives, perhaps relating to variation at the level of particular shops or groups of shops associated with specific localities. Most items of hand-made material culture can be expected to exhibit this kind of minor variation. The crucial point, however, is that the most salient kind of formal variation in hoes is significantly more overt than this, and reflects deliberate, conscious attempts by smiths to produce a suite of hoes characterized by visibly different shapes.

Some issues concerning style and stylistic expression

As has been noted at various points in this paper, Mandara region blacksmiths conceptually relate this variation to ethnic differences among hoe-consuming farmers with historical origins in both the plains and mountains. On the face of it, hoes would thus appear to be a good example of what Wiessner (1983) has characterized as “emblemic style,” meaning that they transmit information about identities associated with specific social groups—in this case the ethnicity of farmers.

Of course, like most issues involving stylistic behavior, things are not straightforward. To the degree that hoe styles did signal ethnic differences in the past, it seems possible that this emerged as the outcome of coincidental factors rather than deliberate stylistic signaling. In the montagnard tradition, at least as exemplified by Plata practices, only isochrestic attributes (Sackett 1990) differentiate the hoes associated with specific ethnicities—these translate to a range of shape and size differences, most having functional implications that make them more useful in some kinds of soils than in others. Initially, the connection between ethnicity and hoe form may have been indirect, due to correlations between field type and ethnicity, on one hand, and field type and hoe form on the other. Of course, this does not preclude the possibility of hoe shape being “switched on” as a stylistic signal, after initially serving more mundane purposes. Such a shift might conceivably have occurred as ethnic identity took on levels of meaning and importance that it lacked prior to the colonial era (David and Kramer 2001: 208-9; MacEachern 1998).

Whatever the specific causal factors may have been, it is apparent that hoes did, at some point in time, adopt an emblemic role. The best evidence for this is currently from the side of production: there is widespread consensus among both Plata and Wandala smiths that different kinds of hoes reference different ethnicities. It is probably also significant that, where the Wandala and Plata hoe repertoires overlap, there are important commonalities both in shape and ethnic ascription. This may largely reflect the fact that the Wandala deliberately adopted this part of their production line from earlier Plata practices.

As we have seen, however, the Wandala smiths took ethnically-specific hoes a step further. They transformed blade striations (occurring as an isochrestic byprod-

uct of Plata forging methods) into an element of adjunct style called *manzakhla*—along with *ichéyarra* and *deharra*, these became the principal means of decorating Wandala-made hoes. The presence and absence of these adjunct design elements were made to correlate with other differences in size and shape, both strengthening and formalizing the difference between hoe types. Systematic manipulation of adjunct design elements that have no effect on the way hoes are actually used while farming suggests that their Wandala makers regard hoe variation as meaningful in ways that go beyond mere differences in soil and stone. That there is divergence between such beliefs and real-world market behaviors should not be surprising, especially given the relative lack of contact that the specialist makers of these tools have with the marketplace. Stylistic messages can be differentially read by individuals and different sectors of society, and they do not have to be read at all.

Interpreting stylistic differences

The contrast between stylistic patterning associated with hoes and knives is made more interesting by the fact that both tools emerge from the same technological tradition. They are created by craftsmen who specialize in the same raw materials, use similar technological processes, and are regarded by themselves and others as constituting a more-or-less well-bounded class of society. Why do these two artifact types behave so differently? The question can be related to more general issues concerning why different classes or items of material culture carry different kinds of stylistic messages. Ethnoarchaeologists have been particularly engaged with this problem (David and Kramer 2001: 179-80, 185-6; Wiessner 1983; Wobst 1977), in part because of the important implications for archaeologists who interpret style, usually without direct access either to informants or to the behavior underlying style.

In this particular case, the differences between these two artifact types may have to do with their respective domains of use. Hoes are farm implements, arguably the most crucial of the various tools that farmers use to make a living. Knives belong to a broader context of use, but their role and/or identity as weapons may be significant in this regard.

In the Mandara region, and above all on the massif, a significant part of the hostility of the pre-colonial past was rooted in chronic land shortages. Given this, there is a compelling symbolic logic to using a prominent agricultural tool for marking ethnicity, an identity that farmers, world-wide, have often used to bolster claims to specific plots of land. The hoe is a concrete symbol of the relationship that farmers have with their most crucial resource; for a significant portion of their lives, it quite literally connects them to the soil that feeds them, and in many cases fed their fathers and grandfathers. Rather rapidly, interaction between farmer and field wears the hoe, its changing shape increasingly tangible evidence of the labor that has been invested in the land and the moral right to continue to use it. The emblematic form of

the hoe, speaking to one's ethnic identity, and in many cases to that of ancestors who farmed the same land, serves to amplify the stylistic message. The fact that transmission of the message mostly occurs in contexts directly relevant to its content—in the farmer's own field, or being carried back and forth from it—adds still further reinforcement. Since hoes are frequently carried over the shoulder with the shape of the blade clearly visible, the message may be received from over significant distances. Similar to water pots carried on the head (Sterner 1989: 454), hoes are a relatively efficient way of broadcasting information about identity.

The preceding interpretation suggests that meanings attached to land, labor, and ethnicity were projected onto a utilitarian artifact that, because of its specific context of use, was well-poised to serve as an emblem of ethnicity. Could a similar kind of symbolic argument be fashioned with reference to the contrasting pattern of style exhibited by knives? Is an argument invoking symbolism even called for?

In the negative, one might simply assert that there are no deeper meanings to seek here: the relative homogeneity exhibited by knife form is a kind of “null-style,” a baseline pattern that is of interest to the extent that it makes more salient variation in other kinds of artifacts (such as hoes) stand out, attracting attention and attempts at explanation. Such an assertion, of course is inadequate: it says nothing about behaviors that might plausibly underlie artifact form and style, and implies that broad regional styles can have no meaning.

A more compelling response is that I-shaped knives constitute a broad regional style because plains-based blacksmiths have not perceived any reason or motivation to diversify what had historically been a single artifact type. The tradition has therefore continued, cross-cut by only minor micro-traditions. The latter are expressions of passive style *sensu* Sackett (1990: 36-37) – perhaps sociologically meaningful (likely partial reflections of intensity of interaction among smiths, for example) but not used for overt or deliberate stylistic signalling.

This is a reasonable and parsimonious position, but it leaves a potentially useful question unexamined: why *was* there no pressure on smiths to create knives that reference some of the many kinds of social identities that cross-cut Mandara region society? If hoes could be used to reference ethnicity, for example, why not knives? My tentative response is that knives were already being used to reference another kind of social identity, one much more broadly shared in the region. What I have in mind here is Islam—not the religion per se, but rather the broader culture of Islam that has become dominant in the Mandara region, at least on the plains surrounding the massif (see Insoll 2003: 269-86). The plausibility of such a connection is supported by the fact that these knives are overwhelmingly made by Muslim smiths and have a stronger presence in markets where the majority of customers appear to be Muslims. Their historical origins therefore appear likely to lie with one or more of the Muslim peoples with traditional ties to the plains. It seems natural that they

might be regarded as a symbol of Islamic culture, as are certain items of traditional dress, and specific architectural styles (see Lyons 1996).

To a significant degree, Muslim peoples living in this region enjoy a level of prestige and status that is elevated over non-Muslims. Islam stands for success in various social, economic and political arenas, and is seen by many as a way into the modern world. Material culture that is perceived as Islamic is attractive to social actors who wish to lay claim to the positive connotations of Islam and to forge bonds with others making similar claims. Examples are relatively common in the region, above all in the realm of clothing. Muslim men often wear overtly Islamic clothing; the elaborate male garment locally known as the *grand boubou* is both a means of personal aggrandizement and a way of showing solidarity with fellow Muslims, reinforcing a sense of community that brings other benefits. Non-Muslims, however, also wear articles of clothing normally perceived as Muslim in certain situations; simple Islamic cloth caps and gowns are particularly likely to be donned by montagnard men who are travelling, or have business in towns. This is emulation, but not disguise; those who do this are simply projecting a sense of sophistication and reinforcing their connection to the modern world. Carrying an Islamic knife in such a context may reinforce such messages, both to others, and perhaps even more importantly, self-referentially. Knives are smaller and often partially obscured by the folds of clothing and therefore less visible than other kinds of material culture such as hoes.

Concepts associated with knives probably go beyond ideas of success and the modern world, however. One of the identities held by knives is that of “weapon”—in that role, knives would be made more potent by a symbolic association with Islam, a cultural phenomenon that has been closely connected to ideas of military prowess and domination. This is reinforced by their overall form (resemblance to swords) and occasional use of military iconography (decoration of blades with rifle motifs). The attachment to knives of Islamic charms intended to provide personal protection may be relevant here as well.

Conclusion

The variable form of iron tools highlights the dynamic way in which Mandara region blacksmiths have reacted to the changing circumstances of a competitive industrial market. Their challenges are both political and economic in nature, many stemming from factors that are essentially global, including the establishment and eventual departure of colonial powers in West Africa, importation of European steel, and other things. Responses of course are local, but involve interesting strategies and actions, some having close analogies in western markets.

Within the hoe market, many blacksmiths (most notably in recent times, those of the Wandala) have attempted to engage with what they treat as niche markets

defined on the basis of multiple ethnicities. They have done this by modifying the form of existing products; adopting those previously made by others; and inventing what are essentially new products. Decorative and formal elements that distinguish the various types of hoes that they specialize in forging represent a form of stylistic “packaging” intended to attract buyers of specific ethnic groups.

Although always subject to the constraints imposed by intended use in a specific geographical context, it seems that different hoe types were, at least in the recent past, a significant marker of ethnicity. The emblematic role of iron hoes has been breaking down, and functional considerations, relating to localized soil and field conditions, are increasingly the factor governing the distribution of hoe styles on the modern landscape. Lag between smith and farmer perceptions of the meaning of hoe form is probably due to the fact that the former are specialist craftsmen that mostly distribute their wares through markets and intermediaries—their contact with farmers, especially of ethnicities different from their own, being quite limited.

At a more interpretive level, hoes may have been a focus of emblematic messaging because they serve naturally as a symbol of important interconnections between land, labor and collective identities such as ethnicity. It less clear what kind of stylistic messages, if any, might be attached to sheath knives, which, in contrast to hoes, form a broad, rather homogenous regional style. One possible referent for these artifacts—consistent with their distribution, likely historic origin, and certain aspects of their form—is that of “cultural Islam.” Important as functional tools and weapons, the attractiveness of these artifacts may be enhanced by a symbolic connection to a movement widely regarded as connoting elevated status and success. This may help explain why knives, although made by the same class of craftsmen, have not been subject to the same kind of product diversification as hoes.

Acknowledgments

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Part III

History and Ideology



The Development of Endogamy among Smiths of the Mandara Mountains Eastern Piedmont: Myths, History and Material Evidence¹

Olivier Langlois

(translated from the French by Nicholas David)

Introduction

The segregation of craft workers, artists and other specialists in endogamous groups occurs widely in a Sudano-Sahelian band extending from Senegal to Ethiopia. As applied to “smiths” (*forgerons*) and their “potter” (*potières*) wives,² this form of social organization has stimulated an abundant literature in which most studies are concerned with the functional benefits of endogamy and/or associated symbolic representations. While diverse, these studies have in common that a historical dimension is largely lacking. More rarely, the endogamy of craft workers is understood as the product of a potentially describable historical process. Some authors (Martinelli 1992, 2000; Seignobos 1986, 1991a, b and c; Tamari 1997,

1. An extended version of this chapter in French has appeared in the *Journal des Africanistes* (Langlois 2010).
2. Many “smiths” do not practice metallurgy though most of their wives make pottery; the term is used here to refer to members of the endogamous caste.

2005) anchor their arguments in the history of the regions they study. On the basis of myths and legends of origins, and on linguistic and other evidence, they attempt to trace the evolutionary trajectories that led ultimately to endogamy. Most often the prime mover identified is a political one. From Senegal to Chad, endogamy has been most often regarded as resulting from changes in power relations: by imposing endogamy on smiths, a newly risen authority manages to disqualify from power those who had held it before on the basis of a real or symbolic mastery of metallurgy.

Various studies of peoples living in and around the Mandara Mountains have taken the functional approach (Vaughan 1970; Boyer 1983; Sterner and David 1991) (Fig. 8.1 and see Fig. 4.2). Here endogamy appears as one of the major elements of a structure that is at one and the same time real and symbolic, coherent and adapted to the environmental and social context. For Sterner and David, following Vaughan, endogamy is an optimizing response to the need to maintain a metallurgical technology that is sophisticated but which does not require extensive forms of cooperation within societies that are little hierarchized and relatively autarchic. In the absence of the specific environmental, social and commercial conditions obtaining in the Mandara Mountains, the smelting of iron would not be reserved for endogamous smiths (Sterner and David 1991: 362). This explanation is less than satisfactory as it ties endogamy to iron production whereas the monopolization of smelting by smiths is largely limited to the central Mandara Mountains, most notably amongst the Mafa (Langlois 2006a, and see David and Sterner, chapter 4 *contra* Genest 1976: 137). In fact, on the western side of the chain, where smiths are endogamous, as in its north-eastern borders, where they are not, the practice of smelting is rarely only limited to blacksmiths. If endogamy is a response to the need to maintain smelting technology, why should one find it in numerous societies where the forging of iron is the only aspect of metallurgy forbidden to non-smiths? Observations relative to the social contexts of iron production can therefore tell us nothing about the origins of endogamy; one might rather think that in societies characterized by this trait smelting is only reserved for smiths when environmental, social and commercial conditions are unfavorable to the preservation of such knowledge (Langlois 2006a: 197-8). Note that the functionalist explanation proposed rests on a structuralist premise related to the overall coherence of the network of symbolic associations and oppositions that structure society, e.g., male : female; senior : junior; craft worker : farmer and so on. Although more firmly tied to regional history, the works of Wade (2005 and chapter 9) relate to this category of studies. It is thus not surprising therefore that endogamy should be considered, *a priori*, as the result of endogenous evolutionary process (Vaughan 1970: 59-67; Sterner and David 1991: 359; MacEachern 2003: 282). It would appear that for these authors the potential social, technological and economic advantages to be gained by the institution of an endogamous set of specialized craft workers is sufficient for it to appear spontaneously and integrate itself harmoniously

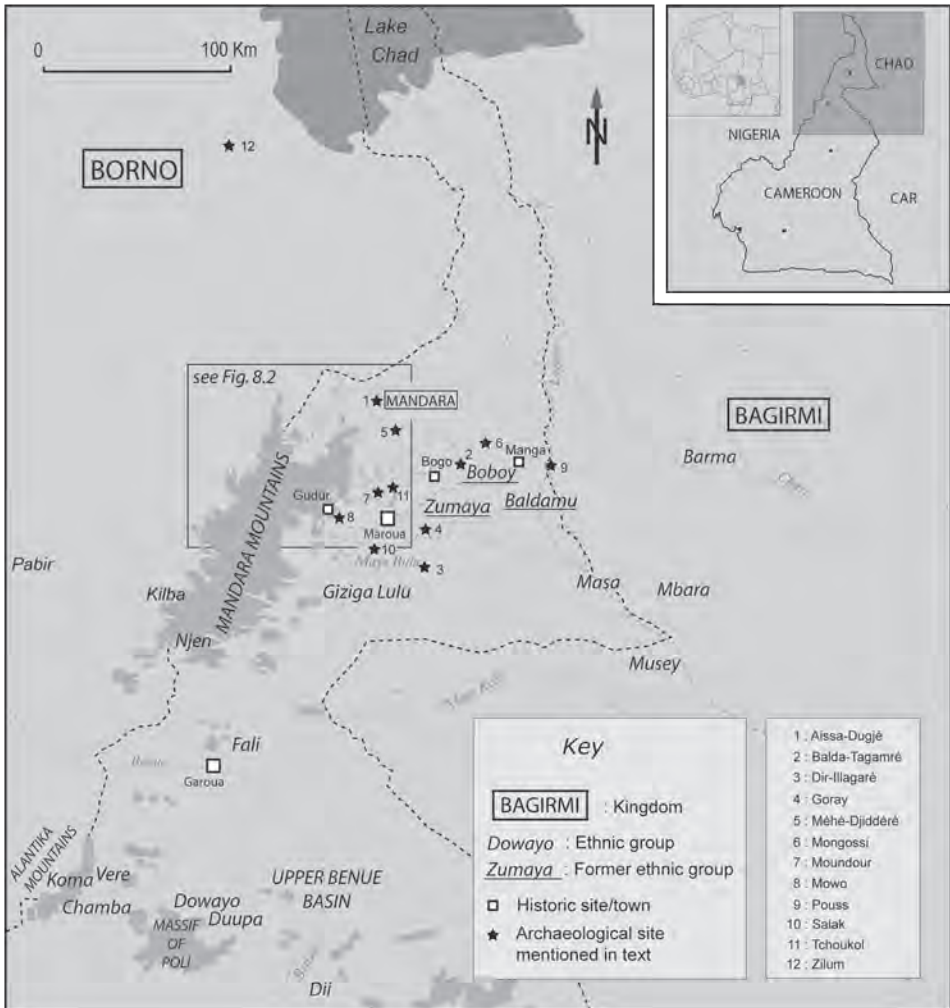


Figure 8.1. Part of Central Africa, showing selected ethno-linguistic groups, kingdoms and sites.

into the symbolic structures of society (Vaughan 1970:85; Sterner and David 1991: 363).

In contrast to this type of approach, Seignobos has been concerned to situate endogamy in its regional historical context. The social segregation of the smiths is, in his view, the product of a political process occurring in the 17th century, in which the principal actors, for the most part resident beyond the region, can be identified if not actually named. Despite the differences between his and the Sterner-David approaches, they have one factor in common: both regard mastery of metallurgy, whether actual or symbolic, as the crux of the question and the basis of any explana-

tion of endogamy. In fact, although some authors (as discussed below) have regarded smiths' role in the disposal of the dead as at the root of the distinction, those rare works that discuss the origins of endogamy only attribute a secondary role to the funerary dimension, that of justifying the pollution of smiths, the function of which is, according to some, to ensure the survival of a complex technology, while for others it is to disqualify from power the descendants of earlier "smith-kings". It may be concluded that for the majority of authors concerned with the origins of endogamy in the Mandara Mountains, the smiths were victims of a strategy intended to segregate them for several possible reasons, all of which are however independent of the funerary domain. Undertaking is thus only seen as a means of polluting the smiths, thereby justifying and perpetuating their being set apart.

As they consider the imposition of the duty of burial on smiths as a simple trick used to justify their social segregation, the various authors who take this view pay little attention to the myths which, as we will see, for the most part explain smiths' endogamy in terms of their funerary role. This neglect of myths is surprising since, in the Mandara Mountains, it is only in societies where smiths are endogamous that they are charged with responsibility for disposal of the dead. It would thus appear that endogamy and responsibility for funerals cannot be dissociated. To ignore smiths' activities in relation to the dead seems, in addition, even less acceptable since, when viewed from a continental perspective, the funerary role of endogamous smiths appears highly characteristic of this particular region. What would appear then to be an occultation of myths leads me to reconsider the question of the origins of endogamy in the Mandara Mountains in the light of the available historical data. Bringing together information contained in myths, oral traditions and the evidence of material culture, both archaeological and ethnographic, I attempt to show that if the endogamy of funerary smiths is the result of a historical process, this must be an original one born of political and cultural conditions that are specific to the region.

Note that we need not discard the functional approach altogether. The Sterner-David scenario is unsatisfactory because it places the emphasis on smelting which, unlike the work of the forge, is often practiced by non-smiths. One could on the other hand envisage the value of endogamy for maintenance of blacksmithing practices (and the supply of indispensable tools), and to see in this one of the factors leading to the emergence of endogamy. The historical and functional approaches are not in the least incompatible and in one sense the latter is not subject to criticism since endogamy could only have developed in this region if it was adapted to local conditions. It is just as logical that, becoming established as a social institution, endogamy would have been incorporated into the preexisting framework of symbols and the system of oppositions that structured society. The question is then to know if the maintenance of metallurgical technology, potentially favored by the endogamy of smiths, was of itself sufficient to generate this social practice in the

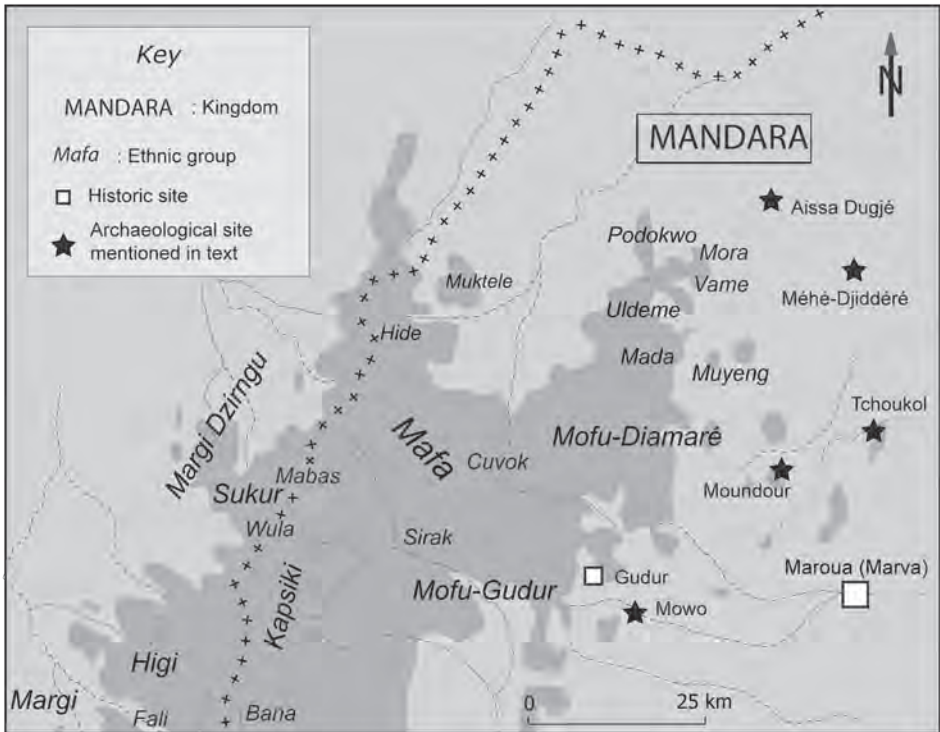


Figure 8.2. The northern Mandara Mountains showing selected ethno-linguistic groups, historic and archaeological sites and the Mandara (Wandala) kingdom.

Mandara Mountains, or if, as I attempt to show, endogamy can also be understood as the result of a historical dynamic that similarly favored the segregation of one part of the population from the other. However this may be, the functional hypothesis does not require that endogamy be developed locally. It could equally well have come about, as I believe it was, through the adoption of a practice foreign to the mountains (Langlois 2006: 203). This possibility leaves room for a historical approach that takes the problem into the political sphere and makes reference to events occurring beyond the region under study.

That said, we may leave the functional hypothesis aside since, as it is founded on logic alone, it can scarcely be confronted with material data. It is only in the context of a historical approach that archaeological data can enter into the debate on origins. It is generally true that data relating to material culture are hard to interpret in terms of social structure, even in the present instance where a high proportion of material culture items are manufactured by one social category. In fact it does not follow that because ceramics and metals are produced by persons of

a particular social status those products will testify to the existence of that status. Artifacts are made for the population as a whole, and the differences between objects made by endogamous smiths and potters and those who are not so segregated remain to be established. Certain researchers have attempted to tackle these questions (David et al. 1991; MacEachern 1994; David and Kramer 2001), but their highly theoretical studies are hard to apply on the ground. The differences are mainly expressed in terms of spatial distributions and the homo/heterogeneity of technical and stylistic traditions, features that cannot be established with any precision in earlier periods. One of these differences, a technical one, does nonetheless deserve mention here. It has often been noted that, in and around the Mandara Mountains, endogamous potters are the only ones to utilize the tamper and concave anvil (TCA) pot forming method (Delneuf 1991; Langlois 2001a: 237-38; Sterner and David 2003). In fact, this association between TCA and the endogamy of potters recurs, though the correlation is far from perfect, from one end of the Sahelian belt to the other (Huysecom 1992: 73; Gosselain 1995: 212; 2001: 100-06; Sterner and David 2003). One might therefore envisage a single origin and the linked diffusion of both traits (see Gosselain 2001: 106; Huysecom 1992: 81; Meek 1931: 285; Langlois 2001a: 244; Tamari 2005: 152). One might indeed be tempted to infer the social status of ancient potters, whether female or male, from the pot-forming technique employed. This is however not supported by the available data, including material evidence of TCA from Zilum in northeast Nigeria in the first millennium BC (Magnavita pers. comm., cited in Sterner and David 2003: 24), nor by the absence of any satisfactory explanation of the linkage of TCA and endogamy.³ Nonetheless the existence of such a linkage in the region under consideration invites an archaeological contribution to knowledge of social history, even though for a variety of reasons, some given above, I do not claim to be able to identify the mark of endogamy in any material production (Langlois in press). Even if this were possible, it would not necessarily explain the process that led to this form of social organization. Finally it should be noted that information provided by material culture relates more to the historical context in which endogamy appeared than to the social practice itself. Thus my task is to discern whether the archaeological data are compatible with the phenomena that, according to the myths and their interpretations, seem to have led in this region to endogamy.

This study takes as its point of departure the political process that, according to Seignobos, led to the endogamy of smiths in one part of the Mandara Mountains. After presenting his main lines of argument and their evidential bases, I ask whether or not the process envisaged receives support from the known archaeology of the

3. In the present state of knowledge the only plausible link is a cognitive one. TCA demands a particularly high level of skill and thus a long apprenticeship that fits well into the context of an activity that being highly specialized is favorable to the social isolation of smiths (Gosselain 2000: 203).

region. In a second, complementary, section in which reliance is placed upon the evidence of myths, I show that political process does not provide a fully satisfactory explanation of endogamy since it neglects one essential element of the problem, smiths' responsibilities for conducting funerals or, more generally, undertaking. In a third section, I proceed to propose an alternative scenario developed on the basis of the myths and on the ethnographic and archaeological evidence that, while compatible with the political interpretation, places the funerary dimension of the question in the foreground – as the myths invite us to do.

The political scenario

Presentation

Following other researchers, Seignobos (1991c: 254) has emphasized that, in the myths that explain the origins of smiths' endogamy, this was imposed on elder brothers by their juniors. In oral traditions of origins relating to our region, as is often the case in Africa, the eldest sibling appears to stand for an earlier established, indeed autochthonous, layer of population, while the younger represent a more recent stratum. In the Mandara Mountains therefore, endogamy would have been imposed on earlier residents by later arrivals. Now there are other traditions of origin that state that there formerly existed in the piedmonts and on the plains bordering the Mandara Mountains to the east, numerous "smith chiefdoms" (*chef-feries forgeronnes*). Around the sixteenth century, such powers, founded on a control of metallurgy that was both real and symbolic, are thought to have been established over the whole of the Diamaré plain, in the Mayo (river) Boula, Manga and Bogo regions (Seignobos 1986), and in the eastern Mandara piedmonts, notably at Mowo, the chiefdom from which Gudur sprung (Seignobos 1991c, 2000). As is shown below, various cultural and in particular funerary practices existing in the present can be read as bearing witness to this situation.

Again according to the oral traditions, in about the seventeenth century these "smith powers" (*pouvoirs forgerons*) were challenged by groups coming mainly from the plains to the east. At Gudur in particular, the "ideology of the forge" prevalent a century before is seen as having been progressively eliminated by the new arrivals (Seignobos 1991c: 255). According to this author, information contained in the myths that relates to endogamy and that derived from traditions of origins can be combined: the elder siblings of the myths refer to smiths who once held political power, while the younger siblings stand for those who attempted, often with success, to remove them from power. The older : younger sibling opposition documented in myths recorded at Gudur would thus be an account of struggles for the chieftaincy. As Seignobos (1991c: 254-55) puts it, "Each new wave of immigrants that succeeded in establishing itself at Gudur [attempted] to gain power over people" (our translation here as below), and this struggle for power is interpreted as the direct cause of

the endogamy of smiths. It is seen as taking place “over several generations, indeed centuries, until in the Mandara Mountains it resulted in the formation of a caste possessing certain economic advantages.” The myths are here being read in the context of a history in which the destruction of earlier powers founded on a ritualism based on control of metallurgy takes place at the hands of new arrivals in the region. “By setting the smiths in a caste apart, the chieftaincy over men domesticated and placed in its own service the powers of the forge. Having become ritualists in the service of power, the smiths, receiving in exchange some economic advantages, are for ever denied access to that power” (Seignobos 1991a: 190).

The process responsible for the endogamy of Mandara Mountains smiths would appear to be a late repercussion of an analogical political process that had taken place a century earlier in the Chari region (Tourneux et al. 1986; Seignobos 1991a, 1991b: 185-6; Seignobos and Tourneux 2001; Seignobos and Jamin 2003). At that time the kingdom of Bagirmi was coming into being on the eastern bank of the Chari, progressively annihilating the smith powers previously established in that region. This political change seems to have been associated with the confiscation of ritual powers associated with metallurgy and the segregation of smiths as a caste apart. These events appear to have led to the flight of numbers of metal workers to the west in the direction of the Mandara Mountains bringing into the study region “smith peoples” (*peuples forgerons*) who, having suffered for their metallurgical activities, would for the most part have refused to submit themselves to or integrate with the smith powers they found in their new land of asylum.

The basis of the political process

As the political process is to be confronted with the archaeological data, it is useful to specify the five pillars on which it is constructed, for these are not universally accepted.

First, it has been shown that the political process is grounded on the fact that in the myths, the future smith is an elder brother on whom endogamy is imposed by his younger brothers (Seignobos 1991c: 254). The two myths Seignobos collected amongst the Mogura and Maryam smiths are of this kind and accord with the pattern previously specified in relation to the Mafa (Table 8.1). Thus Boyer (1983: 51 citing Genest [1976: 123]) writes that amongst the Mafa, “Informants never fail to specify that the Gwalda [smith] is the elder and those who deceive him his younger brothers”. On the other hand Sterner and David (1991: 359) challenge the systemic nature of the older : younger opposition and N. David (pers. comm.) is of the opinion that the notion of brotherhood is emphasized over the older versus younger distinction. In the myth recorded by Sterner and David (1991: 359) from a Sirak informant, the younger and not the older brother becomes the gravedigger.

Table 8.1. Recorded montagnard myths relating to the origins of endogamy by theme and group.

THEME	#	GROUP	REFERENCE
Disposal of the dead	1	Mafa	Podlewski 1966: 11
	2	Mafa	Podlewski 1966: 11
	3	Sirak	Sterner and David 1991: 359
	4	Mogura clan (Mofu- Gudur)	Seignobos 1991a: 160
	5	Maryam clan (Giziga of Lulu)	Seignobos 1991c: 254
	6	Giziga of Lulu	Pontié 1973: 32
Choice of fruits	7	Mafa	Podlewski 1966:11
	8	Mafa	Martin 1970: 79 (citing R. Gardi)
Filial disobedience	9	Mafa of Magoumaz	Genest 1976: 123

Second, Seignobos's arguments for the existence of ancient smith-chiefdoms in the Mandara Mountains and piedmonts are founded on funerary practices past and present. In the ethnographic present, and especially on the western side of the chain, iron symbolism is explicitly associated with power. In certain instances the tomb of the chief presents all the characteristics of an iron furnace. Thus Seignobos (1991c: 262) describes the burial of a Wula chief deceased in 1986 placed in his tomb seated against his shield with his body supported at several points by currency bars. His body was then encased in alternating layers of charcoal and magnetite ore in the same manner as a furnace is charged for a smelt. Nearby, amongst the Kapsiki of Mogodé, the chief is buried seated on iron blooms and a bed of charcoal with tongs and a hammer by his side (Seignobos (1991c: 263-4). Pabir and Kilba, Sukur, Fali and certain Margi and Nzanyi (Ndjen) chiefs are also buried covered in charcoal (Wente-Lukas 1977: 117; Otterbein 1967: 18; Vaughan 1970: 87; 1973: 169; N. David pers. comm.), the last-named with some smiths' tools. Wente-Lukas (1977: 117) also describes Higi village chiefs as being buried on an iron stool and covered with charcoal. The presence of smiths' tools and even more that of iron ore in chiefly tombs clearly references iron symbolism related to power. The filling of the tomb with charcoal, on the other hand, has been interpreted by N. David (pers. comm.) as rather representing the desire to isolate the body from the surrounding earth.

In the eastern Mandara piedmonts the burials of chiefs in the present are less expressive of iron symbolism. Here it is not the tools of the forge that are placed in the tomb but rather the forge's most classic product: the hoe. Thus at Gudur the wrappings around the body of the chief incorporate hoes forged by smiths of the Mogura clan, while others serve to support his body (Seignobos 1991a: 161). Amongst the Mofu-Diamaré, where smiths are not casted, chiefs (*princes* in Vincent's terminology) are also buried with agricultural implements, known as "hoes of the chiefdom" that record the years of their rule (Vincent 1991: 498, 513; Seignobos 1991a: 168-9). Do these traits indicate the persistence in this region of a once more potent ideology of iron? Quite possibly, and Seignobos (1986: 6-7;

1991a: 81) adduces substantial and substantive evidence in support of this position. The association between hoes and metallurgical symbolism would seem to be confirmed by the funerary rites accorded to former Zumaya chiefs of Zoumaya-Lamordé in the Diamaré (Seignobos 1986: 6-7) and the former Murgur chiefs of Mboko. Once again iron tools were placed with and held the body in position and ore was poured over the tomb (Seignobos 1991a: 167-68). However, it could be argued that the presence of hoes in association with dead chiefs refers to the fundamentally agrarian character of societies in this region whether in the mountains or on the plains. This explanation scarcely holds in the case of the Murgur chiefs since the hoes were specifically stated to be those used in bridewealth payments, but one cannot dismiss the hypothesis that such objects constitute, as is common practice in the region, a form of wealth given to the deceased to ensure him a pleasant stay in the hereafter.

Despite such objections, it is hard not to see in the association of materials emblematic of iron metallurgy with chiefly burials the expression of a symbolic link between power and iron. Such an association is moreover validated *a contrario* by the customs of the Masa, a riverine group living along the Logone river that has violently rejected the “ideology of iron” and which never buries the dead with iron objects except in the case of persons who have died in combat and whose power for vengeance it is desired to increase (Tourneux et al. 1986: 56-57; Pahai 1991; Seignobos and Tourneux 2001). It is clear that the Masa consider iron as dangerous and the carrier of negative values.

Such data, if constituting less than proof, argue strongly in favor of the former existence in the Diamaré plain and eastern margins of the Mandara Mountains of smith powers that, according to Seignobos, were at their zenith around the 15th-16th centuries AD. If certain of these ancient powers, those held by the Amutko and the Motokay for example, are known to us, this is because they often had an important role, as smiths and ritualists, in powerful chiefdoms (Zumaya, Bogo, Joffa, Gudur and others) that developed, from the 17th-18th centuries, often at the initiative of peoples arriving from the south. The ancient symbolism relating to power was conserved, as at Bagirmi (see below), uniquely benefiting the new rulers.

However, of these earlier polities that experienced diverse influences, in particular from states such as Borno, Mandara and Bagirmi with which accommodation was necessary, and which were subsequently conquered militarily by the Fulbe, nothing is left. This is why, in Seignobos’s view, one must look further to the west to see their imprint on present practices. It is there that smiths retain the most important roles both as ritualists and as title holders, representing avatars of the forms of smith power that used to rule to the east in the Lake Chad basin (Seignobos 1991c: 256; see also Meek [1931: 228] and Vaughan [1970: 89, 1973: 69] for contrasting views on the contribution of smiths to chieftaincy in the west of the Mandara Mountains).

The third pillar of Seignobos's interpretation is that the ancient smith chiefdoms of northern Cameroon were the inheritors of those that had developed further east in the "cities" of the Chari and Logone rivers region before the emergence of Bagirmi. The existence of these chiefdoms is inscribed in the political structure and cosmology of Bagirmi, a polity that appropriated from them the ideology of iron (Seignobos 1991b: 383). The milma, the most important minister at the end of the nineteenth century is symbolically a blacksmith. "The word milma in Tar Barma means 'blacksmith', and the official who was the milma was believed to be the incarnation of the supernatural Great Blacksmith who performed a sacrifice that created a world prior to that of the mbangs [kings]." (Reyna 1990: 112). For scholars specializing on Bagirmi the official function of the milma constitutes a record that this kingdom is the successor of "smith states" (*états forgerons*) (Pâques 1992: 47, 50, 136; Reyna 1990: 112). However, this thesis is not universally accepted, Magnant (1997: 413) being of the opinion that it is no more than a hypothesis requiring verification. In fact, while the chiefdoms (Zumaya and Joffa) in the Diamaré that succeeded the local smith powers (Amutko) seem to have maintained the pre-existing tradition of furnace burials (Seignobos 1986), the burials of the mbangs of Bagirmi do not make explicit reference to the ideology of the forge. Admittedly the latter were laid out on a bed of charcoal (Seignobos 1986: note 15; Tourneux et al. 1986: 33), which allows one to envisage an ancient use of charcoal in funerary contexts east of the Logone. It is however open to doubt that this practice originates in the eastern plains since the filling of the tomb with charcoal, has according to certain authors a western, ultimately Pabir, origin (Meek 1931: 182, 215; Otterbein 1967: 16).

The fourth pillar relates to competition for power. Whether or not charcoal burials derive from one or more sources, the establishment of smith-chiefdoms and the settlement of peoples from the east must be treated as separate phenomena. If for some the reality of the former is still in need of confirmation, it is incontestable that numerous groups presently settled in the Mandara Mountains and their piedmonts state that they came from the east. An eastern origin is frequently claimed even by those groups who do not assert that they were once smiths (Seignobos 2000: 46). It is equally undeniable that in the eastern piedmonts some of these migrant groups hold political power. Thus most of the Mofu-Diamaré prince-domains are held by clans that came from various inselbergs on the edges of the plain (Vincent 1991: 161-3). The conquest by groups coming from the east of political authority previously in the hands of resident groups – sometimes themselves of eastern origin – is a scenario typical of the region. Is it this struggle for power, ultimately won by eastern groups, that is evoked in myths about smiths' endogamy? The majority of the myths describe in a clear manner deliberate action undertaken by several individuals against another. This action manifests itself most often in deception through trickery, in other cases by force. Whatever the trope – ripening

of fruit (myths 7 and 8), burial of a corpse (myths 1-6) or filial disobedience (myth 9) – endogamy is never represented (as it is among the Dii of the upper Benue) as a harmonious and symbiotic association between two groups, farmers and smiths, but much rather as a form of organization imposed, whether by ruse or force, by a majority on a minority. Between the lines of the myths competition between groups is clearly evident. It is only at Sukur that power was supposedly offered to new arrivals: there a smith offered his daughter to a stranger, from Borno or Gudur, following which when local priests died one after another, the newcomer was offered both priesthood and power (Meek 1931: 312-13). And this is only one of the versions describing the taking of power by the Kulesegi. In legends recorded by Sterner and David in the 1990s, it is again by trickery or marriage that the immigrants gained for themselves power previously held by Tuva smiths.⁴

The fifth element in Seignobos's political process interpretation is somewhat less than a pillar but is a related phenomenon: the persecution of smiths of the Chari which supposedly led to the flight of "juniors" (*cadets*) towards the Mandara Mountains. According to Seignobos (Tourneux and Seignobos 1987: 33), "Bagirmi's control over the Chari led to the almost total extinction of the 'people of iron and of walls'. Smelting was prohibited and only a few fractions of servile and casted smiths were allowed to work iron at certain specified places." If it is hardly to be doubted that Bagirmi ostracized smiths to the point of provoking many to flight (Seignobos 1987: 33; Pahay 1991: 33), one may ask what was the role of this kingdom in putting the smiths of this region into a caste. Between the smith powers of Darkan and present "haddad", there are indeed several centuries of Bagirmian domination, but, as the distribution of haddad extends far beyond the limits of Bagirmi, it seems difficult to attribute the social segregation of smiths to this state alone. However this may be, it does not in any way negate the departure towards the west, recorded in several sources, of groups of metal workers who thus could have been actors in the political process that, according to Seignobos, led to the endogamy of smiths in the Mandara Mountains.

The political scenario confronted with the archaeological evidence

The reality of the political scenario ultimately depends upon two major elements:

- the existence of a migratory current flowing northeast to southwest that, during the 16th and 17th centuries, brought population groups from the eastern plains to the Mandara Mountains,
- the presence of smith chiefdoms in the eastern margins of the Mandara Mountains around the 15th-16th centuries, that is to say before the arrival of the newcomers.

4. For details see : <http://www.sukur.info/Soc/Legends.htm>

It would thus seem useful to see whether the reality of these two elements is, if not actually confirmed, at least shown to be compatible with the archaeological evidence.

As to the first of these elements, I have previously defended the idea that the archaeological data from the Diamaré substantiate the existence of a migrational flux of eastern origin that manifested itself throughout the eastern piedmonts of the Mandara Mountains from the 12th to 13th centuries onward (Langlois 1995). From the 13th to the 17th/18th centuries, a new ceramic industry of apparently eastern origin appears in the majority of piedmont sites (Fig. 9.2). From a technological perspective, it is characterized by the addition of grog to the fabric, while decoration consists largely of string impressions and sometimes lines of punctations produced by means of an awl. Such material was found at Mowo (where it seems to date to the 12th-13th centuries), at Moundour (dated to the 15th century), at Tchoukol (undated) and at Balda-Tagamré (where it may not have appeared until the 17th century). It should be noted that all these localities are known to have received groups from the east (Seignobos and Tourneux 1984; Barreteau 1988: 31-45; Langlois 1995: 144-5, 248, 301, 753; Seignobos and Jamin 2003: 25).

Two reasons lead us to consider these ceramic components as evidence of an eastern influence:

- First, during the period under consideration, cord-impressed decoration is typical of the northeastern Diamaré where, from the middle of the first millennium AD, it constitutes the most common decorative technique. Various forms of cord roulette impression are found on much of the material recovered from the northernmost sites from their earliest occupation between the 5th and 10th centuries AD. They are omnipresent at Mongossi (Marliac 1991), at Balda Tagamré, at Tchoukol (Langlois 1995), at Méhe-Djiddéré (David and MacEachern 1988; Wahome 1989) and probably at Pouss (David 1981: 86), while they are almost absent from sites on the southern plain (Salak, Goray and Dir-Illagaré) where the greater part of the decoration consists of incisions between the 5th and the 12th/13th centuries and thereafter appliqués (Marliac 1991, Langlois 1995, 2001b). Further west, at Mowo as at Moundour, string impressions make a brief appearance in the middle of the first millennium AD, then become rare until they reappear in considerable frequencies as part of the grog-tempered pottery industry. It is worth noting that during the second millennium AD, string impressions are very common on materials from the peri-Chadian plain. It might be inferred that the increase in representation of pottery with string impression in the Mandara piedmonts between the 13th and 17th/18th centuries testifies to the increasing arrivals of northern populations. However, in the region south of Lake Chad, string impressions compete in frequency with those of carved wood

roulettes. As this tool is unknown in the Diamaré, it is quite unlikely that the recrudescence of string impression in the Mandara piedmont zone is due to diffusion from the north. It is easier to envisage an eastern or northeastern influence.

- Second, in the ethnographic present, grog appears to be mainly used in zones liable to flooding where the only available clays require the addition of temper, whereas the detritic clays of the Mandara and Guéra (south central Chad) mountains are often used as is or in various mixtures.⁵ The appearance of grog in pot fabrics could thus be a sign of northern and/or eastern influences.

There are further arguments unrelated to ceramics. Thus at Tagamré the grog-tempered pottery comes from a domestic midden mound – a *jiddere* in Fulfulde – a structure that, according to Seignobos (1986: 48; Tourneux et al. 1986: 24), would be characteristic of the societies of the eastern plains. But such *jiddere* are far from being features specific to eastern plains dwellers. At Moundour the same ceramics were recovered from a pit containing a pony, an animal that, again according to Seignobos, is typical of the “horse peoples” who lived along the Logone (Seignobos et al. 1987). We should however note that such peoples appear to have been settled for a long time around the northeastern Mandara Mountains. The remains of five horses, dated to the end of the first and the beginning of the second millennium AD, were excavated at Aissa Dugjé (MacEachern et al. 2001; MacEachern, chapter 2).

Thus, although they constitute something less than proof, the archaeological data tend to substantiate the oral traditions that speak of successive arrivals – from the 15th century or earlier – of more or less related groups coming from beyond the Logone river. Do they also document the existence of smith powers, thereby confirming the oral traditions collected by Seignobos? One may well wonder whether polities founded on the symbolic mastery of metallurgy, whether or not accompanied by its actual practice, would have left well characterized traces in the archaeological record. Chiefly burial is a likely candidate area, leading us to consider burial 25 at Moundour, one of six tombs with a covering of sherds found at this site located at the foot of a small inselberg some twenty kilometers from Maroua (Langlois 1995, Langlois et Bonnabel 2003).

Burial 25, which contained a young and probably male adult, presents characteristics that distinguish it from the five other tombs with a similar sherd covering found at the site. This kind of burial is characterized by the covering of the body, more rarely only of the head, by a “shroud” of large sherds often deriving from volu-

5. For further information see Langlois 2001a: 55, note n°41 and <http://www.mae.u-paris10.fr/arscan/Cahiers/FMPPro?-db=cahiers.fp5&-format=detaillasc.htm&-lay=cahiers&-op=cn&Fascicule=Cahier%20I%20-%201998%2f1999&-recid=32929&-find=>

minous jars. This type of tomb was also recognized at Mongossi and Balda-Tagamré on the northern Diamaré plain where this funerary tradition seems to have continued for over a millennium, from the 6th to the 16th/17th centuries. At Moundour the six such burials appear to constitute a cemetery grouping that is unfortunately not dated directly but which associated materials would tend to place in the second half of the second millennium AD. The sherds covering the burials belong to what we have defined as ceramic tradition (TC) 10, dating to the 13th-16th/17th century. The presence of objects in cuprous alloys in burials 1, 25 and 42, and of glass beads in 42 suggest that most of the Moundour sherd-covered burials relate to the later part of TC 10 and were likely dug between the 15th and 17th centuries, during which time grog-tempered ceramics are also present at the site.

Four of the six sherd-covered burials excavated at Moundour held individuals buried in a flexed position lying on their left sides and oriented approximately NW-SE. The two others (25 and 58) held flexed skeletons lying on their right sides and oriented roughly SW-NE. Grave goods and physical anthropological observations tend to indicate that the first group consists of females and the second of males (Langlois 1995: 636; Langlois and Bonnabel 2003: 53). However, as 58 is immature, 25 represents the only adult male. This helps to explain the special characteristics of this tomb. Burial 25 was the only one to have been covered with heavy slabs of granite in addition to sherds. The richness of the grave goods testifies to the occupant's high status: an iron bracelet and another in a cuprous alloy, an iron ring, and, above all, the iron blade of an *iler* (a hoe-like tool with a straight blade used at the end of a long handle) placed beneath the left scapula in such a way as to have supported the corpse. This last together with the relative richness of the grave goods is consistent with the person buried having occupied an important place in a smith chiefdom. Thus the archaeology seems to echo the oral traditions relating to smith powers in the eastern Mandara piedmonts during the second half of the second millennium AD.

Seignobos, it will be remembered, saw the smith-chiefdoms as coming from the east. If certain features of burial 25 follow the montagnard model, for example men lying on their right sides with their left arms free in the common montagnard manner (David 1995: 90), others evoke the plains. The *iler*, a tool useless in the mountains, is characteristic of sandy Sahelian plains. It is found today from Senegal to Sudan, notably near Lake Fitri in Chad, and was probably once present in Borno (Raulin 1984). It is worth mentioning that the granite slabs that shut in and cover the body are comparable to the heavy weights, palm trunks or rocks, used by the Masa to hold down the dead and prevent them causing trouble (Dumas-Champion 1983: 229). Burial 25 thus presents the kind of hybrid characteristics that might be expected of tombs dug by people from the eastern plains who were organized in relatively hierarchized communities ruled by smith chiefs.

To sum up, the archaeological data tend to support Seignobos's political scenario explaining the development of endogamy, to wit: the presence in the eastern Mandara piedmonts around the 15th-16th centuries AD of smith-chiefdoms, inheritors of the smith powers that formerly controlled the banks of the Chari, and who were in the 16th-17th centuries joined by other groups also from the eastern plains. From an archaeological perspective political competition between the two immigrant groups is entirely conceivable. However, despite data that are consistent with this hypothesis it must remain such until we obtain archaeological data from the land between the Logone and Chari rivers where the immigrants supposedly originated. Unfortunately the data collected by Wulsin (1932) from the Chari, Bagirmi and the Bousso regions are too sparse to warrant consideration here.

A political process that is likely but only partially satisfying

Although it is compatible with the archaeological data, the political explanation of smiths' endogamy is inadequate. In the first place, as has been shown, it is simply a repeat of that which took place somewhat earlier in Bagirmi. It is also resembles the process that, a few centuries earlier, led to the development of castes further west in West Africa, where according to Tamari (1997) they go back to the 13th century and are linked to the emergence of state-level societies among the Manding, Soninke and Wolof, who in that manner were able to rid themselves of the power anciently associated with smiths. The endogamy of craft workers seems to have resulted in particular from the defeat of Sumangaru, the smith king of Sosso, by the first king of Mali. In order to control the magic powers of the Sosso smiths, the Malian kings imposed upon them a social status that for ever excluded them from obtaining political power. An analogous process would seem to have been repeated in very different environmental and human contexts. In West Africa as in Chad centralized and often Islamic powers came to dominate preexisting polities with ensuing segregation of craft workers. This is quite unlike the situation in the Mandara Mountains, a zone of refuge where the endogamy of smiths is associated with little hierarchized societies that practiced ancestor cults and sought protection from state hegemonies.

Given these contextual differences it would be most surprising to find that the same political process was responsible for the development of caste in the Mandara region, and indeed to find a single explanation applicable both to the Mandara Mountains where the primary function of caste members is funerary, and in West Africa and Bagirmi where they are only rarely concerned with disposal of the dead. The exclusively political explanation proposed by Seignobos for the Mandara region seems to pay too little attention to the myths that, as we shall see, place burial at the heart of the matter.

An alternative or complementary cultural process

The funerary role: an essential dimension

Amongst the various activities reserved for the smiths whom Sterner and David (1991) have termed “transformers” it is undertaking rather than iron working or other crafts that Podlewski (1966: 10), Pontié (1973: 83) and van Beek (1987: 26, and see 1991: 284, 1992: 40) believe accounts for endogamy. If this linkage is so clear to these authors it is because in the Mandara Mountains it is only among casted societies that one finds specialist undertakers. It is true that amongst the Mofu-Diamaré, the *mbidla*, uncasted smiths, usually direct funerary rites (Vincent 1991: 441). However during funerals certain acts can be performed either by these specialists or by the “nobodies” (*gens de rien*), that is to say by members of clans other than that of the chief (Vincent 1991: 230-45). “In theory undertakers should be found in all clans, those close to power as in others, but observation shows that it is above all the *mbidlew* who have to deal with the pollution associated with death.” (Vincent 1991: 233, and see pp. 444-45). The situation is quite different where smiths are endogamous as, in this situation, undertaking is, almost always, both exclusively their responsibility and an obligation. Podlewski’s (1966: 12, and see 1987: 357) survey of the activities of 300 Mafa smiths makes the obligatory nature of their funerary role very clear. Nevertheless, an exception exists since, at Sukur, smiths are not generally responsible for burying the dead: though some smiths appear once to have had a monopoly of the interment of important elders, it seems that sisters’ sons, real or classificatory, have always undertaken burials (N. David, pers. comm.).

However, it is the myths more than any other arguments that invite us to explain smiths’ endogamy in terms of their funerary rather than their craft activities. The majority in fact practice neither metallurgy nor pottery manufacture. As van Beek (1981: 119) remarked of the Kapsiki, “The origin of the smith caste remains in question, and according to the oral traditions iron working has no role to play in this matter.” It is worthy of note that of the nine published myths relating to the emergence of endogamy in the Mandara Mountains, six, recorded among four different groups (Mafa, Mofu-Gudur, Giziga-Lulu and Sirak) make it very clear that endogamy is the consequence of indelible pollution contracted by contact with a corpse (Table 8.1). The fullest versions (nos 1, 3 and 4) tell a story that can be summarized as follows. The body of a man, dead for some days, begins to stink. By a trick, one of his sons manages to persuade someone, often a brother, to bury the body. This person slaughters and skins an animal in order to wrap the deceased in its hide according to montagnard funerary custom. He buries the body and then eats the meat of the sacrifice without even washing his hands. This is the polluting act which results in him and his descendants becoming the community’s undertakers. The majority of the myths explaining the origin of endogamy make no mention of the crafts, blacksmithing and potting, that are the smiths’ monopoly.

Undertaking: a peculiarity of the region

Amongst the many African societies where smiths are endogamous it is rare that they are assigned a specialized funerary role. Thus is it remarkable that the majority of cases beyond the Mandara Mountains where they do take on such functions are found in a neighboring region, the upper Benue basin. In the hills around Garoua, (Adamawa-speaking) Fali smiths, apparently not or no longer endogamous, are responsible for burials and subsequently for the recovery of skulls (Gauthier 1969: 161 *contra* Wente-Lukas 1977: 116). Further south, around the Poli massif and in the Alantika mountains where smiths are generally endogamous, they are or were often responsible for the farmers' burials. Koma, probably, and perhaps Vere and Chamba smiths may still specialize in burial (Dumas-Champion 1989: 37; Wallaert-Pêtre 1999: 93; Edwards 1991). Amongst the Dowayo, the smiths were formerly responsible for burial (Barley 1983: 23) and until quite recently seem to have been responsible for the recovery of skulls (Benoit 1957: 112). On the other hand amongst the Dii and Dupa burial is not a smith's speciality (Muller 1996: 103, 2001; Garine 1995: 10).

Further from our study area, smith undertakers are rare (Van Beek 1992: 55, note 13). We can however cite a few cases where smiths have special funerary responsibilities. Among the Mandinka of Senegal the laying out of the body is entrusted either to people who are protected from pollution by their social status such as lower caste *nyamekala* (smiths, griots, tanners and cobblers), or to members of the family who stand in a joking relationship to the deceased (Thomas 1982: 251). In western Burkina-Faso, among the Nuna of Tierkou the smiths "are also gravediggers, sometimes opening old tombs either to insert a second corpse or to carry out sacrifices in the name of a memorable ancestor" (Banaon 1990: 65). In Darfur, Sudan, the chief of the smiths "has to prepare the body of a dead sultan for burial" (Haaland et al. 2002: 41) and in southwest Ethiopia some endogamous groups seem to play a special role at funerals (Vaughan 1970: 183; Pankhurst 1999: 491). Despite these and probably other cases, nowhere else in Africa is there such a tight linkage between funerary responsibilities and endogamous smiths as in the Mandara Mountains. Smiths' endogamy would here seem to have come about as the result of a historical process in which undertaking played an important role.

Undertaking: cause or justification of endogamy

Although the myths represent the funerary role as the root cause of endogamy, smiths' undertaking has been generally considered rather as a device used to justify it. Undertaking appears to play this role in the political process envisaged by Seignobos (1991b: 384, and see 1991a: 190). Considering the impurity attributed to corpses in all the societies of the region, there can be no doubt that dealing with cadavers contributes *a posteriori* to ideological justification of the setting apart of

smiths. However, to consider smiths' undertaking uniquely in terms of justification of endogamy comes to the same thing as saying that giving them responsibility for dealing with corpses was specifically designed to achieve that social separation. It is true that, given the polluting nature of cadavers, one cannot ignore the possibility that the farmers, as the myths describe, forced smiths to bury the dead in order to relieve themselves of a task regarded as particularly dangerous and repugnant.

Further elements lead me to see in the funerary activities of Mandara montagnard smiths a cause rather than a mere justification of endogamy. Thus one may note that even in the Mandara Mountains region contact with corpses does not always lead to social segregation. Amongst the Mofu-Diamaré the "nobodies" (who do not constitute an endogamous group) are looked down upon because they are not of the chiefly clan (Vincent 1991: 231) and not because they are often involved in undertaking. One might in this case take the view that they are responsible for burials because they are nobodies and that therefore it is of little matter if they are polluted. This would then be a local example of a case where the lower social status of a portion of the community results in it being responsible for burials. Further, one may ask why, if the funerary role of Mandara Mountains smiths is merely a device for the justification of endogamy, was it never used elsewhere in Africa? Besides, there is no need to force smiths to bury corpses to render them impure; craft practice often suffices, as for example among the Nuna where contact with colorants used in tanning and pottery decoration has this effect (Banaon 1990: 59). Here, as among the Mofu-Diamaré, undertaking seems to be associated with low social status.

Neither does it appear that an explanation for the funerary role of smiths is to be found in the political process discussed earlier in this paper. Thus, if one is to believe the West African and Bagirmian literature, a developmental process comparable to that proposed for the Mandara Mountains is conceivable without any reference to pollution produced by contact with the dead. Why then is this pollution emphasized in the majority of the montagnard myths? Why is it in this region that the undertaking function appears primordial whereas elsewhere smiths are hardly involved in funerary rites? The myths insist so much on the original pollution that it would seem difficult to relegate this foundational event to the rank of a simple justification. To do so amounts to distorting the analysis. It thus seems important to come to an understanding of why precisely it is funerary activities that, in the myths, result in endogamy. Following the historical approach taken thus far, I propose a second process, ultimately complementary to the political one, that is capable of explaining the foundational role played by the handling of corpses in the majority of myths.

Before proceeding, I would insist on the fact that placing undertaking at the root of endogamy does not imply neglecting its role in ideological justification of the practice, quite the contrary. If corpse handling was imposed on smiths because

it was perceived as repugnant and dangerous, this process incorporates at its very origin a notion of pollution that could not avoid being used to justify endogamy. Thus smiths could have been socially segregated “on the grounds of their lower status and the impurity that results from their contact with corpses. But these remarks also lead in the opposite direction: the [smiths] are forced by the [farmers] to deal with corpses because they are inferiors: cultivating little if at all they are not ‘fathers of the soil’ ” (Boyer 1983: 50). If funerary activities are, as I argue, at the root of endogamy, they were also a remarkably efficacious way of perpetuating it. Still today it is their funerary practice and no other that maintains the smiths’ impurity. “A [farmer] informant said that he would eat food prepared by a [smith] if the head of the compound had not directed a funeral in the past month” (Sternier and David 1991: 361).

The ancestor cult

In Mafa myth 2, the practice of pottery by smiths’ wives is the object of a logical explanation. However, this leads back, again and always, to the funerary domain. According to the myth a man was forced by his brothers to bury their dead father. Before carrying out the task the man met a bird which told him that the very people who had obliged him to bury the body were going to ask him to bring it back to life. To help him solve this problem the bird told the man how to make a pot out of earth, a pot that he would present to his brothers telling them that it would thenceforth replace the body of the deceased. This myth describes the process of ancestralization. Amongst the Mafa, at the end of this process the deceased becomes an ancestor of value to the society’s living members, one who, once installed in a pot, will be frequently called upon. After taking delivery of the vessel, the brothers will be able to speak to their father and affirm the link which continues to bind them together. In a manner of speaking, this myth explains how it is that transformer smiths are responsible for the handling and transformation of all kinds of materials, whether they are biological as in the case of the corpse or inert as in the case of pottery. This explanation is articulated around the ancestor cult which clearly bridges the living and the inert: the soul of the deceased leaves the body to take up residence in the pot on which sacrifices will be made. The only explanation advanced concerning the monopolization of a craft by the transformers thus refers not to the craft itself but to the ancestor cult it serves.

To summarize: this Mafa myth points us towards the ancestor cult. In the Mandara Mountains the preparation of cadavers and subsequent inhumation are the start of the cult and form part of the ancestralization process. In the majority of myths, the pollution that is at the origin of the segregation of smiths thus occurs in the cultural and religious context of the ancestor cult, a fundamental element in almost all Mandara montagnard societies.

Two regional funerary traditions compared

As set out in an earlier publication (Langlois and Bonnabel 2003), the ancestor cult begins with an ancestralization process that takes place over several days. Such a duration seems necessary for the society which has to “digest” the death (Jouaux 1995: 128), to give relatives of the deceased the time to make their way to the site of the funeral, and as well for the deceased who in order to join with the ancestors without harm must needs do this slowly. The complexity of the rites ensures that the living participate in the process that will transform the deceased into a powerful ancestor, capable of exerting an influence, hopefully favorable, on the functioning of society. This measured process, begun in view of the living, continues underground without the link with the deceased being broken. The tomb is thus conceived of as a womb into which the deceased gains entrance only with difficulty, as in an inverse birth, and where he will transform little by little into an ancestor. These various requirements have the effect that in the Mandara Mountains several traits can be considered marks of an ancestor cult: the transport and placement of the corpse in a seated position, a posture of action and power; tomb-wombs with narrow openings that are not filled with earth, and so on.

There is nothing comparable on the plains that extend to the east of the Mandara Mountains. There the links between living and dead dissolve quickly and the funerary rites, brief and perfunctory, primarily express a deep fear of human remains. The body is rapidly buried, often covered with heavy objects or piles of earth, with a view to protecting those close to the deceased from attacks that the spirit of the dead will seek to carry out. This fear of the dead leads to the digging of graves with easy to make large openings, trenches that are filled in as carefully as can be. Unless, as in the case of a murder victim, the aim is to facilitate vengeance, the deceased is placed lying down, in a position of inaction.

I follow Lembezat (1961: 99) in contrasting the relationships of the living and the dead in the Mandara Mountains and on the eastern plains. This opposition is expressed in different funerary practices, some of which are identifiable archaeologically.

A contrast that goes back in time

While there are archaeological burials with ambivalent characteristics, some of those from the eastern piedmonts can be attributed more or less confidently to one or the other of these two traditions. Two burials (15 and 19) in bottle-shaped tombs were found at Mowo in levels probably dating to the beginning of the second millennium AD. These tombs are very similar to those dug by the Mofu-Gudur who live there today and show the characteristics (narrow openings, absence of fill) needed to ensure the transformation of deceased into ancestor. One may thus infer the presence of an ancestor cult in the Gudur region from the 10th-11th cen-

turies (Langlois and Bonnabel 2003). At the same site another burial (14) confirms the antiquity of the ancestor cult. This tomb held a skeleton lacking its skull and lying on its back, testifying to the existence of a skull cult around the middle of the second millennium. This particular kind of ancestor cult, presently very widespread in the upper Benue basin, is supposedly still practiced, though somewhat privately, in the eastern Mandara piedmonts. Other authors have noted the removal of skulls in this region (by the inhabitants of Mokong, Mowo and Sirak) though it is not always apparent to what extent this is for cult purposes (Langlois and Bonnabel 2003: 46). Only regarding the Medey, a clan of Mofu-Gudur origin now settled among the Mofu-Diamaré, is it clearly stated that these skulls form part of an ancestor cult (Vincent 1991: 562).

Some thirty kilometers northeast of Mowo, at Moundour, two burials (13/24 and 57) seemingly dating to the 18th-19th centuries present all the characteristics of plains burials (Langlois and Bonnabel 2003). The infilling of these two graves incorporated grog-tempered ceramics that we believe derive from the eastern plains. However, although the form of these burials corresponds to that of graves dug by the Markaba (Seignobos 1991a: 72), a group of fishers coming from the Logone, one hesitates to assign them formally to an eastern population. The orientation and positioning of the body lying on the right side with head to the south conform to Islamic practice, leaving room for doubt as to their identity.

In summary, the Mowo burials demonstrate the antiquity in the region of funerary practices that normally accompany ancestor cults. As to the Moundour burials, these seem to establish the presence some two to three centuries ago of groups, probably originating in the eastern plains, who were fearful of their dead. These archaeological materials demonstrate that two very different attitudes towards the dead coexisted in the eastern Mandara piedmonts around the 17th century AD.

Is the endogamy of the undertakers the price of successful integration?

Archaeology leads us to envisage a cultural process leading to endogamy that is potentially complementary to the political one described in an earlier section. Oral traditions and archaeology are in agreement regarding the existence in the eastern Mandara piedmonts some centuries in the past of two very different cultural groups: one set of societies similar to existing montagnard groups and practicing ancestor cults, the other set deriving from the eastern plains and resembling those still present in those regions. These contrasting groups often fused to the extent that the majority of the present inhabitants of the mountains appear to represent a blending of autochthonous (or earlier settled) groups and others from the plains. Although there can be no doubt about the existence of such plains elements in many montagnard groups, it is often difficult to identify cultural traits that speak to that origin. On the other hand, numerous traditions describe the history of plains

groups who, arriving at the feet of the Mandara Mountains, had no choice but to integrate themselves into the montagnard culture that they found in place. The plains dwellers, accustomed to occupying in an extensive manner relatively vast areas were able to establish themselves in the mountains only at the price of more or less thoroughgoing renunciation of lifeways and values. Certain stories, such as those regarding the burial of ponies (Seignobos et al. 1987: 116) or throwing knives (Seignobos 1991b: 181) at the foot of the mountain, are evocative of this abandonment which must have been repeated in different ways almost everywhere in the piedmont region.

According to Seignobos, the former lifeways of these former plains dwellers become montagnards are often conserved in their rituals. The bull festival (*maray*) may thus recall the agropastoral past of many peoples, the sacrifice of catfish the past of fishermen such as the Markaba. However this may be, these diverse customs are tacked on to that fundamental institution of montagnard societies, the ancestor cult, always in such a way as to make it clear that it was the plainsmen who had to adapt to montagnard culture and not the other way round.

Consideration of the omnipresence of the ancestor cult in the mountains leads to the question of why it should be necessary under the environmental and human conditions that characterize this geographic zone. It is often considered as a means of establishing community control over territory. In this mountainous region, where population pressure has depended in good part on the rate of influx of outsiders, there has been increasing need to control access to land. It is perhaps for this reason that the ancestor cult survived the immigration of peoples who had not originally practiced it.

As the archaeological evidence would seem to confirm, it is most likely that the plainsmen who were arriving at the feet of the Mandara Mountains around the 17th century were fearful of their dead. Integration into montagnard society would have required their adoption of the local ancestor cult and thus a radical change in their funerary tradition. To honor an ancestor in this manner requires first that the deceased be allowed to become an ancestor, implying the complex and relatively lengthy process of ancestralization described above, one very foreign to people from the plains. The fact that funerary customs constituted the stumbling block placed in the way of such peoples on their way to becoming montagnards seems to have been preserved in certain oral traditions. It cannot be coincidental that adoption of funerary customs marked integration into montagnard culture. Several groups formerly attached to the “Jebbe confederation”, an association of peoples originally from the plains who were seeking without much success to establish themselves as a political force in the piedmonts, were excluded from the alliance on the grounds that they had adopted montagnard funerary practices (Seignobos et al. 1987: 116; Seignobos 1991a: 76, 126). It is tempting to infer that some groups of eastern origin, once settled in the piedmonts and become politically dominant,

sought to impose on earlier settlers the tasks of corpse handling. From this the endogamy of the undertakers would have developed. It is thus logical that in the myths the pollution contracted by contact with a corpse should be stated as the cause of endogamy and that it should be imposed by “younger brothers,” representing later arrivals, on the “elder,” standing for the original inhabitants.

van Beek (1992: 51) also sees the funerary functions of Kapsiki smiths as a means of resolving the contradiction between the necessity to guarantee the process of ancestralization and the disgust experienced in regard to the handling of putrefying cadavers. “This contradiction [between the need to bury late and abhorrence of the corpse] is solved by assigning the role of undertaker to a group of people who are marginal and therefore dirty, defining them as ambivalent marginals” (van Beek 1992: 55, note 13). However, he does not appear to see this contradiction as a possible cause of endogamy.

Our hypothesis is thus that the endogamy of Mandara Mountains undertakers derives at least in part from the difficulties in acculturation encountered by the latest groups of immigrants from the east who, obliged to integrate themselves into montagnard culture, attempted, once their political position was established, to devolve responsibility for the handling of corpses onto previous populations. This was only one of several solutions to the problem. Thus, as we have seen, the Mofu-Diamaré, often led by chiefs of clans with eastern origins, handed over this unpleasant task to the nobodies.

Note that this cultural process involves the same “junior” eastern groups as those supposedly implicated in the political process. The two kinds of process could have unfolded together, the cultural grafted onto the political, with the attribution to smiths of a monopoly of undertaking. Alternatively the cultural process, which does not suppose that “senior” earlier inhabitants were organized in smith chiefdoms, might have developed in the absence of the political. To fulfill the conditions necessary for its existence, it is sufficient that the groups from the eastern plains found themselves in contact with montagnard peoples and that they sought to integrate themselves into that tradition, a sequence of events that is supported by numerous accounts.

Conclusion

Taking a historical perspective, I have attempted to synthesize the available data relating to the origin of the endogamy of smiths in the Mandara Mountains. These data, drawn from myths, origin stories, ethnography and the material culture of the past and present, suggest that two convergent phenomena were responsible for the segregation through endogamy of one part of the population. Here as in West Africa and Bagirmi, the setting apart of smiths may have constituted a political tool used by a new kind of authority to definitively disqualify from power the descen-

dants of the smith chiefdoms that had previously exercised control over the region. However, unlike in those other regions, the myths – which seem much more than the simple symbolical constructions for which they were formerly taken (Boyer 1983) – allow us to suppose that to this political process was linked a cultural one, born from the confrontation of two cultural traditions. Regional ethnographic data, clear as to the fear aroused by the dead in the societies of the eastern plains, allow the inference that it was difficult for late comers from the Logone-Chari interfluvium to accept the treatment of corpses necessary for the ancestralization process. It is highly significant that the adoption of montagnard funerary practices by some plains dwellers was regarded by other plains groups as the definitive marker of montagnard status. In those parts of the mountains where the newcomers came to dominate, they tended to hand over responsibility for funerary rituals to the original settlers. In this manner the two ends desired by the juniors, to remove their predecessors from power and to unburden themselves of funerary responsibilities could be achieved simultaneously by imposing endogamy on their seniors.

It must be admitted that the reality of the political and cultural processes proposed here can not be fully demonstrated. My aim has been to show that the diverse data sets combine to anchor the process leading to endogamy in the history of the region. I have shown that the cultural and political conditions affecting the eastern Mandara piedmonts around the 17th century AD were conducive to the setting apart of original inhabitants by newcomers from the plains. Whether or not endogamy was introduced from elsewhere, conditions combined for it to take root in the Mandara Mountains, in a context very different from that in which it is commonly found in Africa.

Although, here as elsewhere, endogamy can develop as the result of a primarily political process, the segregation of Mandara mountain smiths has to be understood as a phenomenon specific to the region. Here it seems to have functioned as a tool in the service of localized cultural changes. Is it by chance that it seems to have developed at Gudur, described by Seignobos (1991c: 52; 1991: 26) as a major Mandara Mountains politico-religious centre in the 17th century, located on one of the very few routes offering easy access into the mountains. The archaeological evidence would seem to support Seignobos's political scenario. However, I differ from him in believing that the original pollution presented in the myths is not a simple, *a posteriori*, justification of endogamy but rather one of its causes. In my view, at a certain moment in the history of the Mandara Mountains, metallurgy, the foundation of political power, and funerary practices, at the root of religious belief, constituted major obstacles to the integration of newcomers from the eastern plains. In the central piedmonts, perhaps within the rising political sphere of Gudur, some amongst the newcomers supplied a global and radical solution: endogamy. As the myths imply, the "autochthonous seniors" paid the price of the politico-cultural change which the "migrant juniors" had to accomplish.

It is true that nothing prevents us from holding, following Vaughan (1970) and Sterner and David (1991), that endogamy contributed to the maintenance of a complex (smithing) technology in the context of relatively unhierarchized societies. However, I doubt that this technological factor is by itself adequate to explain smiths' endogamy, the origin of which must be sought in the socio-cultural and political realms. Most segmentary societies are equipped with mechanisms that allow for limitation of members' accumulation of riches and power. In Mandara montagnard societies as in those of the Poli massif where the smiths are also endogamous, a large part of the wealth accumulated by an individual is consumed and dissipated in the course of his funeral rites or those of his near relatives. It is possible to see the endogamy of smiths as a regulating mechanism since it allows for control of the power conferred on them by their monopoly of the production of certain indispensable classes of artifacts. This type of explanation is, however, extremely general and it should be noted that the endogamous smiths of the Mandara Mountains benefit, despite the existence of such regulating mechanisms, of a standard of living superior to that of the rest of the population (Podlewski 1966: 43; 1987: 360; van Beek 1987: 31). The endogamy of smiths in centralized societies has also been seen as a means for the rulers to maintain control on the system of wealth redistribution (Haaland et al. 2002: 42). In whatever kind of society it is found, smiths' endogamy is certainly a means of controlling the power of metallurgists ... just as inversely it allows the metal workers to retain for themselves the profits of their technical mastery. This last explanation is advanced by the Dii smiths of the upper Benue basin (Muller 2001: 211). The history of many regions tends to bear this out. In the Mandara Mountains endogamy came about in a specific historic and cultural context in which newcomers may have sought to bar previous holders from ever regaining power while discharging themselves from funerary tasks that they found dangerous and repugnant. The idea of segregating smiths, widely represented in Africa, was certainly advantageous in many respects, political, technological and cultural, however it is insufficient to consider such advantages uniquely from a theoretical perspective since the societies that adopted this institution possessed historical trajectories that often differed considerably from that of their neighbors. Smiths' endogamy can be considered as a social tool utilized and managed by diverse societies in response to particular historical situations. In those regions where the institution flourished it is therefore necessary to go beyond theoretical generalizations to tackle the question of its origins through a focused historical approach. It is only in this manner that we can do justice to the diversity of processes that lead to a mode of social organization that is highly variable according to regional context.

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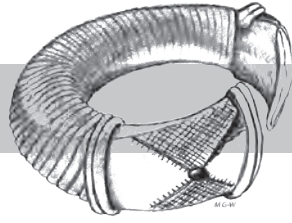
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The Wife of the Village: Understanding Caste in the Mandara Mountains

James H. Wade

I first knew Sadima at his forge; he was an iron smith of extraordinary physical vigor with a larger-than-life personality. When the *Kimbu*¹ fecundity ritual was eventually performed, it was Sadima who led the “other” women in the dance around the sacred grove, and was, like them, dressed in leaves, shaven of head, and smeared with mahogany oil and red ochre. I had meanwhile become familiar with Sadima’s exuberant funeral performances when as *mwom mihin* (chief of the specialists) he danced, corpse astride shoulders. Later, at the anti-locust rite, *Mijidan*, I discovered that Sadima, rather than his wife, had cooked the ritual meal and, on expressing surprise, was informed that of course Sadima had cooked the food because *mwom mihin* was “the wife of the village.” Iron, death, gender. It is one purpose of this paper to re-examine each of these in relation to the ontology, dynamics and origins of caste in the Mandara Mountains. Sadima, *mwom mihin* of the Bahuli Fali, died in 1979. This paper is dedicated to his memory.

Caste in the Mandara Mountains and the Fali variant

Ethnographic work from the Mandara Mountains and environs, in northern Cameroon and north-eastern Nigeria, has long contributed to discussion of African artisans, reflecting perhaps the dramatic nature of the region’s craft-related castes.

1. See Appendix 1 for list of vernacular words. Terms like *ɔŋkyagu*, *mbilim*, *mihin*, *muyin*, *rerhe*, *melu*, *yaku*, etc., designating specialists and non-specialists, though singular forms, in this chapter stand for both singular and plural.

Most studies have focused upon a single ethnic unit: Podlewski (1966) and Genest (1974; 1976) on Mafa; Vaughan (1970; 1973) on Margi Dzirngu; van Beek (1982; 1987; 1991; 1992; chapters 10 and 11) on Kapsiki/Higi; and Wade (1989; 1997) and Wade and Galántha (2004) on the Chadic-speaking Fali. However, in his earlier (1970) paper Vaughan incorporated his study of the Margi *ɛŋkyagu* within a survey of “Caste systems in the Western Sudan,” while Wenté-Lukas (1972: 129-41) examined the position of “smiths” throughout the “Southern Chad Region,” bringing together numerous scattered sources. More recently MacEachern (1990: 265-71) has discussed caste systems as an important regional cultural complex, while Sterner and David (1991) have proposed gender relations as the model for caste relations in the Mandaras.

While it is agreed that many societies in the Mandaras are “casted,” being characterized by the “*occupational specialization of endogamous groups, in which membership is based on ascription, and between which social distance is regulated by the concept of pollution*”, to use the familiar definition of Tuden and Plotnicov (1970: 16),² there is no consensus on appropriate terminology. In each case two numerically disproportionate castes are present. However, the term “caste” is often applied only to the minority, craft-related group of around 2.5 - 5 % of these populations (van Beek 1991: 283; Sterner and David 1991: 357). As the minority group always includes the iron smiths, the term “smith” (*forgeron, Schmied*) has customarily been used. However, the inadequacy of “smith” is reflected in the preferences of Vaughan (1970: 80; 1973: 168),

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2. Numerous Africanists have shared Todd’s (1977: 411) opinion “that we can indeed speak of caste in Africa”, from Senegal to Ethiopia. Many, (Vaughan 1970: 89-91; Richter 1980: 52; McNaughton 1988: 156-161; Wright 1989: 42-43) seeing “difference” rather than “inferiority” or “superiority”, “do not consider hierarchical dominance relationships between groups a *sine qua non* of a caste system” (Sterner and David 1991: 357). This Africanist perspective, which I share, is remarkably similar to Leach’s (1960: 7) Indian-derived view that “caste ... manifests itself in the external relations between caste groupings ... relations (which) stem from the fact that *every* caste ... has its special “privileges” ... (and which) ... ideally ... exclude kinship links of all kinds” (italics in original). However, Tamari in her important paper on caste systems in West Africa (1991: 223) still understands caste to mean “endogamous *ranked* specialist groups” (my emphasis), and insists that in the Western Sudan “Castes are ranked relative to each other” (Tamari 1991: 230). While she explicitly eschews Indian data (Tamari 1991: 223) her understanding is consistent with that of most Indologists, as when Berreman (1968: 334) concluded that “A caste system ... can be said to occur when a society is composed of birth ascribed, hierarchically ordered, and culturally distinct groups”.

While our working definition, that of Tuden and Plotnicov, is fine for the Mandaras, it is important to note that “caste” has proved a useful concept in explicating the nature of Western Sudanic groups that are without any “concept of pollution” (McNaughton 1988: 160). Accepting both “hierarchy” and “pollution” as being dispensable it seems that we are left, for comparative purposes, with endogamy, occupational specialisation and some form of “social distance.” I should wish to stress an interdependence that transcends the division of labour as normally understood, and is based on a perceived “difference” rooted in the “inherent nature”, or “innate capacity” (Wright 1989: 42), of the groups.

Vincent (1971: 76), MacEachern (1990: 266) and van Beek (1991: 284) for “specialist,” of MacEachern elsewhere (1994: 210) for “technician,” of Sterner and David (1991: 357; David, Gavua et al. 1991: 284) for “transformer,” and, more recently, for “smith/potter” (Sterner 1998: 187; 2003). In this chapter I use the term “specialist,” regarding it as the preferred, perhaps necessary, term and concept.

The dozen small semi-montagnard Fali chiefdoms of the southern Mandaras, are markedly caste. The specialist *mihin* are endogamous vis-à-vis the majority *muyin*, sorghum farmers and once occasional warriors. There are two categories of specialists, *mihī mōran* (*mōran* = corpse/first funeral) and *mih kujinin* (*kujinin* = African ebony tree). By descent, each *mihin* patrilineage is either *mihī mōran*, or *mih kujinin*. Each is also a fictive component of a community-specific, dominantly *muyin* clan. However, *mihin* lineages are not at all evenly distributed among the clans.

Mih kujinin and *mihī mōran* regularly intermarry. Specialists’ compounds are not physically separated or demarcated in any noticeable way. Each community (*vran*), of one or more nucleated settlements, with its own chief or chiefs, *mwomun*, also has one or more *mwom mihin*, chief *mihin*. While the custodians of community shrines are usually non-specialists, the chief of the specialists is the great ritual expert and officiant.

Both *mih kujinin* and *mihī mōran* lineages provide diviners, musicians and sacrificers, as well as craft and ritual specialists. All morticians are *mihī mōran* but by no means all *mihī mōran* are or were ever practicing morticians. It might be deemed therefore that *mihī mōran* lineages are no more than those *mihin* families with funerary responsibilities, except that the chief of the specialists himself is always *mihī mōran* whether or not he is an iron smith. Numerous iron smiths are found among both *mih kujinin* and *mihī mōran*; equally many from both groups were never practicing smiths. The Fali term for iron smith in the strict sense is *ma bōlin*. Specialists also farm, at least in recent years. Specialist women are exclusively the potters of Fali society and all are expected to pot. The inadequacy of rendering *mihin* as “blacksmiths” should be obvious. The relationship between metallurgy and caste is indeed problematic (Barley 1984: 94).

There is an explicit Fali pollution concept, *jinjin*, which we may gloss as dirty/offensive, that is applied by farmers to all specialists but more especially to the *mihī mōran*. According to farmer ideology, specialists are *jinjin* because of their association with corpses and because they eat unacceptable, offensive foods. The matter is circular and convincing; being *jinjin*, specialists do dirty and offensive things, which makes them *jinjin*. Van Beek (1982) has provided us with a detailed account of “Eating like a blacksmith” among the neighboring Kapsiki where the equivalent *rerhe* are seen as symbolically eating themselves, which nicely encapsulates one’s sense of tautology.

Whether specialist groups are indigenously perceived and treated as low status, low caste, is a question that has divided writers on this subject and is discussed below. Commonly the conclusion has been reached that their hierarchical position is “ambiguous.” I argue below that, while ambiguity is unequivocally present in a profounder sense, specialists cannot be unambiguously subsumed within an all-embracing hierarchy. What is powerfully present is a code of separation behavior; farmers do not eat food prepared by specialists and only share with them their own food in a manner which would seem to demean the specialists; gourds of beer are not so freely shared between farmers and specialists; and sex is forbidden between them.

As potters, smiths, casters, weavers, woodcarvers, leather workers, and so on, specialists are clearly transformers of material nature. As diviners, as sacrificers and in many ritual circumstances they are better seen as interpreters and mediators. The long process from nature to fully encultured, socialized Fali is symbolized, literally marked by cicatrization, dramatized in ritual, made socially and biologically effective in marriage and procreation, and celebrated in a notable aesthetic of the person. In each of these domains the transformation is mediated by specialists. Women, with specialist help, bring people into the world; specialists take them out. We inescapably see many of these transformations as being from nature to culture. The wealth (children, sorghum, etc.) and normative culture of farmers are ultimately dependant upon nature; the necessary transformations are the work of the non-normative, “deviant” specialists and women between whom an association begins to become apparent (Sternier and David 1991: 363).

Privileging the farmers’ conception of Fali normative order, we see the specialist, especially the *mihi m̄aran*, as “marginal man” who literally handles and mediates the danger immanent in liminality (Douglas 1966; Turner 1979 (1964); Huntington and Metcalf 1979: 53-55), most transparently so when death brings emotional and structural disorder. From the moment of death until the creation of a spirit pot to the dead, the end of mourning, and the re-establishment of the social order, all related ritual is handled by the *mihi m̄aran*. During these long liminal months, pollution and anomaly are, we may suggest, kept at a distance by the specialist. Situated at the margin of society, specialists safely manipulate that of which farmers are ignorant and fearful. To the specialist accrues the validation of his pollution, mystique and powers, and a fair measure of worldly recompense.

Fali society was essentially non-hierarchical and highly individualistic (cf. van Beek 1987: 138-41; 1992: 39). Farmers saw themselves in one significant dimension as individuals in pursuit of wealth and concomitant prestige. Each household was virtually autonomous vis-à-vis all others, as was each polity (chiefdom, settlement complex) vis-à-vis all others. The importance of “incipient proto-urbanism” to the nature of Fali society should become apparent below (Wade 1989:234-35).

Explanatory approaches: iron, death, gender

If ever there was a Pandora's box, caste is it. Immediately one is drawn into every sphere of anthropological concern: ritual, kinship, politics and economics, ethnographic and historical analysis, the nature of comparison and the difficulties which arise when trying to understand another society whether through indigenous or imported concepts. The central problem facing any explanation of caste is that, in the end, one is not confronting one question but several, and any form of reductionism is bound to fail (Quigley 1993: 158).

In attempting to understand caste in the Mandaras, usually it has been its nature and functions, its relationship to iron, death, and now gender, that have been invoked. The relationship of caste to chieftaincy has also been a persistent, if elusive, theme, but there has been little consideration of caste origins and transformations. In this section I discuss previous approaches to conceptualizing and explaining caste and will later re-examine the issue of ambiguity and ambivalence, offer a hypothesis as to how caste may have been locally generated, suggest why caste developed in the region, and finally try to make sense of "the wife of the village."

Iron smithing, probably the paradigmatic lineage-based craft specialization throughout West Africa, is unarguably a prominent, perhaps central component within the operation of the caste systems of the Mandaras. Vaughan (1970: 82, 89) considers the "basis" of the Margi system to be "clearly technological," that "Unquestionably smithing is the basic component of the *nykyagu* caste." While stressing the prominence of iron smithing among the range of Kapsiki specialists' occupations, van Beek (1991: 288-90, and chapter 10) is at pains to show that iron working characterizes only one of his three specialist groups. Approaching the problematic of the region's caste systems in an important footnote, van Beek (1992: 55, fn 13) disallows any real explanatory value to iron metallurgy *per se*. On the other hand Sterner and David (1991: 361-62)

agree with Vaughan (1970: 89) "that the basis of caste is technological and economic ... that familial organization of production within a caste system is an effective, if not the only, means of ensuring the long-term supply to very poor societies of a basic necessity, iron tools, under the conditions that obtain in the Mandara highlands.

Being "concerned if not with origins at least with ontology" (ibid. 362), they offer an elegant hypothesis whereby caste relations are deemed to have been directly modeled upon gender relations. In seeking an encompassing explanation for specialist-type caste systems, Sterner and David seem willing to carry their argument a step further than Vaughan in the direction of "origins" when they conclude that they

have attempted to show that the varieties of *ngwazla* caste system in the Mandara highlands are a *response* to an economic problem, that of ensuring the supply from generation to generation of a critical factor of production. The form of that response is conditioned by the very simplicity of societies that offered little in the way of cultural variety from which to model the institutions required, but only the principles of kinship affiliation, of discrimination by gender that used pollution as a means of social control, and of the complementarity of the genders. Gender and caste interact in this region, and one cannot be understood without reference to the other. (Sterner and David 1991: 366).

I suggest that this view of Mandara societies is very much one from the north central parts of the northern Mandaras (especially those characterized by David and Sterner in chapter 4 as examples of the Transformer and Sukur patterns of articulation of smiths and society), from whence a disproportionate part of the ethnography emanates. I remain unconvinced, seeing no evidence to suggest that caste-based iron metallurgies were necessarily more effective than those of non-casted societies in this region and the larger area. We do not have data for systematic comparison but note the success of the smithing lineages of common or high status of, for example, the Bata (Stevens 1975), Bura, and Kyibaku, all groups apparently lacking elements of the Mandara caste complex. In Sukur, a major iron producing chiefdom, smelting was not a specialist prerogative, and this seems to have been the pattern characteristic of the western part of the region (chapters 4 and 5). Fali did little if any smelting, importing iron from the neighbouring Bana. On the other hand the flowering of the Fali brass casting tradition was, decisively, part of a wider process which incorporated caste development (Wade 1989).

The Mandara caste phenomenon, in one of its dimensions, was a solution to the problem of the emergence, growth and integration of specialist groups in increasingly complex societies. Iron smithing and pottery were the two most important craft specialisms, inevitable components in caste development and instrumental in determining the scope of caste, very much to the fore in daily practice and perception but of themselves having little if any explanatory value in answering the question “why caste?”. From the perspective of the supposedly acephalous societies of the northern Mandaras, “simplicity”, “iron” and “gender” have been put together to generate a model “explaining” caste in this region (Sterner and David 1991). From the perspective of the southern chiefdoms, an emphasis upon “complexity”, “specialization” and the relationship between caste and chieftaincy³ will generate a different explanatory model.

3. In the ethnography of this region the terminology of both chieftaincy and kingship have been used, by different authors, with respect to polities of the same order of magnitude. For the purpose of this paper I settle for chieftaincy in preference to kingship. However, though kings are usually regarded as bigger fish than chiefs, it is the ‘fishiness’ that is most ontologically significant and interesting, a matter to be pursued elsewhere.

The numerous early references to casted smiths as morticians in the “Southern Chad Region” are reflected in Wenté-Lukas’s survey (1972: 130-3). Podlewski (1966: 12) unequivocally considers disposal of the dead the principal and polluted occupation of the Mafa *forgeron* and concludes that their endogamy directly results from this. Reporting, that “the *nykyagu* are the morticians in Mandara Marghi society,” Vaughan (1970: 83-84) concludes that, “It is not clear in just what way this profession affects Marghi attitudes about *nykyagu*. It is difficult not to see some relationship between corpse-care and caste, yet Marghi are not unduly disturbed by corpses or the presence of death.” – and he leaves it at that. Van Beek (1992: 40) repeatedly affirms that the specialists of the Kapsiki/Higi “are above all the ‘people of the dead,’” and states that non-smiths view them “primarily as undertakers.” He clearly imputes explanatory power to this association when, discussing the specialists elsewhere, he tells us that “They are the undertakers – a job that is considered unclean, dirty. The caste-like character of their group probably stems from this association.” (van Beek 1987: 26, but see van Beek, chapter 10). Stressing the importance of gender, Sterner and David (1991: 364) de-emphasize corpse-related pollution in explicating Mandara caste systems. While acknowledging that an important and exclusive mortician role does not characterize all specialist groups, I argue below that a corpse-related pollution concept is likely to have been a necessary component in the configuration of conditions, intellectual as well as socio-political and techno-economic, within which caste originated in this area.

In support of their argument for the relevance of gender to the status of artisans, Sterner and David make detailed reference to the ethnography of a number of Chadic-speaking peoples in the northern Mandaras. In shifting the ethnographic focus to the southern Mandara Mountains and the hills of northern Adamawa, I underline the need to take account of gender, but in so doing suggest different answers to two key questions with which Sterner and David were concerned: what is the relationship between caste and gender, and why caste? Referring to the Mafa specialists, Sterner and David (1991: 363) ask: “Can intergender relations inform intercaste relations? More specifically are *ngwazla* [specialist] men in any way like women? And perhaps viceversa?” Their answer is “a qualified yes.” As should be clear from my initial evocation of Sadima, for the Bahuli Fali the matter is quite explicit. The cross-dressing of the chief specialist at Kimbu and his designation as “wife of the village” assert some sort of symbolic equivalence.⁴ But what can we make of this? Are we faced, in at least some societies of the Mandaras, with what are essentially symbolic associations between specialists and women, or do we have here the underlying paradigm instrumental in the generation of caste in this region?

4. de Maret has discussed (1980:274-277) the position of the smith in the Bantu world where sometimes “*le forgeron est la femme du village*” (de Heusch 1956); de Maret sees here a structural homology, the smith’s role in culture being the “same” as that of women in nature.

Sterner and David suggest that women – subordinate and polluted (1991: 358) – were the paradigm used by the Mafa and Sirak to produce an effective iron working group, the *ngwazla*, that knew and kept to its place. Putting aside the question of whether specialist castes should be seen as being essentially iron-working groups, there are two issues here: caste and hierarchy as well as caste and gender. If a hierarchical principle was required, the gender distinction was not the only available paradigm. The existence of status distinctions in Mandara montagnard societies manifest a hierarchical order, however restricted the political power to which differential access was thereby granted. But the status of the specialist is not to be understood primarily in terms of a hierarchy of quasi-political power or generalized esteem, nor perhaps is the position of women whose subordination is no straightforward matter. I remain skeptical of any sense of a single encompassing hierarchy, and do not think it likely that gender provided the paradigm for the historical process of Mandara caste formation.

Returning to the second issue and rephrasing Sterner and David's question, in what sense are women and specialists alike in Fali ontological conceptions? I would argue that the overt Fali equation of the chief specialist as a woman reflects an underlying cognitive structure, an implicit ontological order (Fig. 9.1). This is conceptualized as three complementary realms of power⁵ and productivity: male and female; non-specialist and specialist; living and dead. Being perceived as natural these pairings are provided with a powerful ideological underpinning. While we may ask whether the non-specialist/specialist complementarity is any more socially constructed than the other two, the question here is: how has the non-specialist/specialist opposition been constructed to render it as natural as the other two? Three binary pairs: each set in itself encompass the social universe; each resonates, echoes within the other two; each is the dominant paradigm within different contexts, different realms of creativity and power. Thus a certain symbolic equivalence is postulated. Poised both ontologically and functionally between culture and nature, women, specialists, and the dead are all seen to occupy ambiguous, indeterminate positions vis-à-vis men, non-specialists, and the living, positions which themselves generate the powers inherent in ambiguity.

5. Arens and Karp (1989, especially the editors' introduction) interestingly dissociated power from conventional Weberian notions of control. There has been a shift in focus which, using the concepts of agency and personhood (Harris 1989; Jackson and Karp 1990), has reformulated power as culturally-defined generative capacity. In this perspective power is centrally concerned with transformations of matter, people, and states of being, sometimes in interaction with other powers immanent in cosmological formulations. In this vein Wright (1989:42), focusing on the Wolof, has argued that "the West African caste system, rather than being composed of hierarchically ranked groups, is really best understood as a set of groups differentiated by innate capacity or power sources. The inequalities of the system are less matters of rank than of *culturally defined realms of power, and the conjunction of all these realms constitutes the social universe*" (my emphasis). I have elsewhere (Wade 1997) discussed the interdependence of Fali chief, chief "specialist", and rainmaker in terms of realms of power.



Figure 9.1. The centrality of the marginal: a view of the Fali cosmos.

Women, specialists, the dead – each set is necessary for the worldly success of the living male farmers and each is a source of potential danger, even disaster. Like women, indeed like the dead, specialists are by their nature different. These are denizens of different realms of power; they are not hierarchically placed within the same realm of power. In this respect the analogous position of women and specialists vis-à-vis non-specialists, whether chiefly, commoner or slave, becomes clear (Fig. 9.2).

The dead must be placated, women gained and retained, and specialists maintained in their role as makers of the tools by which farmers are sustained. The distinctive powers of women and specialists lie not in property, in acquiring corn and filling prestigious granaries but in their generative capacities. The two great crops of life, children and sorghum, by which farmers' wealth, prestige, and self esteem are achieved and measured, are unequivocally dependent upon the productive transformational powers of women and specialists. Men, specialists as well

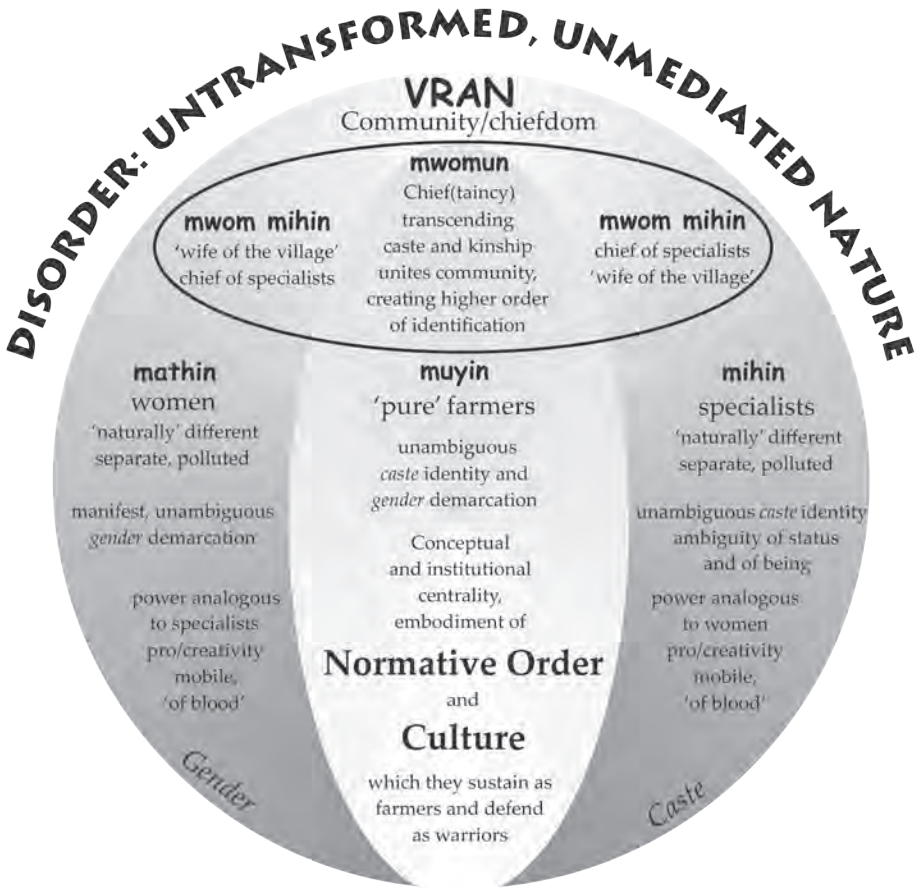


Figure 9.2. Fali society: structured in terms of gender and caste. Between women and the farmers there is a transparent division of labor and a relationship of interdependence, and similarly between the farmers and the specialists. Women and specialists are also alike in that, unlike the farmers, both are marginal, closer to the disorder of untransformed, unmediated nature.

as non-specialists, are acutely aware that their secondary marriage system (Smith 1953; van Beek 1987: 80-137) allows the productive powers of women to disappear literally overnight.⁶ The power of the specialist emanates from within the realms of material production and divinational and ritual efficacy, and operates especially at those dangerous transformational boundaries where mystique is confirmed and power itself derived.

6. The marriage between a woman and her first husband is never entirely dissolved. However, after separating from her first husband, a woman may engage in one or a succession of secondary marriages, the children of which belong to the clan of the secondary husband of the time.

The natural Fali scheme of things into which women and specialists, and perhaps more tenuously the dead, fit in symbolic relationship is manifested and reinforced in a web of validating associations and resonances (cf. Sterner and David 1991: 363-5; van Beek chapters 10 and 11). All are, or can be, polluted. All are unreliable but have to be relied upon. Specialists bury the dead. Women are creatures of blood at childbirth and in their menses, associating in themselves the power of creativity and the pollution of blood. Specialists too are “of blood” (Makarius 1968), their women as midwives and cicatrizers, men as sacrificers, workers of hides and skins, creators of the tools of death. The apprehensions thus generated are part of that matrix of obliquely articulated doxa upon which the Fali world is constructed and by which it is lived.

Consideration of agency and architecture further establishes a certain similarity between specialists and women. The identity, wealth and self esteem of Fali men have a clear physical focus, the upper male section of the compound, clearly demarcated, private, a place of granaries and shrines, very much entered by invitation only. These upper sections are the material and spatial centers of atomized Fali civilization. The permanency, stability and full granaries of their proudly and often fastidiously maintained upper sections speak dramatically of a keenly articulated individualism, and of wealth, of power born of continuity of effort, residence and property. In contrast, many women move quite frequently to another marriage; lower, female compound sections are therefore less stable. The reproductive capacities and farming skills of women, tied neither to lineage land, nor to substantial immovable property, are mobile assets. The assets of specialists, their knowledge and skills, are also always potentially mobile. Specialists are sometimes invited by farmers from other communities to move and reside with or near them, and do so for periods that last from a few days to many years. Farmers regard specialist compounds as being less tidy, less clean, less well arranged, generally more haphazard and impermanent than their own, in fact quite like the lower compound sections of their own women.

We conclude that any interpretation of the caste systems of the Mandaras must take account of iron, death and gender, but should probably not privilege any one of these. We concur with van Beek (1992: 55) that “on a wider comparative scale” these systems are “somewhat idiosyncratic” and, with Vaughan (1970: 91), that they should be seen as “essentially indigenous”. However, we should also remind ourselves that the Mandaras were not entirely a world unto themselves; south of the Benue and its belt of uncasted Bata and Bachama (Stevens 1975), are several Adamawa-, rather than Chadic-speaking groups for whom we have evidence of castedness, including the Chamba Leko (Fardon 1990: 83-85), Dowayo (Barley 1983: 12-13), and Verre (Wente-Lukas 1972: 131). This chapter makes no attempt to encompass this wider region.

A persistent theme in the literature reveals an association between caste and chieftaincy, often expressed as between blacksmiths and kingship.⁷ In this connection Wente-Lukas (1972: 133-4), using earlier sources, makes reference to the Sukur (Meek 1931; Kirk-Greene 1960), Margi (Vaughan 1964) and Nzanyi (Meek 1931), to sacred hairlocks, marriage and burial customs, but like Meek before her, albeit reaching different conclusions, she considers this to be a historically rather than structurally revealing linkage. Vaughan (1970: 85-88) details the relationship of the chief of the specialists (*Ptil əŋkyagu*) to the chief, the *Ptil Gulagu*, within the Gulak political system and considers that “The king’s ties with them [the specialists] emphasize the completeness of his realm.” He concludes rather elliptically that “given the peculiar nature of Marghi kingship, the peculiar affinity of king and [specialist] is almost necessary. However, it should be remembered that other of the Mandara societies that have castes do not, so far as we know now, have the concept of kingship” (Vaughan 1970: 89). Vaughan is here relying on the now-outdated view, largely derived from Lembezat (1961: 37-39), of a Mandara Mountains inhabited by “acephalous” egalitarian societies. David and Sterner (1999) have shown how, on the contrary, the Mandara Mountains are full of chiefdoms, mostly but not all petty, and in which the power of even the most powerful, for example the “princes” of the Mofu-Diamaré, derives as much or more from the supernatural than the secular realms. Sukur is here a partial exception (Smith and David 1995). Especially in casted societies there is frequently a relationship of complementarity between the chief and the chief blacksmith who may, for example, divine at the chief’s behest on behalf of the village. Van Beek (1991: 284) confirms that the Kapsiki “blacksmiths,” like those of the Sukur, Margi and Nzanyi “have their own chief blacksmith” who is “closely associated with the village chief.” Elsewhere (van Beek 1987: 44) he tells us that “The blacksmiths have a special bond with *maze*,” the chief. In attempting to explain caste in the Mandaras I shall emphasize this association between chief and chief specialist, sometimes signified by their common royal hairlock, and between chieftaincy and caste.⁸

Ambiguity and ambivalence

Specialization presumes difference, rendering belonging and a common identity problematic. The articulation, arbitration and accommodation of the difference of specialist groups has taken many forms in West Africa. Caste is one structural solution where ambiguity of identity can no longer be handled within the terms merely

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7. When discussing, in Jilvu, pollution and the denial of commensality between farmers and specialists, an association between royals and the latter became apparent; royals might eat with specialists when others would not, the royals being themselves “like specialists” and often with them.
 8. Sterner and David (1991: 362), writing from a Mafa and Sirak perspective, do not see an important relationship between caste and chieftaincy. However, MacEachern (1990: 267-268), whose own fieldwork was also centred on the northern Mandaras, associates caste with complexity.

of kinship, albeit one that may entail further ambiguities: those of ethnic identity, of status, and of being.⁹

Among casted societies of the Mandaras there is no ambiguity of caste identity. The interdependent roles of non-specialist and specialist are unequivocally recognized and acted upon, but we must note that the “unambiguous insignia” (McIntosh 1993: 188) of each caste are those of mutual perception and behavior, not those of distinctive cultural forms in the sense of cicatrization, hairstyles, bodily adornment, architectural configurations and burial practices.

Vaughan has juxtaposed the *nykyagu* to the “real” Margi Dzirngu (1973: 167), suggesting that a common ethnicity is not unequivocally accepted, though he himself does not posit identifiable non-Margi origins for the specialists of Gulak. Among the nearby Margi Babal, specialist families of Higi and Sukur origin are readily documented (J.H. Wade, Dille fieldnotes, 1990; Gadzama 1993: 34-41) and the strong denial of common ethnicity may be rooted in recent history. Elsewhere in this region there is no evidence of ambiguity of ethnic identity (van Beek 1992: 40); in each case, it seems, a common ethnicity embraces the two interdependent castes. Ethnic, community definitions of belonging were paramount and seldom if ever transcended by trans-ethnic caste membership. In contrast to ethnic and caste identity, status is far more contentious.

Trying to ascertain whether the specialists of the Mandaras were of low, despised status, commentators have sometimes concluded that their position was ambiguous (MacEachern 1990: 268). Answers have also varied sharply with ethnic group. Vaughan (1970: 79, 89-91) is insistent that the Margi specialists are different but not despised, by which conclusion he is led to regard the caste systems of this region as exceptional and the products of a local origin. Van Beek characterizes Kapsiki specialists as a “subgroup with institutionalized relations of social inferiority” (1987: 22), viewed by Kapsiki “society in general ... as a low stratum of society comprised of dirty and dangerous people” (van Beek 1991: 284; 1992: 40). As polluted specialists Fali *mihin* are, by definition, of lower status than non-specialists on the hierarchy of pollution, and demarcation behavior seems to demean them in aspects of daily living. However, this does not translate into generalized low regard, low status; the ontologically ambiguous nature of the specialist is congruent with real ambivalence in the attitude of the non-specialist towards them.

9. The casted, frequently trans-ethnic, corporations of artisans, musicians and griots, important in the Western Sudan (Richter 1980; McNaughton 1988; Wright 1989; Tamari 1991), are a feature of societies without pollution concepts and are clearly very different from what we encounter in the Mandaras. The idiosyncratic two caste system of this region encouraged a high degree of specialization at the level of the *individual* specialist, but did not produce occupational corporations. In his book on the Mande blacksmiths, McNaughton discusses their ambiguous status at length (1988: 7-21).

We have already seen that ambiguity is far more than a question of status within a purported hierarchy of social regard, being inherent in the nature, the being, of Fali specialists in the mind-set of the farmers, who occupy the position of conceptual and institutional centrality (Fig. 9.2). While in the hierarchy of pollution specialists are inferior, their products and practices underpin every facet of Fali life. Not only are specialists both marginal and central, but the very centrality of their role is based on powers inherent in their marginality, derived from their ambiguous position, analogous to women and the dead, in the natural scheme of things. This inherent ambiguity, natural in the sense of being based on an unquestioned ontological premise, is of course itself a source of the specialist's power, the power of ambiguity. The ontological premise of difference has juxtaposed specialists to both farmers and their normative culture, and to unmediated nature in such a way that a symbolic association with women and the dead is inevitably felt, and articulated in "the wife of the village" trope. Ambiguity is also inherent in a cultural practice whereby polluted specialists generate the material, divinational and ritual tools to sustain unpolluted farmer culture. We are witness to the centrality of the marginal (see Fig. 9.1 in relation to Fig. 9.2).

Appropriately enough, when considering specialist and farmer, our perspective can disconcertingly shift. Specialists, marginal in one perspective, to the vast majority of farmers (Fig. 9.2), suddenly become central in our scheme (Fig. 9.1) which incorporates nature as well as culture. Boundaries are crossed and the centrality of a different realm of power thereby realized. From any perspective non-specialist and specialist are clearly different kinds of socially constructed person. As "agent in society" (Harris 1989: 602) farmer personhood is remarkably circumscribed; there are so many things they should not do. By contrast, the specialist is ascribed a vibrant role with an extraordinary range of specialisms open to him and, to a lesser extent, her.¹⁰

In observable everyday life the ethnographer may sense ambiguity in apparent contradictions: the smith's workshop as convivial center; the chief in daily rapport with his specialist friend and neighbor. Specialists are often physically strong men and frequently outstanding personalities, sometimes theatrically so ... yet marginal, polluted, with whom sex, food and drink are not shared. Grand and humble. Central and marginal. A deeply-rooted ambiguity is manifested in a pervasive ambivalence. It is all remarkably Lévi-Straussian with groups, conceived as different in nature, exchanging cultural artifacts and services, while retaining women and their natural services within the groups. As we have seen, cultural codes, insignia, are not used to

10. Vaughan surely wrote of the Margi *anjyagu* from a *mbilim* (non-specialist) perspective and the same has been said by Sterner and David (1991:357) of van Beek. Having enjoyed the friendship and hospitality of many specialists, especially the late Buba Momuna of Jilvu – brass caster, iron smith, multi-specialist and master informant – I am happy to evoke more of a specialist perspective. With their creativity and panache rooted in marginality and ambivalence, specialists cannot fail to appeal.

distinguish the castes; as members of the same society, the same community, they hold the culture of identity in common. Demarcation is all at the organic, physical level: eating, drinking, sex, procreation and smell.¹¹ Ambiguity could hardly be more deeply rooted. In specialists the farmers see: the strongest of men who are in a sense women, whose difference is accommodated within a common ethnicity; the inferior, who are powerful; the marginal, who are central; the anti-normative upon whom the normative depends; a different species with whom a common cultural identity is shared. Ambivalence could hardly be more thoroughly justified. We may conclude that it is an inherent ontological ambiguity which is responsible for the ambivalence we sense and which we sometimes term ambiguity of regard, of status.

We have been concerned with ontology beyond mere status. Like women, like the dead, specialists are by their very nature different. Skills and bodies of knowledge are of course seen to be acquired, learned, but the pollution and the power are functions of the ontological premise which asserts difference. In considering the origins, the construction of caste in the Mandara Mountains we have to address the question of the formation of this ontological premise, to reconstruct the likely intellectual, as well as techno-economic and socio-political circumstances.

Origins: a hypothesis

Indeed, why caste? I approach this problem by first suggesting a hypothesis for the origins of caste in this region, that is *how* caste is likely to have been generated, constructed in local conditions. Then, by looking at what seems to have been happening in the socio-political development of societies in the southern Mandaras, we can begin to see *why* caste originated where and when it did.

I envision a proto-caste situation, plausibly in the southern Mandaras, where a few lineages specialized in iron working (smithing certainly, perhaps also smelting), in divination probably, and other things perhaps, and where disposal of the dead was either a separate lineage specialization or was, both conceptually and in practice, embedded in the iron working lineages. I shall call these *yaku* lineages, after those of the uncasted Kilba (Huba), occupants of the hill country some 30 km to the west of Mubi, and, as suggested by the Kilba evidence, I conjecture that the proto-caste *yaku* lineages occupied a common semantic field, that of specialization, of expertise. *Yaku* literally means “going to”; they are those to whom one goes, those who specialize. A certain common ontological status is implied. A semantically-ascribed common identity is suggestive of a proto-caste situation, and I am further inclined to the use of the term *yaku* as it reoccurs in the names of the

11. In a fascinating paper van Beek has detailed “the smell of ambivalence” among the Kapsiki where “the line separating blacksmiths (*rerhe*) and “normal” Kapsiki (*melu*, pl. *melimu*) is drawn by smell” (van Beek 1992:39), which he sees as bringing “a message of social distance and existential belonging, of mutual dependence of smith and non-smith, men and women” (ibid.: 54).

casted “specialists” of the Margi Dzirngu and Babal (*əŋkyagu*), Margi Ti təm (*kyagu*) and perhaps also the Gude (*inhya / ənhya*).

If a corpse-related pollution concept accrued to the funerary specialists, members of their lineage, mortician or iron working/mortician, might well become unwelcome marriage partners. We may envisage pressure towards endogamy; however, alone they would not constitute a sufficiently large marriage pool (MacEachern 1994: 15-16), especially under the prevailing secondary marriage system, where there are frequently many marriage partners. Under these circumstances would not the other specialist, *yaku* lineages, each with its own mystique and power, provide the obvious marriage partners in a move towards a more encompassing and viable endogamy? Such a trajectory would be all the more likely where specialist lineages already bear names suggesting a common ontological status, as members of a semantic field pertaining to specialist expertise. Accommodation and mutual advantage would have been part of the deal because the construction of caste involved the strategies of many agents in society. The corpse-related pollution concept, now extended to all the intermarrying specialist lineages, would have ideologically validated this societal change, and such an impurity concept would have proved powerful both cognitively and affectively. The ontological premise of natural difference is now asserted, and a certain equivalence to women may emerge. Specialization, pollution and endogamy become articulated as caste.

I suggest that the symbolic equivalence between specialists and women, where it explicitly or implicitly exists, is essentially cognitive, conceptual, perhaps best understood as analogy. If the above hypothesis is valid then the gender relation, in itself, is unlikely to have provided the paradigm that was historically effective in the creation of the caste complex of the Mandaras. While I have already argued that “blacksmith” is a very inadequate translation of *mihin*, the conceptual centrality of blacksmiths may well have been a decisive component in the process I am trying to reconstruct. I remind myself that the Mafa see a connection between putting a corpse into the ground and taking iron out (Podlewski 1966: 20), and that the Kilba mortician, the *dubukuma*, must be a *yaku dla*, a member of the iron working lineage.

Regional transformations

We cannot yet tell whether similar circumstances generated *yaku*-like, proto-caste situations and then castes among a number of Mandara societies and/or whether a developed caste system was variously adopted, perhaps in connection with small-scale movements within the Mandaras. To suggest either single or multiple origins is of course to over-simplify the likely processes of interaction. Certainly the incomplete ethnography to hand bears witness to notable variations on this regional theme, including instances where, in the absence of caste, aspects of the system exist, and also instances where unequivocal caste was little elaborated.

The innovation of caste was, however, used within very different agendas by, for example, the relatively centralized iron producing chiefdom of Sukur, the proto-urban, chiefly but still essentially non-hierarchical Fali, and the dispersed, acephalous Mafa. We have no way of knowing how significant stranger specialists, whether as individuals or small groups, were as catalysts in the processes by which caste was variously adopted. However, present evidence suggests that the concept of specialists as strangers is pertinent only in relation to the *ɛnkyagu* of the Margi. In the Fali instance we can be sure that additional crafts were added to smithing and pottery as the exclusive preserve of *mihin* as they became multi-craft specialists in symbiotic relation to the majority caste of increasingly pure farmers. This development will have been dialectically related to an accelerating process of “fabricating differences,” the elaboration of material culture in the development from acephalous societies to small chiefdoms (Wade and Galántha-Wade 2004: 26). I have elsewhere suggested that specialists were instrumental in the successful Fali adoption of brass casting technology and important in the cultural elaboration that followed (Wade 1989: 232-3).

Our understanding of caste in the Mandaras, even in its more dramatic manifestations, is enhanced by awareness of the range of regional transformations (see Fig. 4.1). Although the casted groups here form a single areal bloc, caste is articulated and elaborated in very different ways. Only a few crafts are monopolized by the Sukur *day* in contrast to the multi-craft Fali *mihin* (Wade 1989: 233). As discussed above, common ethnicity is usually attested for each group’s two castes, but not always. The sub-division of *mihin* into *kujinin* and *məran* seems, from present evidence, to be typical only of the southern chiefdoms, similar divisions among specialists being reported among the Gude and their southern neighbors, the Nzanyi. The manner in which specialist lineages are integrated within the social structure varies. The Kapsiki *rerhe* “have no kinship groups of their own. Each smith family is part of a non-smith kinship group” (van Beek 1987: 30). The roles of specialists as diviners, morticians, musicians, sacrificers and ritual specialists again vary. And so on. The Kilba appear to exhibit important components of the caste complex, but are not actually casted, as is also reported for some northern groups (Sterner and David 1991: 356, and chapter 4). Contiguous to casted societies are uncasted groups like the Bura and Kyibaku, with varying degrees of mystique attached to blacksmithing.¹²

Why caste, why chieftaincy?

It is important to get away from our “smithing obsession” (Barley 1984: 95) and to see caste development in the Mandaras in terms of the growth, articulation

12. We require a comparative ethnography of caste, of the “smith-potter complex”, of forms of specialization in the Mega-Chad region. What were the techno-economic repercussions of castedness upon the range of crafts, professionalism of manufacture, scale of production, system of distribution, etc.?

and integration of specialization in increasingly complex societies. If a lineage-based society is to become more complex it needs an institution transcending and encompassing kin groups, and to provide specialist services greater in range and degree. I shall argue here that both caste and chieftaincy may well have originated in this area as parts of the same wider process, in response to forces that were in large measure locally generated and not in direct response to incursions, pressures or models from the predatory Sudanic states, and that perhaps caste and chieftaincy can be better understood in relation to each other.¹³ Two convictions underpin my approach: firstly, we really are dealing with a form of caste which structures and legitimates the multivalent interdependence of farmers and multi-specialists, and not merely with the problem of ensuring a supply of iron artifacts; secondly, if we have caste here in more than just a formal definitional sense, then we must take account of the interpretations of caste and its origins in its *locus classicus*, India.¹⁴

What are likely to have been the factors, the forces instrumental in generating a local trajectory towards greater community complexity? Over the past few hundred years an intensified subsistence agriculture, even in the harsh northern Mandaras, facilitated, and was facilitated by population growth (MacEachern, chapter 2; Hallaire 1991; White 1941).¹⁵ Socio-cultural differentiation will have accompanied these developments. The problematic “hill refuge” factor (Tambo 1978) may have accentuated the demographic trend. Parts at least of the southern Mandaras seem to have afforded relatively secure locations conducive to the

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13. There is no reason why the caste complex, or aspects of it, could not have been adopted by acephalous peoples, as on the northern edge of the casted bloc. MacEachern (1990: 270) points out “...that important traditional ties exist between all of the casted groups, primarily in their traditional relations with Gudur and Sukur,” and that “... Mafa territory lies on the lines of communication between these two regions. It would not be surprising if an innovation developed among one of these groups became dispersed among the others. These historical relations were probably most important in establishing the extent of caste systems.”
14. Todd (1977:398-399), McNaughton (1988:156-161) and Wright (1989:40-42) are among the few Africanists who have given attention to Dumont (1972 (1966)) and other Indologists. I have found Quigley’s recent (1993) interpretation of caste especially stimulating. Drawing upon Hocart’s book on caste (1950 (1938)), Quigley takes issue with both idealist (Dumont 1972 (1966)) and materialist explanations, re-asserts the political dimension, and explores the central relationship between caste and kingship.
15. From the results of the Mandara Archaeological Project, MacEachern (1993: 251) concludes that “It is probable that intensive occupation of the region (northern Mandaras) dates to only the last few hundred years” and suggests that “The montagnard terracing system could not exist without high population densities for terrace construction and maintenance and for the elimination of animal pests”. Lacking archaeological evidence we remain less sure about the southern Mandaras with their more open, less rugged terrain. According to the Directorate for Overseas Survey (1969), the Fali and Higi areas had the highest population densities in north-eastern Nigeria, 250 to 600 per square mile (97-232 per square kilometre).

development of large settlements,¹⁶ and slave raiding affected this region much less than the northern areas that were within range of Kanem-Borno and Wandala. It is always true that “caste organization depends on an agricultural surplus” (Quigley 1993: 19), however minimal. The rainfall of the southern Mandaras is greater and more reliable than it is further north. Fali wealth display based on an agricultural surplus is again suggestive (Wade 1989: 235-7). This trajectory was surely favorable to innovation, to the “rearrangement of social and cultural elements,” and I concur with McIntosh (1993: 201) that “Specialization and changes to social dynamics happen under relatively optimal, if stressful conditions.” We may surmise a base-line situation of small hamlets, each with its core of patri-kin, with *ad hoc* specialists, perhaps iron smithing firmly related to particular families. Community equaled kin. In response to the factors listed above, larger independent communities would have emerged with a greater degree of settlement nucleation in some instances, with perhaps lineage interdependence in the spheres of religion, ritual and material culture, and an important role for the council of elders. It is at this stage that I envisage the possibility of ascribed, lineage-based specialisms on a more developed basis, the *yaku*-type situation.

This trajectory towards larger and more complex communities would be difficult, perhaps impossible to sustain further without an encompassing institution that transcends kinship and its idiom, rather than one that brings kin units together within the idiom of kinship itself. With the concept of community chieftaincy, at whatever minimal level, the primacy, the hegemony of kinship is superseded: kin groups, still very important both instrumentally and affectively, are united within a territorially-based, named community, increasingly the focus of an individual’s identity, and symbolized by the chieftaincy. There might be little by way of power, of any sort, to enforce anything,¹⁷ or of privileged access to material or other resources, but nonetheless the chief is different, set apart, royal. Kin groups are inevitably subject to growth, withering away, occasional dispersal and absorption. Elders are as other men, only more so, and buried as such. But the chief is not just *primus inter pares*. The chieftaincy does not wither away, should not be absorbed, must not let death (nature) intrude. This is made explicit at Fali chiefly funerals when death is denied and the chief buried secretly, very differently indeed. In some such fledgling chiefdom I envisage the emergence of *mihin* as specialist specialists able to sustain a previously inconceivable range and degree of specialisms. The caste system naturalized and legitimated the institutionalized and quite unambiguous mutual dependence of farmer and specialist. The small, but increasingly vital group of specialists

16. The 1952 census gave these figures for four of the Fali cluster: Bahuli - 5354; Jilvu - 4328; Mijilu - 7384; Muchalla - 5629. These raw figures are given uncritically merely to suggest an order of magnitude for Fali chiefdoms, very comparable to Sukur with 5287.

17. The need for coercive authority in processes of complex social development is widely questioned (McIntosh 1993:187).

were, by the caste system, integrated, ideologically placed and validated, and their services ensured.

The chief/taincy transcends the limits, the decay intrinsic to an order based on kinship, with its inherently contingent nature. Within the chieftaincy are subsumed continuity and legitimacy. The chief, even more the chieftaincy, symbolizes and binds together the greater community, caste and kin alike. With chieftaincy and caste we see the consolidation of two interdependent realms of power. The quasi-political power of the chiefs, uniting kin groups into the greater community, demonstrated the creativity of power, while the powers of creativity and ambiguity were consolidated within the specialist group. The ontological premise asserting the natural difference of the specialists, their pollution, marginality and liminality is now in place. Specialists, and especially the chief of the specialists, are able to handle the liminal, the impure, the dangerous and thus ensure the purity, the very order itself, of the normative order of farmers and chieftaincy. Functionally interdependent in a transparent division of labour, the non-specialists, more or less, constitute the farmers, warriors and royals, while as multi-specialists the *mihin* serve the wider community as craftspersons, morticians, diviners, medicine men, cicatrizers, midwives, sacrificers, and ritual specialists. The former are “symbolically men”, the latter, rooted in an analogous realm of power, are “symbolically women” (Fig. 9.2). There is a definite balance of powers here.¹⁸ Fali communities remained essentially non-hierarchical, and the *mihin*, proud possessors of much knowledge and expertise central to life and death, were not yet in the service of a newly emergent hegemonic order. We see the, perhaps simultaneous, construction and demarcation of two types of the different, the other, and we may wonder whether the institutionalization of each was in pursuit of the constraint of the other, in both senses. In the chiefdoms of the Mandaras chiefly authority was limited, kin groups remained important and specialists were an alternative source of power. That powerful pollution concepts were integral to these caste complexes should not surprise us. Douglas’ (1966) analysis of pollution anticipates its strong conceptualization in situations where the polluted exercise autonomy in crucial domains of life. The complementary and constrained powers of chief and chief specialist are further balanced by those of the rainmaker (Wade 1997) and the custodians of the major shrines. Also among the Gude and Nzanyi it seems that it is this interdependence of powers that maintains the interdependent social, ritual and cosmic orders.

18. Having recognised that “of course ... neither kingship nor corporate kinship groups of themselves lead to caste organisation [and that] what is crucial is their combination and the fact that neither is able to submerge the other,” Quigley (1993: 134, 164) interestingly concludes that “Caste is a form of political structure where kinship and kingship pull against one another and priests are the mediators of the tension.”

Two problems of accommodation at the level of the individual and his strategies follow from this model of the restructuring of Fali society. We recall that this society, like that of the Higi/Kapsiki, remained highly individualistic; the autonomous household was the most important, archetypal institution, and was echoed in more than one way at the other primary locus of pride and identity, the independent community, settlement complex, chiefdom. One problem pertained to specialists alone, the other to all. Why did the specialists go along with the process of caste formation? What was in it for them? Van Beek has documented (1987: 30-31) the material advantages that accrued to the Kapsiki *rerhe*, and Sterner and David, (1991: 365) have termed the caste system “an unacknowledged conspiracy ... [wherein] ... *ngwazla* manage to keep a profitably ‘closed shop’.” In the archetypal farmer image of the chief specialist, his bag is always full of meat: those slaughtered cattle at funerals, those sacrificed goats. Farmer granaries stood between specialists and the potential disaster of drought or infestation. Pleasure and power will have been derived from the possession of valued expertise, and we may suspect that a deeply ambiguous status was nicely exploited.¹⁹

The general subservience, such as it was, to the larger community, to the chieftaincy, presents more of a problem. There was, I think, very little in the way of coercion. The greater physical safety afforded by the larger settlement was real, but was not the only significant factor. The positive power, the attraction of an increasingly complex and increasingly elaborate community culture should not be underestimated.²⁰ Individualism was given a greater range of cultural forms for its expression. Specialists provided an unprecedented range of specialisms and as elaborators were crucial in the domains of material culture and ritual; in addition, the larger, more complex community provided a much denser network of relatives, neighbors and friends, the physical safety conducive to architectural elaboration, and so on. By this process each Fali community became a distinctive sub-culture, each a small semi-montagnard “city-state” in the making. In parts of the central and southern Mandaras there clearly occurred a major transformation from dispersed and uncasted acephalous societies to casted chiefdoms based, in some cases at

19. However, the *mih kujinin - mihi maran* division, the attraction of a less polluted status for some specialists, may suggest that problems of mutual accommodation were not perfectly resolved. I sense that the extreme attitude of the Higi/Kapsiki towards their *rerhe*, and the Margi rejection of common ethnicity may represent other responses to the same problem.

20. The concept of “elaboration”, while derived from Gramsci’s analysis of very different political and cultural forms is nonetheless apposite here. “By elaboration Gramsci means two seemingly contradictory but actually complementary things. First, to elaborate means to refine, to work out (e-laborare) some prior or more powerful idea, to perpetuate a world view. Second, to elaborate means something more qualitatively positive, the proposition that culture itself or thought or art is a highly complex and quasi-autonomous extension of political reality Elaboration is the ensemble of patterns making it feasible for society to maintain itself” (Said 1989 (1979): 589).

least, on large nucleated settlements.²¹ In realizing this it is important to note with Horton (1976 (1971): 93) “that in West Africa, the transition from stateless to state organisation has not, by and large, involved any drastic discontinuities,” and with McIntosh (1993: 218) that “Urbanism is an intensification of pre-urban trends, not a revolutionary process.” The study of Fali society and culture is, I believe, essentially the study of the ramifications of this process.

We are now better able to make sense of Sadima as “wife of the village,” and as he danced for fecundity around *Kimbu*. The well-being and future of a Fali household is a function of the interdependent powers of a man and his wife or wives; that of the community depends upon the interdependent powers of non-specialist and specialist, personified by chief and chief specialist, of a household, writ large, and its “wife.”²² The powers of both women and specialists are rooted in pro/creativity. Fully attired as a woman, leading the other women in a ritual dance to overcome the nullity of infertility, the “wife of the village” encapsulates in her/his own person these dual wellsprings of creativity. As transformed transformer *par excellence* s/he exuberantly promises a future.

Acknowledgements

The first version of much of this paper was given at a workshop on Transformations, Technology and Gender in African Metallurgy held at the University of Oxford in May 1993. It was substantially revised for publication in 1995, and since 2000 has received further minor alterations. Judy Sterner’s dissertation (1998), *The ways of the Mandara Mountains: a comparative regional approach* was published in 2003. Her chapter on smiths and potters is consistent with the earlier writings discussed here (Sterner and David 1991).

This paper continues intense discussion with Nic David and Judy Sterner during their Sukur months of 1992-93; I owe much to their stimulating and fun company. I have greatly benefited from Walter van Beek’s Kapsiki ethnography; though we in fact only met in Oxford, we might well have sighted each other from our “different hilltop kingdoms.” For which image, as well as hospitality and encouragement, I thank David Zeitlyn. I should like to thank Pierre de Maret for his encouraging comments. Scott MacEachern generously gave me a copy of his dissertation, an invaluable source of data on the northern Mandaras. I am indebted

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21. As Horton (1976 (1971): 76) pointed out, it was as early as 1947 that Daryll Forde drew attention to the very different social situations characteristic of dispersed and compact settlements. Horton (1976 (1971): 93) himself explored this further in his seminal paper where he contrasts “the large compact village” to “the dispersed, territorially defined community” emphasizing the fact that “members of a compact village community have an allegiance to the total community which stands alongside and is independent of allegiance to the lineage.”
 22. “Royalty and priesthood form a pair ... This pairing is conceived of as man and wife ...” Hocart (1950 (1938): 38) cited by Quigley (1993: 121).

to the late Eldridge Mohammadou for allowing me to raid his unrivalled knowledge of the politics of northern Cameroon. My thanks to Roger Blench for encouraging a wider regional perspective and for comments on an earlier draft of this paper. I am grateful indeed to Ian Fowler for the pleasures of a good-humoured and spirited conference.

My gratitude goes to all *mihin* with whom I have worked, especially Sadima of Bahuli, and Buba and Usha of Jilvu – all long dead. Without the assistance and good company of Gambo Watkariya of Bahuli the fieldwork would never have happened. Márta's commitment to this paper has alone ensured its final emergence much, and many times transformed; I especially thank her for transcribing Fali and for coming to share my obsession with *mihin*.

Appendix: List of vernacular words

Vernacular terms are printed in italics. Those from my own collection (Fali, Gude, Kilba, Nzanyi, Margi Ti tɔm, Sukur), originally transcribed phonetically according to IPA conventions, are here simplified as below. Fali words are given in the Bahuli dialect. Words from other ethnic groups/languages (Kapsiki/Higi, Mafa/Sirak, Margi, etc.) are given as in the works cited.

Bahuli Fali

IN THIS PAPER	MEANING
<i>jinjin</i>	dirty, offensive, polluted
<i>kihudan</i>	second funerary rite
<i>Kimbu</i>	fecundity shrine / ritual
<i>məran</i>	corpse / first funeral
<i>ma θəlin</i>	iron smith, in the strict sense (lit.: “the one who hammers”)
<i>mathin</i>	women
<i>mih kujinin</i>	<i>mihin</i> (of) the ebony tree
<i>mih məran</i>	<i>mihin</i> (of) corpse / funeral
<i>mihin</i>	specialist
<i>Mijidan</i>	anti-locust ritual
<i>mwom mihin</i>	chief of <i>mihin</i>
<i>mwomun</i>	chief
<i>mukajin</i>	first born boy, or girl, if only girls
<i>muyin</i>	member of the farmer caste, non-specialist
<i>Sadima</i>	(personal name)
<i>vran</i>	chiefdom / community / settlement complex

Other groups

IN THIS CHAPTER [IPA TRANSCRIPTION]	MEANING	SOURCE
<i>əŋkyagu</i>	(Margi Dzirngu) specialist	(Vaughan 1973)
<i>d̥ay</i>	(Sukur) specialist	
<i>dubukuma</i>	(Kilba) mortician	
<i>inhya / ənhya</i>	(Gude) specialist	
<i>kyagu</i>	(Margi Ti t̄əm) specialist	
<i>maze</i>	(Kapsiki/Higi) chief	(van Beek 1987)
<i>mbilim</i>	(Margi Dzirngu) non-specialist	(Vaughan 1973)
<i>melu,</i> <i>melimu (pl)</i>	(Kapsiki/Higi) non-specialist	(van Beek 1992)
<i>ngwazla</i>	(Mafa/Sirak) specialist	(Sterner and David 1991)
<i>Ptil</i>	(Margi Dzirngu) chief	(Vaughan 1970)
<i>Ptil əŋkyagu</i>	(Margi Dzirngu) chief of specialists	(Vaughan 1970)
<i>rerhe</i>	(Kapsiki/Higi) specialist	(van Beek 1992)
<i>yaku</i>	(Kilba) member of a specialist lineage	
<i>yaku dla</i>	(Kilba) member of iron-working lineage	

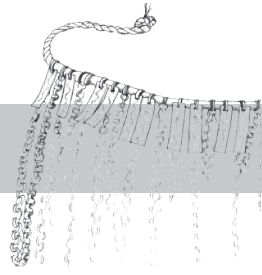
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The Iron Bride: Blacksmith, Iron, and Femininity among the Kapsiki/Higi¹

Walter E.A. van Beek

The bridal skirt

The time is near for Kwada to marry, and to move from her father's house to that of her bridegroom, Sunu. One day in April, Kwada's father Tizhè invites the wives of his other sons to prepare the *livu*², the iron skirt of the bride (Fig. 10.1a). Tizhè bought it some weeks ago from a blacksmith across the border in Nigeria where many things are cheaper, including these iron skirts. One goat, the price Tizhè has paid, is rock bottom. Less than one goat for the central piece of adornment of the bride would be stingy. Still, he is happy to have saved one goat as at his local market in

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1. The term Kapsiki/Higi is used to designate what I regard as a single ethnic group formed by the Cameroonian Kapsiki and the Nigerian Higi (van Beek and Avontuur 2005). Research on the Kapsiki/Higi has been performed from 1972 onwards to the present, starting with a 1½ year stay in 1972/3. The research has been funded by the Dutch Foundation for Tropical Research (WOTRO), Utrecht University, the African Studies Centre at Leiden, Tilburg University and various other sources.
 2. The following conventions are used in transcribing Kapsiki/Higi words:
 - d'* implosive d
 - b'* implosive b
 - ɛ* non-rounded vowel, like in 'help'
 - h* voiceless velar approximant
 - dl* voiced lateral fricative
 - tl* voiceless lateral fricative
 - rh* voiced alveolar fricative

Mogode he would have paid two. The last decade the skirts have gone up in price, and now, in 1991, two is the going price on the Cameroonian side of the border.

Yesterday evening Sunu, his future son-in-law, brought four jars of beer and told Tizhè that the wives of his clan brothers would come the next morning for the preparation of the skirt. On the morrow the women arrive, more than willing to do their part. Theirs is a simple but important job, and it is well remunerated as there is a lot to drink and the groom will give them presents. The skirt only needs minor modifications: a rope has to be replaced by a string of cow hide, and the number of small iron shields has to be rendered even, in this case reduced from 15 to 14. Of the six women present, two occupy themselves with the task at hand; another makes a bundle of bean fibers that will serve as the intimate “cache-sexe” of the bride. This is another important symbol of womanhood. When finished, the four oldest women, the bride’s mother’s sister among them, take a large draught of beer, and spit³ it over the *livu*: “You must repay the brideprice quickly, so conceive many children.” They then leave for the groom’s house in order to receive presents of food and to pester him for more beer. Later they will try the same at the houses of their respective husbands, Teri’s brothers.

While these last preparations for the “calling of the bride” are being made, the bride and the groom are each in their nearest blacksmith’s compound, having their heads shaved. That evening, the last in her father’s compound before marriage, the bride calls in her *mehteshi* (female companion or bridesmaid) and ties the new *livu* around her waist. Both set out for the well; the *mehteshi* washes the *livu* on her body; the bride washes also and then for the first time puts on her newly cleaned iron skirt.

The *livu* indeed is important, a central piece of adornment for the bride. She will wear it when called to her husband’s compound that very night, and on all festivities in the year to come until the following harvest season. During the *verhe makwa*, the next day’s bridal feast, she will wear nothing else. Her husband’s mother’s brothers will bless the marriage by blowing red beer over her body and her skirt. Later, when visiting her new father-in-law with a ceremonial gift of millet porridge,⁴ she will just wear the *livu*. At the closing days of the boys’ initiation, when the future brides (*makwa*) of the village gather on a mountain side for a two day singing festival which is the social highpoint of the wedding proceedings, their *livu* is again all that they wear. Just before going to the initiation mountain where initiation takes place, the brides go in a group to the chief blacksmith for their adornment. He fixes each brides’ coiffure, and makes two incisions on the left side of the belly that will later be turned into scarifications. The smith is paid through

3. Spit, blow over, or more precisely exsufflate or spray from the mouth. In the Mandara Mountains beer and other liquids are commonly exsufflated over people and things as a form of blessing or farewell.

4. The staple millet (*Pennisetum* and *Sorghum*) grains are ground and usually eaten in the form of a thick porridge or mush, less often as a gruel.

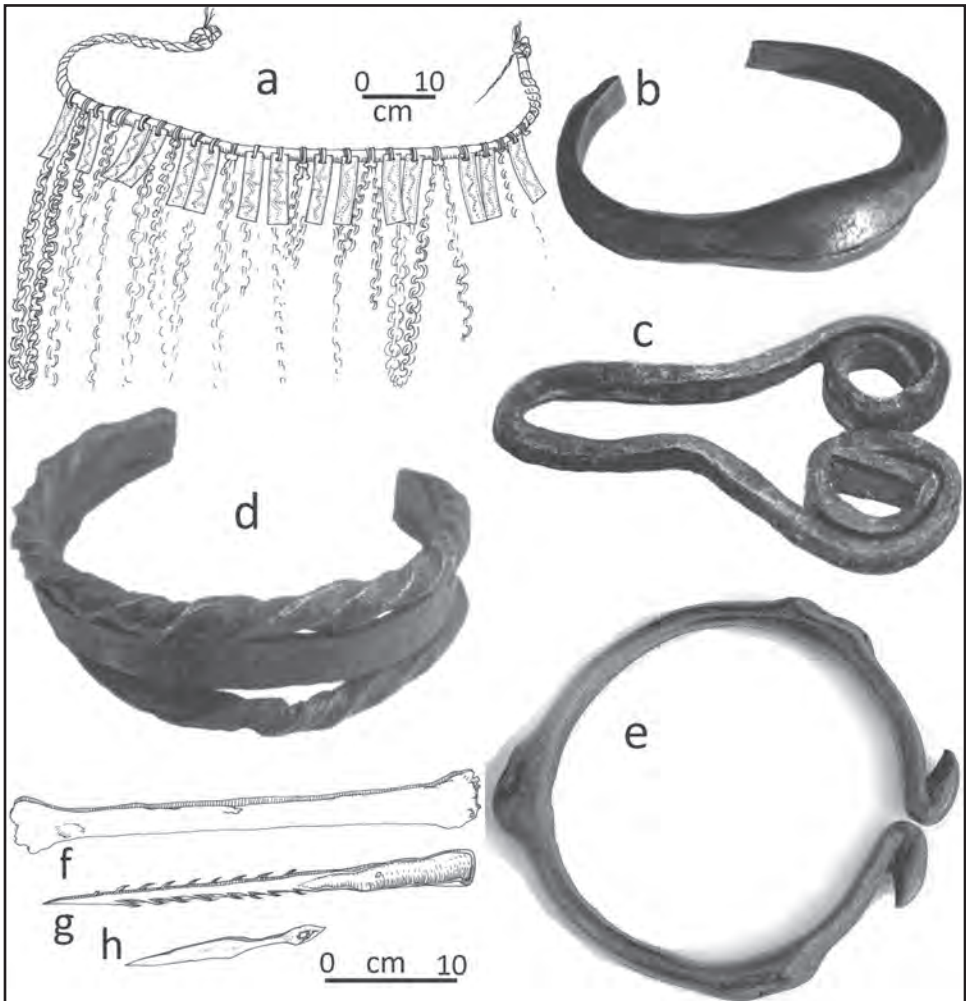


Figure 10.1. a) a *livu*, bridal skirt, as it is purchased, the cord to be replaced by a leather thong during the wedding proceedings, b), midwife's bracelet containing medicine for propitious births, c) an object classified with bracelets and used to "separate family", needed when bride and groom are too closely related, d) a *takase kwalerha*, twins bracelet, which has to be worn by both parents of any twin, e) a chief's bracelet with its characteristic three medicine chambers (for its brass counterpart – which is not used for actual medicines – see Fig. 11.5e), f) iron currency bar, g) lance head, h) smith's iron awl.

his wife; each bride gives her four iron beads from the string of iron beads around her bridesmaid's hips, as well as some millet porridge and meat.

The *livu* will be worn on several occasions during the wet season that follows the marriage. The most important is the *La* festival, the great harvest ritual at which both the new harvest and the new adults in the village are festively honored. For

the *makwa* this is the end of the complex sequence of marriage rituals, completing her transition to the status of fully married woman. The central ceremony for her is the presentation of her dowry. During the presentation of this gift of food and household utensils transported by her kinswomen from her father's to her husband's house, the *makwa* wears her *livu* without a pubic apron beneath (Fig. 10.2). And thus, when finally entering her new home as an adult woman, she is clad just in the skirt of iron chains.

Later in life, during any festive or ritual occasion, she will take the *livu* out of its chest, smear it with ochreous mahogany (*Khaya senegalensis*) oil, and dance with it. When her son is leaving the seclusion of his initiation period, she will honor him by wearing her *livu* (Fig. 10.3). As her son is born from the *livu*, as some Kapsiki women stated, so on his return from the bush he will be greeted with it.

The most common occasion to dance in her *livu* is the burial of kin. When mourning for a deceased clan member, male or female, or for her husband's clansmen, or for a friend's kinsman, she once again ties her iron skirt around her loins over her clothing. Now the skirt serves as a musical instrument; striking the skirt with a calabash she underscores the rhythm of the drums as the blacksmiths lead the dance to commemorate the deceased. At her own death, her daughter may inherit her *livu*, as she will not be buried in it. Rust will eat it, but at her funeral, about half a year after the burial, her daughter will wear it. If not too worn out, that daughter will use it as a second *livu*, wearing it under her own to dance in at her marriage.

This description stems from the early 1980s and a lot has changed since then, especially in weddings. From the late 1980s onwards the girls started to wear skirts under their *livu*, and gradually the bride's outfit became more modern. The present wedding liturgy is dominated by a huge feast of conspicuous giving, called *Amalea*, for which the brides are decked out in their finest dresses, as is their entourage. Gone are the various cache-sexes, gone are the various fibers of beans and grasses that completed their costume in the past. But the *livu* has withstood all these changes better than the other parts of the ceremonial costume: the *livu* is still there. At present (2009) the iron skirt is sometimes worn under a dress or even just carried inside a calabash. But anyway, even if the groom's *kwesegwe* (mother's brothers) no longer douse the bride with beer, they still spray their blessing of beer on the *livu*, as the iron skirt still stands for fertility in marriage, for the staying power of the bride, and of the deep and abiding interest of all clans concerned in the children she will bear (van Beek 2006).

Iron, bride and brass

The skirt is not the only iron worn by the bride. Iron bracelets (*takase*) adorn her wrists and sometimes ankles, and iron rings the fingers on both her hands. Her bridesmaid wears a girdle of iron beads, as does sometimes the *makwa*. Iron beads,



Figure 10.2. The bride clothed in just her iron skirt (left of center), is being accompanied by her female relatives to her husband's home, of course with appropriate gifts (Mogode, 1985).

according to Kapsiki blacksmiths, are among the most difficult forms to forge; as a consequence they are quite expensive, much more so than brass beads, which are cast using the lost wax technique (van Beek, chapter 11)

The iron costume of brides stands in clear contrast to that of the other sex, the boys that are to be initiated (van Beek 1991: 298). The *gwela* boys are initiated each year at more or less the same time as the brides' first marriage; the ceremonies are part and parcel of the same ritual cycle. In March/April the *verhe makwa* are celebrated, as described above, as individual feasts on separate days throughout that lunar month. The next month, the boys' initiation, *gwela*, is held, in which ritual the girls play an important, sometimes even dominant, part. For both sexes, initiation-cum-marriage is terminated by a joint rite in which boys and girls of the same clan together perform a ritual of acceptance of clan membership. The aspect of joint initiation of boys and brides is underscored by their performances in the village festivals at harvest, when they are honored in the great dances as the new adult members of the community.

So, given the similar ritual situation of boys and brides, the differences in costume are striking. The *gwela* wear a leather skirt, or rather a loinskin – if possible of a wild animal, if not of a goat – and are decked out with three different types of adornment: cowry shells (a band over their shoulders), fiber from a palm (*peha*, cf. *Phoenix reclinata*) around their head, wrists and ankles, and a fair number of brass objects (van Beek, chapter 11). He may add other adornments (strings of glass beads, old medicine holders decorated with red berries, and old “millefiori” glass beads) as he sees fit. The *gwela* also carries iron objects: his weapon, an iron spear, with an iron bell attached to it. At one point in the ritual the hairs of a ram are attached to the lance, a crucial symbol in the initiation proceedings.

Without going into details of the symbolism, differences between iron and brass are clear. The brides are decked out in iron, the boys mainly in brass. The difference between these two can be interpreted along the opposition between village and bush (van Beek, chapter 11), and indeed this contrast is clear and in a sense obvious. While both metals are of course products of smiths, brass is associated with the bush, *gamba*. The other ornaments of the boys have a strong link with animals, with the wild, and with mobility. The boys are decked out as wild warriors roaming the bush. In contrast, the girls' iron decoration points to stability, immobility and belonging, to defense against foreign intrusion, and in a way to cattle. So, in contrast to brass, iron seems to be associated with women and with femininity, especially in situations where a transition has to be effected. The girls have to be transformed into married women, non-fertility rendered into fertility.⁵

5. This gender aspect has been well elaborated by Herbert (1993), while Schmidt rightly insists on treating iron technology in its cultural matrix (Schmidt 1996: 11). The Kapsiki case shows that this also holds for smiths who forge but do not smelt.

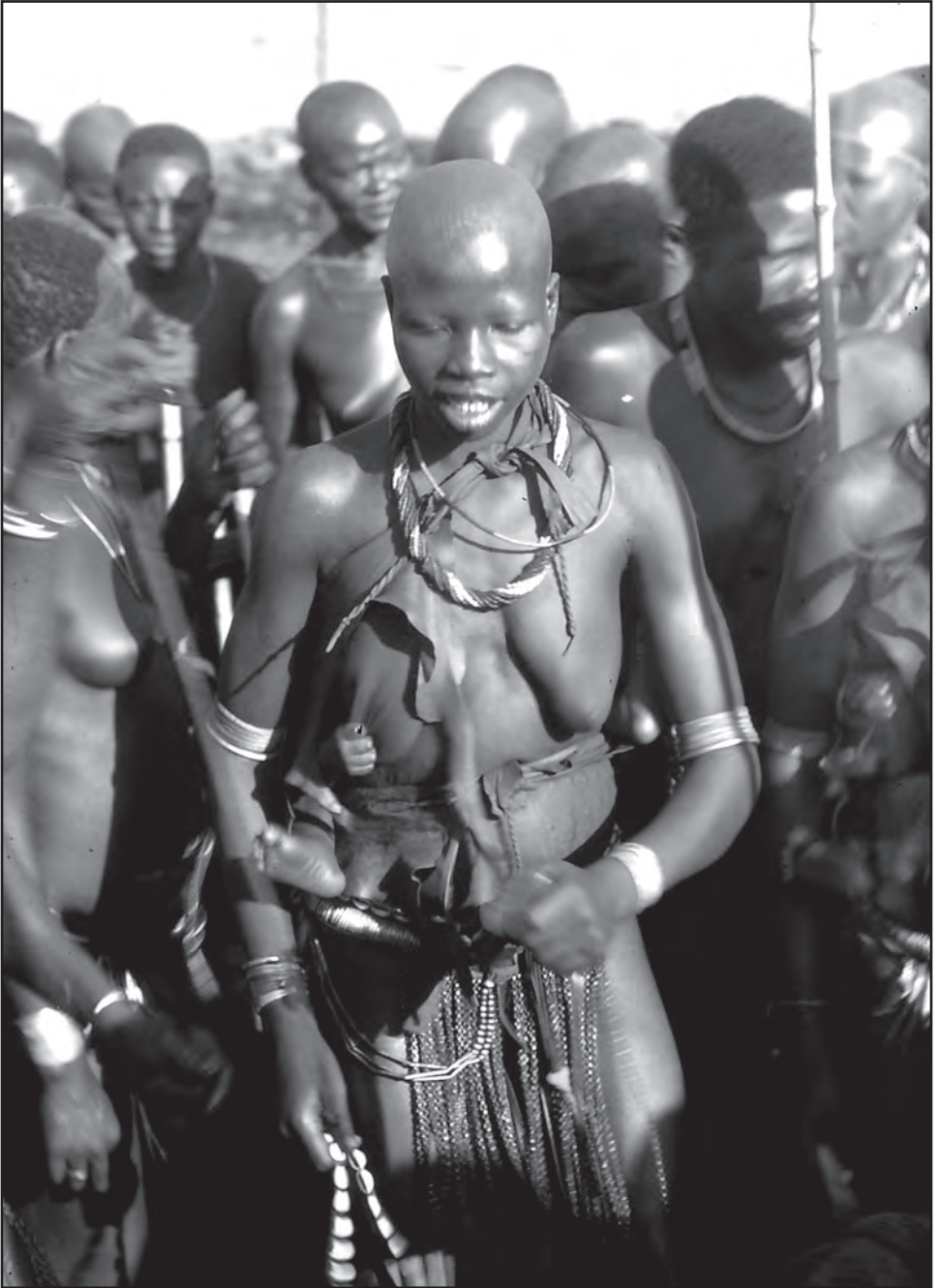


Figure 10.3. Clothed in her iron skirt and carrying the cowrie shell girdle of the *gwela*, the sister of an initiated boy awaits his return from the bush (Wula, 1973)

For instance, when Kwada, after all festivities were over and all guests except a few of Sunu's close friends had left, entered the hut her husband had prepared for her, it was time for *kwageze rhená*, the speaking of the words. A friend of Sunu brought two jars of beer, and Sunu seated himself on the doorstep of his bride's hut. From the inside Kwada threw her iron bracelet to Sunu, "Here are your things." He tossed it back at her. They both throw the bracelet once more, and then "start talking," implying verbal and later sexual intercourse. Outside the hut, listening to the proceedings inside, the friends drink the beer.

Later, after she has settled in with Sunu, Kwada will visit a friend of her father living near her new home. He is her second father (*yitiyaberhe*), who has to shield her from abuse, even that of her husband in her new surroundings. When she first renders him a visit, he presents her with an iron bracelet to honor the marriage. Later Kwada will offer him gifts of food, which he and his wife reciprocate with a return gift in household utilities. But it is the iron bracelet which seals the bond between them: after that gift she will call him "yita", father. Though the second marriages of women follow a very different pattern (van Beek 1987), this element is the same: the women marrying in after their divorce will have a "second father," who gives them an iron bracelet as an expression of this new relation.

The association of iron with the transformation of girls into fecund women is striking and calls for further investigation. Iron implements are of course not limited to bridal ornamentation; agriculture would not be possible without it, nor for that matter war. The fragile balance of health, especially of females, has to be protected and restored with the help of iron artifacts. The birth of children, in particular, and the risks and dangers in the transformation of adult to parent are protected by iron. Many iron objects are connected to medicine. Most medicines of the Kapsiki have to be stored in an iron holder, *mblaza*, or a bracelet (*takase*) forged to incorporate a small pocket for medicine (Fig. 10.1b). The effective medicine is in the pocket, but it is only iron that can contain it. Though brass holders are fabricated by bronze casting smiths, they are never used for medicine but just as ornaments: they never contain any real medicine.

The iron *mblaza* contain mainly medicines that protect against witchcraft, miscarriage and curses (*bedla*). Men and women wear them at their waists under their clothes. Iron bracelets with medicines often indicate special abilities and powers: a midwife carries a *takase* containing a piece of a dog's placenta; a smith woman's bracelet holds the collection of herbs that enables her to 'dig out objects' (see below); the parents of a twin wear a special bracelet (Fig. 10.1d), as does any young mother after a breech birth or when the child gets its first teeth in the upper jaw (*takase tlene pele rhu*). In fact, almost any danger connected with birth or children is averted either by medicines held in iron or by iron objects themselves. With their system of birth order names (van Beek 1982), the Kapsiki consider one of their offspring (the fifth) as slightly dangerous, both towards itself and for its parents, so

a *takase kwetere* is worn till the next pregnancy. Another object called *takase* is not a bracelet at all. If groom and bride are too close kin for comfort, i.e., part of the same clan but of different lineages, or if they are second cousins (van Beek 1987), a *takase kwamanehe menu* is made (Fig. 10.1c), a “*takase* to separate kinsmen,” in order to avoid bad luck for their offspring. Although described by the same term as bracelets, it is not worn as such, nor as a pendant. It may be carried in a pocket or pouch or simply left at home. The fact of its having been made is what matters and its symbolism is quite straightforward: the object counteracts the dangers inherent in the intimate social proximity of two people that have a prior intrinsic and structural connection.

Generally medicines used for and by women are carried in iron, especially in bracelets. *Rhwe* (a generic term for any medico-magical object) that are considered truly masculine are of a different sort, not embedded in iron and most often not worn. For instance, special “great medicine” offers protection against war, and when worn will prevent any iron object from entering the wearer’s body. Both protection against sorcery (*beshengu*, which is clearly distinguished from witchcraft, *mete*, in Kapsiki) and the use of *beshengu* – at least according to the stories told about the latter – involve no iron objects at all (van Beek 1994). Such objects are stored in cattle horns, leather, or pottery. Sometimes the medicine is simply wrapped in leather.

Iron is also wealth. Though the main expression of Kapsiki wealth is in cattle (van Beek 1998) iron has a role to play. Some of the womens’ bracelets are just that, iron, and as such an indication of wealth. Brass objects may also serve as status markers, in a slightly different way: brass is for “*fege*”, boasting, flashy objects that reflect riches and are not wealth in themselves. Iron limited purpose money used to circulate in Kapsiki society, and in a way still does. Most iron used to come to the Kapsiki area in the form of *duburu*, iron bars that are both currency and tool blanks. The bloom coming out of the furnace (see Fig. 5.7a and b), is forged by a blacksmith either near the smelting site (mainly Sukur in former days) or in the Kapsiki village. The metallic iron then is worked into foot long iron bars, called *duburu*, literally “hoe” (Fig. 10.1f). One bar constituted the amount of iron needed to make one hoe. *Duburu* are still used ceremonially in bride price payments. The groom’s mother’s brothers during the *verhe makwa* make a collection of money, but *duburu* should also be part of the transactions. Some smaller iron bars are added as well. According to informants, both the larger and the smaller bars had in former times a wider economic relevance, but the former extent of the use of iron as money is hard to establish.

In Kapsiki society iron has or had its political implications. As elsewhere in Africa, iron is associated with power. In the segmentary organization of Kapsiki villages, the accumulation of power is quite limited but still discernible. The village chief, *maze*, at his installation receives a chief’s bracelet, *takase maze*, with three medicine chambers in it (Fig. 10.1e); in some villages this is supplemented with an

iron staff (*geta meleme*, staff of the village). In Mogode, as in Bazza, a Higi village in Nigeria, the village chief used to receive this staff from the chief of Sukur after his formal installation in the village. For the Kapsiki of Mogode, the staff, kept hidden most of the time, symbolizes the importance of Sukur in iron production, which in their eyes gives Sukur some ritual pre-eminence. Thus, the iron staff symbolized both the power of the chieftaincy plus an accreditation from the outside. Again, iron objects are used mainly in the transfer of power, the transformation of an individual Kapsiki into an officeholder, in fact into a public *persona*, quite different from the habitually private orientation of most Kapsiki. Any Kapsiki taking on the responsibilities and authority of a headman, *maze*, is expected to become a different personality: self-effacing, modest, seeking harmony and always soft spoken, attributes not normally associated with a “*za*”, a “real man” (van Beek 1982).

Not all transformations are engineered with iron. Burial is an exception, a transition for which, by the way, smiths are responsible. Smiths are more central to burial than to any other ritual complex in Kapsiki culture (van Beek 1995). In fact their caste position in society has been attributed by some authors to their function as undertakers (Podlewski 1966, but see Sterner and David 1991 and chapters 4 and 9). Whatever the reason for their caste status, their part in these proceedings is dominant. They drum, dress the corpse, dance with it, supervise the digging of the grave, and actually bury the corpse. Afterwards they build the burial mound and perform the ritual of the funeral.

Here it is not so much iron that counts, in fact iron is notably absent in the ritual. Though mourning non-smith men may dance with knives – and the women always dance with their *livu* – the corpse is dressed with all kinds of adornments *excepting* iron. Sashes, scarves, porcupine quills, grasses, and occasional cows’ tails may adorn the head of the well dressed corpse, but no iron objects. The intricate clothing must remain attached of itself. Pins or needles may not be used although the smith responsible for the dressing of the corpse – in principle the chief smith (*mazererhe*) – uses an iron awl for sewing cloth over the corpse’s body (Fig. 10.1h), the head being adorned separately during the burial proceedings. Nor is the corpse, man or woman, buried with any iron implement or ornament. To dig the burial chamber in the stony ground iron-tipped implements such as digging sticks, hoes and adzes are used. When the burial has been completed, their wooden handles are left behind on the pile of earth after removal of their iron components.

Only once during the actual burial is iron used. When the corpse is half entered into the chamber, the chief blacksmith in charge of the burial cuts some fibers from the cord that keeps the corpse’s jaw in place, and ties these to an iron bracelet (a *takase kwetere*, made of a twisted strand of iron) that the deceased’s sister has given him. He then puts the corpse in its proper position in the chamber, and, emerging himself from the tomb, touches the left shoulders of the mourning family members

with this bracelet and fibers. They throw some earth in the tomb and leave the burial site. The next morning the smith returns the bracelet to the deceased's sister.

Thus iron is associated with transformations of a feminine kind, fertility being important among them. In a way, one aspect of initiation ritual seems to contradict this. The *gwela* each have an iron-tipped lance (Fig. 10.1g) from which an iron bell dangles. Though the lance cannot be denied a masculine aspect, these two objects also link the boy with the brides. When, leaving his parental house, the boy takes his lance and bell for the first time, the moment is called *kawume gwela* (to "marry the young boy," *wume* being the verb indicating the payment of brideprice). When all boys put their lances together just before performing their main "tests" of masculinity (jumping a ditch, pulling themselves up by their arms, and so on), again the term *kawume gwela* is used. The lances stay bundled together, without a further role in the proceedings.

In its aspect of wealth iron follows the flow of cattle in the marriage transactions; in the marriage rituals it is given to the groom, not to the bride's family, just like the cow of marriage. Offered by the bride's father, this animal is used to furnish the bride with all the paraphernalia she needs for the wedding and to represent the bride in many of the prenuptial transactions (van Beek 1998). As such, marriage presents a new kind of wealth to the groom, that of offspring. Kapsiki language distinguishes between two kinds of wealth, *ncelu* and *gelepi*, the former term referring to richness in material things, the latter to richness in people. Marriage, through the payment of brideprice, is precisely the transformation of the former kind of wealth, considered fleeting and unstable, into the other, the true and stable one.

Blacksmiths and iron

It is time now to turn to the blacksmiths, whose central product has been in focus but who have mostly stayed out of the picture themselves. The Kapsiki/Higi make a hard and fast distinction between the people who smelt and the ones who forge iron. The first are the "people of Sukur," as according to the Kapsiki, "all the people of Sukur smelt iron," which makes it not a smiths' occupation at all, as non-smiths (*melimu*) are numerically predominant (see David and Sterner 1996). It might be the former Kapsiki dependence on Sukur iron that makes them disassociate smelting so clearly from the work of the "real blacksmith" (*rerhe*). It is with the latter category of ironworkers that we are here concerned.

The blacksmiths of Kapsiki society are the object of a great number of taboos, pre- and proscriptions, and, from the perspective of the dominant non-smith majority, stereotypes, but they by no means form a homogeneous group. First of all they perform a variety of tasks and functions in society, filling many different niches in daily life. *Rerhe* are by no means exclusively blacksmiths; they perform divination, play many musical instruments, are undertakers, and are specially

knowledgeable about medicines.⁶ A small minority of them actually forge iron.⁷ Thus, it is highly debatable whether the gloss “smith” which we have been using so far, is in fact apt, as has also been argued for other mountain populations (Vincent 1991: 171). However, as we speak about the symbolism of iron here, the term “smith” will be used as translation for the Kapsiki term *rerhe*, and “blacksmith” for those *rerhe* who work in the forge.

On the basis of their various skills and specializations, the Kapsiki *rerhe* can be divided into three categories (none of which smelt iron!). The first group is associated with burial and drumming, the second with brass casting (see van Beek, chapter 11), and the third with the forge. This, of course, is all men’s work. *Rerhe* women have their own work and specializations, which are not distributed according to the threefold grouping of *rerhe* men. They all make pottery; in fact pottery in Kapsiki society is an exclusively *rerhe* women’s task. Among this pottery, most of which is of daily household use, are also the ritual pots men use in performing their offerings and sacrifices, pots that they receive in their first form during initiation. The smith women make these on command. In addition most *rerhe* women have one or more medicinal specializations. All but one of these involve cures for children’s diseases, ranging from the treatment of “fever” to small operations on the child’s anus. The one other cure is *kwantede wushi*, “the digging up of things,” involving one of the special bracelets mentioned above. In this technique objects or animals that have somehow found their way into the patient’s body (or have been introduced through the malevolence of a third party) are removed.

As a group the blacksmiths have a distinct place in society. The organization of Kapsiki smiths shows all the aspects of the smith’s position so commonly found in Africa: an endogamous group constituting a lower echelon in society, not adhering to non-smith food-taboos (van Beek 1982) and experiencing restrictions in social life (van Beek 1992, 2010). This special position is closely connected with craft specializations that on the one hand single them out, and on the other are jealously guarded by them. Politically they are marginal, if only because their numbers (5% of the total population) preclude a strong political base. Still, given the importance of iron, including formerly in political interrelations, one would expect the *rerhe* to be of significance in the connection with Sukur. Yet only the village chief was involved in this relationship. Sukur has developed into something of a myth in the Mandara Mountains, as a place people talked about as an extraordinary village with special powers. It is clear now that Sukur had neither the political dominance some older sources had claimed for it (Sassoon 1964, Kirk-Greene 1960), nor the

6. These specializations make them more interesting for tourists as well. Thus, several Kapsiki blacksmiths, especially in Rumsiki and neighboring villages, gain some additional income from tourism, by performing as diviners or by selling their products (van Beek 2003, and chapter 11).

7. But that metier is fading, being replaced by imported iron and utensils made by smiths from the large centers (David and Robertson 1996 and chapter 6).

cavalry to sustain such a political clout (cf. Seignobos 1987), but was more of a standard mountain village with some striking economic and architectonic features (Smith and David 1995; David and Sterner 1995, 1996). Still, for the Kapsiki of Mogode, the name of Sukur purveys the sound of ancient times, with some of the magic of iron attached to it, as a point where the smiths gathered after coming from the – even more mythical – Mcakelè, or Gudur. These mythical properties notwithstanding, both places are in fact quite close to Kapsiki territory.

Smith and femininity

A set of stereotypes defines the smiths as different from other Kapsiki. First of all, smiths are considered dirty, both by virtue of their divergent food habits and their role as undertakers. The *rerhe*, in Kapsiki eyes, distinguish themselves more than anything else, by their food: “they eat everything.” In fact, the smiths, from whichever group, do not heed a series of food taboos other Kapsiki consider essential. They do not shun the meat of reptiles, donkeys, camels, horses, predators, birds of prey, carrion birds, bats, cicadas, and certain other insects (including the woodpecker, which is considered an insect!). This package of taboos has been analyzed elsewhere in terms of the self-definition of smiths within their society as undertakers, musicians, and marginal specialists (van Beek 1982).

In addition to these issues, the smith is considered dirty and smelly through his connection with death (van Beek 1992; 1995, 2010). One of the burial customs, burying on the third day after death, accounts in large part for this stereotype. The *melimu*, however, feel that the eating habits of the smiths explain their “filthiness.” No non-smith will ever eat at a smith’s home while a smith who eats out at a non-smith’s house has either to take his own utensils (the smiths carry a special cap to drink from when drinking out (Fig. 10.4), or he is given a discardable potsherd to drink and eat from. Similarly, smith women who brew beer can sell it only to their kinsmen, for even the beer from a smith-woman is dirty. Smiths are considered dangerous; they carry a power that can be threatening (van Beek 1994). One source of their power is their expertise in medicine and magical knowledge. The close association with death not only taints them, but also endows them with the ambiguous power of the other world, so that they are held in some awe by the *melimu*. Cunning (*ntsehwele*), an important quality in Kapsiki thought, is also an attribute of smiths, and a crucial aspect of the Kapsiki concept of agency (van Beek 2007). The *rerhe* are thought to be more cunning than non-smiths, the latter always feeling that the *rerhe* lead them by the nose, tricky and resourceful as they are. In folk stories the ground squirrel (*meke*), embodies cunning in its eternal struggles with the mighty panther. Indeed, when the talk is of smiths they are often likened to the squirrel, which is considered not as cuddly as it is in the North. The African ground squirrel is quite aggressive and has a vicious bite which, though small, easily leads to serious infections. Among the many Kapsiki idiophones, one –



Figure 10.4. Chief smith Gwarda wears the traditional coiled basketry cap used by smiths for drinking at non-smith homes.

mbiye – specifically refers to the biting action of a ground squirrel. One of the main smithing tools, the tongs, is called *meke*. Combining danger and cunning results in secrecy and ambivalence. For the *melimu*, smiths form a closed society, a world within their world. Whereas the affairs of the *melimu* may be matters of privacy, those of the smiths are imbued with secrecy. A certain sense of irresponsibility is part of this picture: smiths cannot be trusted with public affairs or representations of the public good as “one never knows what a smith will do”.

In the economic as well in the ritual sphere smiths are quick to accept new developments. A highly pragmatic attitude makes for easy adoption of new techniques, smiths’ social marginality seemingly rendering them receptive to innovations that often open up new avenues of social mobility. One instance was the arrival of Catholic and Protestant Christian missions. In the early phases of both, their churches quickly filled up with *rerhe*, but after that initial success recruitment faltered as *melimu* became hesitant to enter these smith-associated institutions. Not until much later did the missions succeed in eliminating this stigma.

Even in a society with a clear-cut working ethos, the smiths stand out as hard and indefatigable workers. Their hand is never idle, their work never done. Smith women have all the normal tasks of a Kapsiki woman to perform, plus their pottery and medicinal specializations. The men farm as much as they can in addition to their various crafts. When the fields are cleared by communal work parties, the smiths

take pains to be exemplary laborers; for one thing, when their *melimu* friends reciprocate the work, they cannot receive any food prepared in the smith's compound. Smiths' internal discourse is full of admonitions to work hard, harder than any non-smith. Laziness is considered a valid reason for divorce among smiths, while for *melimu*, among whom divorce is far more frequent and who cite lots of reasons or excuses for the termination of a marriage, laziness is never mentioned. One reason for this view of the smith might be that their work is less dependent on the seasons than that of the male *melimu*. Most of their products are needed throughout the year; for example, leatherwork, a specialization of most smiths, is not season-bound.

One last attitude is the notion that smiths do not get angry as quickly as other Kapsiki. Quick to take offense, non-smiths have a standard of verbal aggression that is not met by the smiths who are considered calm, aloof and out of the fray. Of course, being the masters of magic, they are easily suspected of settling their disputes in secret through their medicines. But they should not fight, and formerly did not participate in wars directly, but only by furnishing weapons and poison. In disputes their social role is to clap their hands, asking for silence: "If there are no *rerhe* present, people never stop talking."

Two aspects of the social characteristics and stereotypes of the smith are particularly striking. First, in many ways the position of the smiths is that of a non-adult, someone neither responsible nor accountable, and though he is considered unreliable this cannot be held against him. Smiths are "children of the village." In court cases or any official function they are neither expected nor allowed to answer for themselves: a non-smith will represent them. Second, the smith stereotypes and social characteristics resemble in many ways those of women. They too, are considered unclean and – at times – dirty. Of course, *melimu* women heed the usual food taboos. But even in this society which is not overly concerned with menstruation, some pollution emanates from the monthly period. Cunning, *ntsehwele*, is attributed to women as well as to smiths. According to men, women are always ready to fool their – and others' – husbands. No man can ever fully trust a woman, both because of her inherent (according to men!) unreliability – just like the smith – and because of her cunning. Though men try to hide things from their wives, they acknowledge defeat in this arena. Women also resemble the ground squirrel. In effect, the concept of *ntsehwele* can be analyzed in terms of its use as a minority strategy (van Beek 2007). Women share with blacksmiths a social minority position. In other aspects, the easy uptake of new possibilities and the ethos of hard and steady work, there are also similarities between women and smiths.

Two related differences stand out as well. Women get angry as quickly as men (all parties agree on that) but they do not voice their anger in the same public manner. In that they act more as smiths are deemed to do. However, they are not considered dangerous in the same way and the basis of their power is different.

Theirs is the reproductive power, and the curses women can utter are always tied in with that power and only threaten direct descendants.

Women are closely linked with the smiths. For their problems they resort much more than men to the services of the *rerhe*. Women are the main clients of the smith-diviner and of the smith-herbalist. Men rely more on their sacrificial pots and on protective measures that do not depend on smiths; women turn to the smith especially with problems relating to fertility and child bearing. So in many ways women and smiths present the same picture, but with some inverse aspects. Neither participates fully in the public men's world, but both have their own world well separated from others' eyes, their own secrets, and their own strategies to protect their private spheres. But women are the new life, whereas smiths represent death. They are each other's ritual inverse, and as such need each other. The fertility of women demands the constant attention and the protective and healing powers of the very people closely associated with death. The smiths are the feminine category that holds power of and against death, just as women can give or withhold life. Brides are decked out in iron, and with her *livu* the power of the smith becomes part of her procreative powers. The *livu* serves both as a bridal skirt and as a musical instrument accompanying the instruments of death, the smiths' drums. Together, the feminine smiths and the iron ladies hold the very powers that the men, despite all their public dominance, in their own discourses obliquely avow never to be able to achieve, those of the beginning and ending of life.

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A Touch of Wildness: Brass and Brass Casting among the Kapsiki/Higi¹

Walter E.A. van Beek

The metal in between

“It cannot be true,” my assistant Sunu said, “There is something in between! It is not the wax that turns into brass, another metal is involved!” He had just witnessed, and for the first time in his life, Teri Kwafashé, the smith of Hya just south of Rumsiki (Rhoumsiki), cast a small shafted bell in brass (Fig. 11.5f).² Like all non-smiths Sunu had believed the wax was itself transformed into the shining yellow metal the Kapsiki/Higi use for their ornaments. He commented: “Nobody ever sees it, it is always far away in the bush; only tourists and smiths (*rerhe*) ever see it.”³ We know that they use wax, and we see the objects; we never knew the smith puts in some metal himself.” As bees and brass are both called *mnze* in Kapsiki, this misunderstanding is not so strange. What is characteristic is the hidden nature of the process of brass casting. While not a secret, it is practiced out of sight and by a very few specialists. As usual, hidden things are less esoteric than imagined; of course there is an intermediate material, the brass used to fill the mold.

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1. For the term Kapsiki/Higi and the history of research see chapter 10.
 2. Teri (not the same man as the bridegroom of the same name in chapter 10) casts brass but does not forge or “smith” it. I refer to him and his colleagues as smiths primarily because the Kapsiki/Higi apply the term, *rerhe*, to all casted specialists only some of whom forge iron and are blacksmiths in a technical sense. Brass is an alloy of copper and zinc. The bells Teri made contained about 70% copper and 25% zinc with 5% other metals and impurities.
 3. The conventions used for transcribing Kapsiki/Higi words are described in chapter 10.

We had driven to Hya and Teri was making a small bell for us, one that would be used for the *gwela*, the young male initiates. Brass casting is very much a family affair. Teri immediately took us out of the house, some 200 meters into the fields, well out of sight of people's homes, to show us his simple furnace standing only some 40 cm high in the middle of the field (Figs 11.1a and 11.2a). At the compound his wife Masi warmed some beeswax (*deke*), over the fire and brought it with other paraphernalia to her husband at the furnace. Teri took a small convex wooden plank (*ndlu visu*) from her basket and started modeling the wax (Fig. 11.2b). He first rolled half into a long thin thread, the basis of all wax figures, and cut the other half into thin strips of rectangular cross section. His wife in the meantime mixed some lateritic clayey earth with chopped twigs of *Hibiscus cannabinus* (kenaf, *zhingweli*), the plant the Kapsiki/Higi use to reinforce their adobe granaries. She explained to me that she had to use the "red" earth as a cast of black earth would break in the fire. A pinch was rolled into a ball that would become the hollow center of the bell, and, after drying by the fire, Teri covered it with a layer of wax, fixed one of the strips to it which would become the stem of the bell, and wrapped the wax thread around its lower half.

He then proceeded with the most characteristic technique of wax modeling: the thread was wound in a flat spiral, which was then cut into two; each semi-circle would form one half of the upper part of bell. This technique is often used in decorating objects here and elsewhere in West Africa (Fox 1988). The bell stem was decorated with pellets of wax, and one last strip of wax was made into a circle and fixed on the stem, to become the ring. His wife had already mixed the clays needed for the mold. With great care Teri covered his wax model with wet clay, first with a thin layer of a mixture of very wet clay and termite earth, then with the red clay with fiber temper. At the top he formed a cup into which he would pour the molten brass, using a straw to preserve a duct into the mold, while Masi baked a small ceramic crucible in the fire to hold the pieces of brass. Masi then used a large sherd to hold the clay-covered mold over the fire, carefully heating it on all sides. When the clay was well baked she held the mold upside down and caught the molten wax as it poured out, and finally, Teri placed pieces of old brass into the crucible she had made, and with some wet clay attached it to the mold: ready for casting.

After his wife had charged the furnace with charcoal, Teri tied the bellows skins to their pots, lit the fire with some embers, set the mold in it upright with the crucible containing the brass fragments at the bottom, and started the rhythmic bellows beat that characterizes a good smith. Within half an hour the temperature had risen sufficiently, as evidenced by a yellow-red glow of the crucible by now containing molten brass. With his *meke*, the same tongs an iron smith uses (the word also means ground squirrel), he took the glowing mold, shook it gently and in one smooth movement turned it upside down. Then, removing it from the furnace, he carefully sprinkled water over it to cool it slowly. He then broke open the mold,

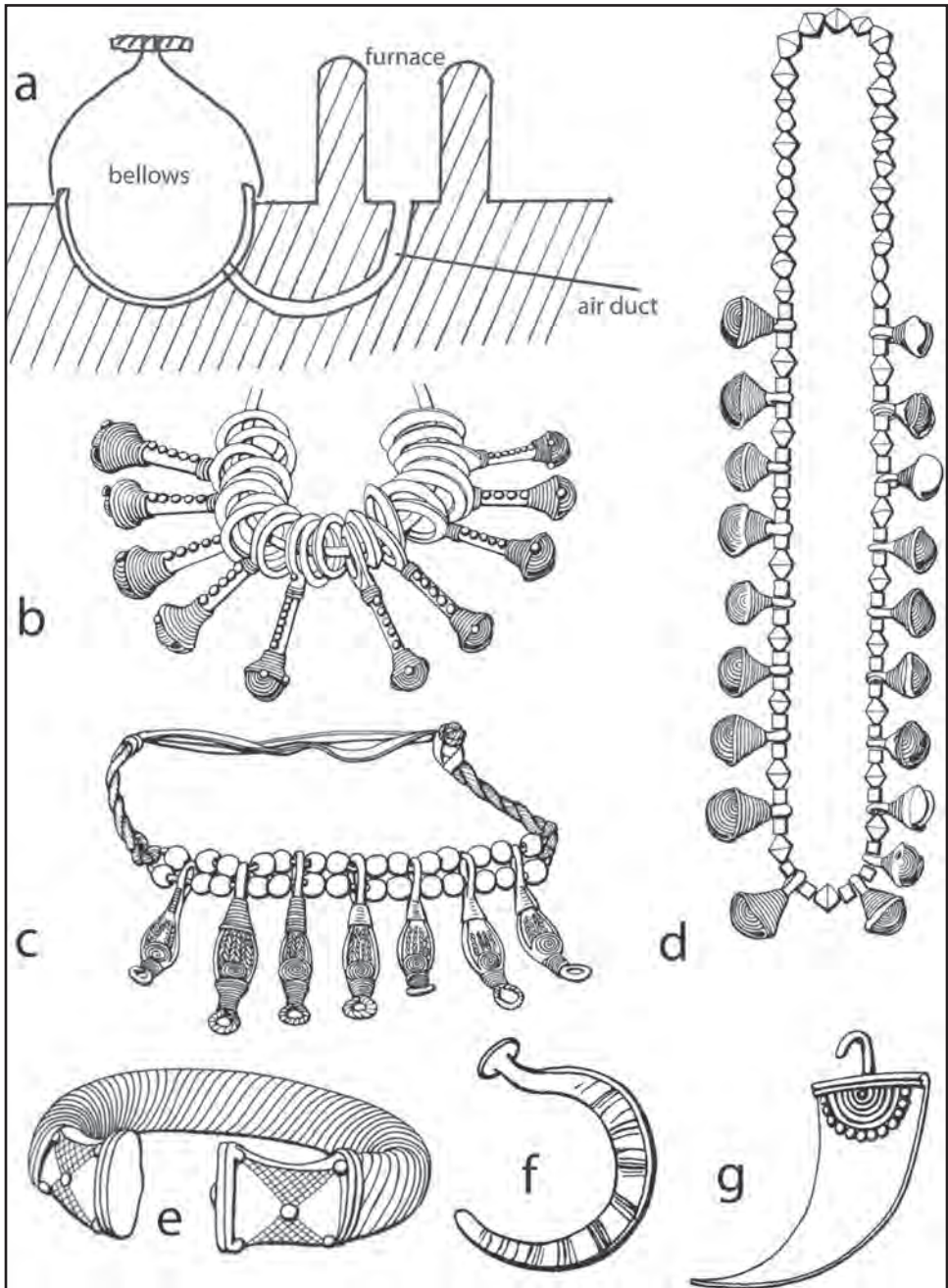


Figure 11.1. a) cross section of brass casting furnace some 40 cm high, b) a string of bells, like the one Teri cast, c) string of *jεpinεwu*, d) necklace, e) bracelet, f and g) lip ornaments, all of brass. Drawings b-g by Gisela Wittner are reproduced from Wenté-Lukas 1977 with the permission of her heir and Franz Steiner Verlag. All other drawings and photos are by the author.

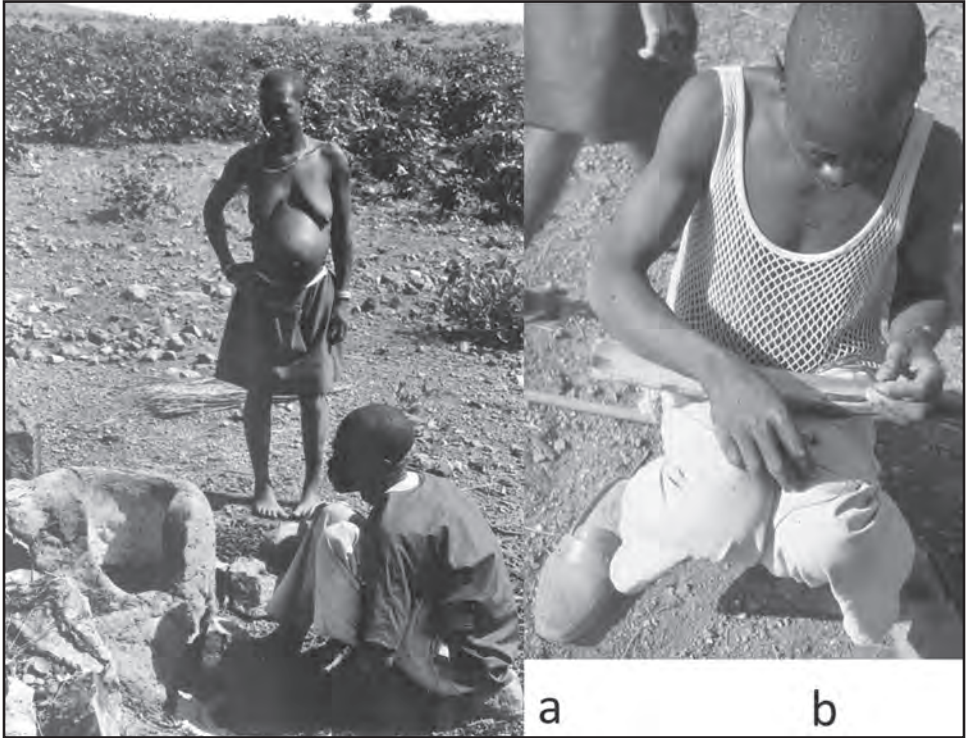


Figure 11.2. a) Teri Kwafashé and his wife Masi at the brass casting furnace, 1973; b) Teri using his wooden board to model the wax.

and sprinkled water over the cast before submerging it in water. After breaking off the infilling of the sprue at the foot of the bell through which brass had entered the mold, Teri filed away irregularities, scraped the baked clay from the bell's interior, and put a piece of iron in it to serve as a clapper. The piece was complete.

From brass, what?

Brass objects, known in the tourist trade as “Kapsiki bronzes” are mainly for decoration. Copper is used in its pure form mainly for bracelets, but people prefer the yellow color of brass. Aluminum is also occasionally used for ornaments. In fact, only a limited number of objects is made in brass. They come in three categories, the *wushi fege* (status objects, literally “things to boast about”), women’s ornaments and *mnze gwela*, the brasses worn by male initiates (see below). The first category includes the most expensive and spectacular objects. The largest and most valued of all is the brass dagger with a short iron blade in a brass sheath (Fig. 11.3b). The iron blade is usually not even sharpened, and drawing the small knife from the long sheath is an anticlimax indeed; it is meant to stay inside! Just as rare – and expen-

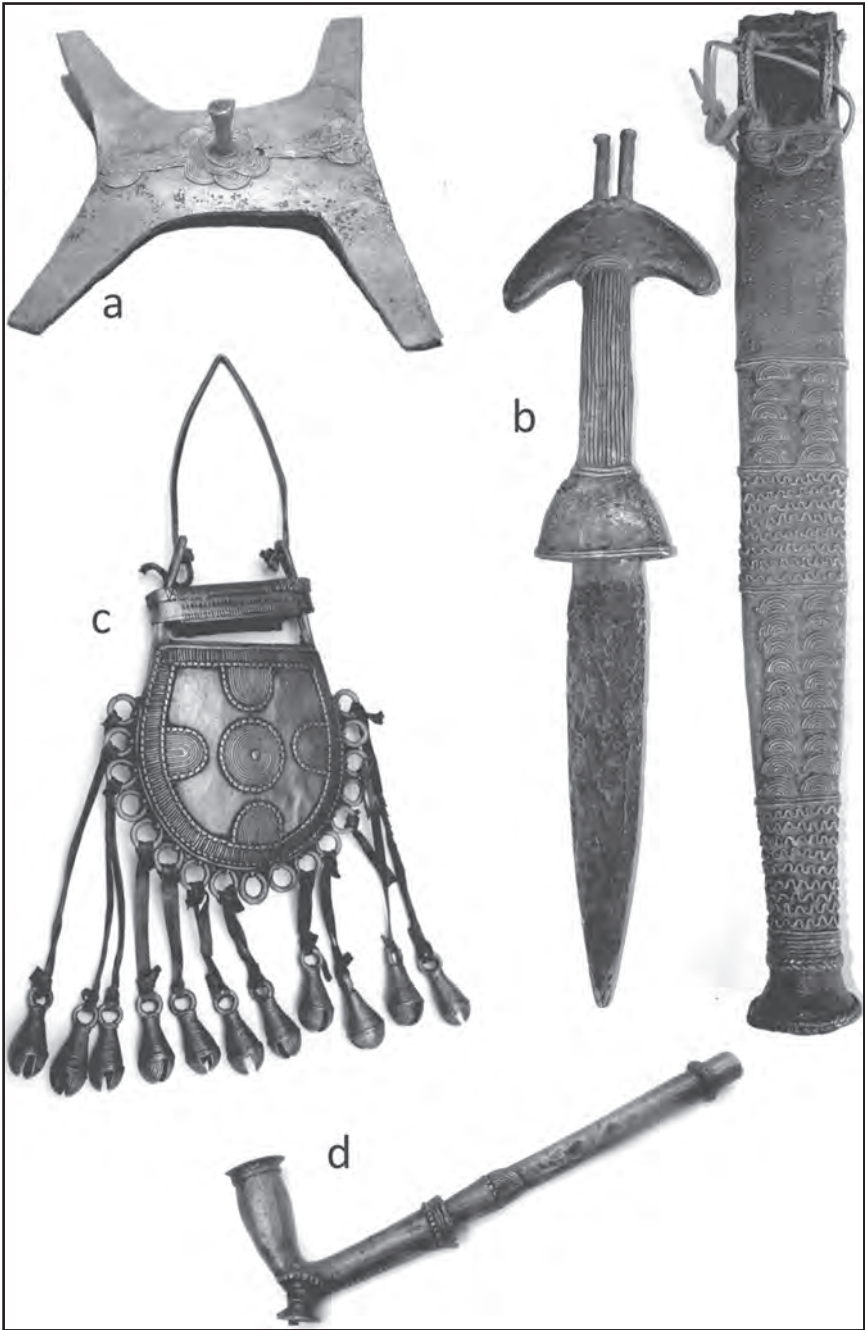


Figure 11.3. Kapsiki/Higi brasses: a) *matlaba*, b) dagger and sheath (total length 58 cm), c) pouch (40 cm. from top to bells), d) pipe (28 cm long).



Figure 11.4. Kapsiki/Higi brasses: a) goblet (height 13 cm), b) calabash.

sive – is the brass goblet (Fig 11.4a). Other objects in this category are the brass pouch (Fig. 11.3c), a metal replica of the habitual leather Kapsiki/Higi pouch, and special bracelets, such as the one illustrated as Figure 11.5e, plus also for the happy few, a brass pipe (*kwelea*) (Fig. 11.5d), medicine holder (*mblaza mnze*) Fig. 11.5a) and tobacco phial (*tereme mnze*) (Fig. 11.5d), of which the last two are also used during initiation.

The second category consists of women's ornaments. The majority are bracelets, rings, beads, bells and some other decorations, of the following sorts:

- takase*, bracelets of various types (e.g. Fig. 11.1e),
- jegeda*, necklaces of various kinds (e.g., Fig. 11.1d)
- hyawhyaw*, an idiophone, a ring with a small bell attached,
- gezhi*, the general term for beads whether of brass or glass,
- teli wudu*, a bell attached to a short shaft (Fig. 11.5f) ,
- jεpinεwu*, a special girdle ornament worn by women (Figs 11.1c and 5b), and
- tyawtyaw*, various types of lip ornaments (Fig. 11.1f and g).

The third and for our purposes most revealing category has to do with initiation. The *gwela*, the male youths undergoing initiation, are decked out in an array of decorative brass objects, the *mnze gwela*:

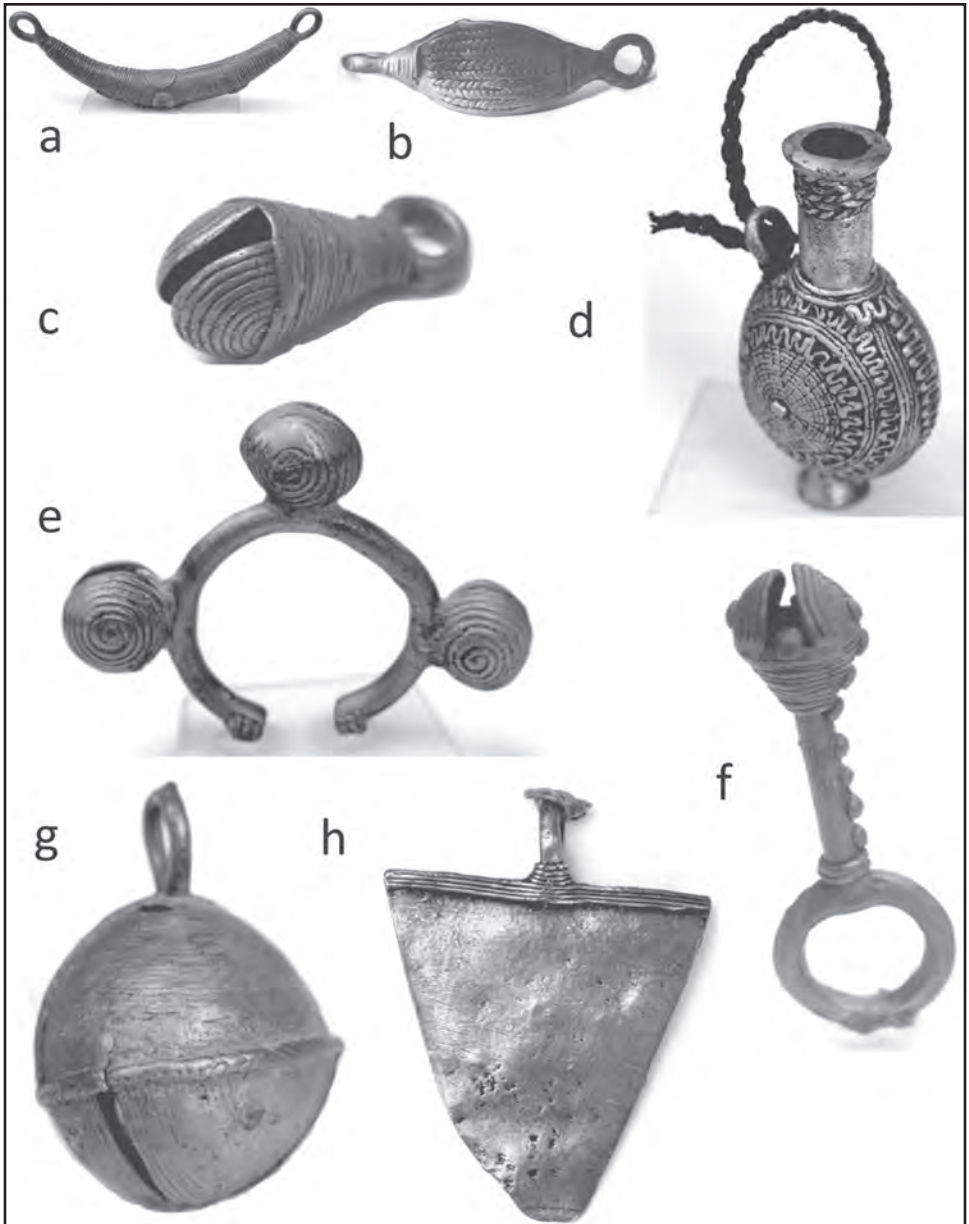


Figure 11.5. Kapsiki/Higi brasses: a) medicine holder (12 cm); b) single *jEpinEwu* (4 cm), c) small bell (4 cm), d) tobacco phial (body 7 cm long), e) bracelet with medicine holders, f) shafted bell (*teli wudu*), g) *cinci* bell (7 cm), h) *paya* (8 cm).

mblaza mnze, a brass medicine holder (see Fig. 11.5a, though often smaller),
sebe, a small triangular upper arm decoration,
matlaba, a four corned hip plaque, worn by young assistants of the initiates
 (Fig. 11.3a),
kwahweteze, a 2 cm broad brass bracelet
paya, a small triangular decoration worn on the forehead (Fig. 11.5h)
tokwu, a round disk representing a piece of *Bos* frontal bone,
ngkwini, a small bell of the type made by Teri (Fig. 11.5c), and
cinci, a larger bell (Fig. 11.5g).

Brass and the bush

What is the position of brass objects in Kapsiki/Higi world view? Iron has a strong association with the village, with the fertility of women, with permanence and with the authority of the patrilineage (see chapter 10). The forge is central in the village, a public place where people meet, have their hoes repaired, chat and watch the blacksmith perform his fascinating work. Iron is for war and women, for brides who should not leave the village, and for the men who like to think they command them; thus, iron is indispensable in the scheme of Kapsiki values. Brass is a quite different matter. First, it is used in the form of status objects by those who wish to distinguish themselves from their peers. The same holds to some extent for women; brass is the preferred metal for ornaments for adult women, for those who are no longer brides and who wander and adorn themselves at their own sweet will.

It is in this context that we should consider the brass ornaments used to deck out the *gwela*, the youths undergoing initiation. It is after they have been separated from their kinsmen during the first phase of the initiation that they start to wear brass bracelets and the other paraphernalia noted above. During their initiation they are “like bees,” roaming everywhere in the bush. Decorated with brass and armed with spears, they accost strangers coming into town to ask for a contribution to their beer fund. Thus, the main association of the *gwela* is with the bush, *gamba*, the wild and uncultivated environment where wild animals roam (or rather roamed for most have been hunted out), where enemies lurk(-ed) and where *gwela* have to roam each night from the first month of their initiation (April) till their festive reintegration with the village at the end of the cultivation season (December).

Let us have a closer look at the outfit of the *gwela*. Not only brass decorates the boys; they also wear cowry girdles, grass head decoration, rooster feathers, strips of a palm (*peha*, cf. *Phoenix reclinata*), necklaces of red glass beads, and are armed with lances and shields. Many of these items are seen in Figure 11.6. A special headdress with rooster feathers (Fig. 11.7), singles them out as future compound chiefs (the *ngulu rhe*, the main rooster of the compound is an important symbol in Kapsiki/Higi religion), their other decoration as rich men and successful warriors



Figure 11.6. The 1973 male initiates of Mogode, four with *paya* ornaments on their foreheads

(van Beek 1987). They are masters of the bush and it is only fitting that they wear the most special brass accouterments. These signal wealth, success in hunting and war, and throughout an ostentatious presence. In ritual and especially in individual magic, both protective and aggressive, the effectiveness of brass objects is much less than that of iron; for real protection iron medicine holders should be used, not brass ones. Interpersonal as well as magical power are associated with iron, not brass (van Beek 1994).

So brass has an association with wealth and distinguishing oneself from others, but foremost with the bush. Brass is bush matter, just as bees cannot be domesticated (according to the Kapsiki) but live in and from the bush, bringing the riches of the bush home to their hive, which, in Kapsiki, are seldom man made. So the location of the brass casting furnace is fitting and right; it has to be in the bush, and not in a cultivated field but in a spot never cultivated. The relation of brass to cultivated cereals – with which iron is very evidently associated – is ambivalent. The brass caster can be called upon for a ritual to protect against crop theft or crop parasites, but if during the process of casting the metal the smith should come into contact with crops in the fields, that year's crop will not *serhe*, will not be plentiful. Although it will appear a lot in the granary, it will mysteriously diminish, disappearing from sight. Brass makes the harvest "boast" with a false appearance of riches. As a consequence, people who cultivate do not wear brass in the field, although iron rings and bracelets may be worn; brass does not mix with food.



Figure 11.7. A fully decorated initiate wearing a headdress with rooster feathers gets his blessing standing in the opening of the wall of his father's compound.

Finally, brass should only be cast during the dry season after the harvest, which happens to fit in nicely with tourism.

When explaining the particular outfit of the gwela, the Kapsiki stress that the boy is now the real *katsala*, warrior, and a rich one at that. His goatskin defines him as an adult; the cowry shells form a general decoration for any festive occasion, even if they lack the specific connotation with money they would have further to the African West. Informants distinguish between the brass objects and the other decorative elements, singling out especially the *peha* palm and the cowries. There is a persistent story that this part of the outfit came from heaven; during an initiation during the days of their culture hero Hwempetla, people told me, a man fell out of the sky clothed in just cowries and *peha*. He was dead, of course, but since then the Kapsiki added both to their initiation outfit. The *peha* bears a connotation of liminality; for instance twins continuously wear them. The implication is that the brass elements are older than the *peha* or cowries, and that is just what informants confirm. This would mean that the brass – iron distinction would be older than the other decorations. Of course, everything of the past is routinely attributed to Hwempetla, but the relative age might be correct. Whether brass objects in the past were made of iron is a disputed topic, but at least for the *matlaba* (Fig. 11.3a) that seems to be the case. First, during my last visit in 2009, the brass smith showed (and sold) me a very old *matlaba* in iron, and explained that it was the older form. My assistant later doubted this, and thought the brass object was older. I am inclined to give the smith credence, also because of a technical consideration: actually, the form of the *matlaba* is very much one that easily results from forging iron bars. Brass objects are commonly imitations of objects in other materials, such as the wooden tobacco vial, the leather sac, the wooden pipe and the iron medicine vial.

Smiths of all sorts

In her distribution map of lost wax casting, Renate Wente-Lukas (1977: 286) showed the very uneven diffusion of brass casting in northeastern Nigeria and northern Cameroon. While widely practised in the plains south of Lake Chad, it is not practiced in the northern Mandara Mountains by any montagnard group north of the Kapsiki. The concentration of the craft is to be found along the border, reaching south to the Vere of the Alantika mountains. The majority of groups in the area do not know the technique (although some may have lost it from earlier times). The southwestern part of the larger Mandara region is inside this diffusion area, from the Kapsiki/Higi south to the Cameroonian Fali just north of Garoua and to the Bata northwest of Poli. This pattern of distribution has little to do with the availability of ores as most of the brass is imported from the south, at least so far as the Kapsiki brass smiths know. As for the provenance of the metals needed, copper and zinc, the smiths simply state that they obtain their material ‘from the

south'. And they obtain it as an alloy already, in the form of other brass objects, usually from other smiths down south.

Though Wente-Lukas shows the whole Kapsiki/Higi ethnic unit⁴ inside the brass casting area, the actual dividing line of the distribution runs through *le pays Kapsiki*. The northeast has few brass casters, while the southwestern part has both iron and brass smiths. Throughout iron is far more important economically and ritually than brass, but brass has its place in the ritual palette. The allocation of the many tasks smiths perform are more or less divided along the lines of brass and iron smiths. In fact, when considering the clustering of smiths' crafts, i.e. iron forging, brass casting, burial, drumming, medicine, divination by various techniques and playing musical instruments, three groups can be discerned.⁵

The first is the cluster around the *mazererhe*, the chief blacksmith, who is a central ritual figure in the village. As a close colleague of the village chief, he performs all tasks directly related to burial (Fig. 11.8). The chief smith is himself responsible for most of the burial rituals, while an older kinsman will be "chief of the grave" and direct the grave diggers (sisters' sons of the deceased). His younger kinsmen lead the drums in the funeral dances, and in between funerals play the guitar or banjo at various gatherings (Fig. 11.9) (van Beek 1992a).

Table 11.1. Craft and other associations of the three groups of smiths (van Beek 1991)

	CHIEF SMITH	BRASS SMITHS	IRON SMITHS
Primary craft or professional responsibility	burial	brass casting	iron forging
Origin	Sukur	Gudur (Mcakele)	Sukur
Ritual responsibilities	rites of passage, village year rites, village sacrifice	rites for crop protection	individual protection magical implements
Divination	crab	pebbles, <i>kwahe</i>	crab
Musical instruments	drums (especially at rituals); guitar and banjo, one-stringed violin	few: drums, one-stringed violin	guitar, flute, one-stringed violin (non-ritual occasions)

The second is the small group, to which Teri belongs, of *rerhe* claiming a Gudur/Mcakele origin, who cast brass and who may drum but do not play the guitar or the banjo. Their techniques for divination differ from the others in that they do not practice crab divination but pebble geomancy and a peculiar vocal

4. See also Wente-Lukas 1985.

5. For a general, if dated, overview of possible positions of blacksmiths in West Africa, see Schmitz-Cliever 1979.



Figure 11.8. The chief smith performing a burial rite.

divination technique called *kwahe*.⁶ They may perform rites against crop theft and sorghum parasites during or after the cultivation season, and play the drum during burial.

The third group of iron forging *rerhe* are mostly absent in burials, the most visible of all smith's endeavors; they do not drum (the prime instrument of funerals) though they may play the flute or the guitar. They perform divination by crab, the classic Kapsiki form of mantic performance.

The practice of medicine and playing the one-stringed violin are open to all *rerhe* but medicinal specializations differ by group (van Beek 1991: 290). So, what we have inside the smith group is a division of tasks that pertains to the various fields of the Kapsiki/Higi religion. The main communal rites, such as the rituals surrounding initiation and marriage but especially death, ask for a crucial involvement of the group of smiths around the chief smith, who perform a variety of tasks, like leading the initiates on their journey through the village, or introducing the

6. The *kwahe* is a mythical bird that supposedly tweets in a dark hut; the smith then interprets the tweeting in conversation with the client.



Figure 11.9. Coins stuck on his forehead reward an iron smith for his praise singing.

brides to the sacred mountain, or adorning the corpse for burial. Without them the rites of passage are unthinkable for the Kapsiki, death in particular. They may also participate in individual sacrifices in the homesteads, but so may all smiths. The second group are more the technical specialists, as brass casting is seen as a difficult craft, and has its place in crop protection. Their divination techniques, involving pebbles from the riverbed and a tweeting ‘bird’ that roams the bush, lack the domesticated aspect of crab divination (van Beek 2010). The smiths of the bush take care of the cultivation of that very bush. Finally, iron is essential for survival, and rites for individual protection, usually called magic, reflect this. The magical, protective and sometimes aggressive side of religion is their realm. Most crab diviners belong to this group, though also non-smiths may perform this kind of divination: the crab is not a smith’s monopoly, the other specializations are.

The three groups of smiths might have separate origins, and there may have been some redistribution of tasks between them. The brass smiths may have arrived

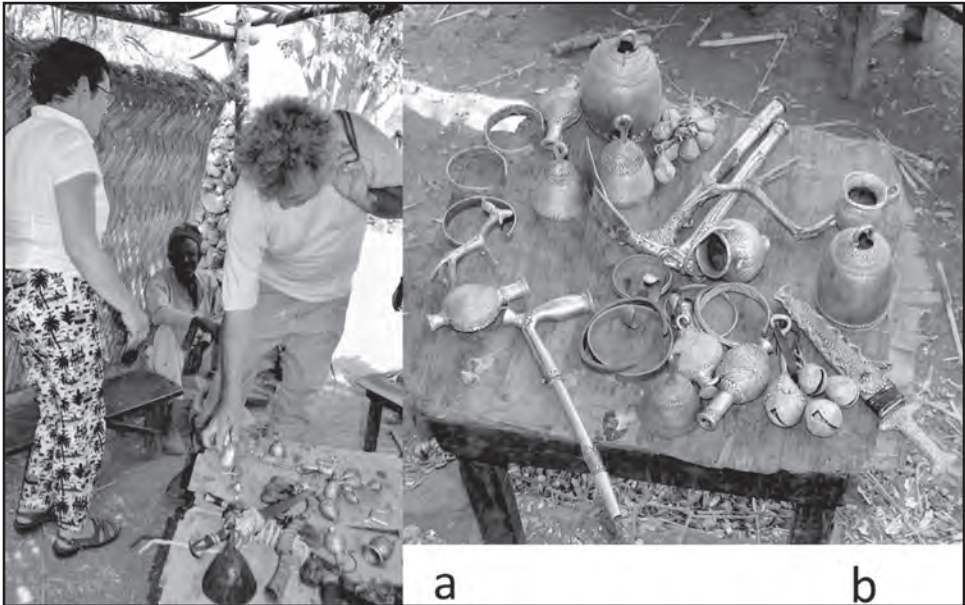


Figure 11.10. a) tourists shopping for brasses at Teri's compound in 2005; b) brasses by Masi for sale in 2009.

later, possibly migrating from Gudur (though brass casting is not practiced there and their tradition of origin may rather be a reflection of the ritual status of Gudur in the larger region). The number of brass casters is and probably always has been smaller than that of the iron smiths, while the smiths specializing in burial form the largest group.

Brass and tourism

Cameroonian Kapsiki land has become a renowned tourist destination; “les bronzes Kapsiki” are well-known in the tourist circuit, an attraction that complements the spectacular scenery of the Kapsiki plateau with its volcanic plugs. The Kapsiki experience combines a prime photo opportunity with exposure to a traditional society, or at least one described as traditional in tourist handbooks (van Beek 2003). The Cameroonian Kapsiki villages, mainly Rumsiki but increasingly other villages that can be accessed from there on a hiking tour, provide traditional flavor, and as such Kapsiki culture has become more than a side-show in the tourist encounter.

Traditional objects are part and parcel of the tourist experience and are sold in Rumsiki shops, hotels and by the brass caster himself. Tourists habitually make a short “sortie” from their hotel to Hya some 10 kilometers to the south where Teri, the brass smith of our opening vignette, has cornered the tourist market. He casts on demand, normally on a regular basis with the tour operators acting

as mediators. Small groups and individual tourists can easily command a casting, though most visit his compound to buy directly from the producer (Fig. 11.10a). Over the years Teri has diversified but little. He now produces more bells, larger ones also, and has increased the proportion of zinc in his castings, resulting in a yellower color. One major “innovation” is a brass statue of radically different style that he uses it as a showpiece for the tourists and – in vain – tries to convince us was made by his father. He later admits to buying it when traveling in Fouban in West Cameroon. Though his own production is standardized and little changed from when we first described it in 1973,⁷ the Rumsiki trade has diversified and now includes objects made in Maroua and Mubi. Even if still on a very small scale, Rumsiki now offers the experienced tourist some objects that fall into the category of “airport art” (Jules-Rosette 1984).

Teri died in 2007. At my last visit in January 2009, his wife Masi (Fig. 11.11a and c) had taken up the craft, as they had no sons. However two sister’s sons of Teri are determined to learn the technique and eventually establish themselves as casters; after all, the steady stream of tourists guarantees good cash income, in addition to the internal Kapsiki market. Masi has established herself as an able caster and is in the process of diversifying the objects for the tourist market, ready to take on some new forms as well; one of them is a miniature cooking pot (Fig. 11.11b), another a brass calabash (Fig. 11.4b). She also has reintroduced old Kapsiki objects of some renown, such as a brass goblet (Fig. 11.4.a).and for the first time for many years has made a *matlaba* and a brass dagger (Fig. 11.3a and b). Her authority in casting was evident in the deference paid to her by her younger kinsmen. The commentary of my non-smith Kapsiki friends was telling, ‘The blacksmiths always have obeyed their wives.’ At least, husband and wife routinely cooperate in brass casting, and increasingly do so in iron forging as well.

As for the whole array of brass casting it is interesting to compare the production of Teri and Masi, and also the brass offered for sale in Rumsiki. Teri’s 2005 offerings included smaller objects of traditional Kapsiki form, and a pointed black ‘hat’ which probably has a Fali provenance (Fig. 11.10a). Masi’s 2009 array was richer and more varied, including large pipes and bells besides an antelope figurine and a dance adze inspired probably by Vere brasses (Fig. 11.10b). Objects for sale in Rumsiki in 2005 included a rather traditional array of objects: pipes, bells, bracelets and knives, together with brass goblets, a new element as had been brass pouches in the 1970s and 80s. Other items including figurines of antelope and ostrich could have been made in many places in the larger region but were in fact fashioned in Rumsiki. They were indicative of a modest first attempt at figurative sculpturing.

Tourism has, as observed elsewhere, preserved some cultural items and processes that might without tourist interest and revenues have gone out of fash-

7. The situation among the Nigerian Fali seems to be more dynamic, see Wade (1989 and chapter 9).

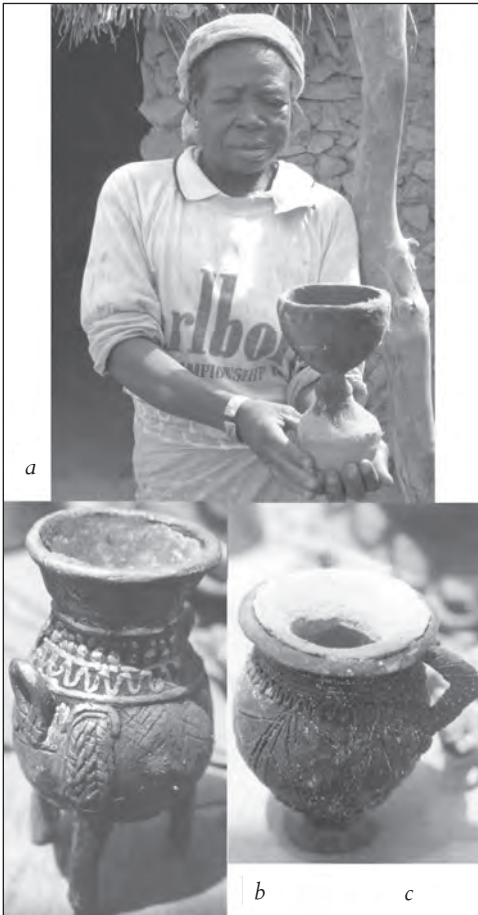


Figure 11.11. a) Masi shows the mold of a brass goblet; b) brass miniature cooking pot; c) wax model of a miniature pot built up over a clay core.

to the *gwela*, enhance the beauty of adult women on the move from husband to husband and from village to village, and differentiate between male haves and have-nots.

The wider context of Mandara Mountains brass

The literature on brass is a fraction of that of iron,¹⁰ and if the blacksmith used to be under-researched (Vaughan 1970, 1973, Marliac & Langlois 2000) that

8. Akan and Senúfo accounts (Förster 1986, 1988, Fox 1986, 1988) mention the same tendency.
9. His stylistic array is quite different from the Kapsiki one, but in the Mandara Mountains stylistic variation on a small geographical scale is quite common, c.f. MacEachern 1992.
10. Already in 1977 Spande's bibliography had 33 pages on iron as against six on "non-ferrous metals".

ion.⁸ Whether in the case of the Kapsiki/Higi this holds for much more than brass casting is debatable (van Beek 2003), but at least Rumsiki and Hya are secure in their brass production. In Guili, the major Bana village to the south of the Kapsiki area, recently a caster from Daba country has set up shop, and has transformed his entire household, involving three wives and several daughters, into a brass production unit, turning out a steady stream of brass beads for necklaces, all for the internal market.⁹ So, even if brass may be relatively marginal among the blacksmiths trades, neither knowledge nor practice is dying out. As long they are sought after by tourists, brass items will continue to be available to the Kapsiki.

Still, remembering the surprise of my assistant, the knowledge of the "other Kapsiki" about the "secrets" of the brass casting craft has not increased. Brass still is something out of the bush, something transformed by *rerhe*. Brass objects still give a touch of wildness

holds even more for brass and brass casting. There are some good reasons for this lesser attention; iron is crucial for survival besides being imbued with symbolic and ritual importance. The technology of iron smelting is complex and also spectacular. Though lost wax casting is a finely tuned and delicate procedure, it generally demands less labor input and organization and was never as industrialized as was iron production, for example at Sukur (Sterner 2003; Sterner & David 1991 and chapters 4 and 5; and cf. Peek 1975). In addition, the casting of cuprous alloys was never as closely nor as widely associated with a particular social group or “caste” as iron working. The notions of pollution, transformation and endogamy are associated much more with iron than with brass.

The use of the two metals, iron and brass, as symbolic opposites tying in with other symbolic pairings has not been noted as yet for other groups, nor has their association with certain parts of the ritual corpus as shown above. This might mean that the Kapsiki/Higi case is atypical, and there are reasons to suppose this to be so. First, the Kapsiki/Higi live at the very edge of the brass diffusion area in West and Central Africa. Second, brass casting among the Kapsiki/Higi can not be very old, not nearly as old as iron production which goes back, as MacEachern (chapter 2) shows, to the first millennium BC. The limited archaeological data from Moundour (Marliac and Langlois 2000: 72) and the DGB sites near mount Oupay (David 2008) suggest that brass was very unlikely to have been imported into this region before the fifteenth century, and even then in very small quantities. It subsequently found its niche in a culture area where blacksmiths had, we may reasonably infer, already formed a definite subculture and been assigned a crucial and symbolically charged position. The Kapsiki/Higi and certain of their neighbors constitute an instance where the lost wax casting technique overlaps with a full-blown “transformer” pattern as identified by Sterner and David (1991 and chapter 4). The distribution of brass casting in Kapsiki/Higi confirms the traditions of the brass smiths which state that the technique is a relative newcomer from the southwest. Viewing this and the Kapsiki tales, my guess – but definitely a guess – would be mid 17th-mid 18th century. As such it had to fit in with the existing social organization of the *rerhe*, finding a niche as a special if quantitatively unimportant function of one section of the smithing fraternity.¹¹ The length of occupation of the mountains has been well established by now, not only by archeological remains in general, but also by specialized massive constructions in the area (David 2008 and MacEachern, chapter 2). The ground and polished “Neolithic” axes found in the area constitute another, non-metallurgical, form of evidence; they are used by the Kapsiki as magical stones to procure health for the village (van Beek 1987). Thus, in the context of the deep history of the mountain cultures, brass has just appeared on the scene.

11. Wade (1989) shows an even more recent similar process among the Nigerian Fali. Note that the brass casters’ statements regarding the diffusion of brass casting are not related to their claim to Gudur origins.

The position of brass among the Kapsiki/Higi reflects the marginality of the region *vis à vis* the larger West African brass and bronze casting scene. The techniques used are similar to those of other casting groups, but then the exigencies of the lost wax process are very clear cut. A comparison of objects made shows craft production to be relatively straight forward. Small objects, utensils and jewelry, are made but no statues, no masks and no very large pieces, the brass dagger and the goblet being the high point of local technique. Segmentary Kapsiki/Higi society lacks the dynastic traditions that in other groups form a powerful stimulus for figurative casting (Cole 1989), and status differences amongst Kapsiki/Higi are still very limited. This evidently had much to do with this people's desire to "stay out of history," to keep slave raiders at bay and survive the onslaught of the long series of Muslim emirates with which they had to cope (Van Beek 1992b).

Like other Mandara montagnard cultures, Kapsiki/Higi culture has neither a mask nor a sculptural tradition; masks occur only (and as an unimportant element) among the Nigerian Fali and, on the plains to the east, the Mundang (Schilder 1984: 58). Only now are the first Kapsiki sculptures being made for tourists. And even the well developed iron technology found in this region offers no parallel to the sculptural elements that Mandé blacksmiths routinely produce (MacNaughton 1988). The relatively stagnant nature of Kapsiki brass casting can be provisionally understood in terms of a tradition located at the margins with, one must suppose, limited access to metal, and, in a relatively homogeneous and egalitarian culture, offering little stimulus to stylistic diversification. At present, *gwela* wear less brass than before, not more. The range of brass objects has not greatly increased in response to the tourist market, as is exemplified by the rather limited choice of objects produced by Teri and Masi. Although tourism has stimulated wood carving, another *rerhe* specialty, to some extent, brass casting remains what it has been: something of the bush, something rarely seen and not fully understood by the majority of the Kapsiki/Higi, a touch of wildness indeed.

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Part IV

Afterword



Afterword: On Technologies of the Subject, Material Culture, Castes and Value¹

Jean-Pierre Warnier

“A naked fellow, completely naked” (Bernhard Gardi quoting René Gardi)². “Fire, smoke, the smell of sulphur and charcoal – a devil” (ibid.). The tamper and concave anvil pot forming method “demands a particularly high level of skill” (Olivier Langlois). “Specialists are often physically strong men and frequently outstanding personalities, sometimes theatrically so” (James Wade). The “exuberant funeral performances (of Sadima) when, as chief of specialists he danced, corpse astride shoulders”, struck Wade (chapter 9). “The bride’s mother’s sister takes a draught of beer and spits it over the cache sexe of the bride” (Walter van Beek). Teri “started the rhythmic bellows beat that characterizes a good Smith” (van Beek again). “Lost wax casting is a

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1. This essay is a belated tribute to Nicholas David. In the late 1960s, he taught me at the University of Pennsylvania. In 1971, together with Igor Kopytoff, he initiated me to Cameroon. In 1973, by reading a geological map of the Grassfields of Cameroon, he instructed me on how and where to find archaeological sites likely to provide a chronostratigraphy of the area. Within months, this led to the ‘invention’ by Jacqueline Leroy and myself of five first magnitude rock shelters, including those of Shum Laka, Mbi Crater and Abeke, subsequently dug by Pierre de Maret and Raymond Asombang with much success. Nicholas David is directly at the origin of their important findings. In 1976, he offered me protection and advice in Ibadan during a nasty coup d’état. I will not extend any further the list of my debts, and I will jump straight to his last favour when he gave me the most welcome and exciting assignment of writing an afterword for this impressive book.
 2. Unless otherwise specified, the names between parentheses refer to contributions to the present volume.

finely tuned and delicate procedure” (van Beek). Demarcation between castes “is all at the organic, physical level: eating, drinking, sex, procreation and smell” (Wade).

This assortment of admittedly biased quotations is meant to draw our attention to the montagnard body and its motions. Gardi is impressed. Smelters have only one tool worth the name – the tongs. Little knowledge is associated with the tools. Knowledge belongs with the naked body. Nakedness underscores the uncanny bodily skills of the smelter. Specialists differ from the farmers in their motions and emotions. They have undergone a long training and apprenticeship. The smith’s body is capable of finely tuned and delicate gestures. It has a sensory universe of its own, made of smells, sulphur, smoke, bodily filth. It has a special touch for clay, iron, brass, medicines, other bodies – dead or alive.

This is a question of ontology (David and Sterner). Men and women of different groups and in different walks of life are not made of the same stuff. Nor are the specialists and the farmers; the living and the ancestors; the inputs of the furnace and the bloom. Transformations of sorts have taken place and the essence of things and people has been changed. This concerns the body of the person and the matter of things, or both at a time. Transformers have achieved the ontological alchemy; they are “responsible for the transformation of fetus into person, ore into iron, clay into ceramic and person into ancestor” (David and Sterner).

Two kinds of knowledge: verbalized and procedural

Let me elaborate on these preliminary observations. Jean Piaget (1956, 1972) has substantiated the distinction between two kinds of knowledge: verbalized and procedural. The first one concerns notions, ideas, concepts most often expressed in words. I may say: “The Sukur were prominent smelters”. I may unravel the notional content of this sentence by saying that “the Sukur are a people living in the Mandara Mountains”. “In the past, they used to smelt iron. However, they do not do it any longer”. In these sentences, there are notions of space, time, and specific activities, translated into words. Procedural knowledge is of a different kind. It concerns the know *how*. It does not translate into words but into sensori-motor algorithms attuned to a certain activity and its material culture, like smelting, playing the drums, dancing with a corpse on one’s shoulders. It is acquired by apprenticeship, that is, by repeating endlessly the same gestures until they become automatic and perfectly attuned to the task, as with the tamper and concave anvil pot forming method (Langlois).

Though procedural knowledge may be expressed in words (I may say: “do not take the tongs with one hand only; take them with both hands”), it is notoriously rebellious to verbal expression. Let me take an example. In order to say aloud “the Sukur were prominent smelters”, I must put into motion the 250 muscles

and organs of the speech apparatus, that is, the diaphragm, the chest, the larynx, pharynx, vocal chords, jaw, tongue, lips, etc. I do not have the slightest notion of the muscles involved, their location and of *how* my brain cortex passes on the billions of impulses that produce the proper sounds in the proper order. Although we know that the brain does not operate like a computer, we may say, for the sake of the argument, that I have loaded the software of speech and that it operates like an automatic pilot of sorts to produce the right bodily motions of speech. The cortical areas of speech and motricity, and the muscles and organs of speech have been trained in such a way that I *know how* to speak (procedural knowledge) without having any notion of how this happens. Accordingly, I do not have any verbalized knowledge of this know how. One more thing; the speech program I have loaded since childhood is the French one, and any other language I may learn to speak will be cast into the speech mould provided by the French software, which is a complicated way of saying that I will speak any foreign language with an accent.

Seven conclusions:

1. procedural knowledge is embodied;
2. it is “unconscious”, that is, it belongs with what has been variously designated as a “cognitive unconscious” (Buser, 2005), a “motor unconscious” (Parlebas, 1999), or a “praxic unconscious” (Warnier, 2009a) which is something different from the Freudian unconscious as repressed;
3. it is deeply imprinted into the body and is not easily altered once it has been acquired;
4. it always transforms the person to some extent, sometimes in quite a physical way (the body of the professional tennis player is not made of the same stuff as that of the professional saxophone player);
5. the way this kind of fully human procedural knowledge operates constitutes the stock in trade of the neurocognitive sciences which have accumulated a fantastic corpus of verbalized knowledge on human cognition;
6. when speaking of human cognition, one should be careful not to restrict it uniquely to ideas, notions, concepts, symbols and signs pertaining to verbalized knowledge. Procedural knowledge is also fully human.
7. and finally, procedural knowledge is directly attuned to material culture to such an extent that one may speak of a “material and sensori-motor culture”.

Techniques of the body, material culture, sensori-motor culture

From an anthropological point of view, procedural knowledge belongs with what Marcel Mauss (1950 [1936]) called the “techniques of the body”, by which he meant “the different ways people make use of their body, society by society”. The conceptual framework of this short and famous text is obsolete yet his original discovery remains intact and can be re-written in the light of the neurocognitive sciences. For one thing, Mauss was thinking, as it were, of the human body without any material adjunction. The naked body of the walking, swimming and resting person. We now know that the human body (and to a more limited extent, any animal body) incorporates its material culture into a sensori-motor culture made of learned procedural knowledge which differs from society to society, and, within a given society, from one social category or group to the next. Even if the Mafa “devil” of Gardi has no tools except the tongs, he has at least the tongs, and, more than that, he has embodied the material culture of the furnace, the ore deposits and their exploitation, the manufacture of charcoal, and all the embodied procedural knowledge that goes along – which is a way to say that a Mafa smelter is a man-with-his-incorporated-furnace in motions and emotions.

These observations imply that there is no material culture without the sensori-motor culture that goes along, that is, the relevant embodied procedural knowledge acquired by apprenticeship. It also implies that the divide between any particular subject and a particular object at any given time is transient and negotiable. I seize the tongs and I become a subject-with-tongs in motion. The tongs are embodied or incorporated. As Paul Shilder (1923, 1935) said, it is included within the “image of the body”, or, as he said in German in a more graphic way, within the *Körperschema*. I put down the tongs and they become an inert object of material culture lying there, on the ground, out of my grasp and my body. I pick them up again and they become part of my *Körperschema*. Any given object can be embodied and disembodied at a turn. Yet at the level of material and sensori-motor culture, a given subject is always a subject-with-his-objects in motion. The professional tennisman or woman is recognized and identified by all the material and sensori-motor culture of tennis, exhibited on the tennis court, just as the Sukur smelter is recognized and identified by all the material and sensori-motor culture of a given (Sukur) smelting technology when it is performed.

The word and notion of “subject” are better suited than those of “actor” and “individual” to encompass all the connotations I have underscored above, that is, the body, motricity, perception, emotions, power, identity, transformation. The “person” provides an acceptable substitute, which has acquired an anthropological legitimacy. Accordingly, this choice of paradigm and vocabulary implies a critique of the current functionalist explanations in political sociology and anthropology. Power politics should not be analyzed only in terms of the actors’ choices and

strategies together with the means they can use in support of their aims. They should also be analyzed in terms of how the subjects produce themselves, how they are produced as particular types of subjects, how to win their subjectivities, how to subject them to an hegemonic sovereignty. However, this debate is only a side issue, though by no means of little importance, to the present afterword, and the interested reader may consult another publication on this topic (Warnier, 2009b).

From information to transformation

Writing on hoe styles, Ian Robertson (chapter 7) states that they are “a relatively efficient way of broadcasting information about identity”. This is indeed the case, and all the chapters of this volume provide many observations in support of Robertson’s remark. They all point to the fact that objects, styles, bodily adornments, and bodily and material cultures generally speaking, may be seen as so many signs in a system of connotation or communication. Structuralism in its various forms has been very successful in cracking the cultural codes behind such systems of connotation or communication. Most chapters in this volume show how many items of behavior or material culture convey information on gender, status, the trade of specialists, caste and the like.

At the same time, most if not all the chapters provide relevant observations and comments to the effect that the same items of behavior and material culture also impact on given persons, groups or categories to transform them and shape them one way or another. They open up an avenue to think about what such items *do* to people in addition to what they *mean*. They suggest that one should articulate information and transformation, meaning and ontology.

In light of the first two sections of this Afterword, I would like to try and bring out the “praxic value” of sensori-motor and material cultures in a system of agency, in addition to their “sign value” in a system of connotation and communication. When dealing with the “techniques of the body”, Mauss feels the need to define “techniques” as “traditional and efficacious actions”. They have to be both, he says: traditional, that is, learned by apprenticeship as a means to transmit them from generation to generation; and efficacious, that is, they must have a tangible effect that can be ascertained. However, Mauss does not specify what this efficacious action is supposed to be applied to. The French anthropology of techniques initiated by André Leroi-Gourhan has assumed that it is applied to matter in order to turn out all the material things needed for human use and consumption. Yet Mauss had included magic, religion and ritual within the realm of techniques and had indicated that they were tremendously efficacious in shaping peoples’ bodies and identities, even to the point of causing their rapid demise in the absence of any physical ailment, or their rapid healing. We may conclude that techniques may apply to the subject as well as to the object, and most often to both at a time. There are such things as techniques of the subject.

Smelting, pot making and undertaking are activities that are learned through apprenticeship and that produce iron and smelters, pots and potters, ancestors and undertakers. They belong with the technologies of the subject and the technologies of the production and transformation of material substances and artifacts. In both cases, the implementation of any given technology rests on the use of the two kinds of knowledge I have distinguished – verbalized and procedural. This is quite obvious in the case of the technologies of the object. When smelting, the members of the team will make use of verbal expressions and knowledge such as “bring more charcoal”; “the temperature is high enough”. “I am thirsty. Let me drink water (or beer).”, etc. They will also implement all the procedural knowledge embodied in their motor habits and that do not require any specific comment. The same obtains as far as the technologies of the subject are concerned. Most people, including some anthropologists, are imbued with the commonsensical notion that subjectivity and the actions meant to shape it depend mostly on speech, on verbal communication, on symbolic actions such as rituals, and on the effect of awareness they produce. Yet the present volume leaves no doubt about the fact that the technologies of the subject also rest on unconscious procedural knowledge directed to the body, its perceptions, motions and emotions elicited by other people and by the use of material culture.

In that respect, one may follow two lines of argument. The first is taken from the routine technologies of material substances and objects insofar as producing iron, a pot, an iron hoe or staff, a brass medicine container, a burial, produce a smelter, a smith, a potter, an undertaker with their own subjectivities and identities. The second line of thought is concerned with more exceptional and explicitly “ritual” activities aimed at producing a change in the subject, or even a different kind of subject: a bride from a girl, a mother from a woman, an adult male from a youth, etc. Following the traditions of Arnold van Gennep, such actions may be seen as changing the “status” of people, or, following a more structuralist approach (*à la* Luc de Heusch or *à la* Mary Douglas), at shifting them from one symbolic category to another one, and, consequently, at changing the meanings attached to them. However, this second line of analysis unfolds within the domain of what I would call the sign value of things, people and rituals within a coded system of communication and connotation, which includes its verbalized expression and all the meanings that may translate into words (brass vs iron; male vs female; bush vs village, etc.). This approach answers the question: “what does it mean?” It leaves open the question: “what does it do to people?” How does it shape their subjectivity, their body, their emotions? What is the procedural (unconscious and embodied) knowledge it implements?

The more intensive episode we designate with the blanket term of “ritual” also implies sensori-motor conducts applied to the body and resting on the use of material culture. Religious practice involves feasting and fasting, consuming or

abstaining from consuming certain food and beverages, singing and playing musical instruments, walking in pilgrimage, making ablutions, bowing, reciting mantras, making certain gestures. The practice of religion rests on the implementation of specific techniques of the body. This obtains in any ritual. The *gwela*, once they have been separated from their kinsmen during the first phase of the initiation, “start to wear brass bracelets and other paraphernalia”. They also adopt particular bodily techniques and roam everywhere in the bush “like bees” (van Beek). Van Beek provides an inventory of the material culture of the *gwela*: spear, grass head decoration, rooster feathers, and so on. One may imagine all the gestures and specific perceptions associated with their manufacture and their use. Many such gestures, like that of “exsufflating” are described in this book.

Let us go back to the more mundane category of procedural knowledge associated with the daily technologies of the subject. They are all the routines and the bodily techniques, or the implementation of sensori-motor cum material culture of given categories of subjects: infants, girls or boys, youths, married women, specialists, chiefs and “princes”, etc. They usually climax in the rituals or initiations associated with one or several of these categories.

The impact of all those techniques on the subjectivity of people is well attested in the various chapters of the book. Van Beek, for example, remarks that any Kapsiki taking on responsibility as a headman is expected to become a different personality (van Beek, 1978: 145; 1982 and chapter 10): “self-effacing, modest, seeking harmony and always soft spoken, attributes not normally associated with a ‘za’, a ‘real man’”. The transformation of a *za* into a headman is achieved by making use of iron and by providing the headman with an iron staff. I wish I knew more about the way he moves about with his iron staff, or, to speak like Gibson (1986), what is the “affordance” of the staff, that is, what are the gestures the headman makes with it. Let us remember that procedural knowledge is embodied; it belongs with the cognitive or motor unconscious; it is deeply entrenched once it has been acquired and turns into a “habitus”³; it does not translate easily into words, and, most of the time, is not the object of any comment. People just do it.

Castes and cognitive harmony/disharmony

These considerations may provide a modest contribution to the question of castes (why castes, what are they, and what is their origin?) which is so thoroughly discussed in this volume, mostly by Langlois, Wade, David and Robertson, Robertson, and van Beek, but also, to a lesser extent, by the other authors. All agree at least on the fact that castes are invested with symbolic meanings and also that they have a bodily and material dimension. The divide between specialists and farmers is

3. Mauss uses the term “habitus” in his article on the techniques of the body. Pierre Bourdieu made an extensive use of it, following Norbert Elias, in his theory of practice.

a question of smell, food, sex and working on specific materials. In my jargon, the caste system involves both verbal/conceptual cognition *and* procedural knowledge.

At this point, one may remark that there is nothing to indicate that these two kinds of knowledge are consonant with each other in any particular situation. In fact, in the anthropological record, there are many instances in which there is some amount of discrepancy or contradiction between the two, with the knowledge verbalized by a given group or category going one way, and the procedural knowledge and the corresponding practice or behavior going astray.

Such a disharmony has struck me when analyzing the kingdom of Mankon in the Cameroon Grassfields (Warnier 2007 and 2009) in which sensory-motricity and material culture is focused on bodies as containers equipped with an envelope, an aperture, and with substances fed into and taken out of person-containers and pot-containers or other vessels⁴. The king makes offerings to his ancestors. *Ipsa facto* his bodily substances are transformed by the latter into ancestral life substances. The “burden of kingship”, as Frazer said, consists in physically bestowing these substances on his subjects. By so doing, he produces the unity and the prosperity of his kingdom, an envelope, an inside and an outside. He is, quite physically, the arch-container of the kingdom. Consequently, the extreme inequality and hierarchy that characterizes the kingdom, between the king and his hundred wives on the one hand, and the unmarried male cadets, on the other hand, is built into and by the bodily and material culture. However, this is never said in so many words. In nearly forty years of intermittent presence in the kingdom, I never found any adequate verbal comment, or even any comment at all on this aspect of things. People just do it. They do not talk about it. It belongs with the “cognitive unconscious”. The verbalizations tell a different story of sharing, benevolence, unity and brotherhood which is denied in practice. The women and the cadets feed goats, goods and money into the palace-container and they are paid in return with the king’s saliva exsufflated on them, or anointed with royal palm oil. They sincerely claim that they are the winners in the deal. The anthropologist may understand their point of view, since goats and foodstuffs fetch a limited price on the marketplace, whereas the king’s saliva is priceless.

This discrepancy or disharmony comes from the use by the same people of two kinds of knowledge – verbalized and procedural – that may produce different results or effects, somewhat independently from each other. This is what provides depth and intricacy to political power: it speaks to its subjects but it also addresses their body and subjectivity by more occult means.

There is nothing original in these remarks. Anthropologists like Gregory Bateson (1972) and psychologists such as Harold Searles (1965) have elaborated on the fact that, at the interpersonal level, a relationship normally involves a kin-

4. On persons as containers and containers as persons, though more on the side of symbols and representations, see ‘Why pots are decorated’ by N. David, J. Sterner and K. Gavua (1988).

aesthetic dimension related to bodily attitudes, gestures, emotions, etc., besides verbal interactions. Bateson, Searles and others have noticed that, in the life history of subjects suffering from psychotic disorders, one often finds during their childhood a disharmony in their relationship with some significant adult, in which the kinaesthetic attitude of the adult was distant, rejecting, or, even worse, violent and intrusive, whereas the accompanying verbalizations were imbued with love and acceptance. In such cases, the child often finds a way out by dissociating the impact of these two media of communication and symbolization, by shoving either one of them into a kind of sealed “suitcase” that s/he carries along with him/her, and by developing a dissociated personality.

I am not claiming that such pathological phenomena may be observed at a social and political level. I only wish to underscore the fact that there are indeed two different media of interaction between subjects and that these media may or may not coexist harmoniously with each other in any given particular situation. Words may be disconnected from practice. The imaginary may carry verbal knowledge away from material and bodily constraints by constructing an alternative representation that looks just as real.

What I am suggesting here is that an enquiry into the caste system should distinguish between two kinds of data: everything that belongs with the sign value of the castes in a symbolic code of connotation and communication on the one hand; and everything that belongs with the praxic value of the castes in matters of bodily and material culture as technologies of the subject in a system of agency on the other hand. I am inclined to think that this may provide an explanation regarding the divergent points of view of Langlois and Wade in chapters 8 and 9. Whereas Langlois would see the castes and endogamy as the result of an historical and exogenous event (the influx of foreign populations) translating into mythological narratives on origins, Wade would rather favor an ontological and endogenous process. What strikes me when reading their respective chapters is that Langlois relies on myths, oral traditions, verbalized norms of endogamy and historical narratives. For sure, he draws on material culture, like the burials of chiefs in Kapsiki and Higi. However, it is more for their sign value than for their praxic value or their affordance in a system of agency; more for what they mean than for what they do to the subjects.

Wade, by contrast, relies on gestures, behavior, aesthetic perceptions and the like. His is a different corpus of data from that of Langlois. He describes the physical vigor of Sadima, his larger than life personality, dress, dancing, accoutrements, exuberant performance, cooking, eating offensive food (and an offensive food is no more than a food that is eaten by an offensive person), the compounds and behavior of specialists, less tidy, less well arranged, less clean, generally more haphazard. He claims that specialists and farmers are not distinguished by “unambiguous insignia” and cultural forms: “cultural codes, insignia, are not used to distinguish the castes... Demarcation is all at the organic, physical level: eating, drinking, sex,

procreation and smell” (Wade). I would translate: demarcation does not depend on the sign value of items of material or bodily culture, on their meaning or corresponding verbalizations. It is all at the level of procedural knowledge, kinesthesia and the praxic value of things.

Accordingly, Wade insists on the fact that there can be no mistake in the demarcation: “as ‘agent in society’ . . . farmer personhood is remarkably circumscribed; there are so many things they should not do. By contrast, the specialist is ascribed a vibrant role with an extraordinary range of specialisms open to him and, to a lesser extent, her”. For reasons already explained, I would rather substitute “subject” for “agent”.

One may draw a number of conclusions from reading together the contributions of Langlois and Wade:

1. each of them draws on a different category of data: either verbalizations and signs (Langlois), or embodied procedural knowledge and its associated material culture (Wade);
2. the conclusions they reach are accordingly different: either an historical and exogenous explanation of the origin of castes, or an ontological and endogenous one;
3. neither of these interpretations may be *a priori* assumed to be more valid than the other;
4. there is a disharmony in the caste phenomenon between verbalizations and bodily conducts-cum-material culture;
5. what pertains to bodily conducts-cum-material culture seems to be more internally consistent than what pertains to verbalized knowledge (but, in other cases, it may be the other way round); and
6. such a pattern may undergo many local variations in the different Mandara Mountains and surrounding societies (Fali, Mafa, Sukur, Mofu, etc.).

I have displaced the questions from “who, Langlois or Wade, is more convincing than the other?” to another question, that is: “what do the various layers of data and the disharmony between them tell us about the way the caste system operates, and about why, when and how it originated?” I am incompetent to answer these questions in the case of Mandara montagnard peoples. I have addressed similar ones in the case of the Mankon kingdom in which such a disharmony obtains. In a nutshell, I think the disharmony solves many contradictions while constructing a hegemony, that is, the fact that the subjects cannot conceive of any other way of doing things. You may challenge and discuss verbalized rules of land tenure, or voice a conflict over an eligible marriage partner or over a bridewealth payment. You do not discuss a pot and its content until historical events break the pot and compel you to invent something else. They are there, and you have to use them for

what they are, all the more when the pot is a king full of vital ancestral substances of which you are badly in need for your wealth and well-being. The disharmony produces a common will that can stand the tensions of internal conflicts and contradictions. Would the Mandara montagnard puzzle receive a similar answer?

The geography of transformers and the politics of difference and value

If men and women, specialists and farmers, transformer and “primitive”, Muslims and “Pagans” are not made of the same stuff; if there are ontological differences between them that go beyond the skin surface, then we want to address the question of the various possible ontological configurations, and question their distribution in time and space. This is what David and Sterner do in chapter 4. I am impressed by the fact that Nicholas David in chapter 5 makes reference to a similar attempt I made in a previous work (Warnier 1985) at connecting regional patterns of economic specialization and trade to the spatial distribution of political systems (and therefore of types of subjects), following the lead of Edmund Leach in his *Political Systems of Highland Burma*. However crude this attempt was, I do not go back on it.

However, I would qualify it on one point: in order to account for the geographical distribution of power and economic specialization, I called on the Ricardian “law of comparative advantage costs”. Since Nicholas David summarizes the argument in chapter 5, I need not elaborate on it except as regards the labor theory of value, which is part and parcel of Ricardo’s (and later of Marx’s) argument. It postulates that the amount of labor expended in producing a good is the *cause* and the *measure* of its value. Accordingly, when analyzing the Grassfields situation, I tried to compute the labor input needed to produce specific goods such as an iron hoe or a calabash of palm oil – quite inconclusively it now seems to me. Clearly, in the Grassfields, the labor of a palm oil producer was not valued as much as that of a smelter. There are qualitative aspects of labor that make it impossible to predicate the value of things on the labor expenditure needed to produce them.

Consequently, I would like to complement my argument with the theoretical contribution provided by Arjun Appadurai in his 1986 edited volume *The Social Life of Things*. In the introduction to his book, Appadurai rightly discards the labor theory of value. I would gloss his argument by saying that it is impossible to take any measurement with an elastic rubber band. The value of labor is indeed extremely elastic. But Appadurai raises other objections and one basic question: since things are valued, what determines their value if not the labor expenditure needed to produce them? This question should be addressed since the value of things is a basic ingredient in the structure of a diversified Ricardian space such as the Mandara Mountains and surroundings or the Grassfields. To make a long story short, I would say that, instead of seeing in commodity exchange the result of the pre-existing differential values of things, Appadurai convincingly argues that the value of things

is produced by the exchange itself. Following Georg Simmel, Appadurai considers any exchange as the result of an encounter between the desires of two or more subjects. Each subject desires to acquire something that belongs to another subject, and is willing to sacrifice something in exchange. The value of the commodities thus exchanged is measured by the intensity of the desire and by the extent of the sacrifice one is willing to make. This does not mean that the use value of things is irrelevant to their exchange and to the terms of trade. It only means that, if certain things (a hoe, salt, a bunch of firewood) have a use value, it makes them desirable, and I will be willing to sacrifice something in order to acquire them. In other words, the use value is always mediated by the desire of the person who wishes to acquire a certain good. Appadurai disclaims the utilitarianism of political economy. He subsumes it under a theory of the encounter between human subjects in the flesh. The desire and the sacrifice are subjective variables that are tightly interconnected with the person. Accordingly, the value of things cannot be separated from the value of people. The values of people and things are interwoven. Producing things not only as material things but also as desirable things opens up a space for the encounter of different subjects and therefore an arena for the politics of value, and for the social biography of things. This point has been elaborated upon by Igor Kopytoff (1986) in Appadurai's edited volume.

I would suggest that the technologies of the subject geared to the material and bodily cultures are an important tool in the politics of value. Or, in other words, that the ontological differences between people translate into differences in the value of people and things and in the desirability of the services and things they produce. In the Mandara Mountains, caste specialists may be feared and avoided because of their assumed – more or less visible – physical characteristics, but the goods and services they offer are highly desirable and valued.

To conclude: the time dimension of the Mandara montagnard complex

To sum up, castes, specialized productions and activities, the symbolic codes, material and bodily cultures, the value of people and things, and their distribution in space are all part and parcel of the single complex typical of the Mandara montagnard peoples. In order to account for the distribution in space of the ontological differences and specializations (including that of “transformers”), we may stick to the Ricardian law, with the important caveat that the cost of things and accordingly their value are not intrinsic properties linked in a mechanical way to the labor expenditure needed for their production and embodied in the produce, nor to an objectified utility (although their being useful makes things highly desirable without strictly determining their value), but depend on the politics of value I have tried to sketch following Appadurai.

The foregoing concerns the space dimension of the system. What about its time dimension, that is, what about the past, and perhaps the distant past, which is what David and Robertson's, and MacEachern's chapters are all about – the first concerning technological change in the 20th century, the second concerning the more distant past?

Farming systems and demographics changed very rapidly in the Mandara Mountains about 500 years ago, putting an end to their sparse occupation until then. What happened at that time that may help to account for the colonization of the mountains and for the spatial distribution of the transformer and Sukur patterns of articulation with their contrast between specialist and farmer, and the remaining patterns in which the contrast is much less marked?

MacEachern (chapter 2), together with David and Sterner (2009) consider that, until more archaeological research is conducted, it is difficult to give a precise answer to those questions. Archaeological evidence suggests that the plains, to the northern and eastern sides of the Mandara, have been fairly densely settled for a long time. The Wandala (Mandara) state is likely to have played a role in vetting, directing and perhaps pushing the migrants accessing the mountains through Gudur. The area around Wandala would have been, for a long time, the arena of a competition for power between smiths/smelters and the farmers, offering the template for the differentiation between specialists and farmers in the mountains. The rest is open to conjecture, and, in my view, to much speculation on the technologies of power developed by the migrants as they had to construct a niche for themselves in a difficult mountain environment fraught with recurrent crises and uncertainties, in which they were subjected to internal competition as well as to external pressure exerted by Sudanic states, best attested in the case of the conquests and subsequent slaving raids carried out by the Fulbe for a century beginning about 1820.

The existence of such techniques is suggested by David and Sterner (*ibid.* 175) when they deflate the myth of Gudur as a “pagan Mecca” and suggest that Gudur refugees in the mountains may have brightened their image by claiming a special relationship to a great diviner who could command rain, caterpillars, locusts, epidemics and even fertility, and by constructing their subjectivity accordingly by playing on the two kinds of knowledge I have mentioned – verbal and bodily/procedural. If this were the case, the contrast specialist : farmer might have been an endogenous and rather recent development (not before the 16th century AD). It would also have been modulated depending on local events and power relationships on the one hand, and larger patterns of economic specialization and exchange extending over the whole Mandara Mountains. This would account for the major differences between the Mandara Mountains form of caste and that of Sudano-Shaelian plains societies – a point mentioned by James Vaughan (1970)⁵. The contribution of the Mandara archaeology project to highlighting the history, culture

5. I am grateful to Nicholas David (personal communication) for those suggestions and references.

and society of that part of Africa is therefore outstanding, and raises a number of questions that call for more of the same.

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