

**An archaeological investigation of the Kirfi area, northern Nigeria:
craft, identity and landscape**

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Abstract

This doctoral research presents the first sustained archaeological investigation of Kirfi, Bauchi state, northern Nigeria. As part of this work, test pits were excavated at three sites and research was carried out into modern craft practices. These yielded good chronological sequence and allowed the development of a pioneering pottery typology. One central question explored is to what degree the Hausa world just to the north-west of the study area impacted on Kirfi in the past 1000 years. It is argued that theories of technological styles and society can be usefully deployed to understand cultural developments and territorial expansion in African societies. Ideas about economic systems, settlement and social factors resulting in population movements and the definition of cultural identities are key to exploring the complex cultural make-up of the last millennium. I also show that oral tradition is valuable to studies of later African societies when carefully critiqued, in view of the dearth of early written and historical scripts. This thesis will also show how external influences were to alter a native system by the integration of Islam into the socio-political development of Kirfi, including it in a world system that shaped the evolution of the Bauchi region, which then became a principal actor in the spread of a political system in the early part of the 19th century after the jihad of Shehu Uthman Fodio. The influence of Islam (as opposed to formerly practiced ritual systems), long-distance trading systems and the role of slaves as a commodity, 'Hausanness', craft and economic specialisations are all put forward as factors that played out in the settlements under study here. This finally transformed ancient socio-political systems leading to the ways of life of today.

It is hoped that the present research, through its collaborative use of archaeological methods and ethnoarchaeological study, will help improve our understanding of an area that has up to now been a virtual terra incognita and make a wider contribution to African archaeology by interpreting the impact of 'Hausatisation' on the southern Bauchi area.

Table of Contents

Title page.....	1
Abstract.....	2
Table of Contents	3
List of Figures.....	7
List of Tables.....	12
Dedication.....	13
Acknowledgement.....	14
CHAPTER ONE: INTRODUCTION.....	17
1.0 Introduction.....	17
1.1 Kirfi and its Settlement History	20
1.2 Theoretical Framework.....	25
1.3 Scope and methodology	30
1.4 Concluding Remarks.....	34
CHAPTER TWO: BACKGROUND OF RESEARCH.....	36
2.0 Introduction.....	36
2.1. Environmental settings.....	37
2.1.1 Climate	37
2.1.2 Geology and soils.....	39
2.1.3 Topography and Drainage	43
2.1.4 Vegetation	45
2.2 An Anthropological view of Southern Bauchi.....	46
2.3 Outline of West Africa’s early history	53
2.3.1 Archaeology of Lake Chad Basin (Kanem-Borno)	53
2.3.2 Archaeology and History of Hausaland	56
2.3.3 History of Jukun/Kwararafa.....	58
2.3.4 Kagalan in History	59
2.3.5 The Archaeology of Bauchi region	60
2.4 Concluding remarks	62
CHAPTER THREE: RECENT CULTURAL SETTINGS AND CONTEXT OF PRODUCTIONS.....	65
3.0 Introduction	65
3.1 Iron working.....	66
3.1.1 Iron Smelting.....	68
3.1.2 The smelting space.....	70

3.2	Blacksmithing	71
3.2.1	Roles and social organisation	71
3.2.2	Learning process	72
3.2.3	Forging materials	73
3.2.4	Smithing workshops.....	73
3.2.5	The forging process.....	75
3.2.6	Products and marketing	76
3.3.0	Pottery making	76
3.3.1	Learning and apprenticeship	79
3.3.2	Raw material sourcing.....	80
3.3.3	Tools & materials	82
3.3.4	Clay preparation	83
3.3.5	Forming and shaping.....	84
3.3.6	Finishing.....	86
3.3.7	Decorations and their motifs	87
3.3.8	Firing.....	90
3.3.9	Post-firing treatments	92
3.3.10	Distribution.....	93
3.3.11	Products & function.....	94
3.3.12	Discard and symbolism.....	95
3.4.0	Textile production	97
3.4.1	Raw materials.....	99
3.4.2	Tools and space.....	99
3.4.3	Learning and training.....	100
3.4.4	Cotton spinning.....	100
3.4.5	Weaving	102
3.4.6	Dyes and dyeing.....	103
3.4.7	Marketing	105
3.5	Concluding remarks.....	105
CHAPTER FOUR: FIELD WALKING AND SURVEY.....		108
4.0	Introduction.....	108
4.1	Methodology	111
4.3.2	Kagalan	121
4.3.3	Kirfin Sama Hill	129

4.4 Regional survey	135
4.5 Concluding remarks	141
CHAPTER FIVE: THE ARCHAEOLOGICAL EXCAVATIONS	143
5.0 Introduction.....	143
5.1 General methodological overview.....	143
5.2 Presentation of Sites.....	145
5.2.1 Tudun Dangawo (TDG).....	147
5.2.2 Kirfin Sama Hill (KSH).....	147
5.2.3 Kagalan (KGL).....	148
5.3 Overview of excavation units	149
5.3.1 The Tudun Dangawo Excavation Unit.....	149
5.3.2 Kirfin Sama Hill Excavation Unit	156
5.3.3 Kagalan Excavation Unit.....	163
5.4 Concluding Remarks	170
CHAPTER SIX: POTTERY	173
6 Introduction.....	173
6.0 Presentation of assemblage.....	173
6.1 Methodology used for analysis.....	174
6.1.2 Diagnostic sherds.....	174
6.1.3 Introducing Sherd attributes	175
6.1.4 Setting out basic terminologies and definition of other attributes	175
6.1.5 Classification based on Part of the Vessel.....	175
6.4.1 Description of assemblage	176
6.4.2 Vessel distribution.....	182
6.7 Characteristics based on colour	191
6.8 Characteristics based on surface treatment	195
6.9 Classification based on decorative motif.....	199
6.8.1 Variation in decoration - roulette	206
6.8.2 Paint analysis.....	209
6.8.3 Incised motifs.....	211
6.10 Clay material characterisation	213
6.11. Concluding Remarks	216
CHAPTER SEVEN: FINDS OTHER THAN POTTERY	217
7.1 Tudun Dangawo Settlement Site.....	219

7.1.1	Ferrous Objects	219
7.1.2	Slag	220
7.1.3	Other metal objects	220
7.1.4	Bone objects	220
7.1.5	Stone objects	221
7.1.6	Other stone objects	221
7.1.7	Ceramic materials	223
7.1.8	Burnt Clay-Daub	227
7.1.9	Other Ceramics	228
7.1.10	Unidentified materials	229
7.2	Kirfin Sama Hill	230
7.2.1	Ferrous Objects	230
7.2.2	Slag	231
7.2.3	Other Metal Objects	232
7.2.4	Bone/Shells object	232
7.2.5	Bone objects	233
7.2.6	Stone Objects	234
7.2.7	Ceramics	235
7.2.8	Others	239
7.2.9	Glass	240
7.3	Kagalan	240
7.3.1	Ferrous Objects	240
7.3.2	Slag	241
7.3.3	Other metal objects	242
7.3.4	Bone & Shells objects	242
7.3.5	Stone Objects	243
7.3.6	Ceramics	244
7.4	Concluding remarks	246
	CHAPTER EIGHT: CONCLUSION	247
	BIBLIOGRAPHY	256
	General Appendix	283

List of Figures

Figure 1: Map of Hausaland, Borno, Bauchi area and other important centres mentioned in the text. (Adapted after Haour and Rossi 2010, figure 1.1).....	17
Figure 2: West Chadic languages showing some of the southern Bauchi language groups mentioned (Wikimedia05).....	21
Figure 3: Map showing the Hausa states - including the so-called Hausa Bakwai (adapted from Lange 2004).....	23
Figure 4: Map showing Kirfi (note the importance of slaves, as a commodity, to its economy) and some important centres mentioned in the text (adapted from Gronenborn 2011).....	24
Figure 5: Map of important settlements and sites mentioned in the text.....	31
Figure 6: Dye pits at Kirfin Kasa surrounded by an ash mound, with the River Gongola and its floodplain in the background.....	31
Figure 7: Map showing some of the areas mentioned in the text. Adopted after (Adamu 1978).	36
Figure 8: Africa: Map of vegetation in relation to climate (Grove 1978: 32)	38
Figure 9: Map of the Kirfi region showing some of the important settlements in late c.19th (NNSO 1912)	40
Figure 10: Drainage system map of southern Bauchi	44
Figure 11: Crossing the River Gongola (Guyaba at the background) – June 2011	44
Figure 12: Vegetational map of Nigeria, after Udo 1970:4	45
Figure 13: Language group distribution in the Bauchi area, language 151 is Giiwo - Kirfi and others mentioned (Lewis 2009).	47
Figure 14: Language group distribution in the Bauchi region showing other language in central and northern Bauchi (Lewis 2009).	49
Figure 15: Appearance of ‘Kalam state’ in the 17th century AD. (Source, John 1998)	60
Figure 16: woodcarving (Kagalan), leatherworks (Cheledi), and building construction (Wosu) March 2012.	66
Figure 17: Smelting furnace at Tekkira (near Kagalan site) and a scheme of a type furnace	69
Figure 18: A: furnace at Yankari, similar to those visible at Tekkira (Aremu 1999). B: experimental use of furnace to smelt in Tanzania (David &Kramer 2001).	69
Figure 19: Children's view at a workshop in Kagalan – April 2011	72
Figure 20: Blacksmith in Kagalan at work – May 2010	74
Figure 21: Tools and potters' workshop in Kagalan and finished wares at Zamani (photo right: tiny arrow showing a stone anvil)	77
Figure 22: Informal learning (making toy pots) – May 2011	79
Figure 23: Clay storage and other clays (left & middle) and a rock platform used for potting. Photo taken in workshop of the Maigoro (07-05-2011)	81
Figure 24: Tools for surface finishing, left: burnishing pebble - <i>zuza</i>, middle: baobab seeds - smoothing; right, <i>kara</i> - scraper	82
Figure 25: Left: burnishing tool (<i>mazoz</i>) and slip. Right: Assembling of pots at Kagalan. - April 2010.	83
Figure 26: Clay preparation (with <i>tsarmi</i> – sand) beneath – May 2011	83
Figure 27: Casting on a mould – June 2010	84
Figure 28: finishing a pot formed on a mould with coils technique – June 2010	85
Figure 29: Rim making and the dressing of perforated holes – June 2011	85
Figure 30: Slipping and polishing by Nani and her <i>Mazoz</i> tool- Kagalan, June 2011.	87

Figure 31: Executing decorations: left, applique, middle, stamping & rouletting, right – Kagalan, May 2011	88
Figure 32: Decorative tools. Corn-cob (<i>barsa</i>), broken calabashes, and double twisted cord roulette (<i>kaba</i>), all from Kirfi settlements.	88
Figure 33: A: Dressing the rim (lower body mould, while B shows Hauwa’u awaits to coil and finish- Kagalan, 2011.	90
Figure 34: A-Pre-firing heating to stabilise pots before they are finally fired, B-Communal arrangement of pots before they are fired.	91
Figure 35: C-Filling the pots interior with stalks to make the temperature even and more effective, D-Final organisation and strategy (Kagalan 2011).	91
Figure 36: A: Setting the bonfire, B-After firing and disassembling of finished products (Kagalan 2011).	91
Figure 37: ‘Pot healing’ substances in Kagalan: mixed baobab and <i>bagaruwa</i> powder and <i>Acacia nilotica</i> seeds (left), repaired pots (right).	93
Figure 38: Pot depots at Kirfi, Alkaleri and the door-to-door sales.	93
Figure 39: Some uses of pottery wares: A- <i>randa</i> , akin to a refrigerator; B- <i>randuna</i> [plural for water pots or fridges]; C- <i>Akulki</i> [chicken sheds] & a <i>randa</i>	95
Figure 40: A- Disk-like spinner, B- Bead-like spindle whorl, C- spinning in progress at the Kirfin Kasa settlement, 2012.	101
Figure 41: A-the loom near Ningi (source: Lamb and Holmes 1980), B-Former textile worker displaying his only remnant of <i>Koshiya</i> , Kirfin Sama, 2011	102
Figure 42: Dyeing in Kano in progress (source: Lamb & Holmes 1980)	104
Figure 43: Relics of ash mounds at Kirfi and Wanka, and a dye pit at Kirfi, 2011	104
Figure 44: Map of the region showing the sites studied	109
Figure 45: Survey transects across the study zone.	114
Figure 46: Landscape view of Tudun Dangawo (left- facing NW, right – facing SE).....	117
Figure 47: <i>Tudun Dangawo Site showing the distributional density of artefacts (River Gongola is the white area in the top left corner). The dotted line highlights areas with high density of cultural materials.</i>	118
Figure 48: Views of the Kagalan settlement sites, showing stone walls, stone foundations, the hill in the rainy season and the ruins of a former structure.	121
Figure 49: Kagalan: entrance to cave I (left); rock shelter (shelter).	121
Figure 50: Distributional map of surface potsherds and other features in Kagalan	123
Figure 51: Megalithic structures (group and isolated type) and ruins of a former stone feature at the Kagalan hill site	126
Figure 52: Cave II at Kagalan showing a high concentration of pottery.	126
Figure 53: Kagalan clay exploitation pits	127
Figure 54: One of the iron working ruins at Tekkira (near Kagalan settlement site), showing tuyère and furnace remains	128
Figure 55: Deep (left) and shallow (right) iron-ore mines near Tekkira.	128
Figure 56: Wider view of Kirfin Sama and environs (facing north)	129
Figure 57: View of Cheledi and Diso hill from the north-east edge of the Kirfi leg of the hill site, the structural remains at Kirfin Sama Hill.	130
Figure 58: Ruins of stone walls blocking the corridor between the Kirfin Sama & Cheledi hills, Structural remains at Kirfin Sama Hill, identified locally as a mosque	130

Figure 59: ‘Military watch post’ (location of <i>dara</i>) and its <i>dara</i> , that is to say game (two draught types)	131
Figure 60: Artefact density and artefacts and features at the Kirfin Sama Hill site	132
Figure 61: A stone arrangement identified as a ‘former religious structure’ at Zamani site at the southernmost end of the Kirfi hills. It is said to have been abandoned in favour of the settlement downslope in the plains, known as Zamani. Traditions associate its occupation with Barogha Basini, Kirfi’s founder.	134
Figure 62: Stone and mud walls at the foot of the Kirfin Sama hills (Dry stone walls up the hill-second line)	137
Figure 63: Stone monoliths within the ruins of former walls in Kagalan (left western side, right northern side, and part of the stretch of walls connecting the two hills)	138
Figure 64: Guyaba settlement showing Kirfi hills in the far background, viewed from Tudun Gambo (right showing its walling)	139
Figure 65: Gujimba walling system.....	140
Figure 66: View of Badara site (modern Badara in the background).....	141
Figure 67: Sketch of the Kirfi area showing the three excavated sites. Approx. not to scale. ...	145
Figure 68: All Finds from Kagalan, Kirfin Sama Hill and Tudun Dangawo – (Total: Pottery 6416, Small Finds 241, Fauna 1037).	146
Figure 69: Landscape view of Tudun Dangawo site.	147
Figure 70: The gully near the Kirfin Sama Hill excavation exposed arranged stones and human jaw.	148
Figure 71: Tudun Dangawo sections at completion. The North face is the face marked ‘D’.....	150
Figure 72: View of the Tudun Dangawo trench (showing south section) at completion	151
Figure 73: Tudun Dangawo level 3 cattle skull.	152
Figure 74: Compacted daub feature and burnt area at Tudun Dangawo Level 5.....	153
Figure 75: Standing stones at Tudun Dangawo Level 5	154
Figure 76: Kirfin Sama Hill sections at completion. The North face is that running A – B, see Figure 71 for key.	157
Figure 77: Kirfin Sama Hill, north section at completion	158
Figure 78: Kirfin Sama Hill, western section	160
Figure 79: Kagalan excavations profile (North is the section marked A-B). See Figure 71 for Key.....	164
Figure 80: The Kagalan site, west section at completion.....	165
Figure 81: Kagalan site excavation at level 5 (showing the stone platform in situ)	167
Figure 82: Kagalan excavation east section at completion.....	168
Figure 83: list of radiocarbon dates obtained for the sites.	171
Figure 84: Graph showing chronological sequence of the Kirfi area (all dates within 2 sigma range).	171
Figure 85: Chart for the determination of rim angles (Source: McIntosh 1995: fig. 3.6)	176
Figure 86: Rim Types from Kirfi sites (Not to Scale): Top Row: Simple rims (Group 1) a) S1 b) S2 c) S3 d) S4 e) S5.....	177
Figure 87: The D-type pot lid (right: a scheme showing a pot lid from Northeast Nigeria - Source Leith-Ross, 1970)	181
Figure 88: Occurrence of rim types at all sites. The vertical axis represents percentages.....	182
Figure 89: Handle type from Kirfi sites: a: H1, b: H2a, c: H2b, d: H2c, e: H2c & f: H3 (d & e are sub-classes of the same type)	185

Figure 90: Fabric composition at the Tudun Dangawo.....	189
Figure 91: Fabric composition at Kirfin Sama Hill.....	189
Figure 92: Fabric composition at Kagalan.....	190
Figure 93: General site fabric distribution figures (figures for organic + inorganic combined).	191
Figure 94: Sherd colour across all sites.....	193
Figure 95: Sherd Colour characteristics at Tudun Dangawo.....	193
Figure 96: Sherd Colour characteristics at Kirfin Sama Hill.....	194
Figure 97: Sherd Colour at Kagalan.....	194
Figure 98: burnishing (left)/red slip (right) at Tudun Dangawo.....	197
Figure 99: burnishing (left)/red slip (right) chart for Kirfin Sama Hill.....	198
Figure 100: burnishing (left)/red slip (right) chart for Kagalan settlement site.....	198
Figure 101: Schematic representation indicating preferential decoration placement.....	204
Figure 102: Distribution of Roulette decorations at Tudun Dangawo.....	207
Figure 103: Distribution of Roulette decoration at Kirfin Sama Hill.....	207
Figure 104: Distribution of Roulette decoration at Kagalan.....	208
Figure 105: Distribution of Folded Strip Roulette types at all sites (Grand Total 528)......	208
Figure 106: Some popular painted sherds at Tudun Dangawo.....	210
Figure 107: Some popular painted sherds at Kirfin Sama Hill.....	210
Figure 108: Some popular painted sherds at Kagalan.....	210
Figure 109: Incised sherds at Tudun Dangawo.....	211
Figure 110: Incised sherds at Kirfin Sama Hill.....	212
Figure 111: Incised sherds at Kagalan.....	212
Figure 112: The distribution of small finds at Tudun Dangawo Settlement Site (total 124).....	219
Figure 113: Left: Metal objects from Tudun Dangawo site & the earliest known key from West Africa – Tadmakka, Right, (Source Nixon 2008).....	220
Figure 114: Stone objects; A Pebbles (Zuza); B: Carnelian.....	221
Figure 115: Polished stone artefact and flaked tool, Tudun Dangawo.....	222
Figure 116: Left to right: Stone pebbles from Kagalan, level 80cm, Pebble from Tudun Dangawo, Pebble from Tudun Dangawo.....	223
Figure 117: A terracotta figurine excavated at level 1.....	223
Figure 118: Smoking pipes from Tudun Dangawo. Upper row: A: Complete oval bowl, B-I: fragments of bowls, all decorated except C; Middle row A: A spheroid base with remnant of stem & hole, Lower row: A: Complete squared mouth stem, B-E complete mouth pieces, F-G: Fragments of stems.....	224
Figure 119: Utilised sherds. Upper row: triangular utilised sherd, irregular rectangular shaped; Lower row: Circular pieces.....	226
Figure 120: Tudun Dangawo specimens of burnt clay.....	227
Figure 121: Miniature pot from Tudun Dangawo (left) and use of pot type near Kano (source: Heathcote 1976).....	228
Figure 122: showing other ceramic artefacts from Tudun Dangawo: A-Perforated object, B: Model pot, C: Terracotta. D-E: Sherd objects (right water jar, source Leith-Ross 1970).....	229
Figure 123: Distribution of small finds at Kirfin Sama Hill (total 63).....	230
Figure 124: Metal objects from the Kirfin Sama Hill.....	230
Figure 125: Artefact from Kirfin Sama Hill identified as key.....	232

Figure 126: Ivory objects, cowries & glass objects from the Kirfin Sama Hill	232
Figure 127: Stone tools from Kirfin Sama Hill	234
Figure 128: Clay figurines from the Kirfin Sama Hill.....	235
Figure 129: Smoking pipes from the Kirfin Sama Hill (Last 2 below are made of ivory).....	236
Figure 130: Spindle whorls (upper row - last has no hole), other ceramic objects (middle row), Clay disks (row below).....	239
Figure 131: Distribution of small finds at the Kagalan (Total 58).....	240
Figure 132: Metal objects from the Kagalan.....	241
Figure 133: Bone ring from the Kagalan	243
Figure 134: Stone tools found at the Kagalan Site.....	243
Figure 135: Ceramic small finds from the Kagalan site	244

List of Tables

Next page: Table 1: Regional survey. The density of cultural materials retains the 0-3 system.	115
Table 2: Specific distribution of artefacts at the Tudun Dangawo site. The sampling units were 5x2m around the test pits along four cardinal directions, where N1 is ‘North’ nearest the test pit while N4 is the last collection point in a northerly direction.	120
Table 3: Specific distribution of artefacts at the Kagalan site. The sampling units were all 5x2m around the test pits along four cardinal directions, where N1 is ‘North’ nearest the test pit while N4 is the last collection point in a northerly direction.	124
Table 4: Specific distribution of artefacts at Kirfin Sama Hill site. The sampling units were all 5x2m around each of the test pits along four cardinal directions, where N1 is ‘North’ near the test pit while N4 is the last collection point in a northerly direction. X represents presence of particular artifacts in the survey unit indicated.	133
Table 5: Distribution of faunal remains from all sites.	144
Table 6: Distribution of pottery based across all sites: Total sherds number 6416.	174
Table 7: Distribution of diagnostic sherds across all sites.	174
Table 8: Occurrence of rim types at all sites by level. The % row shows the proportion of each rim type at each site, all levels confounded.	183
Table 9: Distribution of handles types across sites	185
Table 10: Distribution of sherds based on fabric	188
Table 11: Sherd colour at all sites (Total: 1625)	192
Table 12: Occurrence of burnishing (left) and red-slipping (right) – Total 1624	196
Table 13: Major decorations across all sites. This table lists occurrences of decorations rather than numbers of sherds, and as one sherd can have more than one decoration, numbers differ from the figures in table 6. ‘Undec’ represents zones left undecorated between decorated areas. ‘Instinct’ refers to sherds which were not plain but where the mode of decoration could not be determined.	200
Table 14: Common roulettes found at the Kirfi sites, and correspondence with other published materials.	203
Table 15: Decorated and undecorated sherds Tudun Dangawo (Total 1546)	205
Table 16: Decorated and undecorated sherds at Kirfin Sama Hill (1784)	205
Table 17: Decorated and undecorated sherds at Kagalan (Total 3086)	206
Table 18: Distribution of painted sherds at all sites	209
Table 19: major chemical elements analysis from ceramics at the three sites	213
Table 20: Clay origin correlation, dividing into two groups on the basis of silicon and iron oxides. Diamond shapes indicate Tudun Dangawo, square Kirfin Sama Hill, and triangles Kagalan.	214
Table 21: Comparison of modern clay sample from Kagalan clay pit (grey coloured sample). 215	
Table 22: Artefact distribution at all sites	218
Table 23: Major chemical elements for the hook artefact at 80cm from the Kagalan	242
Table 24: XrF elements for bone rings from the Kagalan site	243

Dedication

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CHAPTER ONE: INTRODUCTION

This thesis makes a first contribution to the archaeology of the Kirfi area of northern Nigeria. It is based on the excavation of test pits at three sites, carried out as part of a doctoral research project at the Sainsbury Research Unit for the Arts of Africa, the Americas and Oceania, University of East Anglia. This chapter introduces the aims, objectives and scope of the research, and the conceptual framework guiding it. It also introduces the Kirfi area, which lies in Bauchi state, Nigeria.

1.0 Introduction

The choice for this study of the southern Bauchi area, and more specifically Kirfi, was guided by the presence of numerous visible archaeological remains (Effah-Gyamfi 1986, Allsworth-Jones 1993a&b, Aremu 1999a&b, Sule 2007, Darling 2008, Sule 2010, Horlings 2012), some of which had been surveyed previously, but never adequately investigated.

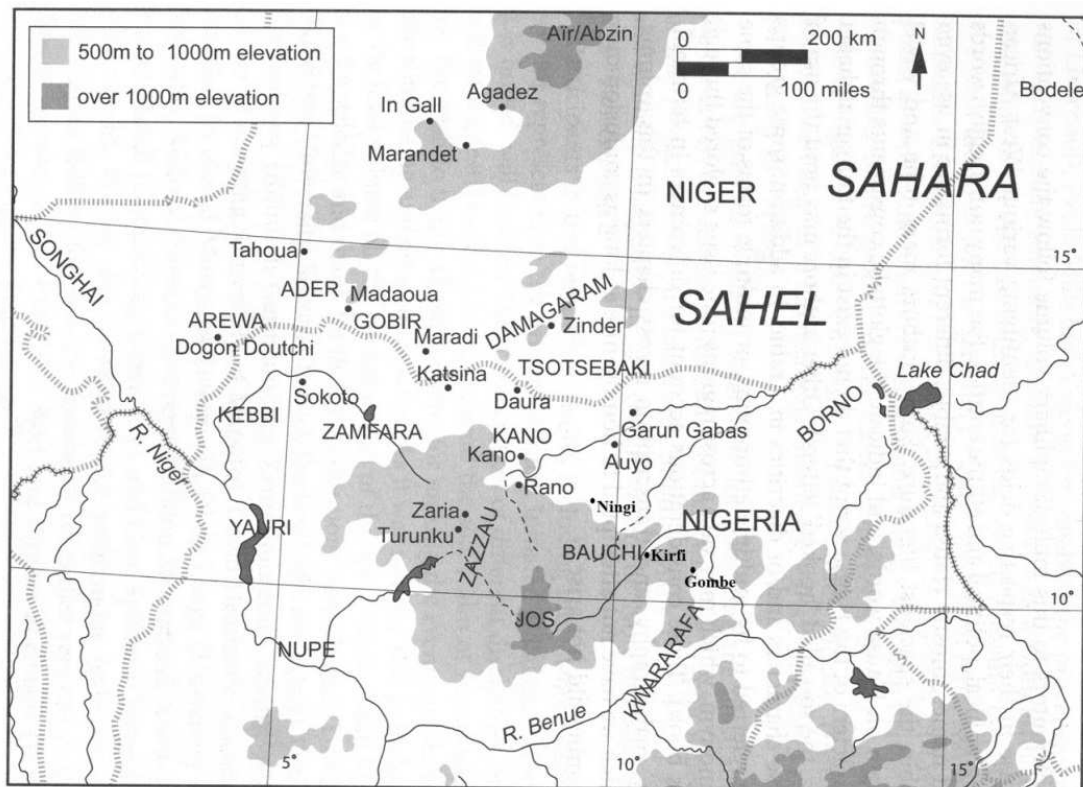


Figure 1: Map of Hausaland, Borno, Bauchi area and other important centres mentioned in the text. (Adapted after Haour and Rossi 2010, figure 1.1)

The Kirfi region also presents interesting historical questions. The capital of this Local Government Area, Kirfi, shares historical connections with the state capital, Bauchi. Kirfi contributed to the struggles which led to the emergence of Bauchi as one of the seven powerful allies of the Sokoto caliphate that thrived in the early 19th century throughout the region, comprising much of northern Nigeria and the Niger Republic of today. The modern Kirfi population claims they are all of one

ethnic group and of the same root, speaking the same language, Hausa, with only slight local variations between settlements; yet different accounts exist of the origins of the population. Three common versions exist: those that claim eastern roots from Yemen or Saudi Arabia or Asia, via Gazargamo in Borno (about 300km to the north-east); those which look at Jukun/Kwararafa kingdom about 250km south of the present study area; and finally, and less commonly, those that see Hausaland, some 250km north/north-west, as an origin for the Kirfawa. This last tradition is deeply rooted, but mainly observed to relate to the majority population with no ties to the royal families. This is a point to which we shall return.

Thus, the nature of socio-cultural contacts here, as elsewhere in West Africa, makes it appropriate to envisage the theme of migrations and conquests. New social groups have emerged with reorganisations of the political order taking place due to the successive immigration of various populations. This makes the question of the identity of past groups a difficult one. For instance, S. McIntosh (1994:185) remarked that in West Africa “frequent movements of peoples into new areas and a constant splintering and fusion of groups who combine and recombine with other groups, poses virtually insurmountable problems for the identification of ethnicity in the past”. As we shall see, population movement is a core theme in the reconstruction of the African past generally, and particular reference will be made here to Kopytoff’s (1987) theory of internal African frontier developments.

A key question I explore in this thesis is that of the extent to which Bauchi and Kirfi can be considered to have been part of Hausaland – the *Kasar Hausa*, the land in which Hausa is spoken as the first language - in the past. The Hausa language is hugely influential in Bauchi today and historical records mention the impact of Hausa cities on Bauchi. One key question of the present research will thus be to test the degree, and time depth, of this Hausa influence. Certainly, some scholars feel Bauchi has not been a principal part of the Hausa area historically. Adamu (1982), for instance, describes the people of *Kasar Bauchi*, Nupe and Kwararafa as groups who had relations with the Hausa during the period 1200-1600 AD. The exclusion of Bauchi seems to be based on the orthodox use of the Bayajidda legend and the idea of the core and ‘bastard’ Hausa states (see below), which ignores processes outside the central Hausa areas such as Kano (see also Figure 3, below, for a similar view).

It is often stressed that understanding of the West African past is improved if the associated disciplines of archaeology and history recognise their diversities and close the traditional gaps between them. DeCorse & Chouin (2003) explored how a variety of sources can examine African landscapes and produce similar frameworks for categorising them into useful social units. They suggest that sources can be married into another to create research areas such as ethnoarchaeology,

historical archaeology or ethnohistory for the common goal of reconstructing the complex social history of African landscape formations. In the specific case I consider here, it is legitimate to speak of the question of a 'Hausatisation' of the Bauchi landscape (Sutton 1979, Haour & Rossi 2010, Sutton 2010).

In summary, the goal of the research presented here is to contribute to a better understanding of the cultural history of the Bauchi area over the past millennium, highlighting the contribution which archaeological research can make, and exploring the role of Hausa-speaking communities. Specifically this work will seek to:

- Evaluate archaeological data to reconstruct the means of cultural exchange through goods, services, ideas and beliefs and to locate trade and long term social networks within the region.
- Explore the complementary use of oral traditions and archaeology to bridge knowledge gaps about southern Bauchi (and northern Nigeria more widely).
- Examine the potential for generating analogical parallels for the interpretation of archaeological evidence through the investigation of the social networks of craftspeople today.
- Devise a typology of diagnostic artefactual assemblages, specifically pottery, which may shed light on the cultural transformations that embedded themselves in material products and which may be applicable to the wider sub-region.

In order to further these aims, my thesis explores various sources of evidence – archaeology, written history, archival data, oral histories and ethnographic data – to shed light on *Kasar Bauchi's* past. Specific objectives of the field research presented here were:

- To excavate test pits at three archaeological sites within the study area: Kirfin Sama Hill, Tudun Dangawo and Kagalan, in order to obtain a collection of material culture from secure stratigraphic contexts and samples, suitable for dating;
- To survey the area around them to detect any artefact-based distributional pattern on the landscape, with a view to reconstructing patterns of settlement and economic systems in the region;
- To conduct both geochemical and physical examination of pottery and other artefacts, to characterise and identify the cultural variability of attributes over sites;

- To investigate modern socio-economic relations behind three major craft productions – potting, ironworking and weaving – to better frame the archaeological data;
- To cross-examine the potential for enhancing knowledge of Kirfi’s past through literature and other historical sources.

The remainder of this chapter will set the scene for the study, beginning with what was known linguistically and historically of southern Bauchi prior to the research presented here.

1.1 Kirfi and its Settlement History

Kirfi is the administrative and political headquarters of the Kirfi Local Government Area, covering an area of 2,371 km², with a population of 147,618 (FGN 2006). The people of Kirfi today principally engage in subsistence agriculture: the cultivation of crops such as millet, guinea corn, beans, groundnuts and maize, and the rearing of animals such as cattle and sheep, goats, guinea fowl and chickens. Fulani people, traditionally cattle herders, now settled in the area also cultivate the land. They are concentrated in a few historically known settlements such as Cheledi, Tekkira, Badara and Wanka.

There are three fundamental ethnic categories based on the perception of the local populations; Kirfawa or Giiwo who themselves as the original settlers, Hausa (perceived to be the relatively recent migrants) and Fulani (both nomads and the settled population). Hausa is the lingua franca today, spoken by all groups, but while the Giiwo language is dying out, the Fulani language Fulfulde is maintained as most Fulani are bilingual.

The population, who hold no chieftaincy title, are categorised into groups based on their professional trade such as blacksmiths, builders, fishermen, hunters, potters, woodcarvers, tanners, traders, dyers, tailors or weavers. Overall the whole society falls into one of the three categories, the aristocrats, the wealthy (who are mainly merchants and categorised by their economic standing), and the commoners (identified in relation to their craft as mentioned above). M. G. Smith (1958; also Hill 1972, Adamu 1982) deliberated on the Hausa socio-economic system where farming, like that of other African societies, is the principal mode of subsistence, with relationships expanding through other trades; Kirfi appears to follow the same pattern, as the archaeology will come to show us later.

Islam is the predominant religion today, having gained ground since the periods of Sokoto Jihad in the early 19th century and conversion to Islam having been completed around 50 years ago. Any

remaining animists in Kirfi have converted, and there is some level of syncretism with Muslim practices (MY 2010). There also exists a growing number of Christians, mostly due to civil service, police, and educational postings to the area over the past decade.

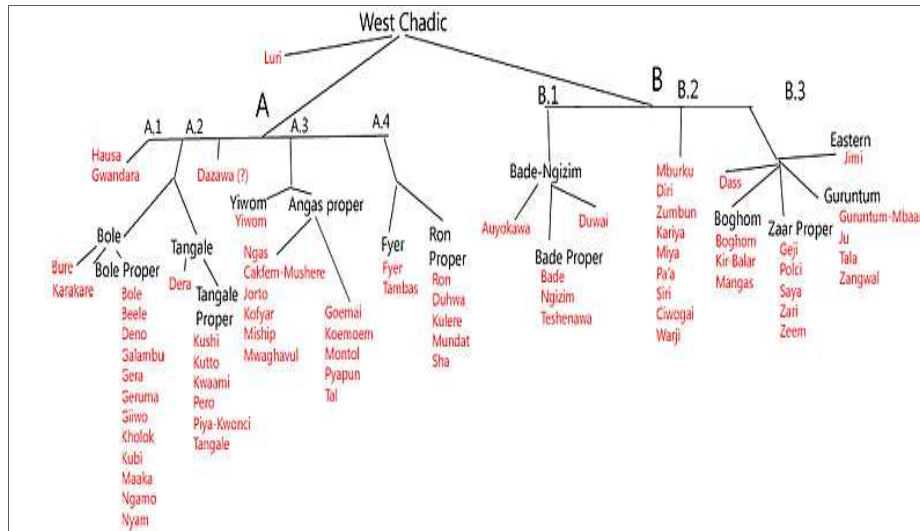


Figure 2: West Chadic languages showing some of the southern Bauchi language groups mentioned (Wikimedia05).

As mentioned above, nowadays Hausa is the lingua franca of the population of Kirfi. The original Kirfi language, Giiwo, appears to be dying out, as only the elderly speak it now. All the Bole family of the Chadic languages spoken in the study area are considered to be of the same family, related to the Kirfi or Giiwo language. But although linguists recognise many subdivisions (Figure 2), the situation at present seems less complex, with such fine divisions not recognised by the local people. It may be that differences that once existed have been erased in the present by the growth of certain languages that are seen as prestigious.

As alluded to above, Kirfi traditions suggest three various waves of influence and migrations: from Borno to the north-east, from Jukun to the south and from Hausaland to the north/north-west. Traditions do not clearly state the presence of other peoples in Kirfi before these immigrants; they commonly claim to have been the first to inhabit the hills and valleys before the more recent arrival of Fulani and Hausa peoples. However, archival sources, such as Dyer (1912), suggest the existence of an early autochthonous group, called Gumfu. Today no account mentions this specific name, but there is occasional reference to disappeared others, who were giants and built stone houses.

This research begins with the question of who were the people who occupied the Kirfi area over the last millennium. I acknowledge that archaeology cannot tell us the specific identities of peoples, much less pinpoint successive migrants into the area as claimed by traditions, but we shall be looking for material signatures in terms of technology, and variations suggestive of cultural rupture or

continuities. A range of questions can be raised at the outset. With regard to claims of the existence of an autochthonous population, is it the case that they were displaced by later intruders, for instance from Hausaland or Bornu, or were they assimilated? Can the material culture excavated from the three sites under study – Kirfin Sama Hill, Tudun Dangawo and Kagalan – serve to judge homogeneity or heterogeneity? And in what way does the evidence fit with the popular oral traditions that dwellers of these abandoned sites belonged to the same group?

Moreover, what factors influenced the settlement and economic history of these settlements: geography, soil, environment in the choice of hilltops, river bank and valley? Was there a diversity of subsistence systems? Was the availability of natural resources, such as iron ore and clay, decisive in the spatial location of settlements and of industrial sites, or did people take part in the final production of artefacts for trade? Craft specialisation is another symbol for a complex urban way of life in most African societies (see e.g. McIntosh 1994 & 2005). Dye pits and slag mounds are amongst the traces of past industrial activity visible in Kirfi today. For example, I documented 57 abandoned dye pits and another 13 at the Kirfin Kasa settlement within an area of 50 x 20m showing a high accumulation of waste from past dyeing operations, while 14 mounds of slag debris exist at Tekkira (Sule 2010) and about 7 at the Tasma site, covering an area of about 2 km². These debris are associated with the remnants of furnace walls (some of which are still standing), and there are high amounts of tuyère fragments. Naturally there may be a chronological gap in the creation of these remains – another question to be answered by the archaeological research. Finally, what factors influenced the prosperity and subsequent decline of the sites under study? Did southern Bauchi participate in the trans-Saharan trade between North Africa and Kano, and could Kasar Bauchi have supplied articles such as dyed materials and textiles, iron tools, slaves etc?

To help address these various questions I have chosen to focus on the question of Kirfi's relation to the Hausa world. Defensive walls, remains of craft activities and a system of settlements on hilltops as recorded in the Kirfi area (Sule 2010) are characteristic features of the Zaria and Kano regions and appear to be a common feature in the Kasar Hausa generally (Insoll 2003, Haour 2003a & 2010). If we examine this more closely, a pattern of cultural similarities can be observed between Kirfi sites and known sites of the core Kasar Hausa, such as Kano, Turunku, Kufena and Zaria.

The story of the development of the Hausa city-states is, in itself, the story of cores and their peripheries. The historical phase of development of the Hausa states which is collaboratively addressed by historical sources (including oral accounts) indicates the existence of polities such as Zazzau (Zaria), Kano, Katsina, Gobir, Biram, Rano and Daura.

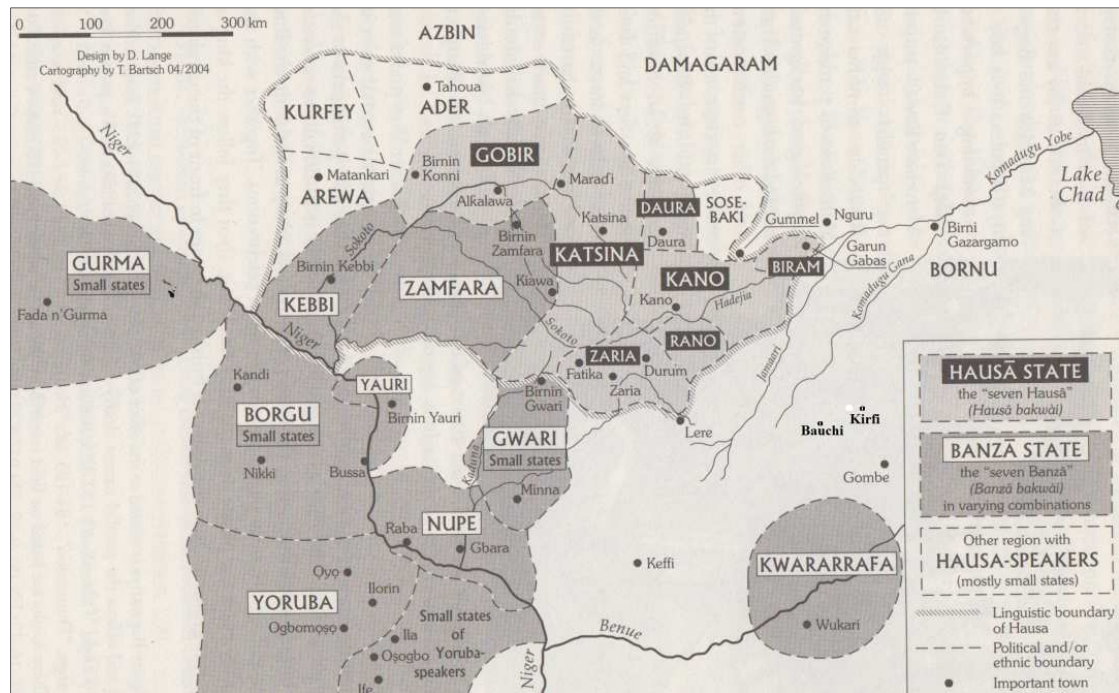


Figure 3: Map showing the Hausa states - including the so-called Hausa Bakwai (adapted from Lange 2004).

Legend and mythology have shaped understanding of the origins of these city-states. The Hausa tradition of origin refers to sources due north and east (Bovill 1970, Sutton 1979 & 2010, Last 1985, Haour 2003a, Lange 2004). Their traditions articulate the orthodox legend of the great Bayajidda who came from the east, to Daura (nowadays consequently acclaimed as the earliest Hausa city), where he encountered a dreadful snake occupying a well, which was preventing the inhabitants from accessing their only source of water. He killed the snake, and the queen of Daura married him for this gallant act. The children from this union beget the 'Hausa Bakwai' (legitimate sons) and the 'Banza Bakwai' ('bastards', symbolising the non-original Hausa states). Kano, Katsina, Gobir, Zazzau, Rano, Biram and Daura itself became the legitimate sons according to traditions, ultimately creating seven Hausa states. On the other hand Kebbi, Zamfara, Gwari, Kwararafa, Yoruba, Nupe and Yawuri that had Hausa as their second language are understood as the 'Banza Bakwai'. Lange (2004: 229) argued that the division into the Hausa and Banza Bakwai originates from the parallel social roots of pre-Islamic cult systems of the Hausa which impacted on the modes of oral histories, while Sutton (1979) sees the Hausa/Banza Bakwai rather as a political construction with frequent association to exotic origins.

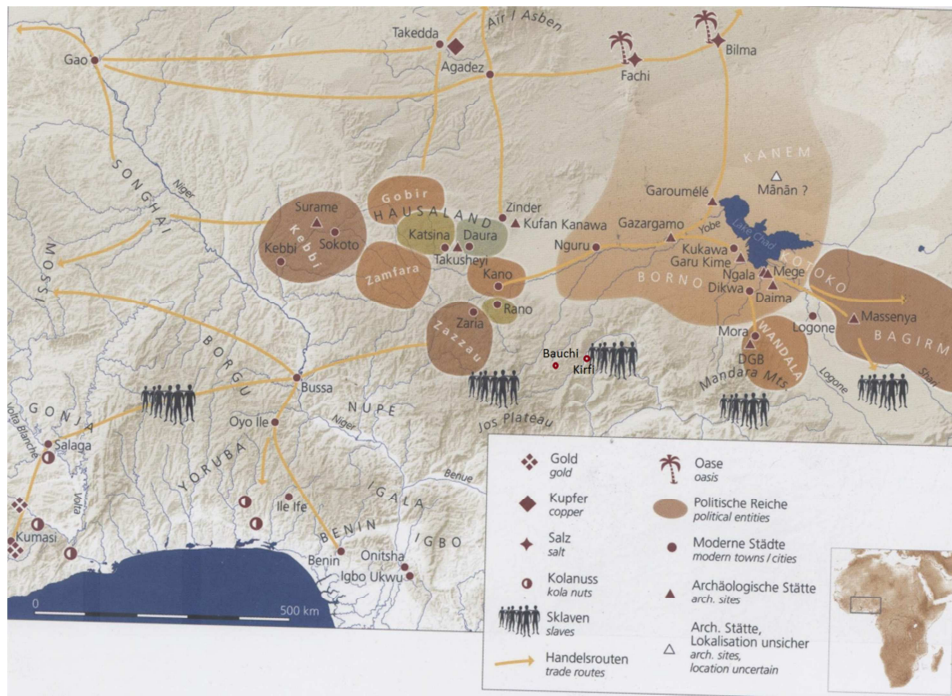


Figure 4: Map showing Kirfi (note the importance of slaves, as a commodity, to its economy) and some important centres mentioned in the text (adapted from Gronenborn 2011).

Locating Hausa identity historically is difficult, as is the case with most identities and even more so when ‘Hausaness’ is often defined by language. Hausa identity and meaning will have undoubtedly changed through time and space; scholars such as Sutton (1979, 2010) and Haour (2003a, 2010) opined that ‘Hausaness’ is not an event but a process that kept changing. ‘Hausaisation’ is defined by them as a set of activities of a people, such as trade and craft, language, religious system, appearance by way of clothing and a system of parkland farming. Hausaisation is seen as a process that expands, creating a situation with a ‘frontier moving forward each generation to claim new territory’ where the expansion may have been ‘assimilative, existing local communities gradually identifying themselves with the dominant Hausa system and adopting its language and mores’ (Sutton 2010: 279 & 280). The process is challenging to define but can reasonably be expected to have had some archaeological visibility. Events such as Islamisation, colonial expansion, Hausaisation and ‘frontier expansions’ may likely portray levels of cultural continuities and discontinuities in the material culture. The oral traditions claim monolithic and linear direct historical connections between its past and present populations, but this is simplistic. The collaborative use of research methods should be productive, especially from the 19th century onwards, which is assumed to be markedly dissimilar from earlier periods when traditional religious practices held sway. The influence of Islam (as opposed to formerly practiced ritual systems), long-distance trading systems and the role of slaves as a commodity, ‘Hausaness’, craft and economic specialisations are all put forward as factors in the sequence of events that played out in the settlements under study here.

1.2 Theoretical Framework

I wish to explore to what degree the cultural traditions at the Kirfi area of southern Bauchi can be related to developments in the Hausa area. To do this, I use several bodies of theoretical knowledge, considering known Kirfi archaeological remains as a manifestation of social and cultural identity. In this section I set out key points from models of the ‘African frontier’ hypothesis as my major theoretical ground to understand the archaeology of the southern Bauchi area as a frontier of the Hausa ‘world’. Other secondary models, such as the roles of landscape and territory, ethnicities, and technological styles, will aid my understanding of the material culture and I here relate them to the general themes of this research.

To problematise the impact of the Hausa world, I have found the framework of African frontier theory useful. This considers the expansion of complex African societies and their exchange of social, cultural and economic practices, and it is a particularly strong analytical tool for understanding the political geography of peripheral spaces in Africa. Kopytoff (1987) borrowed the use of ‘frontier’ from Frederick Jackson Turner’s study of American political systems to propose a local ‘African frontier’ thesis through which he tried to understand the processes that shaped the emergence and development of marginal societies in Africa. He argued that new social groups, with distinctive economic and political systems, develop at the outside borders of dominant groups, reflecting the cultural influence of the expanding of the borders. In his view, these processes occur more at locally and internally-driven smaller scales than at regional levels – the dynamics of people’s movements across and into peripheries appears as a cultural process deeply rooted in African social historical traits. Social relations based on kinship systematically produce frontiersmen, with a tendency for individual actions to coalesce into collective sentiment that results in the emigration and diffusion of kinship groups (Kopytoff 1987: 11). The frequent myth of leadership struggles culminating in the expulsion or exile of princely leaders and the metaphorical arrival of a heroic leader is one example which reflects Kopytoff’s model.

In a similar vein, other scholars (e.g. Ashmore & Knapp 1999, Lightfoot & Martinez 1995, Wells 2005, Naum 2010) interested in frontiers, contact zones and marginal cultural developments outside Africa, have examined how cultural systems are altered across boundaries and where social territories emerge when human factors are recognised on spatial grounds. How do people perceive themselves and others at a distance, and is the way that potential resources of the landscape are collectively exploited located through the material production of objects? This is a useful approach, as people in Bauchi today consider landscape as part of their defining identity, where Kasar Bauchi is perceived through geography and economic relationships. An example is the categorisation that ‘we are the people of the hills’ associated with Kirfin Sama or the reference to water ‘yan ruwa’ for Zamani and

Guyaba where children born into specific families up to today spend their first 7-10 days in the river under the custody of the water spirits. Lightfoot & Martinez (1995) specifically use the example of trade-outposts in western North America to argue that frontier zones are culturally charged environments, facilitated through trade, conquest or other forms of contact, and whose materiality leaves marks. They argue that approaching world systems through regional scales is important to locate parallels operating at micro-scale levels across sites, and that only site-specific models can consider 'interethnic interactions along frontiers' as regions of active cultural interface. In short, according to Lightfoot & Martinez (1995: 477) site-specific researches allow understanding of how groups respond to encounters with "others" and how new cultural constructs are created, transformed, and syncretised on the frontier.

In an archaeological study such as the one presented in this thesis, of course, the question of the nature of cultures has to be approached largely through material objects. The human factor in the making and shaping of objects has attracted considerable attention from archaeologists over the years. Although it has now become clear that material culture distinctions do not correlate one-on-one with social boundaries, it still appears that group identities do impact on how individuals act and make decisions on the production of materials. The role of material culture in mapping identity has therefore been much-written about (Kramer 1985a, Hegmon 1992, 2000, Pfaffenberger 1992, Gosselain 1999 & 2000, Hegmon 2000, Livingstone 2000, Sillar & Tite 2000, Stark 2003). A body of theory usually glossed as the 'theory of technology' has recently made important advances by considering technology as a cultural product. The study of people is approached from the standpoint that groups develop their collective, distinct cultural identity through the acquisition of shared values, such as technology which becomes part of their daily living. These attributes are learnt and shared among members over time. An important way to visualise these is through the processes of the production of knowledge and in the material making of artefacts; here the way of making cultural objects is a product of long-term cultural experience. Pfaffenberger (1992, also Gosselain 2000) alludes to differences in traditions and styles of making objects that are spread across boundaries and shared as one group relates with another through these imitations, copying and borrowing and adopting new methods which are absorbed as traditions, but still bear witness to a social boundary.

In short, the theory of technology (Pfaffenberger 1992, Gosselain 2000, Hegmon 2000: 267, Sillar & Tite 2000, Haour & Galpine 2005) revolves around technological choices and variations inherent in manufacturing styles. The roots of these approaches lie outside archaeological practice itself. Pfaffenberger (1992) concedes that a 'socio-technical system' emerged from recognition of ideological immersion of belief systems into the technological production and use of artefacts, and he recognises the sociological baggage of any technological activity. The technical process is not a static event, but is the product of intercultural negotiation between people with varied backgrounds. In the

same manner, the idea of 'embedded technology' presupposes that "[L]ike economic activities, technical acts are contingent upon the context that they help construct, they are embedded technologies" (Sillar 2006:2). These modes of technological theory emphasise the ideology and materiality of social agency to the continued reproduction of the technological action of peoples as they produce artefacts. Locating embedded features of technologies or 'sociotechnical systems' (Pfaffenberger 1992:500) help us locate variations in techniques, as well as suggesting which attendant conditions may have created such disparities.

Tying technology to social phenomena has thus proved beneficial to African studies. Here, I examine whether the set of social and technological systems that developed the kind of material culture in the Kasar Hausa were similar to those found in the Kasar Bauchi.

Approaching the subject of ethnicity and identity from an archaeological angle is difficult. Archaeological evidence has been used to examine interactions and to suggest differing levels of cohesiveness and disparity through material manifestations that are suggested to be correlated with ethnic entities or other social units (MacEachern 1998, Gosselain 2000, Insoll 2007a & b, Jones 2007). This view contributes to the discussion on the broader concept of social identity in the archaeological context within which is set Kasar Bauchi. It tends to encompass both boundary (Emberling 1997: 299, Stark 1998), and difference (Emberling 1997: 299). Identity is seen as a dynamic and changing concept as well as perception and creation. Its value is more obviously suitable in archaeology when looking at the recent historic past (MacEachern 1994, Insoll 2007a:1, Jones 2007); but it is also a useful tool to question the social character of individual identities even as they result from negotiations that become all the more complex to untangle since the constituent units are interrelated. For example, the process of constant accommodation of competing craftspeople's requirements in the face of unpredictable resources, is addressed by McIntosh's pulse model (2005), which I go on to discuss below.

Because approaching the subject of identity through archaeology is difficult it has become normal practice to use ethnographic data alongside archaeological data and this is the approach I take in this thesis. As defined by David & Kramer (2001: 2; Stark 2003) in their *Ethnoarchaeology in action*, ethnoarchaeology is a 'research strategy embodying a range of approaches to understanding the relationships of material culture, to culture as a whole, both in the living context and as it enters the archaeological record, and to exploiting such understanding in order to inform archaeological concepts and to improve interpretation'. They argue that the researcher interacts with the subjects and affords access to primary data capable of improving analogy and interpretation.

This feeds back into the question of technology. For example, there are many ways in which potters work with their raw materials to obtain the desired physical products, different ways of manipulating

the sequence to arrive at a finished product and diverse means to form a vessel, decorate and fire it, all of which are dependent upon local cultural practice. Successful application of ceramic ethnoarchaeology in studying cultural systems in the Nigerian region (David & Shaw 1989, Garba 1999, 2002, Ogundele 2005) informed my work in the southern Bauchi area. Because of the importance of pottery to my research – as an evidential resource to understand technological systems, styles and decision-making – I will apply ceramic ethnoarchaeology principles to recover data about the traditional set-up and functioning of social factors in the production, consumption, and subsequent abandonment of pottery in the archaeological record. Ceramic ethnoarchaeology recognises that making pots represents a technological embodiment that shows a complex interplay of technical choices and decision on the part of potters to forego one set of actions for another, from the initial idea to construct a pot through the selection of raw materials, moulding and finishing (Gosselain 2000, Hegmon 2000, Sillar & Tite 2000). It extends to people's decision about how the pots are put to use, and the final deposition of the ware in archaeological contexts. To Gosselain (2000), pottery technology provides avenues to understand the array of options available to potters as they produce their wares, using the notion of 'chaîne opératoire' – which should not be viewed as merely a monolithic system of achieving a process, but as a collective expression of individuals and group experiences, indicating levels of preferences to achieve single end products. Pottery traditions, to him, are the 'sociotechnical aggregates' that display inventions and manipulations over time. Then, since artefact assemblages and chaîne opératoire indicates the dynamic nature of human behaviour, they can be useful indicators of cultural changes. For instance, Stahl *et al.* (2008) documented continuity and change in ceramic production, exchange and consumption over the past 1000 years in the Banda region of Ghana. Much as Pfaffenberger's assumptions (1992) about a sociotechnical basis for technology, Stahl *et al.* (2008) also support the idea that the technology of a people cannot be separated from the broader social, political and economic circumstance within which they function. Technology itself is a form of culture which integrates knowledge systems, options, constraints, intuition and so it is technical processes, rather than physical objects, which in some respects translate the identity of makers and users.

The same is true of iron-working. Iron smelting has received some attention at sites within Kasar Hausa such as Turunku, Kufena, Tsauni and Samaru West in Zaria and Dala in Kano (Sutton 1976a & 1985, Effah-Gyamfi 1981b, Aremu 1999a&b, Jemkur 2006, Odojin & Mangut 2008, Odojin 2008). The survival in the landscape today of large mounds of slag associated with tuyère fragments and furnaces connects smelting to an important part of the local culture history. Technological production of objects and the social relevance of the processes that underlay such production is a large reservoir for knowledge about the past. It codifies the values that people attribute to the landscape and how they relate with it. Smelting studies were generally centred on its technology and an interest in the understanding of its physical social manifestation in the Kasar Hausa (Sutton, 1976 and more recently

Kola 2010). They now afford West Africanist archaeologists insight into what the people who once occupied the Kasar Hausa share with others elsewhere in sub-Saharan Africa. Furnaces are not merely physical components for smelting, but reflect deeper social meaning attributing their internal and external mechanisms as symbolising human forms, spirits and gestures (Schmidt 2009). The ritual, sexual and reproductive manifestation of the analogous perception of the human body and its activities led to the interpretation of Shona (Zimbabwe) and Fipa (Tanzania) furnaces as socio-technological representations of humans and people. These meanings and the human symbolism associated with smelting are shared expression across ethnic groups in Africa with knowledge-sharing relationships, where a pattern of such traditions are capable of suggesting social boundaries.

In the Mandara region, south of the Lake Chad Basin, decades of anthropological studies of pottery (MacEachern 1998) led to the conclusion that it is very difficult to use stylistic variations and styles to arrive at an understanding of a linguistic and ethnic demarcation of identities. These data however do not mean that differences do not exist and that material culture cannot inform us about group identities. Pottery styles and variations may in fact inform region-wide boundaries rather than smaller more localised landscapes. Regional ceramic variations may signify regional interaction of the specialist potters and producers. MacEachern (1998) therefore suggests that it is difficult to study today's ethnicities, or even the past, using ethnography or archaeology alone, because identity is a negotiated construction, not always clearly visible in material products by such groups. On the value of an ethnoarchaeological approach to ceramics, Hegmon (2000) has summarised the current state of research and although she concedes that there does not exist a straightforward relationship between pottery style and social interaction, she argues that a connection does exist. In other words, the situation is not as simple as we once thought but there is no cause for despair.

The historical need for people to moderate their competing tendencies to live as a group sees social relations through the eyes of accommodations to world systems. These approaches addressing long-term patterns of diplomacy were applied by McIntosh (1993 & 2005) to understand African social systems through intergroup 'accommodation' strategies through what has become known as the "Pulse Model". McIntosh applied this model to the understanding of the rules of 'accommodation systematics' embedded in archaeological cultures of Middle Niger landscapes where individuals, economic specialists and corporate groups collectively exploited resources and congregated harmoniously over a long period of climatic trials and tribulations. Using environmental data over a long term period, McIntosh is able to describe the complex relationship between people as they interact, competing for available but limited resources due to unpredictable climate variations. Environmental unpredictability was a central factor that influenced how people cohabited in a landscape of diverse regions.

Because of the lack of paleoenvironmental data for the Bauchi region, I cannot apply McIntosh's model in such detail but I can nonetheless use its general principles, attempting to locate evidence of a growing variety of groups, represented by different economic systems and crafts that would ordinarily result in friction, but where the pulse model allows alliances and a recognition of the need to live in harmony. Diversity of specialisation is, of course, often identifiable through archaeological evidence, and attempts at revealing corporate identities through variations and shared cultural systems are manifested through characteristics such as pottery decorations and shaping techniques. In modern times, for instance, the River Gongola is attractive to Fulani pastoralists, living on pasture lands alongside agriculturalists; both groups have to be content with this cohabitation. The historical episodes of the multiple inflow of emigrants from far and near into the Kirfi area as recorded by oral traditions, shows a tolerance of both autochthonous and strangers, a re-occurring theme in West Africa (Haour 2013). The archaeological data I will present in this thesis show human resilience over time to cope with the risks coming from slave raiding and resource competition among others. The pulse model offers a way to connect these clues in the landscape to notions of ethnicity and technology, examining the cultural systems of the people whose archaeology we see today.

1.3 Scope and methodology

This study concerns a part of the Kirfi area shown below (Figure 5). The archaeological sites are abandoned settlement sites: Kirfin Sama Hill (Sule 2010), Tudun Dangawo (field notes 2010) and Kagalan (field notes 2010). There are also the extant settlements that provided the bulk of the ethnographic data: Zamani, Kirfin Sama and Kirfin Kasa (Sule 2010, fieldwork 2010), Guyaba (Sule 2010, fieldwork 2010) and modern Kagalan (fieldwork 2010). Each settlement claims a direct historical connection with one of the three archaeological sites and serves as a source of analogical parallel.

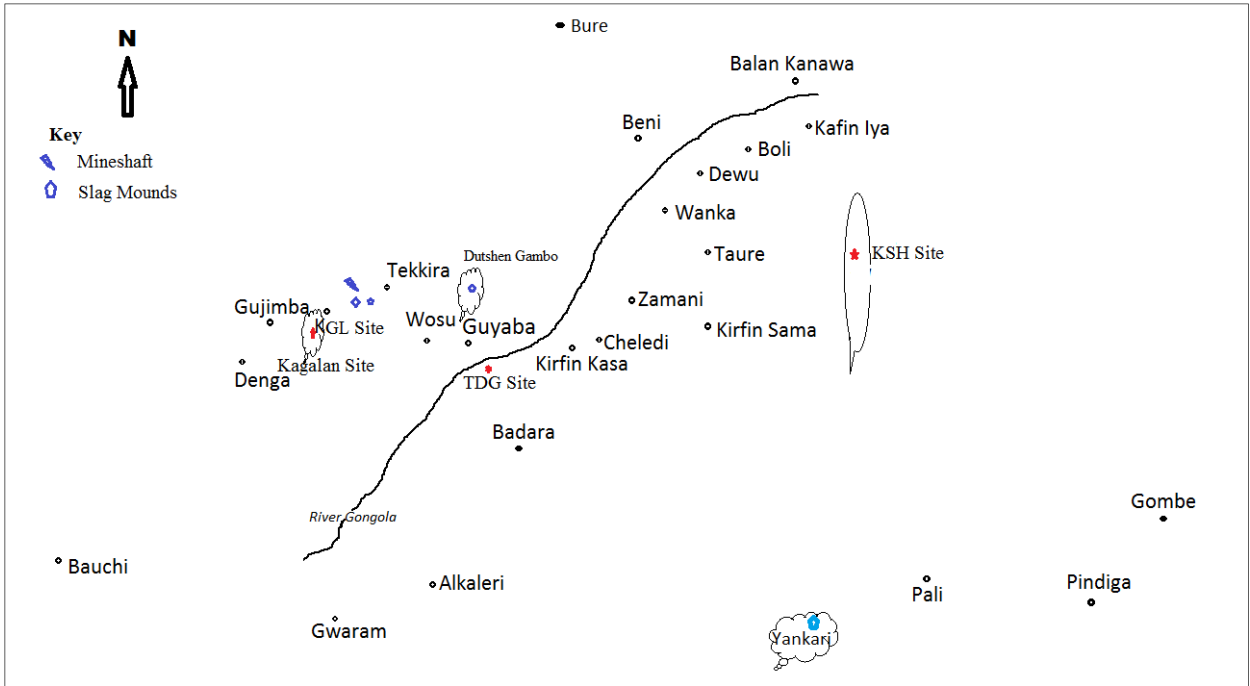


Figure 5: Map of important settlements and sites mentioned in the text



Figure 6: Dye pits at Kirfin Kasa surrounded by an ash mound, with the River Gongola and its floodplain in the background.

In the course of this doctoral research, data were recovered through ethnographic observations and oral interviews, archival studies, literature surveys, and archaeological methods including systematic surveys, excavation and laboratory analyses. This thesis aims to provide insights into material production relevant to our understanding of data on specific domestic functions and material culture

change. Given my research aims, pottery is a valuable artefact, not only in terms of the quantities recoverable archaeologically, but also because of the key role it will play in defining social boundaries and identity, and its ability to embody changes associated with the makers and users of such objects. The main focus of the work is archaeological, because there had not been previous detailed archaeological research in the area. In the next few pages, however, I will give a brief overview of pertinent historical evidence, which I was able to glean from interviews from contemporary occupants of the Kirfi area, to show how useful these were in shaping my archaeological enquiries.

In terms of my ethnographic enquiries in 2010, data were provided from the following modern settlements; Kirfin Kasa, Kirfin Sama, Zamani, Cheledi, Guyaba, Tekkira, Gujimba, Wanka, Alkaleri, Kangere, Badara, Wuso, Kagalan as well as Bauchi and Ningi (See Figure 7). During the period, interviews were collected at Zamani, mainly related to traditions of origins, and also to blacksmithing, fishing, leatherworking and dyeing. As I had previously studied Kirfin Sama (Sule, 2010) only a further interview was conducted on the peopling of the region by Kirfawa and their later movement into what is now Bauchi region. Some interviews were also recorded. Evaluation of information about craft specialisation involved studies of pottery making and blacksmithing, which is the end product of smelting, and is interwoven with the complexities of gender. The field notes record the common occurrence of marital ties between male blacksmiths and female potters. Social connections between the related practitioners provide an interesting picture of the Kirfi guild as a common practice in past African societies (Schmidt 2000). These findings are detailed in Chapter Three.

In addition to the collection of oral traditions, the 2010 fieldwork season allowed me to discover sites such as Kagalan, an abandoned settlement and ruins of ironworks. Based on the surface assessment of sites, and in trying to address questions relating to craft specialisation, I earmarked three sites – Kagalan hilltop, Kirfin Sama Hill and Tudun Dangawo mound – for excavation based on their potential in view of the overall research questions. The results of the landscape survey I carried out are outlined in Chapter Four.

In my enquiries with modern informants I focused on questions of settlement history. According to traditions (AM 2010; IB 2010; ZK 2010) Guyaba is now cosmopolitan, but settled by mostly migrant Hausa Muslims from the Kano region about 250km north-west. In addition to the observation that there existed a flourishing blacksmithing industry, further information was generated about the later history of migrations and settlements. *Tsangaya* Quranic scholarship was recognised as the mainstay of the Kano immigrants, while iron processing was seen as the practice of the original inhabitants. Oral tradition gathered here led to the rediscovery of the abandoned site of Kagalan. Informants in Guyaba recognised that the ancestors of the modern Kirfawa dwelling on a hilltop west of Guyaba were responsible for the Tekkira slag heaps as well as being masters of pottery making and they

continue to be so. I followed up with a visit to Kagalan, and after series of oral interviews that dispelled their suspicions that I was a precious stone miner, they indicated that their ancestors were another original branch of the Kirfawa. According to the interviews, these ancestors settled on a hilltop surrounded in similar style to the Kirfin Sama hills. They descended from the hill more than a century ago due to the frequent threats, and subsequent capture, of '200' of their able bodied men by the warriors of old 'Ningi' who finally forced them to move further east. Historical sources indicate that Ningawa were animists who fought with powers such as Kano and resisted subjugation by the commanders of Shehu Danfodio during his early 19th century jihad staged from Sokoto (Last 1985, Patton 1987).

To return to my 2010 visit, the chief of Kagalan arranged a guide for the exploration of the Tasma-Tekkira smelting sites and of the deserted hilltop sites. This turned out to be very worthwhile; in the course of subsequent desk-based research I determined that Kagalan had been mentioned by European travellers Rohlf's (1872) and Falconer (1911). A map source (stamped and signed by a then British resident) at the National Archive of Nigeria, indicates the documentation of the site in 1911 as one of the important settlements of that time. This was preceded by the acknowledgement of the site by a German traveller, Rohlf's (1872), who reported on Kagalam in his *Reise Durch Nord-Afrika von Mittellandischen Meere Bis Zum Busen Von Guinea-1865-1867* which was later identified to be an important centre of iron manufacturing. The traditions so far collected from the Kirfawa settlements indicate it was a core aboriginal settlement of Kirfawa. The value here is the identification of a second abandoned site beyond the one excavated, both of which closely connected with modern Kagalan (see figure 44 in Chapter 4). The present Kagalan has the remainder of traditional blacksmithing and pottery making, welded together in social arrangement. The Kagalan traditions strongly claimed the past glory of the Tasma/Tekkira smelting mounds, which was confirmed by traditions collected at other locations. The Kagalan abandoned settlement sites and the Tasma/Tekkira smelting 'workshops' were surveyed.

I also studied Gujimba, a walled settlement. The Fulani settled there but it was originally built by the Kirfawa. They claim descent from the Ganjuwa Fulani stock; these are the Fulani who at one time or another, stayed under the political control of Kafin Madaki, where the Madakin Bauchi formerly held a military garrison against the serious threat of Ningi against Bauchi, and in another version, that of Kano itself. From the various traditions collected from the current occupants and Kirfi people elsewhere, it is however problematic to ascribe the building to any specific group at this stage. However, a local Arabic script (reviewed by the chief of Gujimba in 2012) written by a famous Islamic scholar, mentioned several internal struggles between principal Bauchi 'emirate' settlements and clearly identifies the continued loyalty of Gujimba to the Jihad struggles. Traditions indicate that

they followed the instructions of Yakubu of Bauchi to fight in defence of the emirate and the Jihad (MA 2010).

Badara is described by oral tradition as being the earliest settlement of the Fulani living in the Kirfi area. The traditions of Tekkira clearly recognise it as the settlement from which it split. They have a related chain of migration, mentioning Shira as the last important settlement at which they resided and recognising marital links with its ruling house (ST 2010). On the other hand, the Fulani of Wanka also maintained their origins lay in the region, a claim that is treated to be the earliest, even before the Badara (ST 2011). The Fulani settlement on the Gongola river ridge provided data for the reconstruction of the settlement and an economic history of the area. While modern Badara is associated with an archaeological site, Wanka is associated with a long economic history of dyeing in the region. Its existence was mentioned by Barth (1851), and when I further surveyed it archaeologically in 2012, it is where the highest number of dye pits was recorded.

1.4 Concluding Remarks

This thesis aims to generate a local material culture sequence that will situate aspects of the early history of the Kirfi region within wider cultural developments in West Africa. By examining technology and stylistic variations combined with absolute dates generated from the excavation, we can expect to identify phases on the basis of the differences and similarities in the material cultures of the sites under study. Similarly, confusing chronological gaps stemming from the oral histories of the major lineages of the modern Kirfi groups can be assessed through archaeological evidence.

From the corpus of archaeological and historical sources, there is a strong evidence to associate the early relationship between the makers of artefacts known at Kasar Hausa and those of Kirfi in the Bauchi region. Walls associated with a human preference for hilltop settlement, intensive production of iron and dyeing industries known in Kasar Hausa are similarly found in our study area. Linguistic tools are not yet proficient enough to elucidate the early social relationships between the wider Hausa cultural sphere and frontier Kasar Bauchi, but Hausa and Kirfi's relatedness within the West Chadic group of languages is another factor to consider. The eventual avenues for cultural exchange would have been facilitated by the drive to source slaves, extend economic interest southwards and in the effort for population to expand to places of less stress as suggested by the accounts of wicked Hausa rulers.

Despite variations in the technologies of the sites under study, this study will investigate cultural continuities in the human occupation of the area over the last millennium. Of course, at this point we are constrained by the lack of archaeological knowledge of the Kasar Hausa and beyond to create a

longer sequence for the whole region. In addition, undoubtedly the environment today is not a simple reflection of the past. The regional human-land relationship is likely to indicate a changing ecological balance; tree cutting to fuel the intensive nature of iron working, for example, will have deeply affected the landscape. We will see in the course of this study that Kasar Bauchi region was important to other peoples outside, suggested by the role of trade and the production of iron for example. This thesis will also show how external influences were to alter a native system by the integration of Islam into the socio-political development of Kirfi, including it in a world system that shaped the evolution of the Bauchi region, which then became a principal actor in the spread of a political system in the early part of the 19th century, after the jihad of Shehu Uthman Fodio. This finally transformed ancient socio-political systems leading to the modern ways of life of today. The thesis contributes to widening the scope of our understanding of the cultural distribution of 'Hausaland' in the past.

The collaborative use of modern ethnographic data will help shed light on social relationships and the production of cultural materials in the region, and even if the producers of the archaeological evidence are likely to remain anonymous we can start to recognise the character of their socio-economic and political systems.

2.1. Environmental settings

The interaction between humans and the environment leads to the cultural modification of the latter through symbiotic geographic and ecological relationships in which climate, geology, drainage and vegetation are key issues. West Africa is known to have undergone successive drier and wetter periods and these environmental changes are believed to have had a great impact on the human and economic ecology of the regions, where current interdisciplinary researches are beginning to define a sequence combining cultural and human factors into the events (Connah 1981, Brunk & Gronenborn 2004, McIntosh 2005, Dueppen 2012).

2.1.1 Climate

No meteorological station exists for Kirfi, so there are no specific climate records for the area, however data from nearby regions in the northern part of Nigeria, which share comparable environmental conditions, are available. Alkali station (NCF & WWF 1987) recorded an average of 881.9mm rainfall while Bauchi city had an average of 1014.7mm in 1983. Rainfall in West Africa comes from the moist equatorial monsoon moving inland from the Atlantic and undercutting the dry easterly air of the Harmattan that comes from the Sahara desert; the fronts between these air masses is called the Inter-Tropical Convergence Zone [ITCZ] (Pullan 1970, Dueppen 2011). The climate of Kirfi is basically marked by the existence of wet and dry seasons of near equal lengths. The dry season usually has temperature variability, becoming increasingly high from the month of October, when the rainfall ends, to February when daytime relative humidity is high. A dry north – north east wind pattern brings a hazy ‘harmattan’ from mid-December to February causing a considerable drop in monthly temperatures. Heavy dew occurs between October-December, with implications for lowest temperatures and Harmattan and good conditions for the *fadama* irrigation type agricultural system.

The inhabitants of Kirfi clearly define four local seasons; *Bazara*, *Damina*, *Kaka* and *Rani*. *Damina* is the key agricultural season while in *Rani* (the dry season) people are released to take up practice of fulltime crafts and hunting, and both short and long term migrations, called *chin rani*, take place for gainful employment, a common pattern across Hausaland (Miner 1965, Allen 1983, Rain 1999, Gosselain 2008). A popular Hausa saying value the economic significance of farming, which make constant reference to farmers as ‘*kalakawan damina, attajiran rani*’- literally addressing farmers as the affluent members of the society during the dry season, after harvest. This is because they commit their resources to the land in the rainy season, but recoup the benefit later in the dry season.

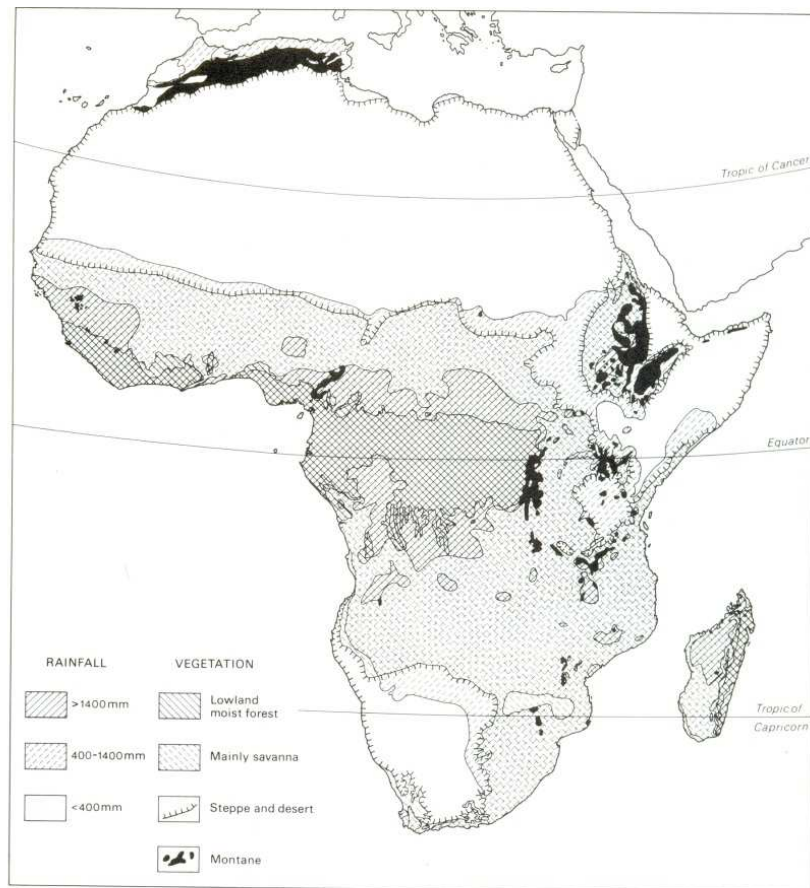


Figure 8: Africa: Map of vegetation in relation to climate (Grove 1978: 32)

Generally unstable levels of precipitation and fluctuations in water retention capacity of West African soils have created episodes of wet and dry periods, sometimes correlating with evidence of human stability and upsets (Grove 1978, Connah 2001:113, Lezine *et al.* 2011). Some general models of environmental change in West Africa have been proposed on the basis of data points throughout the sub-region. A summary is provided for example by Connah (2001); it appears that West Africa was becoming drier in the period 300BC – 300AD with a time of increased rainfall between 300AD and 1100, followed by another dry episode from 1100-1500, improved rainfall from 1500 – 1630 and another dry period from about 1630 – 1860.

The environment/people interaction is a complex one and is often variable locally. Close to the region under study here, we can look towards the Lake Chad Basin where much paleoenvironmental research has been done (summary in Brunk & Gronenborn 2004). It is projected that long seasonal variability in the past has impacted on people to leave traces in material culture. The archaeological record is not unequivocal, but dry and wet phases appear to have impacted settlement systems. One example was in 1873 (Brunk & Gronenborn 2004:113) when Kukawa, in Borno, northern Nigeria, became flooded resulting in settlements to move to higher grounds. The period from 1400AD shared a marked frequency of southward population movement related to an era of drought. The implications of these

dramatic climatic fluctuations leave patterns archaeologically. The dry seasons result in intensification of migrations and seasonality of occupation during especially long seasons. The drought *Adama*, in the early 20th century (BR 2011) led to the emigrations of youths to the Gombe area, while the period 1940-49 and the 1970's were periods of drought and famine (Brunk & Gronenborn 2004: 112, Lezine *et al.* 2011).

On the basis of historical and environmental data (Brunk and Gronenborn 2004), it appears that between the early part of 7th and the 12th centuries climatic conditions were generally favourable. The end of the 13th century and the beginning of the 14th century witnessed deterioration in climatic conditions, apparently correlating with historically attested conflicts and migrations south and westwards, and a desire for territorial expansion and attendant slave raids by the Kanem Borno polity that was to impact on settlements systems. The 15th and 16th centuries saw a return to improved conditions. The mid-16th century marked the return of drought, chaos and local resistance to Mai Idris Alooma's expansionism. During the 18th century, a number of famines and droughts such as the great drought of 1738-56 were reported (Brunk & Gronenborn 2004, MacEachern 2012). As we have seen in Chapter 1, the pulse situation in the Chad Basin results in emergence of new sources of populations, coming with diverse economic systems and situating conflicts and accommodation across the wider Savannah. From 1800AD the rise and falls of the Lake Chad affected local polities and the groups opposing or supporting them. The pasture management and the socio-economic policy of the Fulani in Sokoto later shaped the history of peoples within Kirfi itself.

2.1.2 Geology and soils

West Africa's basement is described as an ancient and stable shield known as the West African Craton (McIntosh 2005, Dueppen 2012). The geological area under study here falls within the Keri-Keri Formation (Abdulkadir 1986, NGSA 2006a&b), characterised basically by the presence of sandstone, shale and clay endowed with kaolin or kaolinitic clay and whose history is dated to the Tertiary Period (Palaeocene). The Keri-Keri Formation is developed on sedimentary rocks and is characterised by flat-topped laterite-capped hills and deep, narrow valleys cut by rivers draining into the lower Gongola (Udo 1970:150). Udo (1970) noted the occurrence of concretionary ironstone in the formation and observed that the laterite exists on the surface or at shallow depths, with considerable implications for the economy of the area under study. Additionally the Gombe Sandstone Formation underlying the River Gongola contains siltstone and ironstone (NGSA 2006a). These are vital to understanding the resource base necessary for the past economy of southern Bauchi region.

Most of the region consists of modelled undulating landforms and river processes formed from the collapse of higher surfaces or even lateritic ironstones of primary or secondary development, such as

those associated with the other High Plains of Hausaland (Key 1971). It is suggested that the predominant rocks of this formation were composed of sedimentary types. This dictates the overlain mineralogical layers of the secondary soil due to the breakdown of the geological formations. On the possible physiognomies of the Kirfi silt, and the soils near the hill bases, Grove (1978: 41) observed that soils near the crest of interfluves are constantly washed away, dissolved in soil water or merged in water running over the surface or penetrating from the slope. These result in the kind of soil formation over the undulating landscape prevailing in the Kirfi area.

On soils, Udo (1970:151) argued that the nature of their distributions are generally a reflection of the realities of its geological zones, recognising however that instances of local landform morphology, such as high slopes or nearness to rivers or valleys system, have a profound influence on soil types availability and variation at the micro level. These affect certain landforms where notable landscape morphology differs significantly with the commonest areas. The narrow flood plains are most productive for agriculture compared with the laterite commonly found on the higher Bauchi plains. This Keri-Keri formation develops soils that are generally coarse, loose and reddish brown in colour. The permeable sandstone of this zone causes difficulties to human occupants: the water table is significantly within the depth of 18.288m, making easy access to open waters difficult. This factor recurs in Kirfi traditions (Chapter One) where accounts of past settlement histories revolve around water availability and natural resources such as ironstones, pasture and game.

[Next page:](#)

[Figure 9: Map of the Kirfi region showing some of the important settlements in late c.19th \(NNSO 1912\)](#)

A century ago, Falconer (1911: 141), travelling through Kirfi, provided some valuable information on the economy of the area. He described its settlements as 'set at the base of some low, flat-topped hills of grit and ironstones, and at one time an important centre of the native iron industry'. Falconer mentioned Dewu and other important settlements of the Fulani such as Wanka, for example, as a 'narrow platform which intervenes between the river and the basement of the sandstone hills'. He further observed the occurrences of town walls (already near dilapidation at the time) and use of stalk corn to fence compounds in some places. The clear pattern of densely distributed settlements with a sizeable population is worth noting here. He recognised flooding of the river system essentially and the *fadama* that encouraged the economic cultivation of 'indigo, cotton and tobacco, with calabash, millet and onions bed on the river bank'. Falconer (1911: 142) further observed the occurrence of textile dyeing as a 'group of dye-pits with the dyers already busily at work in the early morning' exists at a little distance from each village. Falconer (1911:142) recognised the importance of the Gongola River to the Kirfi economy saying that "Much of the *faddama* was cultivated in patches of guinea corn, rice, millet indigo, cotton, and tobacco, with calabash and onion beds on the river bank. On the fallow land many herds of cows were grazing, the property of the neighbouring villages and near the water holes strayed many mares and donkeys with numerous progeny around them".

Falconer also cited Keffin Iya as "where the main road from Bauchi to Gombe and Bornu crosses the Gongola...traders, singly or in groups, panting under their heavy loads, travellers on horseback and on foot striding out briskly" at the same influencing the huge flow of human traffic with destitute beggars seeking alms from passers-by.

It is also recognisable, from both oral traditions and reference to historical sources (Ibrahim 2012) that Kirfi (i.e. modern Kirfin Kasa) served as an important entry point or crossing through which the people of Borno at different periods reached what is now central Nigeria, and also the pathway through which people of Kano reached as far as Adamawa and Gombe, through Pali (Yankari area). Kirfi settlement is clearly mentioned as a settlement, visited during the military expedition of Kwararafa garrison against Kano (Palmer 1928) during the 15th century, also, the chronicle of Mai Idris Aloomaa, written by the Ibn Fartuwa in the 16th century is said to have referred to Kirfi and Badara settlements under the names 'Kigri and Baderi'. It is believed (Dr Garba Ibrahim pers Comm. 2012) that the placing of those two localities around the river Komadugu Gana in the Yobe actually results from a misreading of Kufri script using Usmaniyya style thereby obliterating the presence of our study area. Lange's (1987: 112, 143) gazetteer from the Borno expeditions of Aloomaa also refers to 'Kirki' as 'a town said to be situated on the southern side of the "river" and possibly in the vicinity of Badna'. Badara here (Lange 1987: 112) was also placed south of the Komadugu Yobe river, and described as a place where trees were cut by the army of Borno. I suggest that these events of 1564-76 recounted by Ibn Fartuwa may well refer to Kirfi and Badara of the southern River Gongola rather

than the Komadugu Yobe. But much remains to be done to ascertain the true locations of these towns reported by Ibn Furtu.

The Kirfi area is known historically to have produced a range of items for trade. These included specific dyed cloths and decorated gourds (from Boli in the north west – about 10km along the Gongola river) that were in vogue as bridal room decorations items and for other uses in parts of Hausaland such as Kano and are believed to have been substantially recognised as Kirfi merchandise until the later part of the 20th century (Abubakar 1974). These goods, and iron, were almost certainly traded from Kirfi to Borno and Hausa areas at various times, and military campaigns engaging the Kwararafa with Kano, Kanem Borno and Ningi made Kirfi an important military passageway between the struggling powers from the early 15th century (Abubakar 1974). The need to control this strategic route may have had an impact on the subsistence and settlement system of the region under study here. Some of the reason for the absence of Kirfi on early manuscripts detailing the results of political and economic developments involving the former states could be due to problems of interpretation as indicated above. Kirfi once served as a corridor for trade networking Borno with other parts of Wase, in the Jos Plateau, and peoples in central Nigeria transporting natron, textiles, slaves, and other goods.

2.1.3 Topography and Drainage

The Gongola River, the largest right bank tributary of the River Benue, is the most important drainage system for the Kirfi region (Buchanan & Pugh. 1955). The water, though seemingly at reduced level now, must have had an enormous impact on settlement and economic systems. It continues to irrigate sustainable pastures for animal husbandry, which is the major economy of the Fulani. In the past it supplied the heavily water-demanding dyeing and smelting industries. The modern settlements along the banks are a continuing testament to the importance of the river. As such, the growth and development are of central importance in the understanding of the general characteristics of the peopling of the southern Bauchi region.



Figure 10: Drainage system map of southern Bauchi



Figure 11: Crossing the River Gongola (Guyaba at the background) – June 2011

Topography and drainage factors are significant when we try to understand why people chose places to settle and how they access water. The drainage system considers the permanent river system, and access to artificial water bodies through wells. Both are central to the needs of people, who consume it for everyday use and for economic activities such as dyeing activities. The motivating force was for the evolution of settlements on the plains and was to access these water sources according to oral traditions, as will be discussed later.

2.1.4 Vegetation

Three environmental factors are significant to understanding the vegetation of the region; the climate, soil and human interference (Connah 1981: 32). In terms of vegetation, broadly speaking our region is situated in a Sudan savannah zone. Terminologies vary; Buchanan *et al.* (1955: 36) described the area as a Northern Guinea savanna, but Shaw (1978:16), Mabogunje (1971: 4) and Allsworth-Jones (1986; *et al.* 1991) all located and refer to southern Bauchi zone as ‘Sudan Savannah’, while Dueppen (2012) and Udo (1970, see fig. 12 below) speak of the Sudan zone. The difference is in semantics, as they all agree that such a landscape is characterised by the occurrence of trees singly or in small groups predominated by shrubs and with grass cover the lowest layers. Harrison (1974) defined savannah trees as always appearing sparsely with 8-15 metres in average heights, with lower levels 3-6m and the third lowest 2-6m often defined as shrubs. *Parkia* spp. (Locust bean), *Butyrospermum paradoxum subsp. parkii* (Shea butter), *Acacia albida* and *Adansonia digitata* are the prominent tree species of the region, some of which are well protected due to their economic value. Productive soils occur along the narrow flood plains and water serves as an attractive factor for human settlement (Udo 1970).

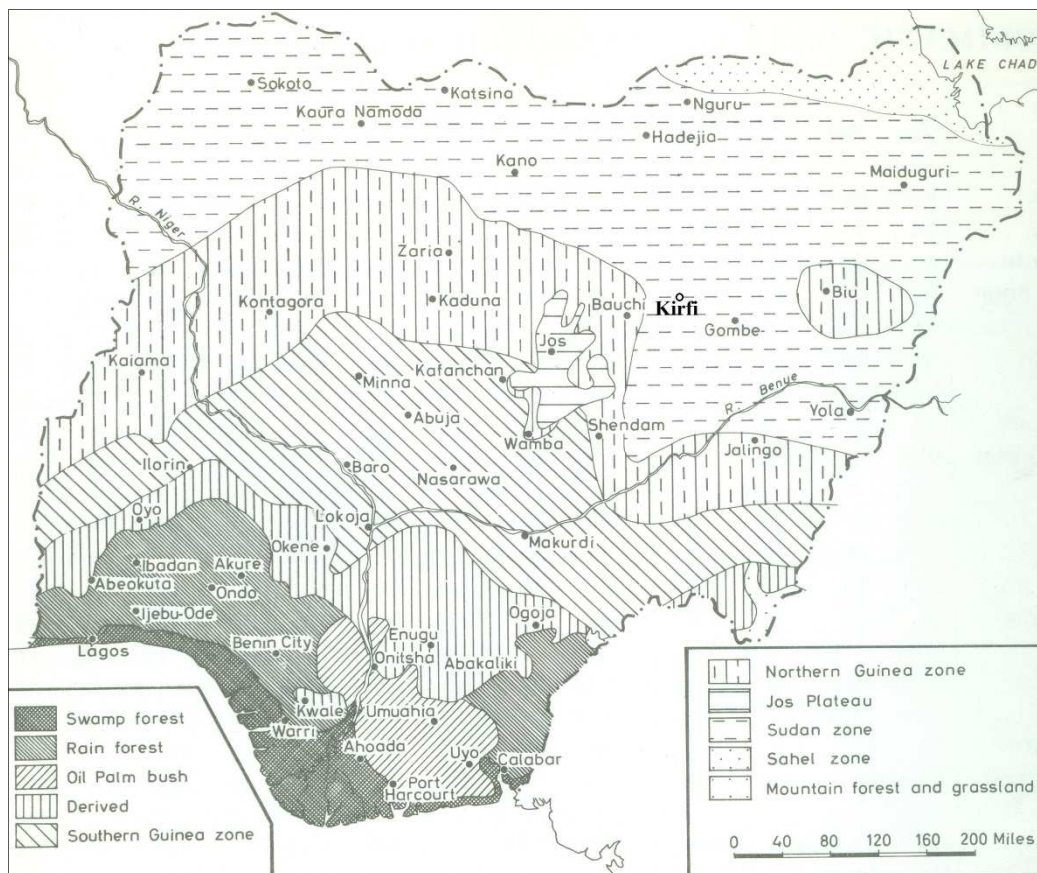


Figure 12: Vegetational map of Nigeria, after Udo 1970:4

A detailed ethnobotanical study at Kariya Wuro (Allsworth-Jones 1986, Allsworth-Jones *et al.* 1991) provides a comprehensive list of over a hundred plant samples from central Bauchi area as well as the vegetation characteristics of the Sudan Savannah, species present going by the samples from three complete sample columns at Kariya Wuro. The value of the vegetation is both elemental and symbolic as the plants are used as ingredients in the crafts and in practices associated with medicines, religious and dietary requirements of the people. Allsworth-Jones (1991: 160) clearly categorises plant usage in central Bauchi into four main purposes; medicinal function, magico-religious purposes, food, and others.

The data from Kariya Wuro correspond in basic terms with the Kirfi findings. In particular, these are correspondences to raw materials for craft productions such as woods, charcoal, and the substance for weaving and dyeing substance as well as relevant construction items. It is remarkably similar how it is observed in Kariya that roots of *Terminalia* sp. (Baushe) is ground with iron-slag to cure wounds (Allsworth-Jones *et al.* 1986), additionally used to neutralise the effects of rusted iron to cause *tetanus* to blacksmiths in Kirfi (YG 2010).

2.2 An Anthropological view of Southern Bauchi

This section aims to provide a brief overview of the language, religion, and economic practices in Kirfi as well as an over-view of historical sources pertaining to it. The population of southern Bauchi today, comprises diverse ethnic groups such as the Gere, Hausa, Fulani, Zhar, Bankalawa, Ningi, Warjawa, Kirfi, Denawa, Bolewa, Kare-Kare speakers and Jarawa who are further south of the study area in the Jos-Plateau (Abubakar 1974). The linguistic groups are dominated by several cousins of the Chadic language groups, who are part of Afroasiatic family, and share affinities among the Western division of the Chadic group (see Chapter One) in the last two millennia (Blench 2012).

The ‘Bauchi northern’ language group around Kariya Wuro to the north of Bauchi, including Warji a distant relative of Hausa, predominates homogenously in the northern Bauchi region. Ningi an East Kainji language, is disappearing in favour of Hausa (Blench 2012) with Hausa becoming the predominant lingua franca. It is interesting that my ethnographic outline is in agreement with the most widely accepted linguistic classification grouping of the major language families of southern Bauchi under the Afro-Asiatic family. They are West Chadic of the main Chadic subgroup of the Afro-Asiatic family, where the major Bolewa and Hausa languages converge.

Looking at the language family tree in detail (Figure 2 in Chapter One), Bauchi people share a common historical connection, as shown by the tradition of jokes between the language groups, where the majority of speakers fall into the 'West' sub division of the Chadic sub family of the Afro-Asiatic. In the list of the West (Lewis 2009) we have under A.1: Hausa, A.2 mainly represented under Bole (Bele, Bole, Deno-Denawa, Galambu, Gera, Geruma, Kirfawa-Giiwo, and Kubi and Kare-Kare and Bure respectively) which is the immediate language group specifically found in Kirfi and its environs. Secondly, is the presence of A.4 the Daza language whereby the two sub families of Fyer and Ron Proper are found further south west, in the Jos Plateau area, together with all the A.3 languages of Ngas and Yiwom.

Going away from the A. Group of languages is B. The B.1 is the northern Bauchi group shown by Bade, Ngizim and Tashenawa, Duwai and Auyokawa, some of the languages are becoming extinct. However, southern Bauchi is represented, though also significantly in the central zone around Kariya Wuro where archaeological studies have been conducted, by all 10 languages in B.2, such as Ajawa, Ciwogai, Dirim Kariya, Mburku, Miya, Pa'a, Siri, Warji and Zumbum. From the B.3 group, we have record of Kir-Balar, Mangas, Jimi, Guruntum-Mbaaru, Ju, Tala and Zangwal, Geji, Polchi, Saya, Zari, Zeem, Dot and Luri, represented especially in the southerly part of Bauchi area. It is interesting that out of the 33 different language groups found in modern Bauchi state, 28 are recognised to be from the southern Bauchi area (Lewis 2009).

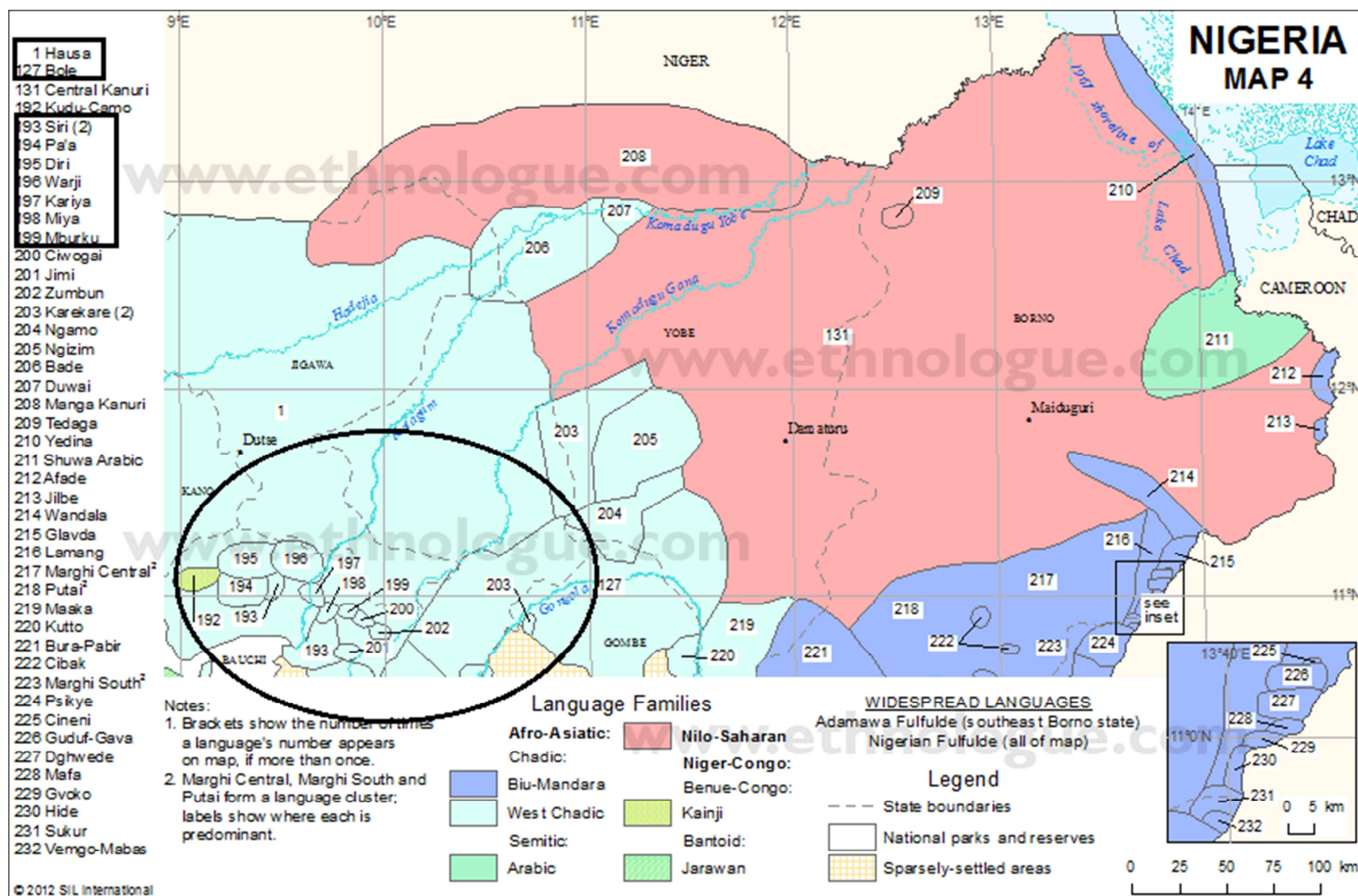


Figure 14: Language group distribution in the Bauchi region showing other language in central and northern Bauchi (Lewis 2009).

On the broader socio-cultural framework, Jaggar (2010: 40) examined the genetic root of the relationship of the broad affiliation of Hausa. Blench (2010: 161-170) suggested that the West branch of the Chadic languages developed about 3000 years ago by a factor not fully recognised, but that 'Hausa underwent a secondary expansion, beginning about 1000 years ago was created pressing Adamawa languages southwards' 'probably driven by gradual evolution of centralised kingdoms, which included access both to new systems of military organisation and craft specialisations'.

Oral tradition has produced accounts of heterogeneous language groups in the southern Bauchi area with a vertical and horizontal hierarchy of affiliation. Each language group has a series of *abokan wasa* - playmates with whom established 'joking relationships' exist, where Jukun, Bolewa and Tangale - Waja are the well-established playmates¹ (*Abokan wasa*) of the Kirfawa. An analysis of this trend indicates socio-cultural relationships in historical terms among these sets of playmates, suggestive of common origins.

Historical sources include accounts by early European travellers and administrators such as Barth (1851), Rohlfs (1872), Falconer (1911), Dyer (1912), Grier (1913), Abraham (1927) and Meek (1931). They described the early populations of southern Bauchi area as purely 'pagans', whose relics of beliefs were entrenched in the traditions associated with subsistence crafts and other social rituals. These included the *wankan baka* meaning bow purification by hunters, which involve sprinkling beer on bows and arrows under a tamarind tree, and restrictions as to what types of animals hunters from certain lineages were forbidden to kill (failure to comply resulting in sacrifices in public domains), as well as the huge pots of beer offerings at shrines of the ancestors of Denawa blacksmiths and smelters in the 19th century (Abubakar 1974: 215).

No local written manuscript is known on the history of Kirfi land. Perhaps the first written reference to two of the principal sites of this study (Kirfi and Kagalan) was produced by the 19th century European traveller Rohlfs. Rohlfs (1872), mentioned Kirfi as a well-established settlement with extensive production of iron as its source of wealth. In the same manner he presented Kagalan as another important settlement associated with large scale evidence of iron smelting. It is unclear whether he had relied on secondary oral accounts or had visited Kagalan himself. Four decades after Rohlfs reported Kirfi, Falconer's (1911) *On Horseback through Nigeria* briefly described its geography of valley plains, hilltops and about its economy, being an important centre of the native iron industry. Among other dwellings of the Kirfawa are two settlements previously referred by Rohlfs - Kirfi and Kagalan,

¹ *Abokan wasa* are joking mates. Members of two ethnically related, but linguistically diverse groups tease one another playfully, where dichotomy such as Male vs. female or powerful vs. weak other resonates in the spoken engagement based on preserved oral histories.

confirming their choice of hilltop for settlements. The writing of travellers mostly relied on oral accounts and brief observations.

Meek's (1931:29) anthropological works placed Kirfi on the fringes of the former Jukun country of Kwararafa (as it existed at the end of the 18th century). He dismissed the line of debate as to Kirfi relationship with Bole or Jukun that (1931) 'All accounts, whether emanating from Jukun or the Bolewa agree that in the first place Jukun and Bolewa were of one blood and form part of the same immigrating wave'. This accounts for the traditions of Jukun movements via Pindiga and Kirfi in AD 1700 invading Kano. Perhaps his placement of Kirfi on the north-western fringes of Jukun territory laid credence to Kirfi as a frontier culture. Meek (1931:23) also brought out the popular traditions of origin of migration from East, Yemen to Birnin Gazargamo (capital of Bornu) which the Kirfi recent studies report (Sule 2010). With variation however, as well as with linguistic and oral support he seems to suggest that all Bolewa, Jukun and Kirfawa were related. These sources are noticeably weak in the era of pre-1500 AD. Nonetheless, Meek exhaustively considered different traditions from Hausaland, Bornu and the Jukun Kingdom, while asserting that ruler of Kano, Rumfa (1463-1499) according Jukun traditions wrote the king of Kwarrarafa stopping his respect to it, which led to order Pindiga to attack the former. "The Pindiga army, proceeding via Kirifi (sic) Shongo, and the country of the Warji tribe, encamped at the western gate of Kano and, after making nine breaches in the walls, overcame the city and reduced the people to their former state of subservience"(Meek 1931, Palmer 1967, Abubakar 1974: 104).

Temple (1965:95) considered the religious belief system of both Denawa (whose language is comprehensible and similar to the Kirfawa's) and Kirfawa. He argued, by way of a census, that they were mainly pagans initially inhabiting the hills on the right bank of the reaches of the Gongola River before the Kirfawa later descended to the plains below.

Islam is believed to have been introduced through trade contacts with merchants from Borno, whose elites may have accepted Islam over 1000 years ago (Insoll 2003). The region recorded migrations of Islamic scholars from Hausaland, where Zaria was specifically mentioned to have sent Muslim scholars to Bauchi, before the early 19th century AD (Abubakar 1974, Lovejoy 2005). The Jihad movement provided a refuge for dissenting Islamic scholars, to assist in the spread of knowledge of the religion which led to the emergence of rural Muslim Hausa communities at Liman-Katagum (Lovejoy 2005) - about 40km Southwest of Bauchi city, with the Muslim scholars migrating from Katagum in the far north of Bauchi state and Kano region (Abubakar 1974, Sule 2010 field notes).

Grier (1913) produced a census of the ethnic groups in the Kirfi district for the British colonial administration for the purpose of tax management, stating the demographical distribution as '45%

Fulani, 25% Beriberi (Kanuri), 20% of Kirifawa and 10% miscellaneous, Hausa, Dezawa and Gerumawa'. Significantly, he observed the assimilation process between Kirfawa, Gerumawa, Denawa and Dezawa and the relationships between them and the Bolewa language that has now disappeared. Members of these four mentioned groups see themselves as Kirfawa today, forgetting the earlier memory of distinctiveness (Sule 2012 field notes). This is, as we saw in Chapter One, is in some contrast to models presented by linguists.

The present chieftaincy system is believed to have been brought by the Bolewa migrants. Oral tradition (AS 2012) corroborated other sources in stating that prior to Barogha Basini, the settlements on the hills had entirely autonomous, ward-like politico-religious institutions. Such transformed however with Barogha Basina coming and integrating all of them under a single tutelage with recognising the supremacy now of Barogha Basini who was settled on the royal settlement that continued to be, thereby institutionalising the emergence of a central authority. That authority had both political and religious dimensions.

Hogben and Kirk-Greene (1966: 459-462) observed on the founding of Bauchi which evolved to become the political capital of Kasar Bauchi from the early 19th century, that Yakubu (so called founder) went to Sokoto for advice by Danfodio who led the Sokoto Jihad. Sites like Inkil, Zaranda, and Wase were all suggested, but by the intervention of Yakubu's slave-Modegel, "The Shehu then urged Yakubu to found his capital a few miles to the west of Inkil, where Islam would thrive forever. The area might be poor but and so, in order to prevent the spread of poverty, Yakubu should take special care over the distribution of amenities". Yakubu began to search for a suitable area west of Inkil until one day he met a hunter called Baushe (which later transmuted to Bauchi) and decided to situate the new capital and named it after him at the present location.

The major economic subsistence of the people of Kirfi is agriculture; farming and animal keeping. Farmers commonly produce millet, guinea corn and sorghum, groundnuts (including Bambara-nuts) cotton and indigo. Other industries reported for the early 20th century in Kirfi were weaving, tanning, dyeing, leather-working, cloth-beating, building, iron smelting, blacksmithing, barbing, tailoring, butchery and jute-bag (*ashasha*) weaving, brokerage (Grier 1913) as well as carpentry, fishing, trading, scholarship and 'other trades' (Abraham 1927: 44, Abubakar 1974: 214). Grier (1913) and Abubakar (1974) reported also that the guilds were highly organised with each craft having its head that administered and collected tax for the polity. This is a noteworthy in view of traditions I collected, some of which are reflected archaeologically. Trading was obviously an important economy of the region facilitating the exchange of goods and services, and six famous markets operated in the region over a century ago; Cheledi, Boli, Gwaram, Gwana, Alkaleri and Fali (MM 2012).

In addition to the trade in local products, Grier (1913) specifically noted the place of imported salt from Ibi (*Muri*) in the Adamawa region, salt (*Manda* or *Mongul*) and potash (*Kanwa*) from Hadejia (Kano), horses, textile materials and corn before the 19th century AD. Many of the oral traditions I collected are consistent with historical sources that identify the Bauchi region, and specifically Kirfi, as an important slave producing territory earlier on. For example Last (1981) views the origin of Bauchi name itself to Mbau referring to later conceived *Kasar Bauchi* (sounding like *Bawa* for slave) as a land of slaves. The domestic and trans-Saharan slave trade has been described as a prominent factor that shot Kanem-Borno to prominence, perhaps as early as the 9th century (Gronenborn 2001, Haour 2011). A large section attached to the Kirfin Sama site palace (see Chapter 4 below), is defined as a slave quarters (MD 2010), transportation of great quantity of building materials for construction of Bauchi city monuments and one of the associated settlements as that of the freed slaves are some of the frequent indicators for slave commodity in the Kirfi and the constant accounts of raiding for slave acquisitions (Grier 1913).

As indicated above, those colonial records were only a basis for tax collections and state administration, where compounds were located simply as social production units, but they provide a valuable historical economic demography of the region. On agricultural practice, Grier noted that Kirfi had no ‘Suferi’ or farmland hire, which conform to traditions collected by me that only generation long local system of land distribution along paternal line exists. Cattle rearing is a traditional economic system of the Fulani whose importance influenced colonial administrators to dedicate two traditional title holders specifically to the collection of cattle tax. That was done to accommodate the local distinction for the two separate Fulani stock that inhabit the region, recognising ‘Borno herds’ or - Fulata Borno and those of Futa Toro. We shall see later how unsuccessful attempts by the local Fulani to topple the second Borno dynasty led to their mass exodus westward shortly before the Sokoto Jihad.

2.3 Outline of West Africa’s early history

Our interest in this thesis concerns the past millennium. The present overview aims to refer mainly to sites and themes relevant to discussions on my area of research. It will be selective, considering relevance in terms of themes and dates and proximity to my area of study.

2.3.1 Archaeology of Lake Chad Basin (Kanem-Borno)

The archaeology of the Lake Chad region is quite well documented. A rich corpus of data exists for the human occupation and economic system of the basin that attracted people following the desiccation of the Sahara and the shrinking of Lake Mega Chad. With its eventual shrinking, the population had to organise along the ‘opportunities and constraint’ starting at least 8000 years ago (Connah 2001: 82). Lake Chad is regarded as a ‘sort of crossroad in the centre of Africa’ (Connah

1981:26) and therefore as strong factor in understanding West Africa's human history. The importance of the region resonates throughout as we discuss Kirfi some 500km south west of there.

Lake Chad basin sites have yielded early evidence for the domestication of *Pennisetum glaucum* (pearl millet) and sorghum at Kursakata and Gajiganna sites in the third millennium (Klee *et al.* 2004, Klee *et al.* 2000, Mitchell 2005: 46-48) and evidence of pastoralism. The site provides a sequence from Late Stone Age to Iron Age periods dated between 1000BC to 100AD showing a diversification of economic system to wild gathering to adjust to prevailing dry conditions. Evidence of domestications of wild grasses was observed. The coming of iron facilitated greater control of the environment (Klee *et al.* 2000). The large settlement site of Zilum provided an early date of 600-400BC, serving as one of the early known fortified settlements in sub-Saharan Africa (Magnavita 2004, Connah 2008: 236).

It should be noted that the first signal of human settlement in the Chad Basin was reported on the Bama ridge at Konduga dated to 5000BC, a period when the whole of the eastern stretch of lake Chad was submerged in waters (Wendt 2007:88). This is a period remote from the era considered in this thesis but it offers a useful background because it highlights the interrelation between people and landscape. Klee *et al.* (2004) discussed the possible existence of two successive cultural traditions; with Phase I (1800-1500BC) showing characteristic of seasonally mobile population, fishing and collection from the shorelines and swamp, while Phase-II (1500-800BC) as a more permanently settled population, cultivating a considerable amount at the same time consuming wild plants. More than 4000 different plant imprints were examined in the 130 sherds recovered in the excavated pottery, displaying among other species predominantly pearl millet (*Pennisetum glaucum*), wild rice species (*Oryza*) and sorghum. Klee argued for an early consumption of these plant species by the Gajiganna culture people during its Late Stone Age period, including at the Kursakata site. Except pearl millet, all other species were wild species for consumption. This shows the resilience of the population who had to inhabit the floodplains, and later opted for raised locations around the Chad basin, after being forced out of the Sahara as suggested by similarities in pottery traditions between those of the Bama ridge complex and the Sahara.

Wendt (2007) therefore divided the earliest form of the cultural complex into Gajiganna I & II, coinciding with pastoralism and later transformation in the lake region to fully farming societies using well-defined stratigraphies conforming to developed variations in cultural materials. It is believed (Wendt 2007) that the more stable settlements towards the end of the 2nd millennium BC, started to witness a crisis that was arguably climate related, forcing a gradual change in strategy to a mobile life-ways similar to that of the Gajiganna I phase, where people reverted to staying short time in one place and leaving behind sparse distribution of material in the 1st millennium BC. By the mid-1st

millennium, high densities of population converged over limited space. Zilum became a typical of site of a later Gajiganna Phase III where evidence of fortification, food storage and settlements hierarchies was observed, where the larger relates with the smaller ones at the margins containing approximate population of up to 2,500. The pottery of Zilum type phase continued from the earlier traditions, but evidenced a range of diversity in the economic systems and craft specialisation. Unlike preceding researches in the region where pottery was not significantly analysed, Wendt (2009) built a ceramic sequence for this Final Stone Age to Early Iron Age cultures. So Gajiganna evidences the constant fluctuation in economic system in the response to environmental pressure. The same kind of human resilience was exhibited in the Inner Niger Delta of Mali, argued by McIntosh's (1995 & 2005) pulse model. My future work in Kirfi will include sampling for archaeobotanical remains and there may also be potential for a study of the organic impressions within potsherds (see Chapter Six).

Daima mound demonstrated iron working after the first millennium AD, almost another millennium after that of Nok. The economy of the iron users shows a continuation of the cattle herding system and the cultivation of sorghum as was the case earlier on. New populations emerged, with a corresponding emergence of built structures as opposed to the preceding era when organic materials were used to erect mobile structures. This came also with indications for a 'more extended trade system' (Connah 1981).

Kanem-Bornu existed as a large West African empire from 9th century until the end of 19th century, covering lands in the modern nations of Nigeria, Chad, Niger and Cameroon. It was reported well in Arabic sources, so that its history is discerned through that of their rulers. The *Girgam* was the official royal chronicle of the Kanem Bornu that documented political, economic as well as social well-being of the kingdom and it survived to the early 19th century when a German traveller Heinrich Barth (1851) encountered it (see e.g. Lange 1987). Several of the Girgams survived but that covering the reign of Idris Alooma became famous and the most cited source of its history. This said archaeological data have recently gather pace and are thus very much resolving some long standing traditions recorded as orthodox facts, which were derived from historical accounts.

What is known is that the kingdom of Kanem, east of Lake Chad, apparently grew before the end of the first millennium AD (Gronenborn 2001, Phillipson 1985: 169). By the late 12th century (Shinnie 1965: 70), or perhaps even from the beginning of the 9th century, Islam became more established. The state integrated into the Arab/Islamic system with its literacy form that supported record-keeping. Kanem rulers sought control of the important routes northwards towards Fezzan, Tunisia and Egypt and maintained diplomatic ties with Northern African rulers (Gronenborn & Magnavita 2000, Insoll 2001, 2003). Sometime in the 14th century Kanem seemingly relocated westward to form the new capital of Bornu from their erstwhile country northeast of Lake Chad (Haour 2008). A new capital

city was built at Birni Gazargamo on the river Yobe, which endured until its conquest by the Jihad of Usman ibn Fodio in 1811 (Shinnie 1965:72, Connah 1981, Haour 2007).

With his accession to the Kanem-Borno throne in 1547, Mai Idris Alooma is said to have restructured the military, adopted a cavalry and the use of firearms as he saw with the Turkish military when he was on a pilgrimage (Shinnie 1965, Bovill 1975). He is said to have succeeded in subduing the Bulala, introduced Islamic law and ensured internal peace and peaceful coexistence with neighbouring polities. Shinnie (1965: 75) acclaimed that 'Idris Alooma made Bornu the most powerful of the states of the Central Sudan' among Mali, Ghana and Songhai which existed between Niger and the Nile, quite in contrast to Hunwick (1976), who sees him as a tyrant who ruled by absolute suppression. Whatever the case may be, the site of Birnin Gazargamo has been subjected to some archaeological investigation (Connah 1981) as have some other baked brick sites of the region (Haour 2008, Magnavita *et al.* 2009). To sum it up, Abubakar (1974:237) observed that 'Birnin Gazargamo was for the Bauchi region as Mecca and Medina' for the Arabia, as indicator of influence. Its pottery is a potential material for comparison, together with that of Dikwa. The period of the past 500 years latest marked a period of diplomatic, trade and social relationships between Borno, Hausa states and the Bauchi region. We are beginning to untangle the significance of material culture relationships observed in the abundance of folded strip roulettes in the pottery assemblages (chapter 6) and the deeply rooted traditions linking the polities. This is because folded strip roulette is beginning to be understood as a shared motif prominent in the regions and likely became acceptable in the potters assemblage due to relationship that ensured among the wider ethnic groups in the past, as shown in the Kaduna valley and Zaria region as similarly existed in my study area.

2.3.2 Archaeology and History of Hausaland

Setting a framework for understanding the attributes of the archaeology of Kasar Hausa, Haour (2010) brought out some of the striking elements to include a shared culture and way of life or characterised by the importance of hilltop settlements in religious terms, typically large settlements and the remains of iron working. These characteristics are acknowledged widely within the so-called core Hausa Area, at sites in the Zaria and Kano regions. As we will go on to see, Kano and Zaria regions provide good parallels to Bauchi region's archaeology.

Zaria received archaeological attention from the late 1960's to mid-80. Their researches form the corpus of the published 'Zaria Archaeology Papers' reporting detailed analysis of excavated materials. The renowned Zaria region sites known over the past two millennia are Samaru-West (Effah-Gyamfi 1981a&b), Tsauni-North and South (Effah-Gyamfi 1981a&b, Odojin 2008), Pantaki (Bala 1978), Kufena (Sutton 1976; 1977), and Turunku (Sutton 1977b). They provide evidence of iron working,

inselberg occupations and strong sense of defensive systems-walls around, which Haour (2010) rightly observes as specific characteristics of the areas of Hausaland.

Much of this work has been preliminary, with little attention paid, in particular, to pottery analysis. Two exceptions can be retained here. Effah-Gyamfi (1981:55), working on the basis of a pottery sequence he developed and in association with C¹⁴ dates, suggest a broad range of dates for the settlement of various sites around Zaria: Tsauni-South ca. AD 1100-1300, Pantaki AD 900-1100 and Samaru-West to AD 700-900. He further went to consider that Pantaki might be earlier than the settlements enclosed by the Kufena walls (which were not included in his studies). He equally posited going by the dates that Tsauni-South was the 'source of iron implements for the early inhabitants of Kufena' which are likely contemporaneous with Tsauni-South alike, especially when it served as the politico-economic heartland of the Zazzau (Zaria) state. Connections between the Tsauni-West and Tsauni-South remain however speculative. Another example is the work of Haour (2003a) in her excavation of the alleged former Kano in southern Niger. This involved the excavation of several test pits within this large walled site. The research involved a comparison of pottery attributes from several foci of past cultural activities to consider how the settlement evolved, proposing continuity in the ceramic traditions. The range of six dates for the site gave 1300-1650AD while the fifth is much older (first millennium BC). The majority of the ceramics were not decorated, but folded strip was dominant among those which were. Fabric, as opposed to other diagnostic elements, was essential in defining two classes of pottery traditions, one involving the use of quartz, feldspars and mica on one hand, and the second the enormous utilisation of vegetal materials for tempering in the pottery with folded strip roulette decorations. The stone walling at Kufan Kanawa bears some resemblance to the examples we shall be discussing in this thesis for the Kirfi area.

Sutton (1977) reassessed the Zaria city enclosures by excavation, cutting a trench through the Kufena wall, its ditch, and an occupation area situated just behind it to get a glimpse of defensive strategies adopted by its makers. Haour (2003) also looked at the source from old Kargi walled settlement site that is believed by oral tradition to predate pre-Zaria sites of Kufena and Turunku. The data from excavations, which produced cowrie shells, iron objects and decorated pottery, were contrary to speculation, about a Post-1600 phase on the basis of resemblance to modern wares and their state of preservation. A reputed site remains Turunku, known as the last settlement for the population that later moved to Zaria, which later served as the final historical capital of the Zazzau state, where the legendary queen Amina ruled. It is the subject of renewed annual investigation by the Ahmadu Bello University field schools. Histories of the hilltop settlements at the sites of Pantaki, Samaru-West, Tsauni, and old Kargi are part of Zazzau kingdom. Tsauni North and Tsauni South, examined by Sutton (1976) and Effah-Gyamfi (1981a), were recently revisited by survey and excavation, which provided evidence of two differing smelting techniques as well as in slag, furnace and tuyère forms.

Pottery and iron smelting indicate diversity of the human occupation of the sites, and as Odofin *et al.* (2008:4) recently observed their differences ‘in physical appearance’ with closely associated Tsauni-North that has been ignored by researchers. The relevance of Zaria case is the availability of thematic parallels such as prevalence of walls, traditions of kingship and movement from the hills.

By the mid-15th century Kano emerged in record as the heart of sub-continental commerce only historical sources exist regarding Kano itself. Muhammad Rumfa’s reign in the 15th century is remembered for his encouragement of Islamic practices in state administration. The period witnessed pressures from Songhai, and Bornu. The 17th-18th centuries witnessed low representation in written accounts, the few more account for internal contradiction and upheaval between the Hausa states, such as the ‘devastating raids by the Kwararafa or Jukun of the Benue valley against both the Hausa states and Bornu’ (Bovill 1970:227). As argued in this thesis, Bauchi would have been centrally placed in these conflicts. By the 19th century the reputation of Hausa cities with regards to large scale manufacturing and trade was established internationally. Apart from the Arab, European as well as local sources are vital to the historical study of the Hausa heartland. Barth (1851) noted the extensive trade links engaged in by the Hausa. The Kano and Daura chronicles, *Wakar Bagauda*, *Bayajidda legends* became important local sources that provided social, technological and political information about the early Hausa society (see Haour 2003a for overviews).

2.3.3 History of Jukun/Kwararafa

Kwararafa is believed to be a kingdom of the Jukun, in existence before the 19th century in the Benue valley of present central Nigeria. According to Meek (1969), Herbert Richmond Palmer coined the term Kwararafa for the Jukun kingdom when assessing his sources for the history of Kano and its relations with the outside. It is not clear if the Jukun recognised the use of Kwararafa, in the same way it kept appearing in the legend and histories of the *Kasar Hausa*. The Kano Chronicle mentions it as one of the seven ‘bastard’ sons of *Bayajidda*, the acclaimed founder of the seven legitimate Hausa states. Ndera (2008) attempted to assess the debates for existence of Kwararafa on the basis of three oral historical sources, which have roots in traditions mainly external to the Jukun themselves but emanating from outside sources. There is mention of Pindiga, Kalam and Gerikom, Biyri and Kunde south of Bauchi region as former Jukun capitals, but their extent, movements and hierarchies as well as formations are still the subject of debate.

Certainly though the Kwararafa were a topic of concern to the rulers of some Hausa polities. Kano and Katsina, after a long standing war, reputedly signed a treaty in the 17th century due to fear of the military powers of Kwararafa. The Kano Chronicle suggests that the Kwararafa’s Attah the Great, supposedly invaded Kano in 1653 and 1671, and returned again to take Kano eventually. A little later,

during the reign of Dadi, in the late 17th century, Kwararafa entered Kano, fought and killed about three hundred of its warriors, chiefs and Mallams. Likewise, the Kwararafa attacked the Borno capital, Birnin Gazargamo, but were contained until their defeat around 1680. The success of that Borno defeat of Kwararafa was highly celebrated by the other suppressed powers that famous Katsina scholar Dan Masani wrote an Arabic prose to hail the victory of Mai Ali that 'He drove back to their furthest borders the army of the Jukon' (Palmer 1928).

There is a tendency to think that Jukun capitals were moving ones, and Benue tracts and the Upper Gongola were favourable geographical locations for them. Several accounts were given to show how leaders of the vassal states continued to relate with Wukari (a spiritual capital of Jukun/Kwararafa kingdom), on the southern Benue river for spiritual boasts and ritual connections and the direct associations was cited when Abubakar (1974) mentioned that at a time when the Jukun capital was at Pindiga on the Gongola valley, its leader, Riselu, led a military expedition- 'through Kirfi, Shongo and Warji- which conquered Kano when the chief of Kano refused to pay tribute' started earlier.

2.3.4 Kagalan in History

Palmer's *Kano Chronicle* (1928: 112) mentioned Kalam, although with no description of location, as one of places that Abdullahi, the son of Mohamma Rimfa late 15th century conquered after Zaria. It also mentioned (1928:118) the attack on the Bauchi places by the Sarkin Dawaki of Kano under Kutumbi who ruled in the 17th century, showing further military and political links, after which Sarkin Dawakin Kano later decided to settle in Ganjuwa (Kafin Madaki) about 20km north of Bauchi instead of returning to Kano, and only sent back two thousand slaves.

Assessments of various traditions collected indicate a time depth of the place of Kagalan and Kirfi (SA 2011, WS 2010) as an important social settlement linked to Jukuns. Indeed when Kagalan is pronounced as Kaalam or Kalam (with the ...ga... in the middle being silent), and coupled with the fact that most of the early written records write 'Kagalam', it may be that this might be the capital usually indicated as Kalam in 17th century AD maps (Figure 15 below). The problem is however Kalam is usually associated with military might, an aspect absent in Kagalam of Kirfi traditions. This is a likely problem if earlier collectors of traditions relied on mention of Kagalan from non-native Kagalan people, they might have recorded it in full as against a native Kagalan. This all remains speculative at this stage until further archaeological research can locate the mythical Kalam. There is the possibility of twin capitals, with a military power and a spiritual and economic settlements existing side by side.

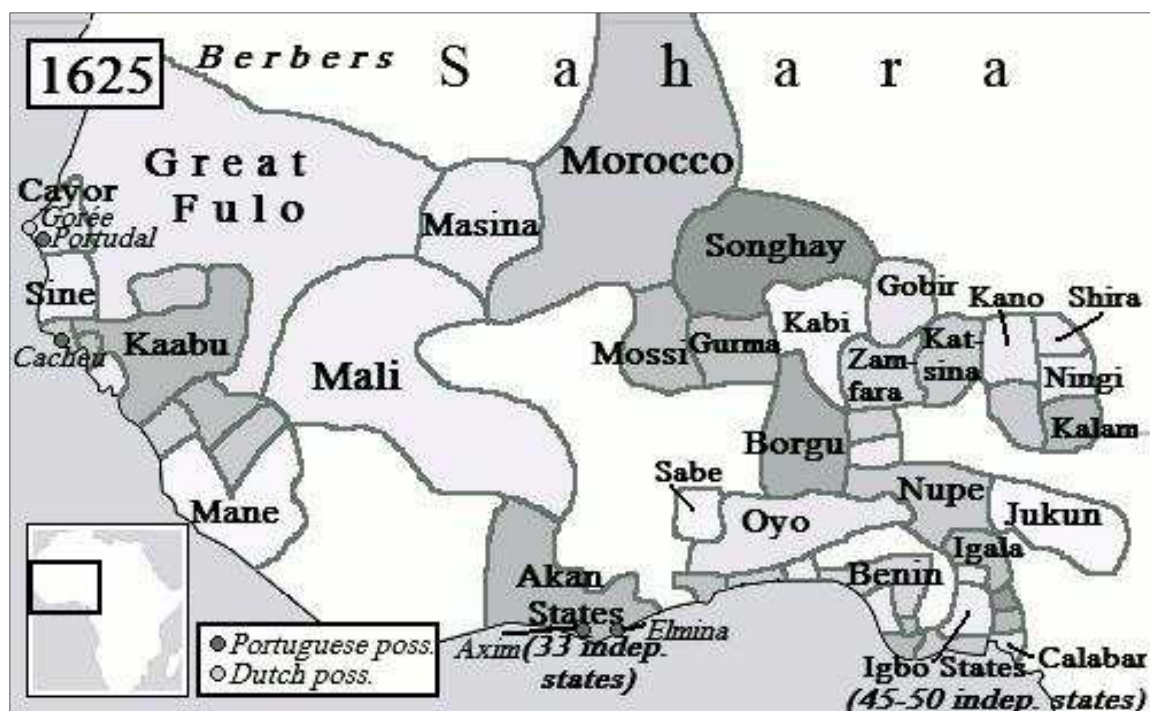


Figure 15: Appearance of 'Kalam state' in the 17th century AD. (Source, John 1998)

After a short period of growth, the Jukun powers declined prior to the 19th century Sokoto jihad. Such decline was not unconnected to the defeat by Mai Ali (1645-1685) of Bornu in the mid-17th century and such led to their subsequent expulsion from Hausaland (Abubakar 1974:233). No fuller archaeological record exists yet of the archaeology of Jukun or Kwararafa kingdoms; these are only patchy historical narratives, which nevertheless are valuable in showing the shifting of powers due to military strengths between Kasar Hausa, Borno and Kwararafa thereby affecting the diplomatic realignments of the Kasar Bauchi states, but influencing the regional Borno and Hausa powers as well.

2.3.5 The Archaeology of Bauchi region

Archaeological research in the Bauchi region has been scarce so far, and can reasonably be described as pioneering. Just one complete archaeological investigation has been reported: that of a rockshelter at Kariya Wuro, which appears to have been inhabited in the past millennium. We now have a better idea of the past environment of the site of Kariya Wuro, and the material culture of its past inhabitants (Allsworth-Jones 1982, 1991, 1993; Shouls & Allsworth-Jones 1983). Allsworth-Jones (1991) reported his 8x1 and 2x1m trenches at Kariya Wuro rock shelter and finds categories from the 1981-83 seasons. The work unearthed at the uppermost layer a ceramic and iron using culture dated to 220±50bp, at a depth of 20-30cm. The site produced a clear sequence of transition from a dominant Late Stone Age to an Iron Age phase with slag and objects. Although three dates were obtained from the 8x1 pit, the two charcoal samples which sampled from secure contexts produced problematic dates with a date of 960±300bp for the middle context and 400±270bp obtained at 40-50cm (Allsworth

Jones 1991: 204 - 207). Objects found include huge deposits of potsherds, quartz and non-quartz lithic materials, bones and teeth organic materials, iron and metal, bead, blades, points and other bifacially flaked objects, ground stone axes, grinding stones indicative of site of material production. Botanical samples yielded evidence for the antiquity of *Adansonia digitata* and *Grewia* sp. and extensive utilization of plant resources.

Sites southeast of the study area around Cham in Gombe (Bala 1976, Sutton 1976b) produced evidence of hill settlements where dry-stone walling enclosures were its major enforcing features and a situation where the foothills were also settled, a settlement system noted in the core Hausaland extending beyond Bauchi to southern Gombe. While potsherds were plentiful at all the sites, grindstones and rubbing stones were equally common finds. Around Yadi, to the east of Cham, iron working evidence was noted through the presence of tuyères, and slag features. Of interest was the common occurrence of terracotta figurines at about 10 sites studied through surveys. Of the terracotta figurines the majority represent human forms of highly stylised forms, while 'few clearly represent animals without any human connotation' (Sutton 1976b) displaying genet (a cat-like mammal), hedgehog and bulls. Other forms are non-representational and many of the elaborate decorations tend to obscure identifications of species.

The stylistic nature of the figurines suggests they had no parallels with Nok and those from the Zaria region. Cham being within 150km radius of Kirfi, and displaying some common themes with the Kirfi material (such as depicting animals, see Chapter Seven), it is clear that much more needs to be done, as we may be dealing with a distinct tradition with hints within and beyond the River Gongola region. Sutton (1976b) suspects that such figurine material 'indicates some ancient cultural undercurrent which from time to time has manifested itself in different artistic styles in various parts of Nigeria'. We can follow the work of Berns (2011) in suggesting the existence of a Gongola river tradition.

Of further interest is the archaeological potential of Yankari Park (NCF & WWF 1987: 15-16), about 40km from the Kirfi sites, where iron smelting sites, a baobab site with potsherds and an abandoned site, and caves were noted. This document reported that about five different archaeological sites are recorded within the area, especially on hills such as Faliyaram hills, where mounds of stones exist, and are thought to be burial features. Hill settlements are significant characteristics of the sites here, where stone foundations are well-pronounced and occur as a major character of the sites, with surface materials including stones ruins, grinding stones and pottery. A total of 59 caves with visible entrances from ground level to 5m above were measured, named Marshall Caves, and 139 wells. The inner chambers of the caves were about 1.5-4.2 metres in diameter and believed to have been carved by humans, as a strategy to take refuge in times of war and slave raiding. Oral traditions collected by Marshall (NCF & WWF 1987) indicated the agency of the Bolewa who migrated from the Benue

River, but abandoned the area before the beginning of the 19th century. They were said to be hunters of Bolewa descent.

Aremu (1999a&b) re-surveyed the Yankari area with a particular interest in the iron smelting features, was and seemingly unaware of the earlier archaeological potential reported above. Aremu's survey reported furnaces and slag heaps, and although it offers no further interpretation beyond description, it remains useful in showing the similarities with features identified in the Kirfi area. Horlings (2012) followed up with an exploratory research about a well complex, of no yet known cultural affiliation within the park. In view of the report (NCF & WWF 1987) it is likely that Horlings revisited 90 (of the 132) wells reported earlier, attempting to geo-reference their occurrence and further characterise the wells into five types based on morphology, in addition to identifying an oval ridge which defined the extent of the wells and included some noted depressions. Horlings (2012: 57) proposed that the site may be associated with slave raiding and trading of the 19th century, as frequently expressed in the historical texts related to Bauchi. All in all, the hilltop occupations, smelting sites, stone foundations, caves and wells, can expand our knowledge of the archaeology of southern Bauchi to a wider complex involving Kirfi.

Finally, the present work builds on my recent research where I provided a preliminary background to the archaeology of Kirfi (Sule 2010; see especially Chapter Four below). There, ethnography and survey provided parallel information which aided the interpretations of archaeological features. Due to commonalities of the diversities of craft specialisation, settlement systems and indication of a belief system with the Hausa area, I argued that the latter should serve the best parallel to the Kirfi evidence. This thesis develops these points further.

2.4 Concluding remarks

Globally then the historiography of our study area is rich and broad. From histories of migration, contacts and social organisation as well as the past cultural contacts the Hausa area was poorly researched from both archaeological and historical perspectives in view of its size and importance. Sutton's (1979) influential paper *Towards a less orthodox History of Hausaland* assessed the corpus of literature that dealt with Hausa process within the context of a traditionally static social group derived from oral traditions and written sources. He suggested that scholars should use sources such as archaeology to look at the Hausaisation process that led to changes in the definition of identities. He argued it is a complex process that could not simply be understood by relying principally on modern linguistic variation, for instance.

Sutton (1979:185-7) identified a loose initial Hausa series of developments in the past 1000 years to the period of the developments at Daura-Hadejia-Kano that later expanded to incorporate Zaria and Katsina into the process, up the time in the 15th century when with the influence of Arabic that came with Islam the burgeoning of Hausa written sources. That insight improves our understanding of the Hausatisation process up until the recent past. The mid-fifteenth century emerges as a key period when talking about the internal consolidation of the political, commercial, linguistic as well as cultural development of the Hausa process generally. But as regards Kirfi, Sutton (1979: 183) simply places it outside Hausaland.

Last (1985) considered the period 300 to 1500 as vital to the emergence of regional socio-economic networking among peoples spanning the period between the demise of Nok and the emergence of medieval political states of Kano, Zaria, Katsina and Kebbi in Hausaland. One significant periodisation in his work covers c1100-1500, which in his view saw the development of two major competing international trade routes. Commodities such as gold, slaves and ivory were exchanged through these networks, and Islam was adopted to legitimise such long-distance connections (Insoll 1996, Mitchell 2005: 233, Nixon 2009).

Settlement studies, another vital reservoir of knowledge in West African archaeology, have yet to receive due attention in northern Nigerian archaeology. Attributes such as walling systems, objects and features of belief systems such as monoliths, settlement preference for hills, the roles of warfare and dissension, the existence of crafts systems and associated skills and secrecy, are all important in explaining the past. In fact the characterisation of the behaviour of occupation of inselbergs and their valley settlement are phenomena with connotations likely associated with beliefs in the Hausaland (Sutton 1979:184, Haour 2003a, 2010). This together with other characteristic features of influence seems to open our horizon as we explore connections between *Kasar Bauchi* and its neighbours.

The presence of aboriginal groups, perceived by me to be broadly identifiable as early 'Hausa', is glimpsed from the recognition of Zumpuru, Kumberi and Gumfu past identities of the original inhabitants of Kirfi. One of the traditions collected stretching over a century ago mentioned their relics of walls, graves and bones and iron ornaments on Kirfin Sama (Grier 1913, Abraham 1927 & Abubakar 1974: 40). Grier's (1913: 25) accounts, interestingly, described the so-called Kirfi groups such as the Denawa as Habe. It is likely that the new process of governance brought by the founder of Kirfi which is clearly that of the later arrival who took over evolved a system of centralisation and administration of the chiefdom principally displaced on the hills, when he brought all the settlements under his single control politically and ritually. Thus the role in Bauchi of the Wangara – groups of

traders² who came from Mali and Songhai and are thought by Lovejoy (1978) to have integrated Hausaland into the West African trade network from the 15th century onwards – remains to be explored.

² I would suggest that the huge heaps of slag within the narrow southern Bauchi belt may have been the result of rapid activity by migrant Hausa smelters on *chin rani*. On the south-west part of the hills of Zaranda about 30kms west of Bauchi town is the town 'Katsinawa', which I visited in 2012, peopled by former migrant traders from Katsina. It may be one of the early manifestations of a highly organised system with roots to Wangara traders in the Bauchi region (Hamman Pers Com.2012).

CHAPTER THREE: RECENT CULTURAL SETTINGS AND CONTEXT OF PRODUCTIONS

3.0 Introduction

It is well recognised that ethnographic data can allow us to generate information that is useful in the interpretation of archaeological situations (see e.g., David and Kramer 2001). Accordingly, this chapter will outline contemporary craft practices in Kirfi, linking them to the archaeological record where appropriate. The data presented here emerge from three seasons of interviews and observations conducted between 2010 and 2012 (see list in bibliography). All interviews were conducted in Hausa (of which I am a native speaker), and transcribed into English, except where otherwise indicated (such as Kagalan's use of terms). Although the aspects of the 2010 (May-September) field season were tape recorded, subsequent fieldwork observations, using participant observation in 2011 (March-July) and 2012 (March - July), were recorded through the field notes. More than 100 interviews were conducted throughout the research period, at approximately 10 major settlements within the study area.

Oral accounts (MY 2010, WZ 2011) corroborated Adamu's (1985: 3) idea that historically subsistence farming remained the mainstay economic activity of the Kasar Bauchi, as is the case in the Hausa area generally. Adamu pointed out how food production was engaged in the valleys of Bauchi, not only for domestic consumption but also for export since at least the early part of the 15th century. The six month dry period in the savanna frees the population from farming to engage in other crafts such textile weaving and dyeing, iron working, pottery making, mining and building construction, with the adoption of traditional woodcarving into the retinue of modern occupations towards the end of the last century, also noted by Adamu (1978).

The technological as well as economic system of Kirfi society has shown a clear gender division and interconnectedness. Men are considered to be the breadwinners, working to provide for all the needs of family members. Crafts like cotton spinning is essential because everyone's identity in Hausaland is understood through his family links to the practice of specific trades, mode of services and specialised productions. The history of the Hausa people according to reports from early travellers, geographers and colonial officers (see Chapter 2 above) describes crafts socially structured along gender and age grades, and the practice of endogamy. This research seeks to locate the social factor that strongly defines technological processes and interactions. This is relevant as we attempt to recover parallels capable of aiding our understanding of the behaviour which led to the archaeological data visible today.

The population of Kirfi is a configuration of diverse modern ethnic groups who have, in quite a recent timescale, 'acquired' a Hausa cultural identity. Thinking of craft parties in particular, one can make parallels with the work of Gosselain (2011: 221) who was able to show how Tuareg potters in Central

Niger are adopting pottery moulding techniques popular among Hausa craftspeople instead of their hitherto practice of pounding.

As noted in Chapter 2 above, the Kirfi region is populated by Kirfawa, Denawa, Hausa, Bolewa, Fulani and Kanuri, with no exclusive chance to allocate a whole settlement to a single sub linguistic grouping. There is a preference for people to marry within the same ethnic group. There is a tendency in each group for intra settlement marriage and there are a number of factors that favour this, such as parental influence, communication needs, parental support and mentorship. Seasonal migrations, one switching of trade interests and specialisations in multiple trades all make the techno-cultural landscape difficult to understand in view of defined social complexes in the Kirfi region. A simple categorisation exists as people are recognised based on the economic activity with which they engage. Such identities have family historical links, except the changes that occurred during the colonial period that transformed the subsistence strategies and led to the emergence of new forms of elites, with the structure being sustained.



Figure 16: woodcarving (Kagalan), leatherworks (Cheledi), and building construction (Wosu) March 2012.

The major crafts in the research region historically include iron working (smelting and forging), potting, leatherworking, textile making, building and architecture, and carving. Other economic subsistence practices include fishing, barbering and healing, animal husbandry and hunting and, most importantly, farming. It is pertinent to observe that farming has been practiced since precolonial times by all groups irrespective of family system. This chapter will restrict itself to aspects of iron working, textile production, and ceramic production because these three crafts are the most visible through archaeology, but I recognise that even less tangible crafts may be open to providing analogies for understanding relics of past economic systems.

3.1 Iron working

Evidence of the highly successful working of iron in prehistory has come from three important early centres in the Nigerian region; the Nok culture area in north central Nigeria, Daima in the Chad Basin and Opi/Lejja in the south-eastern part of Nigeria. The complexity of the technology and the spiritual connotation of smelting (Connah 1981, Okafor 1984, Schmidt 1996), combined with its impact in modifying the African environment and stimulating the growth of agriculture, make it a significant

research theme in African archaeology. In addition, the topic has remained important in Africanist research because informants still exist in some parts of the continent (such is the case in Kirfi) who can shed light on the processes of smelting, while in other regions of the world, traditional iron working disappeared so long ago that no direct testimonies exist.

In this regard, David and Kramer (2001: 329) give details of the process of reduction. That ore metallic iron (Fe) is bonded to oxygen (O) of the type – hematite (Fe_2O_3) and magnetite Fe_3O_4 comprising varying quantities of silica (Si) and aluminium (Al) and other minerals have to be heated to a temperature of about 1300°C using charcoal which is near pure carbon. The high temperature separates the iron and the oxygen, and the oxygen fused carbon, produces carbon monoxide (CO), a process called reduction which is the task of the smelter. Heat breaks the molecular bonds between the iron and the oxygen atoms, and the oxygen released combines with carbon to produce carbon monoxide gas (CO), and the reduction of iron oxide becomes carbon dioxide (CO_2) that, together with inert nitrogen (N) from the air, is vented from the furnace. Meanwhile the silica, aluminium, and other impurities, which melt at lower temperatures than metallic iron, drip down to the base of the furnace in the form of slag, leaving an iron bloom to grow from the coalescence of iron particles.

In many parts of Africa, scholars interested in the craft have commissioned experimental research, where failures that occur are attributed to omission to replicate the complex social processes and rites involved with the technical aspects of smelting that were previously achieved (and situations where simple procedures were skipped or carried out incorrectly, such as the poor closing of a shaft door observed in such an exercises in 1998, by Schmidt (Salzman 1988, Schmidt 1996, David & Sterner 2012).

In the course of my enquiries in Kirfi, I interviewed blacksmiths/apprentices both retired and active, and observed forgers at work. Iron smelting, a dead craft in the study area today as in other West African areas, appears to have been extensively practiced in the past. MM (2010) declared that smelting was the dominant economic activity of the former Kirfi people, and metal working has so far remained important for Kagalan and other settlements today.

Informants indicate that smelting and forging were a specialisation of one and the same family throughout the main settlements, except in the case of Kagalan which saw an absolute division of labour between smelters and blacksmiths (UK 2010). All the accounts collected at the modern Kirfin Sama settlement agreed with the existence of one single lineage for both smelters and blacksmiths in the past. Even if division existed, the ties seen today could have resulted later, due to the demise of smelting as against the surviving smithing. At Zamani, on the other hand, the Sankira family collectively produced the past smelters and the smiths without any division.

The remnants of large slag mounds typically associated with furnaces and fragments of tuyère, and fading recollections of the process, remind the people of their successful practice in the past. It appears the technical space for smelting was secluded from the domestic sphere, as no direct evidence of human settlement was encountered around the extensive slag mounds visible today, as will be developed in Chapter 4 below. Pottery was also absent near the smelting sites. Most Kirfi settlements are said to have maintained associated iron smelting complexes. Perhaps because of extended social relationships across settlements, members from different settlements could assemble and work in one site, so long as they recognised their kinship. Kagalan as well as other Kirfi peoples (SK and IG 2010) could possibly also have shared sites and worked collectively at some sites at different periods in the past. Kagalan is curiously more associated with the extensive iron working assemblage surveyed in Tekkira, on the validation of oral traditions, suggesting its period dates to the 16th century (WZ 2010, SK 11, UK 2012).

Reports by early colonial anthropologists and military expeditions support the idea that iron production was important in the past. For instance, Falconer (1911) reports Kirfi as an early centre of iron production while some decades earlier Rudolf (1872: 73) had implied how important Kagalan was in the processing of iron in Kirfi society, specifically mentioning that “iron is extracted in Kirfi,... Kagalam” and about 10 other iron smelting centres within its proximity.

3.1.1 Iron Smelting

Oral information remains the only source for the reconstruction of smelting operations in Kirfi, since it appears that the practice of smelting ceased nearly half a century ago (IA 2010, OP 2010 & SM 2011). MZ (2010), a blacksmith, believed that iron working, from the stage of sourcing raw materials to the manufacture of tools, was carried out by a single lineage. MY (2010), an 86-year-old, recalled that during his adulthood iron (*karfe*) was cooked by gathering heaps of *tsakuwan tama* or *tama*- iron bearing gravels; that large furnaces were built using clay and broken pieces of tuyère and slag itself to his height (approx. 1.6metres), inside of which were spread successive layers of iron ore and charcoal, until the furnace was filled to the rim. He recognised that about 3-4 basins of ironstones were spread on the first layer, followed by charcoal, then by more ironstones ranging from 4-6 basins. The final layer was commonly the wood from the *Prosopis africana* (*Kirya*) tree, which is acknowledged to be efficient as it burns slowly over a long period.

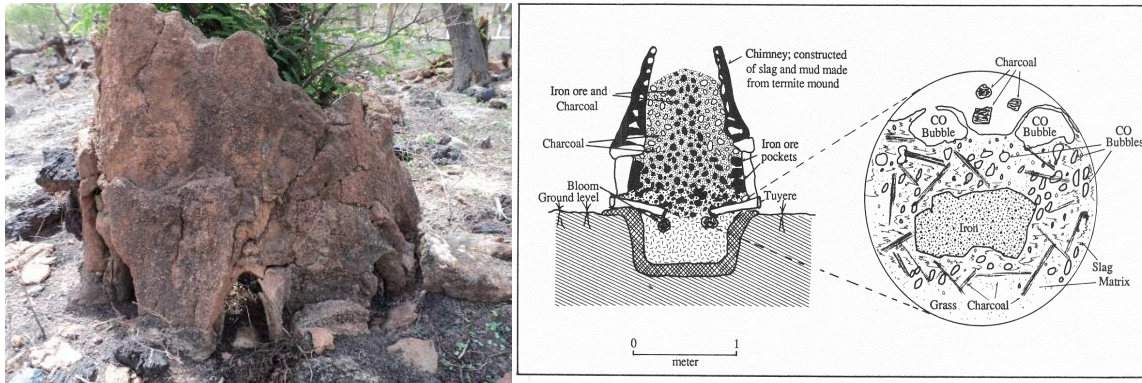


Figure 17: Smelting furnace at Tekkira (near Kagalan site) and a scheme of a type furnace

MY (2010) further explained that smelting operations usually took two days of intense firing until the stones inside the furnaces were converted to a liquid, and subsequently solidified into lumps of unrefined iron mass at the bottom of pit (Edwinus (2013) noted that this slag type from Kirfi sites, is likely the product of analogous technological styles and furnace systems). As soon as it cooled down they emptied the furnace of its contents and treated the slag/iron. The good iron does not always separate from the waste product called *kashin makera* (slag). From several accounts (MY 2010, AK 2010, MH 2011) two types of furnaces exist which account for the explanation that in one situation the bloom is tapped from the roof, while the second involves drawing from openings at the sides. In all cases someone stays throughout the operation to supervise its success and above all maintain the conduct of the expected processes.

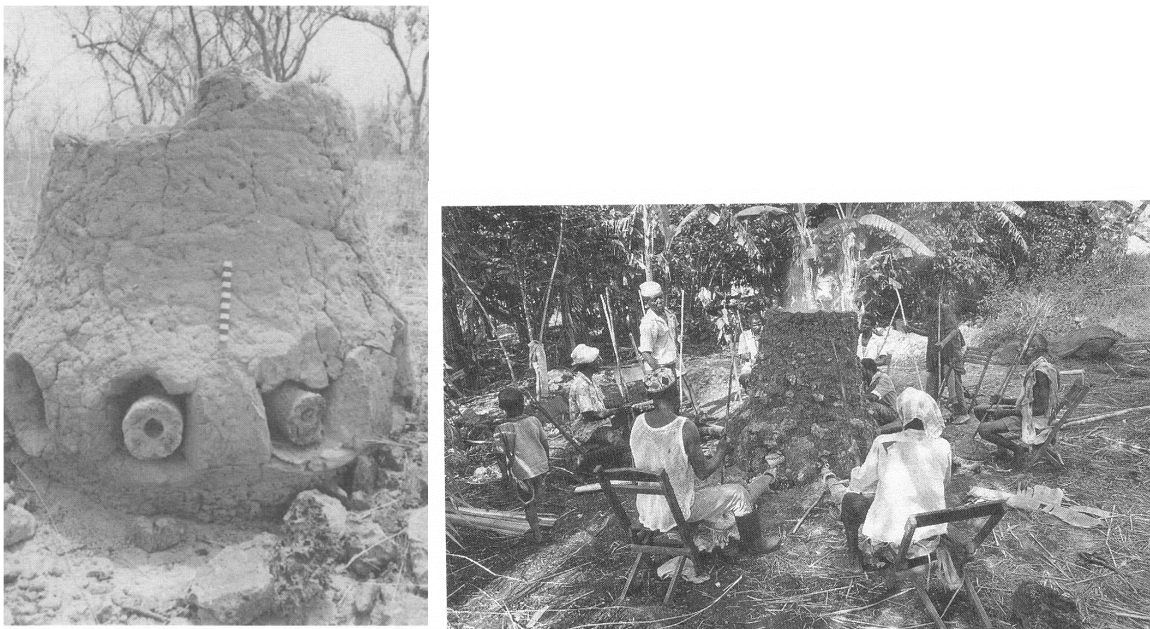


Figure 18: A: furnace at Yankari, similar to those visible at Tekkira (Aremu 1999). B: experimental use of furnace to smelt in Tanzania (David & Kramer 2001).

The composed wrought iron was then broken into lumps and beaten to a raw form after it became cool, before it was turned to blacksmith raw material. All the Kirfi accounts confirmed the process of assembling able bodied men who kept beating the *dafeffen karfe* until a second round of impurities was removed. A good wrought iron sparked when struck with a hammer and tended to be highly valued; blacksmiths were obliged to rework poorly processed iron that contained high amounts of impurities (MH 2011). The social interpretation of associating iron workers in West Africa as transformers has been discussed by David and Sterner (2012). They identified a strong association between men and iron workers, and women and potters, prevalent in the seven communities they reviewed who hold additional roles as midwives and physicians.

3.1.2 The smelting space

Oral information recognised the location of past smelting sites in the open, at the outskirts and away from domestic settlements. Typically, women were restricted from visiting the sites (MacEachern 1994, Barndon 2004, Schmidt 2010), so that mainly children had to take over the supply of basic needs. Barndon (2004:58) for instance observed common restrictions in Tanzania: because of women's association with menstruation and other forms of sexual activities to do with blood and symbolic body 'heat'. Smelting activities in the Kirfi area also strongly forbade women from attending such activity sites. One informant (AMY 2010) was able to observe the smelting process closely because of the frequency of the messages he had to carry to the workshop as a child. He was not directly from the iron working lineage, but recognised that smelters and forgers were of the same family as with for example the *Sankira* (head of forgers) of Zamani, heading the settlement guild. The social configuration in the Zamani settlement previously gave the smelters and forgers a special role, whereby its forgers used to wear special regalia such as *sarfana* (royal-like trousers), *malum-malum* (large gown), and *dara* (red cap) to their workshop.

A single operation required about eight able bodied men under the supervision of a supervisor to accomplish it. Other members of the family had to cultivate food for the busy iron workers who could only carry out agriculture on a part time basis. Smelting was not usually practiced in the rainy season, yielding to forging activities. MY (2010 & DZ 2011) stated that smelters had supernormal powers in the past, which were displayed during ceremonies on the smelting site. Certain processions and events went with a lot of merry-making to the extent that drummers witnessed the events, especially the planting of the *uwar makera* (anvil). Fireworks and fire plays took place in the open air, where the iron workers' children (both smelters and forgers) participated freely, until some 30-40 years ago, when smelting ceased and the popularity of the forgers was reduced.

Followers of Islam believe that Prophet Daud (David), who is considered a messenger from God, was the first skilful ironsmith, having possessed special powers to work chain mail (Quran: Suratul Al-Hadid (Iron) & Hadith (Arbaun) collections of prophetic traditions). They believe it is a revered

apparatus meant to produce materials for the benefit of people, and capable of facilitating their wellbeing. For this ZK (2010) and others believe the craft is divine and sacred placing the modern iron workers as the heirs of the Prophet Daud. The association of iron with supernatural powers shows continuity in the belief that ironworking has religious connotations, be they Islamic or otherwise.

3.2 Blacksmithing

Societies in Africa have different social labelling for iron working specialists (Goucher 1981, Okpoko 1987, Schmidt 1997, Jemkur 2004). As we saw above, the place for forging is considered differently by the iron workers themselves in the Kirfi region: most see themselves as part of the larger single iron-working family, while the people of Kagalan define themselves as a different set of craftsmen from smelters with entirely different intentions, processes, social organisation and set up, whose trade begins when the finished iron is ready to make tools.

All settlements in the region still practice *Kira* (forging) at certain levels, though the activity is dwindling. The settlement of Kagalan is however held to be the inherited centre of practice. There is an infiltration of migrants, notably from Kano, into the forging communities of Guyaba and Cheledi.

3.2.1 Roles and social organisation

A leadership role among the Kirfi ironworkers is determined by two criteria: age and expertise. Elderly members of the craft are involved in the settlement of disputes among family members and in the organisation of their technical practice. Expertise obtained by extended years of practice, coupled with seniority by birth, are often strong criteria for recognition as a head, and these individuals often enjoy customer preference for the production of tools. There are two systems of forgers' engagements; either by customers directly patronising the workshops, or by meeting potential buyers in the market squares. The first allows customers to have their input as to the physical dimensions of what they require, while the second option affords only the ready-made choices on display.

Blacksmiths are socially acceptable members of the society in Kirfi, and intermarriages are allowed with other groups, except with the nomadic Fulani, whose oral accounts often emphasised the traditions collected in Tekkira. This acceptance stands in contrast with certain neighbouring societies, such as, for example, those of the Mandara mountains at the Nigeria-Cameroon border (MacEachern 1994, David & Sterner 2012), where they are associated with the performance of certain dirty and odd ritual roles, such as burials, which make them outcasts. All the Kirfi settlements have a *saraki* who is informally recognised as the head of the guild. He participates in cases of dispute resolution or any social role. Kinship and blood ties play a role in the individual identities of members of the blacksmiths' group, even those who abandoned its practice. Every adult member is able to forge the most basic tools such as a hoe, axes, sickles and knives. The final choice of trade happens during the mid-teens, when young men take career decisions in farming, livestock keeping, and trade or building construction.

There is however resounding agreement indicating a rejection by the Fulani of blacksmith grooms or vice versa. The reason advanced by MY (2010) for this societal disdain for blacksmiths - though not prominent - is due to the splashing effect of the fire during forging. Perhaps some informants commonly raised reservations as to the social standing of blacksmiths due to a tradition spoken by the Prophet Muhammad:

The likeness of a righteous friend and an evil friend is the likeness of a (musk) perfume seller and a blacksmith. As for the perfume seller, he may either bestow something on you, or you may purchase something from him, or you may benefit from his sweet smell. And for the blacksmith, he may either burn your clothes, or you may be exposed to his awful smell. (Hadith, narrated by Bukhari and Muslim)

This narration was not meant to seclude the craftsmen but a mere reference to the filthy nature of their working environment. Whatever it is 'hard, noisy and, dirty' (LaViolette 2000: 41) the relative changing roles and status of modern blacksmiths remain different from one community to another.

The ownership structure of workshops differs between those that see the workshop as a collective family enterprise and those with individual control. At Kagalan, individuals own their workplaces while the blacksmiths of Guyaba, Cheledi, Kirfin Sama and Kirfin Kasa have a nuclear family ownership structure.

3.2.2 Learning process

Apprenticeship consists of two modes. Direct informal learning starts from a very young age, when children accompany parents to workshops. This has no formal beginning and starts from ages under five. The second is the training of interested apprentices who are not connected by blood ties. The former, which is more intensive, begins with a dedication to turning wheels or blowing bellows, and the coordination of the sourcing of charcoal for the workshop. This is meant to expose learners to the process and enable them to participate in it until they are capable of handling hammers and anvils themselves. Choices come up later in life, when children are grown-up, to take up alternative economic activities. The present smiths do not seem to have a potential succeeding generation.



Figure 19: Children's view at a workshop in Kagalan – April 2011

The adult apprentices require twelve months of intensive learning. They also learn in a more active way by physical engagement in the cold hammering process with the master forger.

3.2.3 Forging materials

With the demise of smelting and of the guild of smelters, scrap markets provide the needed raw materials for the forging of tools and equipment in the region. All the informants I consulted rely on scraps coming from the weekly Sunday market in Alkaleri and the Wednesday Cheledi market in Kirfi. The scrap metal merchants have a strong presence on market days, as they have a permanent location where they exhibit all sorts of metal objects - not just for the blacksmiths but also for mechanics. The merchants buy condemned car frames, industrial waste, rail tracks and other supplies from vendors who go on house-to-house purchasing trips. These materials range from copper wire, metal sheets, aluminium, iron bars, to good bolts and nuts bought from factories.

Importantly, after metals, charcoal remains a crucial material for forging. *Kiryia* (*Prosopis africana*) is considered to be the tree that gives the most efficient temperature, yielding charcoal with little ash which is followed in terms of charcoal quality by the resin tree (*gabaruwa*). Smiths sourced their preferred *Kiryia* from neighbouring Jigawa and Kano states due to its increasing scarceness in the region, even as they burn other trees from the neighbouring bush. Blacksmiths cut their source trees and burn them before the final charcoal is transported to the workshop. They cover distances of over five kilometres to fetch the desired firewood, in view of the scarcity of the preferred *Kiryia* (*Prosopis africana*) as is similarly the case in central Bauchi (Allsworth-Jones *et al.* 1991, Blench 2007). Allsworth Jones *et al.* (1991:153) also reported that blacksmiths in Kariya, central Bauchi value charcoal from the *Kiryia* tree to be the best, and that it is nicknamed ‘ta-makerá’, meaning forge tree.

Equipment handles are considered part of the forgers’ job to complete a ware. Even though a distinctive specialised guild of wood carvers exists for the making of other complex objects, all smiths carve simple wooden handles in their workshops.

3.2.4 Smithing workshops

Workshops are simple constructions. Because of the need for cross-ventilation they require large openings. Other settlements in Kirfi, such as Zamani, are beginning to build open and rectangular mud rooms, with commonly thatched roofs in contrast to the complete thatch hut which is still prevalent in Kagalan. It is not exceptional to find workshops also serving as a *zaure* (main entrance), with adjoining passage-ways serving as entrances for other members of the family and visitors alike. Locating forging workshops near domestic spaces is a situation commonly observed across other West African settlements (Sutton 1985, Okpoko 1987, David & Shaw 1989, MacEachern 1998, Ogundiran 2002, Ogundele 2005).

The location of a nuclear family's workshop, the allocation of a time slot and allocation of space are determined by the senior family forger who is also typically the family head. He manages the workshop schedule, organises the use of multiple chambers by several users and commands bellow men, who are responsible for turning the wheels or blowing the bellows to sustain the required temperature at the forge. In such circumstances the authority to the organise craft and its performance is normally socially constructed, not always entirely on technical grounds. This said, the case also exists where talented individuals are recognised as leaders for their skill. We have in Kagalan such a reversed situation where the technical superiority of Usman Kagalan, 55, made him lead the guild including his elder brother. Usman is considered a talented forger in the whole of the Kirfi region including Alkaleri, because of his mastery of improvisation. He has clearly assumed recognition as the natural leader of the blacksmiths, which was remarked upon by his elder brother who started forging long before him, and those other elder forgers of Guyaba respectively, who consult him from time to time for technical advice and direction on aspects of practice management.

The most important structure in the workshop after the anvil is the combustion chamber, recognised as the focal role of the fireplace. Be it bellow or wheel drawn, it provides a seating position for the striker who is the master forger. The blacksmith sits either facing the fire-place or at angle to the right side of the furnace. The anvil (fixed after some secret performance rituals which I was not allowed to witness) is placed mid-way between the assistant and the blacksmith. This facilitates the hammering of red-hot objects from the fire until the desired shape is achieved. It is observed that a minimum of two people run a workshop, as observed elsewhere, for example in the Mandara region (MacEachern 1994: 212).



Figure 20: Blacksmith in Kagalan at work – May 2010

On the left hand side of the smith is usually a broken pot to serve as a water reservoir, or discarded lower grinding stone for the cooling process. Beaten metal objects are submerged in water when finished, and water is frequently used to splash wooden handles against continued burning after hafting. Commonly one finds a heap of bits and pieces of cut metal scattered around the water place; pieces initially discarded are later utilised for repairs. A good description of the layout and examples of similar blacksmiths' workshop tools have been provided from North Central Nigeria (Akinade 2004).

The Kirfi smiths adopt a number of techniques towards the final manufacture of their wares, with the single or combined use of hammering to shape a metal, bend tools, draw out and punching and the frequent welding of pieced metals. The smith is strategically positioned in his workshop. He can easily reach his raw materials, anvil, hammers, tools, fire and water. An easily accessible space is usually reserved for the retouching of wooden handles and final hafting. Forgers and assistants' seats are not very high, but both are highly padded with soft materials to prevent their body from absorbing excess heat which causes a common ailment among blacksmiths, haemorrhoids (*basir*); blacksmiths are indeed renowned providers of medicines against them. But as indicated, earlier workshop buildings always ensure sufficiency of air flow by providing adequate windows and doors. That is why it is observed that workshops consisted only of thatched roofs over wooden pillars.

3.2.5 The forging process

After the construction of workshops, comes the installation of infrastructures. The wheel, considered functionally more effective than hand bellows, is prevalent today in Kirfi forging operations. A non-specialist can manage a wheel, while only a trained person can handle bellows. The wheel is much simpler, less expensive and energy consuming than the bellow-type. Here a bicycle spindle is used as a valve to blow air, by a propeller placed inside the aluminium mechanism in the air converting chamber that forces air in and out of the furnace through the tuyère. A connecting pipe which is covered with clay (*bakin wuta*) pushes the air from the combustion chamber to the forge.

Zuga-Zugi (bellows) are produced from skins, preferably those of lambs and goats, using the rear legs of the animal. Slaughtered animals are preferably skinned and prepared by the blacksmiths rather than the butchers. The raw skin is exposed to the air for one hour to avoid shrinkage before it is filled with sand to enlarge its capacity. It keeps the sand for three days before it is then dipped into a *gabaruwu* (*Acacia nilotica*) solution. This solution improves its malleability and reduces the risk of cracking after drying. Bamboo branches are used to make the bellow handles which are typically as thick as the thumb and about 10cms in length.

Forgers work only in the day time (unlike smelting that extends over night). It is believed that the sound of the hammering of iron enrages the spirits that ensure the peace of dead ancestors. Traditions collected (UK, YG & ZK 2010) state that the use of the pestle and mortar and hammering at the

workshops are never done at night due to a generations-old prohibition, and when this is broken people are forced to contend with the constant appearance of ‘white ghosts’. Several similar time-specific prohibitions are associated with craft practices in African societies (Schmidt 2010, Livingstone-Smith 2000).

3.2.6 Products and marketing

Smiths manufacture knives which are sold for 150-400 Nigerian Naira (converted at £1=N250), hoes (N300-500), arrowheads (N50-70), cutlasses (N100-250), sickles (N50-150), hooks (N20-50), iron-diggers (N200-N500) and shovels (N100-150) and they are gradually developing their techniques to replicate spare parts for motorcycles, trucks and large lorries. Sharpening of tools and other equipment is also provided for a fee. I observed an instance when sharpening a hoe blade cost N300.

Because of the declining state of forging in southern Bauchi generally, customers who need to have tools crafted visit blacksmiths at their workshops. They outline their needs and bargain on cost. But sometimes customers supply the raw materials, mostly metal scraps, themselves and therefore choose to only pay for labour. Forgers buy materials from the market and go out scavenging from automobile pieces. The blacksmiths are said to readily meet the demands of people from immediate settlements. But in Cheledi and Alkaleri centres, more commercially-oriented forgers have sited their workshops centrally at market places. They are able to service market days mainly because their main shops are located near their homes. The excess products from these that are not focused on production go the market stalls, and customers are treated on a first-come first-serve a basis.

3.3.0 Pottery making

Most of the potters I interviewed responded that they completely abandon potting during the rainy season due to problems related to poor drying, firing, cracks and communal shift of interest to cultivation. Even when successful, they observe that the wares end up breaking upon completion and they encountered problems with wood at the firing stage. These are technical factors due to meteorological fluctuations that are often frequently explained in functional terms in Africa (Gosselain 1999: 209). Kirfi potters usually have seven months of uninterrupted potting during the dry season; otherwise farming and rendering of other services such as midwifery fit into their yearly schedule. Pottery making is the sole occupation of potters during the dry season and is exclusively female in the settlements I surveyed. Their working spaces or informal workshops are located in the domestic space, with firing 50-100 metres in the compounds’ backyards which are used as farmlands in the rainy seasons.



Figure 21: Tools and potters' workshop in Kagalan and finished wares at Zamani (photo right: tiny arrow showing a stone anvil)

Every firing, signifies a complete cycle in the making of pottery. Sometimes a single potter produces individually for an average of four days before subjecting the accumulated wares to firing. Potters might complete a cycle from digging the clay to decoration in a day, and firing the following day, giving a total of two days. Application of *jan kasa* (red soil) on accumulated wares is done hours before a particular set of vessels is fired. Red decoration and firing remain the finishing stages. On rare occasions, based on demand, a potter might reach the firing stage late in the day on which the vessel was made or early the second day. Ordinarily pots are accumulated over a week before red slipping and subsequent firing.

Pottery is still widely used in Kirfi. I carried out interviews with 18 potters, and observed them at work. Denga and Kagalan are the most prominent settlements of the Kirfi region to have retained potting practice. There is a minimum of one potter in every compound at Kagalan, with a total of 13 pot specialists. I was informed by several informants (AM 2010, HZ 2010, TB2011, SK 2012) that every woman above the age of 25 had been a potter at one time at a commercial level. Kagalan potters can be sub divided into three levels of specialisation:

1. Full time potters
2. Part-time
3. Casual (including inactive and apprentice potters)

This classification is based on production output and average time input per month and means of income. The assessment of potters by themselves and by others was usefully exploited for this categorisation.

My enquiries among users and buyers allowed me to establish a ranking of settlements. Although Guyaba was initially mentioned to me as one of the earliest important potting settlements, Guyaba

people do not in fact make any pots, but sell Kagalan wares. Guyaba turned out to be the merchant town for Kagalan pottery, which has developed a strong wholesale purchase and sales network in the region. The people of Guyaba have developed a system whereby young children are made to store the products over a period to accumulate them before a one-time transportation and final distribution of the accumulated wares to a sales depot. Unlike other Kirfi pottery sales distribution, Guyaba services the Bauchi, Gombe, Jos and Kano markets effectively. There are three ways that facilitates the Kagalan exchange: the Guyaba buyers who go to buy the wares, the Kagalan seller facilitating transportation and the third one is normally open sales. Kagalan wares through a Guyaba merchant network are accessed via this long distance network. Oral traditions (MY 2010) stated that in Gombe there is a common saying that '*Kirfi gari ta yamma da Birnin Yero³ masu kasake kamar kore*' which can simply be translated as 'Kirfi, a town west of Gombe, that possesses pottery like calabash'. This is a remark that attempts to compare the aesthetic finishing of the pottery wares in comparison with the good body of calabash. The narration seems to bring the perhaps beauty of the surface finishing (burnishing and lustre), which was a recurring fashion, rather than decoration. My informant admittedly points to Kagalan even when reference was to Kirfi generally.

However, following observations, my research data reveals that a traditional pottery manufacturing house called 'Musa Takka' at the Jahun ward of Bauchi-city is engaged in the mass production of pottery and today it is expanding a distribution network by creating and maintaining sales points at 16 of the 20 local government headquarters of the state. Very unusually for this region, this potter is male, though Slye (1973) noted the dominance of male potters earlier in Toro, with origins to northern Bauchi, about 150km west of Kirfi. Musa Takka's sales are competing with Kagalan pots in Kirfi and Alkaleri, which are the largest populated towns around. Except for Guyaba, where local salesgirls redistribute pottery for local domestic consumption, whereas Kagalan wares are becoming increasingly sold along regional long distances in addition to providing for local consumption. It is however most likely that up to half of the wares produced in Kagalan find their way through the long distance chain, with less than half remaining for sub regional/local redistribution.

Available sources indicate a continuation of the craft over past centuries, and most of my informants such as (TL, TB & AM, 2010, 18 informants in total) stated they had learnt the craft from their grandparents. The former *Uwar magina* (head of potters) of Kagalan, TB's mother-in-law, was renowned in the whole of the region and was married to a famous blacksmith. This social connection is the typical social formation between potters, who serve as midwives, and blacksmiths. Pottery

³ Buba Yero [to whom the term Birnin Yero applies] was the acclaimed founder and warrior chief of the emirate of Gombe, who served as one of the Jihad commanders for Sokoto when the headquarters were at Gombe Abba (on the southern Bank of River Gongola) in the 19th century, before it was later moved further south after a confrontation with the military garrison of the British Colonial Government.

making is exclusively female based in Kagalan. The potters are mostly unaware of their specific social position in society, but recognise themselves as great material culture manufacturers and income earners although they also have midwifery roles. The recent ethnographic study indicates that about 99% of Kagalan women are potters in a settlement of about 2000 people (estimated census conducted together with WZ & DN 2012). This is according to the majority of respondents, including information collected from men and buyers in Kagalan.

3.3.1 Learning and apprenticeship

The apprenticeship of pottery making is open to any interested member of the community. Learning phases range from as short as three months to a complete year. The second group involves a lifelong training through informal experience.



Figure 22: Informal learning (making toy pots) – May 2011

Those who pass through these informal processes become experts and make it their principal economic activity over time, but women who are married from outside Kirfi and who had no prior knowledge of potting, also develop their skills over time. The craft is effectively passed down through dedicated observation of the master potter at work, more often than not unaware they are being trained, which was confirmed when I asked TB & HZ (2010) when they learnt to pot. They had no answers except to say in childhood before the age of 10. But potters believe that the present generation of girls is no longer interested in the trade as it is only practiced mainly by married women. They claim that everything about the process of potting from clay sourcing to firing is technical and open, involving no secrets or rituals, but that success depends on the ability to develop better ways of producing the best wares, by strictly following the guidelines and procedures of practice taught by elders as transmitted from the past. These are socially defined principles such as prohibitions that could have technical implications.

Women who are married from outside the Kirfi region learn through observing their mothers-in-law and peer groups inside their compounds. That is common in the Kirfin Sama and Guyaba settlements. Such training is seldom formally given as it involves observation of several stages of production. The learners sometimes gradually participate by their voluntary assistance in the breaking of chunks of clay, supervising the firing place or involvement in burnishing. A first attempt by dipping hands into the clay to mould coils or assist in creating the base of a pot for the master potter is a significant stage of learning by adults (NN 2010). It is gradual until the point when they ultimately achieve the successful production of a complete vessel. Their success during trials usually convinces them to continue and this launches them into full-time potting. Although unmarried girls also pot, they do not usually see themselves as competent potters until they are married, and as such they assist relatives for small monetary gratifications. The fact that unmarried ladies do not consider themselves to be professional potters, even though they may be able, may be connected to the fact that making pottery is likened to conception, gestation and delivery, for which marriage is a definite prerequisite.

I chose to look at the process of pottery from the angle of technical production, social organisation and question why potters adopt particular sets of available options and decisions over others to achieve the same results. As we saw in Chapter 1, scholars have recognised *chaîne opératoire* as a useful way to understand the distinctiveness and peculiarities of craft production and the social impact of crafters expertise and experience. To examine manufacturing stages in the Kirfi potting traditions, I adopt the classificatory frameworks of Gosselain *et al.* (1996) and Livingstone Smith and Annellen (2009). Gosselain (2000) has discussed salient factors observed in pottery making, such as preforming, post-firing, surface treatments, raw materials processing and firing, considering them as useful parameters for understanding potters' tastes and decision making. Another set of behaviours involves clay selection, extraction, processing and firing, while a third category, the fashioning stage, has traces of formation techniques and shown in material culture (as discussed in Chapter 6).

3.3.2 Raw material sourcing

Information collected indicates that principal raw materials for potting are all locally sourced in the region. Clay, sand, temper and red soil are the four most important materials for potting. However, materials such as animal dung, plant leaves and other organic substances have been recognised to be crucial in the tempering and finishing stages. Potters exploit three soil types. These are a black clay (*yumbu*, Kirfi; *dubo*), usually around settlements on the river valley region and, in the case of Kagalan, just 300 metres north of the Kagalan village, a less plastic sandy soil, and thirdly, a red soil, *dob-dere* (*jar kasa* in Hausa) which is used for red slipping and finishing. All these soils are found locally. Clay processing is done at home.



Figure 23: Clay storage and other clays (left & middle) and a rock platform used for potting. Photo taken in workshop of the Maigoro (07-05-2011)

The potter's experience determines her ability to recognise a good source of potting materials using her senses of sight and touch. Over a long period of practice, people in every settlement in the Kirfi area develops definite skills in identifying sources of good clay, which encourages a continued communal use of the extraction space. The master potters acquaint themselves with the selection process of suitable clay and train their children to identify what is desirable. After a considerable time, the task of supplying clay is delegated to the children, who later do it with or without an elderly person necessarily supervising. It is observed that there are series of prohibitions wide spread among African potters, such as preventing menstruating women, or those who have had sexual intercourse on the eve of clay extraction, to visit the clay fields, in order to avoid the failure of the pottery operation (Gosselain 1999, Livingstone Smith 2000, Gosselain 2011). Many of these prohibitions stem from a symbolic association between pottery making and human gestation, as both processes are considered to involve heat and transformation. Many societies enforce different levels of restriction openly or indirectly. Cultural preference can be expressed for certain genders, where for instance there is a total prohibition of Bariba men in Benin to engage in pottery. Their failure resulted in cursed swellings and death since they believed the earth spirit did not like them to produce pottery instead of women. There is a reverse of the situation in terms of restrictions for women in Yamba communities of Cameroon, where men pot (Gosselain 2011). It is documented in Kirfi area that *Wanzamai* (local barbers) and even their family members are entirely prohibited from visiting clay extraction sites. The reasons for such a restriction was not clearly explained, but barbers are the traditional surgeons who conduct circumcisions and uvulectomies, extract dirty blood from sick people, and execute tribal marks (which my informant TB, called *bille* in the same way as she referred to incisions on pottery); all involve spilling blood and rites of passage. Potters have a superstitious belief that barbers use *yumbu* - clay (MW 2011) collected from the tracks of a barefooted potter to prepare effective magical concoctions. The barber criticised potter-midwives for frequently wrongly cutting the umbilical cords for newly born babies after birth, which he believed were better handled by barbers. This assertion led me to check, and confirm in the 2012 field season, that in the Kirfi area potters are actually considered the most reliable traditional *ungozoma* - midwives and nurses.

3.3.3 Tools & materials

Apart from the physical materials that go into manufacturing, I also considered the tools and objects used in the making and decoration of the wares. Burnishing tools are obtained from the secondary use of broken gourds (*Chefidaga*), stone tools (*lagalingyi*), corn-cob (*Barsa*), Soso (Santolo-foamy textile), Kaolin for painting, or the seeds of *Adansonia digitata* (*Gorgomi*). The seeds and barks of plants for burnishing and making of other decorations are selectively secured by the potters' husbands or other male members of their extended families. *Gorgomi* (a chain of polished seeds), called Doggo in Kirfanchi, is made from baobab seeds. The seeds are cooked for hours to soften them before they are later dried. The dried seeds are then struck with holes in the centre with a needle and a thread is run through them. This is usually long to begin with, but it entangles itself after long use. When pots are leather-hard the seeds are rubbed onto it to achieve burnishing.



Figure 24: Tools for surface finishing, left: burnishing pebble - *zuza*, middle: baobab seeds - smoothing; right, *kara* - scraper

Fetching the firewood used in the firing of finished pots is typically the responsibility of the children in the nuclear family, or alternatively in the case of Kagalan the potters themselves.

Two types of clay, *Bakin Yumbu* (black), which is plastic and yellowish brown, and *laka* are exploited for making pottery. Moreover, these two basic kinds of soil are used for tempering to improve plasticity. However we have kaolin-rich soil and *jar kasa* mainly known for slipping and painting, therefore used for the surface finishing of vessels in which Kaolin is the whitish substance used for painting and said to be effective for patching cracks, while *jar kasa* is used for red slipping. Clay is mainly sourced locally at all the studied settlements because of their location on the edges of the River Gongola. But the Kagalan clay is considered to be the best, followed by that from a second area about 10km west of Kirfi, and barely 2km southeast of Kagalan which is believed to produce superior wares like those sourced from Kagalan. *Yumbun Danko*, *Yumbun Kaushi* clay is sourced about 400metres north of the Kagalan settlement. The extraction pit is visible as a depression where the former potters fetched the raw materials. Potters continue using the same location because of their belief in the superiority of the selection instincts of their grandparents in locating suitable material. It remains as the spot that continually provides the best clay sources for the whole region today.



Figure 25: Left: burnishing tool (*mazozi*) and slip. Right: Assembling of pots at Kagalan. - April 2010.

Potters at other settlements, such as Denga, who have social links with Kagalan, make use of the clay source despite the distance of 15 kilometres. Several accounts mentioning cattle-drawn carts and donkeys transporting clay have been collected, not only from Kagalan, but also Zamani, Kirfin Sama and other settlements across the River Gongola.

3.3.4 Clay preparation

According to oral information (AM 2010), potting starts with the identification of sources of good clay material. It is followed by digging, usually with a hoe, then by soaking and mixing. Two different methods of clay processing exist. The less common technique reduces the dry clay to a powdery state using a pestle and mortar or a grinding stone. The powdered clay is sieved with a *rariya* (mesh) to remove pebbles and unwanted grains before it is soaked. Material from this method tends to be finer and is suitable for making finer, smaller wares. The second technique, which is widely popular, involves the accumulation of lumps of clay into a container which is then soaked with water. The popularity of the technique stems from the desire of the potter to reduce the soaking time to a minimum.

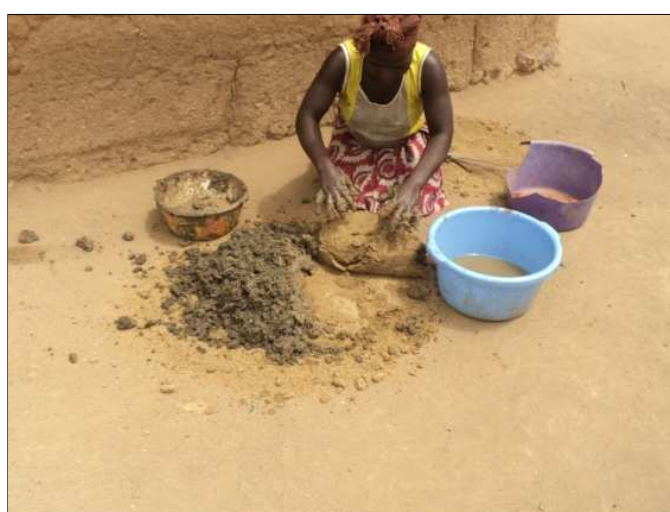


Figure 26: Clay preparation (with *tsarmi* – sand) beneath – May 2011.

The Kirfi clays (excluding *Jar Kasa*, used for finishing) are categorised into two, based on texture and suppleness. Potters grind the two forms of clay (one to increase plasticity and the other, looser, to reverse such tendencies) into powder forms and keep them aside to use as additives, to improve or reverse clay elasticity even before they begin shaping the ware.

The process starts with splashing water onto lumps of clay stored inside large broken pots or other containers to soak (4-8 hours or even a day). When the clay is fully soaked, the potter uses her fingers to thoroughly pick out stones, particles and pebbles. The clay is beaten to the ground with her bare hands, 'Nkalagbudugbbo' (kneading until the *Dugbbo* (mixed clay) is fully mixed, while the performance ritual of kneading is known as *Mbulaka*. Potters believe dirt particles could jeopardise the finishing of a ware. This is followed by consistent hitting and beating onto a platform or naked ground interchangeably beating with the bare hands to make it evenly mixed. The potter knows when she has achieved a good result. I observed a clear choice for mixing the clay on naked ground in Kagalan, in contrast to kneading on natural or supplied platforms. It may have a functional advantage to improve overly plastic clay by the inclusion of the sandy soil particles. Certainly the noticeable shift of locations between open grounds in Kagalan to platforms such as rock platforms may be for functional reasons: TL (2012) stated that exclusive kneading on open ground results sometimes in cracks when the clay collects too many sand particles, and is therefore better controlled by adding when done on rock surface.

3.3.5 Forming and shaping

There is a mutual acknowledgment among the potters that they communicate on issues of common interest and exchange tools and raw materials in times of need or shortage. Age and expertise led to the informal acceptance of Hauwa'u at Ungwan Kudu quarters of Kagalan as the *Uwar magina*. She built perfect vessels more often than any other potter in the whole settlement. Hauwa'u shown later in this chapter also inherited potting from her mother.



Figure 27: Casting on a mould – June 2010



Figure 28: finishing a pot formed on a mould with coils technique – June 2010

The potters in Kirfi have two different ways of fashioning their wares. They recognise the actual start of production with the first slug of clay. The most commonly observed technique (which applies mainly to the large and medium pots) involves placing a defective (broken or badly fired) pot mouth down to serve as a mould (the potters keep several such pots in reserve). Sand and red sand are spread over the base of this pot to avoid sticking, then a well- mixed lump of clay is placed onto it, and it is pressed using the palm, thumbs and fingers until it takes the shape of the modelled pot to a level close to the middle part of the body. Here a calabash is used to smooth the inside of the ceramic ware by scraping and filing of the walls. After that it is allowed to parch a little (30 mins - 1 hour) so as to remove it safely from the mould and allow it to harden. At this stage a broken calabash is filled with dry sand to serve as a support for the modelled pot. This serves as a turning device akin to a potter's wheel. The pot is then completed by the addition of coils. This is the 'moulding over a convex mould' technique (Gosselain 2000: 201), widely practised in Kagalan as opposed to the dominant 'pounding in a concave mould' technique which, as I go on to describe, I recorded at Zamani.



Figure 29: Rim making and the dressing of perforated holes – June 2011

The Zamani potter uses a different technique involving a tool called a *dindinge* (as shown in fig. 21) to beat a clay lump upon a concavity, before it is placed on a turning core to assist in rotating the developed ware. The technique has been well described elsewhere (Leith-Ross 1970, Leoni & Pritchett 1978, Gosselain 2000, Langlois 2001, Mayor 2010, David & Sterner 2012). The tool is called *dandinga* in Zamani and referred to as *angumu* in the Kagalan settlement; even though they often convert a worn upper grinding stone for that same function as shown by Jummai (2010). The main potter in Zamani was married from a famous family of potters in Darazo, about 30-40km north of Kirfi, and has taught a few women how to manufacture pots. Her home town in the southeast of Darazo is considered linguistically unrelated to those of Kirfi even though they all speak Hausa today. Her husband is a farmer, but he engages in Islamic scholarship. Kagalan potters, though aware of the technique, do not use it as they feel it is tedious (JM 2010); the Zamani potter and those who learnt from her, seem to be the only potters using this technique, which is the most popular in her home town near Darazo. My respondent (JM 2010) identified up to 6 potters that pot today in Zamani and two others who moved out of Zamani recently. I was not allowed to meet them, but I was told that other potters, practising before her, used the normal system found commonly in the Kirfi area.

When the coils are added, smoothed out and the ware reaches the finishing stage, rim, a leaf (*ganye*) or paper are used to dress it. *Ganyen jan baki* is a plant leaf often used to smooth and dress the rim of pots. The coils are scraped and levelled up with the bare hands in the case of Kagalan, but are beaten with a paddle in Zamani when the *dandinga* technique is followed.

3.3.6 Finishing

Surface finishing is seen by the Kirfi potters as the final action done to improve the aesthetic value of their wares. It tends to modify the final outlook of the pottery and affects the structural functionality of the ware during use. It includes red slipping (even though informants mainly see it as decoration), painting (black or white), impressions, grooves and applications. Potters believe that good finishing gives more value to a particular vessel type and determines the kind of use it is intended to have. The potters generally execute their motifs themselves, but in Kagalan there is a seeming division of labour in the process of red-slipping where Nani, a blind woman, is hired to slip and burnish wares to save time. The *Manuda* (women who specialise in applying slip to pottery) charge about N20-50 (7-20 pence) to paint a single ware. Large scale pot producers use her more. Finer (small) wares are sometimes polished with stones to make a glossy finish, which is an aspect of surface finishing. *Lagalingyi* (polished pebble) is a smooth stone for smoothing and 'ironing' pots when it is at a leather-hard stage.



Figure 30: Slipping and polishing by Nani and her *Mazozi* tool- Kagalan, June 2011.

The potters indicate three criteria that guide their choice of decoration:

1. Mainly continuing what they have been seeing since childhood
2. Abstract objects
3. Copying work of others and things they see somewhere, a process discussed in detail by Gosselain *et al.* (2010: 6).

3.3.7 Decorations and their motifs

Kirfi potters execute modifications to the surface of the wares after finishing for several purposes. Accounts between the potters and the consumers differ as to the meaning and rationale for it. The potters see it as merely doing what they have learnt from former potters and they do not necessarily attribute a practical functional objective to their actions (see also Gosselain 2000, Gosselain *et al.* 2010). On the other hand, consumers sometimes attribute decoration to their function or purpose, they also look at its beauty when buying products in the market. During the interviews, potters attest to their ability to locate the origin of pottery by looking to products from Kagalan or Zamani, based on the superiority of their finishes. Some specifically attribute them to individual potters, such as ‘Tukunyan Talle’ or ‘Tukunyan Amina’. They attribute the differential traits to the ‘hand’, meaning everyone has unique creative capabilities to differentiate one person output from another.



Figure 31: Executing decorations: left, applique, middle, stamping & rouletting, right – Kagalan, May 2011

A close look at people's definition of these characteristics enabled me to observe the influence of the primary source of tutorship. There was consistency in the way three of the thirteen Kagalan potters execute their design in a similar way to their practical teacher. I was shown three water coolers the late *Uwar Gini* produced for her two daughters-in-law over twenty years ago which have been in constant use; they share a striking resemblance to the motifs her children continue to produce today. Experience of artisans in replicating motifs is significantly, shaped through informal skills acquired and sustained through deep rooted cultural knowledge system of doing things. Other techniques may be easily seen, adopted and transformed, but forming technique is potentially more stable within the life of a potter as has been discussed (see Gosselain 1999, Livingstone Smith 2000, Gosselain *et al.* 2010 Gosselain 2011, Haour 2013). Such social factors do not always correlate to ethnic group boundaries, as can be assumed when one sees the dominance of mould systems in the forming techniques studied, where the minority use of the anvil method is attributed to a potter married from the Darazo region about 50km north west of Kirfi.



Figure 32: Decorative tools. Corn-cob (*barsa*), broken calabashes, and double twisted cord roulette (*kaba*), all from Kirfi settlements.

Burnishing and other decorations are only done when a pot is leather hard. The corn-cob (*barsa*) is a popular instrument for decoration. The corn-cobs preferred are those that are naturally modified after they have been partially eaten by termites, as these produce clear and well defined impressions, but potters consider it a taboo to actively take such cobs to termite mounds. *Barsa* is basically used, as are baobab seeds, to burnish; there is no use of iron tools, broken pots or other instruments. Called in Kirfi *Chefidaga* in Kirfi (*Maran Gini*) is a broken calabash from the refuse area. They are the discarded calabashes that are broken down to smaller sizes for use in smoothing, especially the inside of pots, while being built. Soso (*Santola* in Hausa) is a sponge-like instrument. It serves a dual purpose of soaking up water and *Jar Kasa*, used for splashing on dried pots while building. The same sponge also smoothens and brushes a pot at the building stage. Red slip is considered by the Kirfi potters to be decoration rather than finishing.

The Kirfi potters I observed actively decorate their vessels, using incisions, grooving, folded strip roulette, twisted string roulette, paints, stamping, applications and knotted twisted cord roulette, although there was little occurrence in practice of the last types. These ethnographic data appear to parallel the archaeological records of the study region. Some are more dominant than others which will be discussed later, in view of the information received from contemporary practice. It should be noted that mat impression, visible for instance in archaeological assemblage from Daima in Borno, northern Nigeria (Connah 1981), was completely unobserved in the modern practice, except in one instance, when I observed vessel formation and finishing that was done on a raffia-made mat background at Zamani that left poor mat impressions. However, it was not an intentional action and the potter in fact made every effort to smooth the impressions afterwards.

Despite the variety of tools potentially used by Kirfi potters today, decoration basically draws mainly on two techniques: the use of calabash fragments to create grooves or *tsirkakiya* (sharp peeled corn stalk) to generate incision, and the most commonly used by all the potters examined, the use of *Zea mays* (maize cobs) to impress roulettes. The engraved grooves are either executed concurrently while building the pot or when the pot is at the leather-hard stage and is seen as decoration, not part of the pot body. Decoration is not necessary other than for aesthetics, although it is sometimes thought to improve the strength of a ware (JM 2011; AM 2012). Potters produce both decorated and undecorated wares, but it was noted that decoration gives ceramic an advantage for quick patronage in the market when there is competition. *Guru*, which is recorded also by Tremearne (1910) to be the decorative assemblage of Zaria, northern Nigeria which is expressly the motif preferred, a bead-like decoration of former *uwar gini* lineage of Kagalan, which are placed round the body of a pot. Only one third of wares are decorated, but corn meal and soup pots are generally not decorated.



Figure 33: A: Dressing the rim (lower body mould, while B shows Hauwa'u awaits to coil and finish- Kagalan, 2011.

3.3.8 Firing

As mentioned above, the firing of pots is done once there is a reasonable accumulation of vessels – on average twice weekly. Potters mostly buy firewood (3 bundles – each costs about N20-30) to fuel the final process, but also occasionally fetch the fuel themselves. Pots destined for firing are assembled in batches at a hidden location to protect them from wandering animals and destructive children. Every nuclear family possesses a firing pit, usually a few metres away from the compound in a westerly direction. The fire place is called *Bogurwo*. Amina (2012) mentioned one common difference between them as potters, and on the other hand women who are not engaged in potting is that of their life long exposure to high temperatures where ‘fire is the central place of their husbands’ crafts to forge metal and this same power that melts the iron transforms their ‘clay into finish product’. In Kagalan every potter owns her *Bogurwo* but when production is at a low level they resort to communal firing. Once the fire is ignited, the potters monitor it frequently. Two systems exist; single person, or communal. In the latter case, potters distinguish wares by their value of finishing and use of recognisable symbolic designs unique to each potter, although some symbols are shared by lineages - such as the crescent type of the former *Uwar magina* at Kagalan - and are not the exclusive preserve of one person. Nevertheless, the use of symbols, signatures and marks in ceramics has been discussed in understanding social-political, as well as economic, relations in Yoruba land (Ogundiran 2011). More studies have to be done to understand this complex identity marker in the ceramic ethnography of the Bauchi region. Frank (2007) also discusses how potters from the Folona region in Mali identify ownership of pots and, by implication, common social lineages, through the unique imprints on the surface of the pots by individual potters. There is a tendency to think that such patterns may be a collective heritage capable of categorising family or lineage lines, as they are transmitted from one generation to another as marks of identifications. The use of *Guru*, a crescent-like appliquéd decoration or mark noted on a bride’s gift pot by the *Uwar magina* to her daughters in-law, is a pattern which has become the trade mark of the family in Kagalan today.



Figure 34: A-Pre-firing heating to stabilise pots before they are finally fired, B-Communal arrangement of pots before they are fired.



Figure 35: C-Filling the pots interior with stalks to make the temperature even and more effective, D-Final organisation and strategy (Kagalan 2011).



Figure 36: A: Setting the bonfire, B-After firing and disassembling of finished products (Kagalan 2011).

Firing takes between 2-4 hours depending on the method adopted and the kind of wares involved. The potters' preferred method involves arranging the pots in a padded manner. Potters have a way of padding their wares to avoid friction during firing as observed similarly by Leoni and Pritchett in nearby Zaria (1978: 9). They then put logs of wood all around before broken pieces of pottery and

discarded metal bowls are made to blanket them completely, to ensure intensity of temperature. The potteries are sandwiched with cow dung, millet stalk and shrub logs to intensify the temperature evenly. Well-fired pots have a longer life than those that are poorly done according to Kirfi informants (MO 2011), which is often recognised by black or reddish stripes and from the sound that results from beating the body of the pot with the fingers before purchase (MM 2011). Water containers and cooking wares require longer firing to avoid leakages. Firing is perceived as the final major process of manufacturing before they are taken to market for sale.

The firing of vessels is commonly done during the day time, except in the Zamani settlement where it is done overnight. The daylight firing involves close monitoring, where the potter stays present throughout, controlling the fire with the addition of logs and wood and sometimes drawing these out when firing is too rapid. In the case of communal firings, such supervision is interchangeably done at intervals of about thirty minutes, with at least one person staying throughout the process.

Potters know when vessels are well fired by the redness. AM (2011) remarked that it is 'when it transforms itself like a red metal in a blacksmith's forge'. But they have a sense of timing, observing the impact of the wind, the depth of clouds over the wares and the nature of the charcoal. On a particularly windy day in 2011, I observed firing completed in 40 mins less than the usual time.

3.3.9 Post-firing treatments

Other fundamental actions follow the firing of pottery. These involve treatments that improve the appearance of the wares, such as painting. Potters usually paint their wares with white kaolin which is a mineral resource available locally in Kirfi, although modern emulsion paints are also used. Such paints are traditionally prepared by the potters. According to oral accounts, it involves the intense cooking of kaolin together with portions of Acacia gum until it becomes soluble and well mixed. Kaolin occurs abundantly in the area, but is not commonly used today due to the predominance of emulsion paints. People write in the Ajami or English alphabet occasionally today, the names of people or wares, with white kaolin as decoration. However, JM (2010) claimed that such innovative use of alphabets was a new phenomenon.

Vessels that become noticeably defective are subject to the decision of the potter as to the best way to handle them. In the case of minor cracks, a cooked adhesive is prepared from a mixture of gum arabic, ground *Acacia nilotica* seed (*bagaruwa*) and dried-baobab leaves mixed with well-grounded *yumbu* (clay) to repair an especially complex built ware, having cognisance of the time and energy that were expending in their construction but also taking account of its intended function. It is noted that repairs do not suit wares meant for cooking or water storage. Potters always have the preparations and only mix a small portion with water when needed.



Figure 37: 'Pot healing' substances in Kagalan: mixed baobab and *bagaruwa* powder and *Acacia nilotica* seeds (left), repaired pots (right).

AM (2012) relates this to a wounded baby, where she prefers to spend more time healing a wound than killing the baby, even though she accepts that large scars resulting from such healing diminishes the value of her wares in the market when they are noted by customers. TL (2011) echoed the symbolism of vessel cracks and mending processes in a similar way, mentioning the way the human body can be wounded and the corresponding treatment of the wound and healing process. African pottery symbolism is discussed extensively (David *et al.* 1988, MacEachern 1994, Gosselain 1999, Livingstone Smith 2000, Berns 2011). These reflect how people perceive transformation, where clay becomes an object, and the centrality of the use of high temperature in achieving it. Pottery is made into living and non-living personalities, seen as human beings, animals as well as gods. The potters define what they produce and the kind of use it is put to, understanding it as a model that centres on the themes of life and death, rituals and internal inhibitions.

3.3.10 Distribution

As soon as a pot is considered complete, it becomes ready for distribution to final consumers as an object of trade. Another set of people comes into play here for the distribution. Popular markets in the region today include Cheledi, Bure (about 25km northeast of Kirfin Sama), Boli (25km east of Kirfin Sama), Lariski, Beni (about 20km north of Kirfin Sama) and Alkaleri (about 25km southwest of Kirfin Sama).



Figure 38: Pot depots at Kirfi, Alkaleri and the door-to-door sales.

Today teenage girls (rarely boys) dominate the redistribution and sales process, carrying the wares to neighbouring settlements, and doing door-to-door marketing. Female seclusion, otherwise called *Purdah*, is not practiced, despite claims to the contrary by the men (I had unhindered access to my informants throughout the research period). It is not required that the teenage girls are children of the potters, but can be those from any member of the extended families in the settlements. Four systems exist for such transfer of ownership:

1. Sale directly to potential user at the market place
2. Commissioned purchase by middlemen who own stalls in the market
3. Door-to- door marketing outside the market day
4. House patronage

It is usually the case that a product of a particular settlement has more value at another settlement than it does where it is made. I noted that buyers sometimes specified types of ware, sizes and even preferred decoration to potters in Zamani, whereas the Kagalan artisans mostly produce independently from buyer specifications.

3.3.11 Products & function

I observed that there was a preference for modern plastic and metal wares due to several factors. However, several forms of pottery wares still dominate domestic utilisation in Kirfi. These are water coolants and reservoirs, such as; *randa* (>N450-N750), with a wide mouth, which is permanently in a fixed location; *tulu*, with a restricted mouth, usually employed to carry water around; *tukunyan magani*, a medicinal pot. Bowls include *Tukunya*, a pancake griddle with multiple bowls for frying a corn delicacy; a multi-section ware for frying a corn meal (Kaskon Masa); and *kaskon wuta* for warming rooms. Other vessels include *madambachi* (N60-300), a steamer with perforations around the base; kettles, *tallen kasa* (>N100); small soup pots (*Kaskon miya*) and *falambari* for keeping honey, which are no longer being produced but are found in the Kasar Kirfi markets. Interestingly, men are more competent in constructing smoking pipes (the former *Uwar magina* was the only woman that could build them). Pottery is generally a woman's craft.

The fairly low but stable consumption of pottery is probably the main reason why potters are still active in all the settlements, at different levels of production. I observed the presence of a pottery water reservoir used, at every one of the mosques I visited, to facilitate ablution, which is a required purification before Muslim prayers. Some *randuna* are readily stored with water at all times for people to access. Depending on the size of the mosque, one finds an arrangement of around three and up to as many as ten in the premises, buried, sometimes within a paved region and brick-laid platforms serving as seats with little channels to drain ablution water away. It is only the kettle vessels that are directly tied to ablution rituals, but the late Uwargini confirmed (2010) that she was the only one capable of manufacturing them, and that the reasons for this were complex. Slye (1973)

observed that pottery with ‘V-type handles’ found in most parts of northern Nigeria during his research are occasionally associated with kettles known to serve the ablution purpose. Plastic kettles have taken over the use of this material today.



Figure 39: Some uses of pottery wares: A-*randa*, akin to a refrigerator; B-*randuna* [plural for water pots or fridges]; C- *Akulki* [chicken sheds] & a *randa*

Moreover, the staple foods of the Kirfawa, as in other parts of northern Nigeria, are millet (*tuwo*) and soup (*miya*) that is cooked in smaller pots. Every compound includes an open kitchen used communally for cooking. The basic feature is a tripod stone, cooking stand, and in some instances, the pots that are used to erect the *murhu* (tripods) and these pots are kept closer to the walls of the kitchen in a compact way when kitchens are shared by families. There was a common assumption amongst informants about some ‘pots that tend to be more trusted, reliable and more efficient than others’ (MM 2011). One also talks about the way a particular pot she purchased in Boli market ‘cooked with less firewood consumption or time span than about three others she has’. Particular pots tend not to overcook or ‘burn’ food even if left on the fire for longer than others. Such a class of pots are shown to be red inside with little or no blackened interior. At Kirfin Kasa, I was frequently referred to a *kaskon masa*, a pot that consumes less oil and gives a finer finish than all others. Because of the efficiency of her pot, other members of the compound and even beyond come to borrow it more often, despite possessing their own, probably considered, less-efficient ones. It remains difficult to correlate technical rules in the production with quality definitions from users.

There is an undisputable recognition of the superiority of Kagalan built pots across all the settlements within the region of study. This is seen as a result of the belief that they produce the best and most durable wares in the whole of the Kirfi region. Such claim to a superiority of Kirfi pottery could be due to the long held tradition of the dominance of Kagalan as a centre of production.

3.3.12 Discard and symbolism

Clay processing, shaping or firing techniques are not known to vary according to the intended function of a vessel. Function therefore does not, generally speaking, influence pot manufacture (Gosselain pers comm. 2013). But both potters and users interviewed emphasise the training and socialisation process pots undergo to adjust to serving a particular function. Ultimately the user

decides what function it serves for him (it may be different), sometimes with a degree of success or not. The primary intention informs the structuring and morphology of the pottery and depends to what extent it complies with the needs of the buyer, to determine the ‘training’ and ‘retraining’ of the vessels to serve different tasks. A practice was noted called ‘*hora tukunya*’ whereby pots are put to a series of test runs upon purchase to accustom them to function in the manner required by its user. Pot users believe that ‘...pots are like human beings sometimes’ (MO 2011; see also, in a wider context, Barley 1983). They are produced for specific purposes but they are customised to serve the specific needs of the user. This negates the functional attributes that define a potter’s choice for a certain technical enterprise in the making of their wares. In that way a user could use a soup pot for corn meal. An informant (HS 2012) cited a simple example when I tried to enquire about the value of pottery, stating that ‘...we are all men, where a tractor driver has the potential to fly a plane’ if trained to do so.

However a failure of pots to conform to the primary function can result in their conversion to a secondary use. Water storage vessels that are badly fired are not sold, so as not to diminish the integrity of its maker. But if they are sold, the buyers upon realisation convert them to another use, because they will not adequately serve the expected function. We often see pots housing chickens and serving as pigeon nests, cooking stands, flower (herbal) pots, roof signets, firing covers for the potters themselves. Large defects after firing are seen as damaging by the potters, as they could only be used as ground powder for tempering, infillings, firing canopy and floor pavement. Large vessels are often broken into 2-3 portions to cover vessels during firing stage. When a ceramic ware breaks, it is considered to be dead, where any corresponding re-use is termed resurrection ‘*ta mutu ta tashi*’. Resurrecting a death pot is limited to users, whereas when it occurs at the hand of a potter it can only referred to as temporary (fainting). Tabawa asserts that they resuscitate (*farfadowa*) immediately, through re-use and the life of the fainted pot continues when it is used to build other vessels. Gosselain (2011: 247; see also Barley 1983) noted the symbolic materiality of death when vessels are broken.

According to my respondents, (AM 2010) argued that a pot contains the body, and the neck and the rim are seen as the head; the pot is spoken of in a manner akin to a living being. Essentially, the potters are in the act of building their wares by beating the clay and casting around a core pot, followed by coiling and the rim making, make the sizes and attributes indirectly like human parts. They will ordinarily make gestures such as ‘let me seat her’ (finish the base), or give instruction to carry a finished pot by handling the neck only when the base is equally supported, as if damage to the neck results into strangulation (see discussions on pots symbolising the human body in West Africa (Dupuis & Echard 1971: fig.1 & 2; Barley 1983; David *et al.* 1988; MacEachern 1994 & 1998; Berns 2011). A pot has a head, a neck, shoulders, legs and the container is the womb.

The Kirfi people have a variety of means of converting pots to serve more uses even after serving its primary use from the time of purchase. The lives of pots are considered in generational terms, where badly made ones break easily over a year or two and, as such, the pots made by the former Kagalan master potter for storing water are still being utilised. They are seen to be alive as they lasted for more than 20 years. They were gifts to her daughters-in-law, who are themselves among the famous Kagalan potters. The age of the pots was expressed in the same way old aged people are expressed as '*tukwane masu tsawon rayuwa*' (pots that emblemise longevity), but those made at other villages are short-lived, as pointed out by a pot user (MM & TD2012). Maman Maryam showed me a pot that is defaced which she purchased less than two years ago (for related discussion on the factors affecting the lives of pots see David 1972).

Pottery is widely associated with symbolic, functional attributes, ritual, aesthetics and secondary recycling. It is observed that Hausa and other peoples in the study area popularly put away the umbilical cords of newly born babies inside pots and bury it in the backyard. It is a ritual that happens even when the delivery occurs outside one's family compound. This is done as soon as the baby arrives, and the traditional midwives (*ungozoma*) will wrap the cord, place it inside and dig a hole near the compound wall and cover it completely with sand. All informants (for example, HZ 2010; S/Aska 2010) observe they have never seen a different ware other than pottery used for this purpose. That 'symbolic' and 'functional' pots are not distinguished a point which is mirrored in other parts of the wider region (David *et al.* 1988).

In the same way, there is a tradition of using broken pottery as grave markers. Complete or partly damaged wares are placed at the position of the head which faces the east. East signifies the direction of Mecca and is the direction in which the head of the dead for Muslims faces. The making and usage of pottery here therefore symbolises many aspects of life, from birth to death. Aliyu (2012) revealed the antiquity of the use of pots for burial, as during the pre-Islamic period, toddlers and children were buried inside pots and hidden inside caves, a system that changed due to Islam, and understood to be from the time when the region was said to have witnessed mass deaths, before Kagalan hill was likely to have been abandoned. Allsworth-Jones (2012) described the use of pottery vessels for burial at Kariya Wuro in the central Bauchi region, similarly Fatima (pers comm. 2012), also observed abandoned pots, said to be burial containers, at Ringin near Kafin Madaki, again in Bauchi. My work did not, however, uncover any such remains in Kirfi.

3.4.0 Textile production

Textile production is the third most important subsistence occupation of the Kirfi society according to my sources and it will be treated in view of the importance of the trade historically, to the people of Kirfi. This trade includes cotton/silk spinning as well as weaving and textile dyeing. Both men and

women are involved in the first specialisation, with the rest exclusively practiced by men. Most of the ingredients for dyeing are prepared by women. Apart from consistent oral accounts, archaeological evidence of the existence of the industrialised form of textile dyeing and production is visible from the dye pits seen in the survey (Sule 2010) and from spindle whorls recovered from excavations, indicating the processing of cotton to thread, yarns or clothes. Falconer (1911: 14 & 142) also mentioned the prominence of Kirfi textile production through observation of oral accounts, practice and the extensive distribution of its dye pits.

Spindle whorls are used in the processing of raw cotton or silk, into yarn used to make a final woven material and subsequently the clothes. It is an interconnected craft socially and technically: one stage works to feed the next, until a finished cloth is produced. Although textile manufacturing is associated with family lineages, it has however, exhibited the division of labour in strong terms, and practice specialisation within such family units.

Writing in a wide geographical context, Candotti (2010) discussed the importance of textile production and trade to the economies of Hausa states and Kanem-Borno and from the 16th to the 19th century AD when Sokoto became a prominent political power. Textile products are central items of material culture in religious practices, and they are objects that differentiate elites from commoners through the use of elaborate styles and colour, a display of monetary value, or as military costume. Candotti (2010) reminds us that across Songhai, Mali and Kanem-Borno and to the north of the Sahara, the Wangara and Kanem people were recognised to have patronised a wide variety of textile commodities in promoting long distance connections and in the movement of styles associated with it. The success of the Jihad aftermath in the 19th century was consolidated owing to the need for new ways of sustaining the local economic systems; handicrafts and commerce that connected the empire across to Borno, and also the Islamic revival, which frowned upon nakedness. Subsistence farming was revolutionised by an emphasis on cotton production that triggered the steady supply of raw materials around the production axis.

Candotti (2010) also argues that specialisation emerged in the production of finished goods located around Kano and that of cotton in Zamfara, where one fed the other. With a massive need for processed raw materials such as cotton yarns at the manufacturing axis around Kano in the 19th century, due to huge output of the local cotton finished products, stimulated the long distance movement of yarns from as far away as Tripoli (Candotti 2010) and near probably Bauchi region to meet such needs.

Abubakar (1974) has also identified the Bauchi region as a great source of indigo and raw silk production where the Hausa artisans, frustrated by high taxes in Kano in the 19th century, found refuge. These artisan centres, situated along the route between Hausaland and Adamawa grew in prominence. Such massive growth and expansion of the textile trade network further reintroduced

artisans and merchants into the Bauchi region, beginning steadily after the slave trading at the early 19th century, into a textile trade boom, and onto a long distance trade network late in the 19th century. Archaeological evidence related to textile production from the Kirfi sites, discussed in Chapter 5 below, further attests to the veracity of such oral and historical sources.

3.4.1 Raw materials

Cotton is the principal component of Kirfi weaving activities. There still exist a few good accounts (BJ 2012; LB 2012) of buoyant silk production in the region, but this practice ceased about 40 years ago, whereas the use of the cotton materials has continued. The cotton plant (*Gossypium* sp of the *Malvaceae* family), is a shrub plant that grows to a height of between 25cm and 2 metres, depending on the genus, temperature and mode of cultivation (Schaedler 1987). It was cultivated on the margins of Kirfi, but mainly in the Gombe region in the east, where cotton ginning was popular up until about last 2 decades, when the industry collapsed (BR & AMY 2011).

On its origins, Picton and Mack (1989) observed that prior to the 11th century AD little is known about cotton growing and processing in Africa, except later when it became a common commodity in West Africa. Although the site of Kissi (Burkina Faso) has provided one of the earliest evidence of textiles preserved due to association with metal object. Magnavita (2008) did not find other evidence to suggest the material was fabricated locally, rather views it as imported product likely through trade with North Africa. By the 15th century AD clothes woven from cotton, dyed, embroidered and tailored in regions such as Kano and Kanem-Borno, were well established and were traded north of Sahara (Candotti 2010; Worden 2010; Lamb & Holmes 1980). It indicates how paramount textiles could have been in their material creation and its associated economies in the precolonial times of the southern fringes of Hausaland when trading was an important linking factor.

3.4.2 Tools and space

In the processing of cotton, certain tools and equipment are used. Importantly these are clay spinners (which can be split into two classes: the wheel-like and the ball-like), spindles (*Kara*), and the loom structure that is associated with other accessories. Weavers in Kirfi operated a simple loom system similar to that Schaedler (1987) classified as a treadle loom with movable warp structure. It simply runs horizontal with the front heddle rod pinned to the ground with a stone, and the strands of cotton flow backward to the place where the weavers sit. The weavers who operate this kind of loom structure are men (while women operate another simpler form) and they continuously move the warps in between the weft using hand gears. The loom has a pedal positioned at the last quarter of the loom to control the movements of the threads.

Male weavers operate a mobile arrangement, settling in open spaces within the comfort of a natural canopy provided by trees, or in the main entrance of houses. In short, they work wherever convenience allows for the fitting of their looms. Women on the other hand weave exclusively within

a domestic space. Such spaces go beyond technical practice to become a medium of social interaction and a meeting point for peer groups.

It is observed that both men and women were engaged in certain activities to do with textile making: yarn production, weaving and dyeing. Women do everything except dyeing, which is practiced on an industrial scale, at least until the recent past. While men specialised in black weaving, women were experts in the production of *gwado* (body cover) using a simple loom. One of the essential tools includes *kwoshiya* which is a canoe-like hand held wooden kit. BR (2011) bought his own *Kwoshiya* (artefact) at Jagalwa about 40 years ago when he was much more active and when textile production was the major economic activity in the Kirfi region, at a time when huge trade in such materials was recognised to have existed with Kano and Gombe (Abubakar 1974).

3.4.3 Learning and training

Tutorship is commonly done through relatives (i.e., siblings or parents and other members of the extended family) but was also a widespread economic activity. Unlike the training timelines for other crafts that are relatively shorter, it takes an average of one year to become an expert weaver, but less if one intends to specialise in a single component. Some of my informants (BR 2011) learnt to make *Bante* (short-sized trousers) to begin with, even though he trained with his female siblings in the art of spinning before moving to weaving properly.

Most other trades, such as blacksmithing, go hand in hand with farming, but because of the huge income associated with weaving and its full-time requirement, it was not practiced in duality with farming. Renowned practitioners worked full time especially during the mid-20th century when the craft was flourishing. They only returned to farming when the economies of the region moved away from cotton related crafts, noticeably in the mid- 1970s after a drought spell. In saying this, male weavers could process their raw cotton to yarns, weave and even dye them. A sense of division of labour exists where dyeing was done by a new set of people inhabiting Wanka, Cheledi and Taure settlements more effectively. Zamani and Kirfin Sama settlements monopolise weaving which is why it is often described as a royalty trade, because of further affiliations to the rule of the major settlements generally.

3.4.4 Cotton spinning

As the cotton is obtained, the first approach is the ginning where the cotton head is broken and the fibres lifted from the hard casing. Here unwanted seeds are removed by hand and a hard, usually flat, wooden tool is used to crush the cotton.

Until about 20 years ago, women were cotton spinners who handled cotton processing of threads and yarns at home for sale directly to weavers or at the market places. Male members of the family, or their children carried the spun cotton to Cheledi stalls on market days. In return, cotton was purchased with the proceeds for further processing. There was a clear knowledge of the ownership difference between a husband's wares and those of their wives. Today weaving is practiced at a low level and I observed and interviewed five spinners, all female. These women (LB 2012 & YK 2012) use both *Tandori* (wheel-like spinner) and *Kara* (stick), collectively called *Tariya*, and *Gululu* (spindle whorl) and *mazari* (bamboo stick) to spin.



Figure 40: A- Disk-like spinner, B- Bead-like spindle whorl, C- spinning in progress at the Kirfin Kasa settlement, 2012

These spinners use *auduga* (cotton) as the basic raw material, but they confirm they utilised silk for 'Dan Mali' garments which ceased to be popular about 20 years ago. Spinners spread *Kashin Belu* (kaolin/chalk) on an oval *madakaki* platform upon which they spin, in contrast with a second system that involves rolling the spinner on the upper part of the thigh at intervals. The first method is popular with women while the second is predominantly practiced by men.

The essential tool of a spinner is the spindle whorl. This is a spherical object of baked clay, with a vertical perforation through which spindles or sticks are inserted. The purpose of these hafted spindles is to roll cotton fibres into thread from the fleece by the action of the spinners. The tool is used in the same manner as in silk processing. The palm is used to swirl the upper end of the handle while the second palm organises the flow of the cotton around, until large lumps of processed threads are obtained. The thread is then removed from the main frame and the completed ones are put into larger storage or a number of them kept aside. The essence of this process is to draw the thread into one lump and into the right shape for the final weaving.

Men, usually aged, also manufacture the spindle whorls for wholesale to neighbouring markets. But the main Kirfi spinners prefer a peculiar spinner-type from Gwaram-ta-Bauchi, a large settlement about 30km southwest of Kirfi, founded by migrants from Gwaram-ta-Kano, whose historical connections have been discussed by Abubakar (1974). The manufacture of spindle whorls is a difficult process that requires an understanding of specific clay types. Kirfi clay according to LB and YK (2012) was historically preferred for the making of spinners, because of the prominence of the

riverside clay collected by teenage children but also sold in lumps, noted to be different in texture to those from the pottery sources, where large sand particles are absent. But they do not engage other ceramic materials apart from spinners. There is usually a balance in the family specialisation for textile producers. Such effort is to ensure that there is no gap in the provision of basic raw materials to keep the weavers working at any given time. The high demand for products from spinners has led to a situation where there are more spinners than weavers, especially women.

3.4.5 Weaving

The second stage of making the cloth/textile is the process when the spun cotton is put onto the loom.



Figure 41: A-the loom near Ningi (source: Lamb and Holmes 1980), B-Former textile worker displaying his only remnant of *Koshiya*, Kirfin Sama, 2011

According to traditions (eg Barde 2010) many weavers in the Bauchi area derived their skills from Kano, a situation observed also by Lamb and Holmes (1980) who surveyed the kind of looms prevalent in the region. *Chekerikeri* and *Luru* looms are the most common ones operated in the Kirfi area. The first one is wide, while the second is narrow, and both have a pole supporting the back. Although women weave the simple *gwado*, their own is typically classified as the vertical loom generally worked by women in greater parts of West Africa (Abubakar 1974, Lamb & Holmes 1980, Picton & Mack 1989).

Kirya and bamboo are the preferred woods for the construction of the Kirfi looms. *Allira* are the heddles that get suspended on *Shakiri*, pulley which intertwines with warp to produce thread and the weft thread. *Koshiya* or *kwarkawaro* is the shuttle that constantly transports the threads it carries across the warp while the *mabugi*, otherwise called the beater, effectively controls the complete separation between long-lining warping up, with a comb-like multi tooth vertical-bamboo string mechanism. The Kirfi had *maajiyi*, a stick to wind up the warps as they are produced. *Mataki* are two sticks near the ground that aid the process of warping by interchangeably matched pedals. *Kunkuru* drags the weight of suspended yarns. The major aspect of loom construction is done by the weavers

but the complex tools (mainly the smaller items such as the *Koshiya*) are purchased through local traders from Zamfara, Gombe and Kano. It takes up to a month to assemble the complete weaving equipment as it is expensive, costing almost as much as a ram according to Barde (2012), estimated to be N10,000. This is because leather works, carving and metal works are purchased at stages of instrument manufacturing and procurement.

The normal width of yarn produced is said to be about 20-30cm and 30-50cm (Barde 2012; AMY 2010). When they produce cotton yarns, the majority of the weavers sew their garments while others prefer to patronise specialised tailors to cut costs. Barde did every bit of the craft when he produced for the rulers of Biu (Borno) or for the Gombe markets. He worked *siliki* (silk) mainly for Borno patronage, but had to abandon this when he observed an incompatibility between the dyes that were commonly available at that particular time for cotton rather than silk.

3.4.6 Dyes and dyeing

This is a combination of several chemicals that is prepared from the intense boiling of local paints and other pigments into a solution. These are then poured into the dye pits or containers ready for the immersion of the finished fabrics. Dyestuff is locally prepared from a mixture of *katsi* (expired indigo waste from pits), *toka* (ash), *baba* (indigo) and *gabaruwa* (*Acacia nilotica*) which is prepared into a paste-like fluid and then remains in a container for two weeks. Effectiveness is tested by dipping the cotton to observe the intensity of the black colour achieved. Women are known to assist in such preparations. As soon as the dye is judged to be good, it is taken to the pits, which are the industrial sites of production.

The dyestuff is preserved in the place of action because of its constant re-use and is emptied and discarded only when it begins to become ineffective in achieving quality dyeing. Mallam Aliyu (2010) indicated to me the existence of over 100 dyeing pits, as described in Chapter 4 below, about 300m from Kirfi and less than 1km north of Cheledi. My previous research documented more than sixty in these two locations at Kirfin Sama (see Chapter 4). His generation of dyers grew up to see and use them, until the period of the demise of large-scale processing that led to their abandonment for use of smaller ceramic and plastic containers, and subsequent shift to dyeing within domestic spaces. Scholars have however argued for the likely conspicuous dominance of 19th century textile productions in the Bauchi region (Candotti 2010; Abubakar 1974).

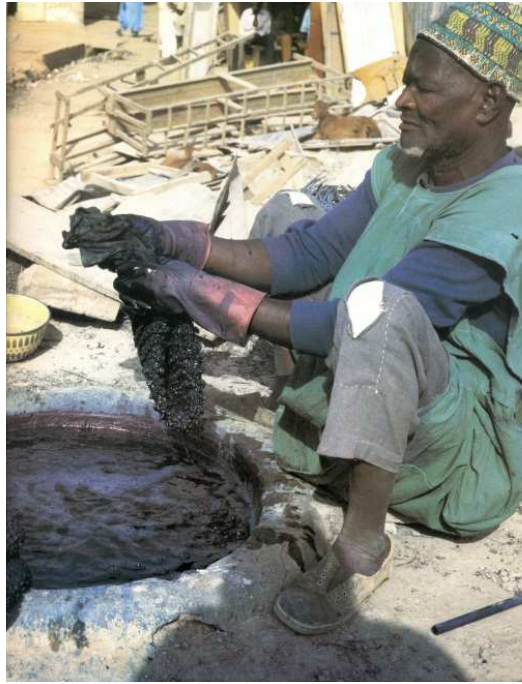


Figure 42: Dyeing in Kano in progress (source: Lamb & Holmes 1980)

Informants (AMY 2010, Aliyu 2011; Madaki 2012 & Barde 2012) who witnessed several episodes of reconstruction of the pits, recollect that when they were actively practicing dyeing, whitish kaolin soil was used to plaster the interiors of pits. The constant submersion of cotton materials and the dilution of *gabaruruwa* and other stuffs as well as the scratches to the pit surfaces, inform the frequent filling of the pits. They are maintained by the frequent emptying of dissolved waste to the sides of the pits that results in the accumulation of the embankment around the industrial space, all of which are identifiable archaeologically as observed elsewhere (Sule 2010).



Figure 43: Relics of ash mounds at Kirfi and Wanka, and a dye pit at Kirfi, 2011

The process involves the direct submerging of fabric, usually the yarns, but also sometimes the finished cloth. The fabric is left for about two hours to soak before the dyer turns and stirs the fabric continuously in a pit. This allows him to dissolve the condensed *karo* (gum arabic) with the intention of improved and permanent sticking of the dyestuff. Kirfi dyers typically use black, brown and blue colours. The spun cotton threads are in some instances selected to be coloured at this stage when it is intended not to have a single whole fabric dye after finishing.

After it is fully dyed the whole set of materials are placed into a dye-pit and a gradual de-absorption of water is allowed. This reduces the tendency for a heavy concentration of colours. After drying, comes the beating stage where the fabric is beaten with a wooden object called *mabuga* onto a core to improve the gloss of the fabric and weaving. Beating is best carried out by two agile young men, with a single flowing gown (*babban riga*) taking up to 20 or 30 minutes by a single person, because it requires precision to avoid beating holes into the garments (AYM 2012).

3.4.7 Marketing

Until the last two decades Kashere, Futuk and Gombe were the famous neighbouring markets for Kirfi textiles, while Boli and Cheledi served as local ones, but both Wase (in the Jos Plateau) and Kano noted Kirfi wares as some of their major exports in terms of volume (Abubakar 1974). Important colonial records in the early 20th century also indicate the intensity of tax regimes which portray textile making as a major source of income, generating specialisation and trading articles at that time (Abraham 1927, Grieir 1912). Kirfi trademark goods include *saki*, *gwado*, *gumburi*, *kwasa* and *uda*. The *uda* is a highly prestigious dyed article (Barde 2010).

Two products are central for discussion here. These are spun yarns and the final woven materials that reached as far as the Kano region, Gombe and Wase in Jos plateau respectively (Abubakar 1974). But this, unlike the practice of other trades, requires a high capital investment. The merchant traders from outside the region are said to preferably stay some weeks to gather sufficient commodities qualified for *sari* (wholesale) before it is all transported to these outside centres (AMY 2011; AL 2010; BR 2011; TT 2012). There is very little intervention from the local traders who only rarely serve to work as middlemen, agents and representatives, whose economic relevance will be later discussed.

3.5 Concluding remarks

It has been observed that inheritance is usually along paternal lines in the Nigerian region and that the distribution of crafts skills, especially those tied to women, are easily disseminated over a wide range through maternal socialising factors. Gosselain (2000, 2008) clearly demonstrated this in how particular pot formation techniques are transmitted across landscapes and how maternal contacts influence such techno-social demographics in Africa, but making due caution that inferences and correlations concerning these patterns are not always straightforward.

In the case of Kirfi, we note that the whole of Kagalan is a settlement historically dominated by potters, blacksmiths and smelters. All the other settlements studied have different social categories in that respect. There was a preponderance of inherited trade specialisations in the past with a slight

movement towards flexibility and across to new and stronger income generating crafts that tend to reform the scene.

The society sees the extended family not only as a chain of production units, but as historic representations of such, despite new developments. The identity of family members is guided by a desire to connect to the deeply-rooted family identity and a person's identity in the overall society is determined by historical antecedents allocated to trades and social positions. Crucially, though, these have never been static, and they change over time. People carry the prestige name, status and identity of their family, historically situated. Everyone has a distant claim to a specific social order linked to such a material production system. The fact that iron workers wore a royal-like trouser, a large gown, and a royalty cap, is indicative of their likely place within society in the past.

Therefore it is worthy of recognition that the learning of skills starts at an early age, usually before ten. By the time the youths are twenty years old, when they are readying themselves to take up family responsibilities, they are experts in their chosen specialisations. Gender allocates much earlier times for a female child. But this is a highly flexible group in the region due to the realities connected to marriage that shift them across to a new set of values. Because they are conversant with the mechanics of female-gendered trades, the trade of their new homes becomes the thing they finally master. A fully trained teenage potter in Kagalan might switch to cotton spinning in adulthood in Zamani and vice visa, due to relocations resulting from marriage. They go along to their new homes with the knowledge of their former techniques and values.

Moreover, we have a situation where a head of a guild exists, even when the inherited trades cease to be practiced. That is the society's functional way of appropriating past values to how modern social relationships are maintained in the way we have *gidan saraki* (referring to a house of iron workers), *gidan mahauta* (house of butchers), *gidan marina* (dyers), *Gidan Sarkin noma* (farmers), *sarkin shanu* (herders), *masunta* (fishermen), *gidan aska* (barbers) and *gidan dan malle* (flood), *sarkin doka or baka* (hunters) among others. People still define themselves based on these such past traditional systems today, but such categorisation seems to be highly gendered.

The male gendered crafts take precedence over all members of a particular household, as reference to female trade is never allocated to whole household even if it is profoundly practiced. *Babban gida* (large house) which has over five active potters and burnish/red slipping specialist are referred to on the sheer size of the compound, not the female dominated industry. Though the male leaders are farmers, the active female dominant activity is silent in such a categorisation, only infrequent specific descriptions mention the women's activities, known as *dakin Talle mai kasko* (room of Talle potter). Therefore the society recognises the man's trade as opposed to women's activities in defining individual, and family status which affects the link ethnically and socially between one group and another through such economic practices that connect the Kirfi people in a complex manner.

On the basis of the foregoing, this research has nonetheless been able to recognise a considerable amount of artefacts: pottery, metals and textiles (Chapter 7) through the understanding of their manufacturing techniques, functions and the manner in which the objects help to reflect socio-economic relationships. Of significance from this research is the realisation that the modern craft practices in the area have displays the social and physical manifestations associated with the common archaeological finds that are treated in Chapters six and seven, thereby giving us useful background at such other prospects of understanding these trades. It is again important that the anthropology of craft production has shown that women are potters and the exclusive male ironworkers are mutually preferred marriage partners.

CHAPTER FOUR: FIELD WALKING AND SURVEY

4.0 Introduction

This chapter describes the surveys I conducted around Kirfi over six weeks in 2012. These constitute the first systematic archaeological exploration of this part of Bauchi. The aims were to determine the extent of past human occupation and seek out any correlations with geographical factors. This systematic survey followed on from an initial reconnaissance exercise in 2010, during which three sites suitable for excavation had been identified (as described in Chapter Five). The second aim of the 2012 survey was therefore to set the three excavated sites within the broader archaeological landscape.

The general characteristics of the region under study were described in Chapter Two and the present chapter will focus on any correlations noted between landscape and archaeological occurrences. Pullan (1970), for instance, approaches the environment as a set of interrelated natural forces that impact on humans. It is however useful to understand human factors as part of a mutual system combining environmental parameters such as soil, rainfall, temperature, vegetation, geology and the geography of the region generally. This is in view of the environmental significance to agriculture, animal husbandry and the abundance of and exploitation of other natural resources. In contrast with environmental deterministic scholars, such as Pullan who are critical of them, Mabogunje (1971: 1) also viewed West African land, environment and resources as an influential factor that impacted upon human development in West Africa where there is a “long story of human movements, incursions, displacements, intermixtures or successions of peoples, and of the impact of these on the beliefs, attributes and social organisation of the various peoples who today inhabit this great area”. Understanding human spatial organisation in the Kirfi area is therefore one further aim of the present chapter.

The Kirfi area is in the Sudan savanna, and has a rainfall regime which is markedly seasonal, with a dry season lasting several months from April to October. Keay (1971, also Pullan 1970, Shaw 1978, Archibold 1995) found a general relationship between climate, vegetation, topography and soils and considered how each affect humans in the Nigerian Savannah. But as we will go on to see, human activities must have had an enormous effect on the state of the vegetation setting to the current condition.

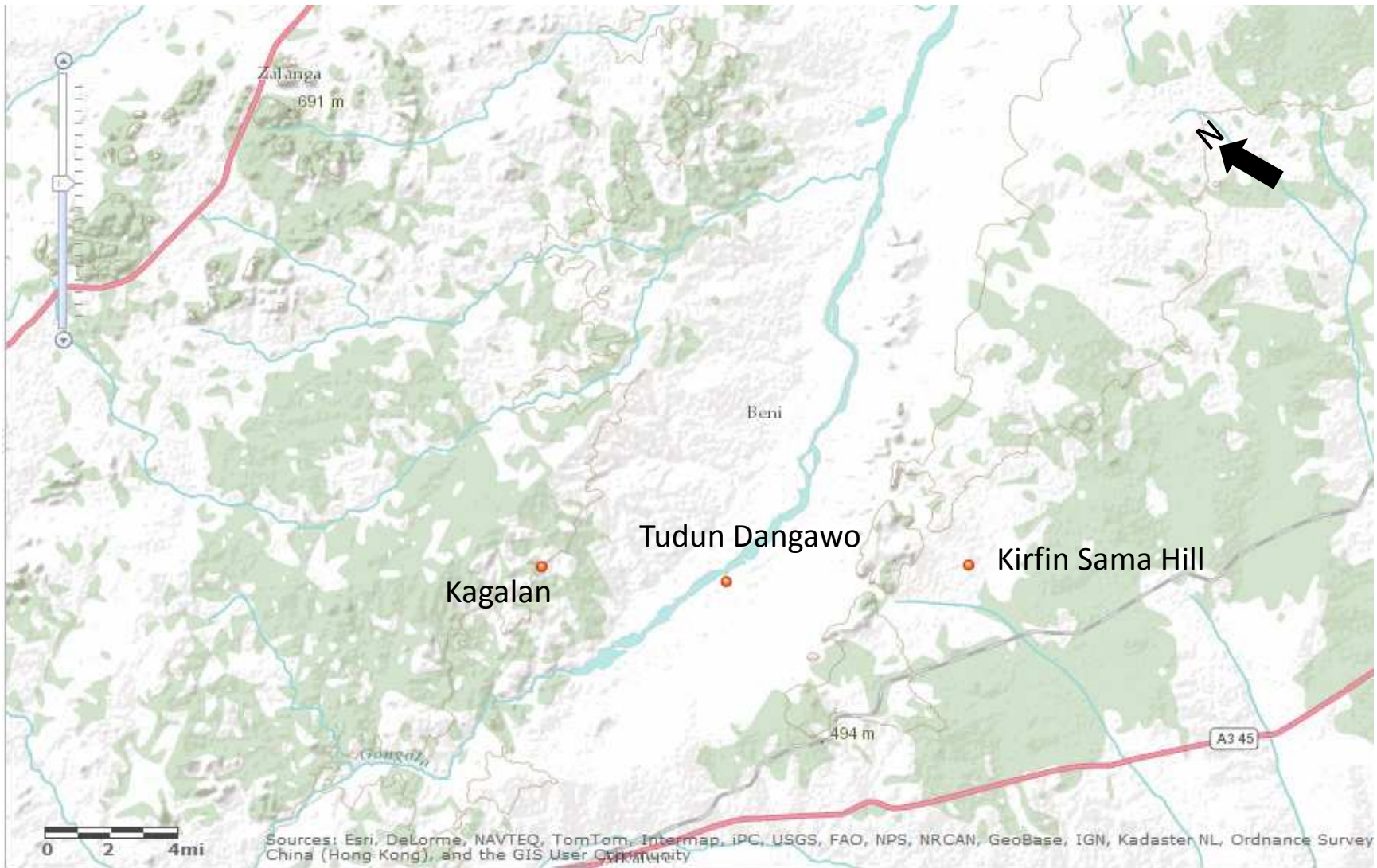


Figure 44: Map of the region showing the sites studied

Anthropogenic changes in West Africa's vegetation have often attracted comment from scholars, in particular the requirement for huge resource of wood for activities such as iron-smelting, or land clearance for agriculture. For example, Goucher (1981:181) argued on the basis of evidence from Ghana and beyond that excessive exploitation of trees for charcoal due to the demands of iron smelting must have resulted in the heavy depletion of original vegetation. This, together with stiff competition from imported iron bars traded from Europe in the 19th century, might have played a role in the collapse of iron smelting in parts of West Africa.

In the course of the survey described in this chapter, an inventory of important tree species was made, some of which are of significant use to people for medicine, food, or raw materials (e.g. Blench 2007). Such examples have been recorded around the studied sites, and can be recognised from information gained through interviews on trees specially needed for the purposes of firing pottery, charcoal for blacksmithing, logs for construction and trunks for wood carving. They include; *Ficus* spp. (Hausa: Baure, English: fig), *Borassus aethiopum* (Giginya, deleb palm), *Hyphaene thebaica* (Goruba, dum palm), *Vitellaria paradoxa* (Tabo, shea butter), *Phoenix reclinata* (Kajinjiri, wild date palm), *Piliostigma thonningii* (Kalgo), *Parkia biglobosa* (Dorawa, locust beans), *Diospyros mespiliformis* (Kanya, West African ebony), *Khaya senegalensis* (Madachi, mahogany), *Burke Africana* (Namijin Kirya, wild syringa), *Ximenia americana* (Tsada, sourplum), *Annona senegalensis* (Gwandan daji, wild custard-apple), *Ceiba pentandra* (Rimi, silk cotton) and *Daniella oliiveri* (Maje, copaiba balsam). Others are *Ficus polita* (Durumi, fig), *Bombax buonopozense* and *Brevicuspis costatum* (Gurjiya, silk cotton), *Faidherbia albida* (Gawo), *Anogeissus Leiocarpus* (Marke, axle wood), *Acacia senegalensis* (Bagaruwa, gum Arabic), *Tamarindus indica* (Tsamiya, tamarind), *Vitex doniana* (Dinya, black plum) and *Adansonia digitata* (Kuka, baobab). A similar range of species was reported around Kariya Wuro in central Bauchi and within Yankari reserve by Allsworth-Jones (1991:204) and Aremu (1999) respectively. However Yankari area is classified as a buoyant northern Guinea gallery which, though still included in the southern Sudan Savannah, has a high density of tree species. The protection of the trees within Yankari reserve since 1955 and the contrast with the open access to Kirfi lands impacted on a much depleted vegetation in the latter in comparison with Yankari's dense vegetation.

Today, any important trees situated on an individual's farmland are exclusively owned by the farmer, who has control over the exploitation of its resources. Communal terrains also exist which include food crops or economic trees, and an agreed rotational system over time which allocates the produce to specific lineages or families. A third category observed in the area is the no-man's land. However, every settlement recognises its boundaries and respects the territories of neighbouring settlements,

especially of those who are not Kirfawa, such as those of Kare-kare and Fulani. Oral information on this came from blacksmiths (MZ & UK 2012), traditional title holders (MK, DM & MD 2012), wood carvers (KL, IB & NU 2012), barbers (MA 2012) who heal with medicinal plants, and hunters (WM 2012).

Local groups are aware of the shift and gradual transformation of the vegetation due to animal grazing and tree cutting for charcoal, wood work and firewood among others. A decade-by-decade change in the density and character of the vegetation is indicated through accounts from specialised blacksmiths and wood carvers of the distances they have to cover to obtain their specific materials. Certain trees, once available around the perimeters of settlements, have now disappeared, requiring some hours' walk (approximately 5-10km) to source them in the wild. However trees are usually preserved, especially those not on the list of trees demanded for their high quality woods.

In this chapter, I will present my survey methodology, which involved undertaking both micro- and macro- scale surveys, then describe in turns the findings of surveys carried out around the sites and in the wider region.

4.1 Methodology

To understand the geomorphology and the landscape interactions of the region at both micro and macro levels, I generated a visual representation of the sites and mapped this at a broader regional scale by using ArcGIS World base-map.

As previously noted, I had carried out a preliminary, informal survey in 2010. During three months of fieldwork at that time, I walked the area extensively but opportunistically, making an inventory of features as well as making a general assessment of archaeological finds. Thus by the end of that 2010 field season I had a working knowledge of the area and an idea of its archaeological potential (Sule 2010), and had selected three areas for more in depth investigation. Over a period of six weeks in February-March 2012 I undertook a strictly controlled survey. Points indicated by the GPS and numbers 1.2.3... along major survey transects were systematically followed and taken at every 5km. At this points surface collections were made and occurrences of objected recorded. I defined a site in the study area in a similar manner to that adopted by Sinclair *et al.* (1993: 721) on the Zimbabwe plateau, defining a site where three or more scatters of potsherds are recorded within the 5x2m survey units I had adopted. It should be noted however that clustering of smaller sites occurs widely here.

The survey aimed to consider the sites both individually and in relation to each other. Thus the survey was carried out at two distinct levels of resolution.

At the macro-level, the overall study area, covering 206 km², was thoroughly dissected using two survey pathways (figure 44). The work of McIntosh (1985:634) and Bower (1986:30) provided valuable pointers in designing my methodology. Elevation became a superficially relevant indicator of settlement, following, for instance, McIntosh's work in the Inland Niger Delta on the assumption that scanty traces of seasonal occupation that may have existed on the floodplain have probably been obscured by alluviation thereby making such landforms less productive to survey. This tends to discriminate against the sites of the nomads that are situated on floodplains. Although the region surveyed by this research project is far smaller in size than was the case in the Inner Niger Delta survey, the problems of terrain penetration and budget were big factors and they forced me to follow ridges, hills and mounds either by river or by existing roads. I was able to build on the rich oral sources for the Bauchi region.

The regional survey divided the overall study area into two broad sectors, following the natural divide provided by the river Gongola. The northern shore of the river was designated Sector A, while the southern shore was sector B. All sites on the river bank which are usually close to the waters were allocated to Zone A. These sites include, as we shall see, Tudun Dangawo, and other mound sites, and several concentrations of dye pits.

I connected the sites to each other by following motorable routes on a motorcycle (it proved impossible to do this on foot due to thick vegetation cover, water courses, hills and present settlements). The aim here was to sample the extent of human activity over the region. Sample points were set every kilometre, following the course of the pathways. At these same points, types and variety of material remains were documented, as well as the density of materials and the nature of the soil, vegetation or any other noteworthy characteristic. This one linear method linked the three specific sites, thereby revealing the spread and character of human occupation in the valley, hill and riverbank.

At a micro-level, the immediate surrounds of all three excavation sites were demarcated into arbitrary zones for closer examination. I adopted a survey system combining the use of GPS and pacing to record intermittent points of artefact collection to help characterise cultural materials, densities and distribution throughout the landscape (based on Livingstone Smith 2012). Other researchers have followed this method serving as validation of this survey method used (Sutton 1977a & b, McIntosh 1985, Wilkinson 1989, McIntosh 1995, Bower 1999, Haour 2003, Haour *et al.* 2011:28). The method was most successfully applied at the site of Tudun Dangawo. Here, material was sampled and GPS waypoints taken at 30m intervals (measured by pacing). Surface materials were recorded and described, building a picture of cultural material variation, their distribution as well as densities. This covered an area of about 270x210m and allowed an objective characterisation of the site.

It was intended to apply this method to the other Kirfi sites, but this idea had to be modified due to some practical problems encountered. Tudun Dangawo is a mound site with no built structures on it, whereas Kirfin Sama Hill and Kagalan are both abandoned hill settlements. Kirfin Sama Hill evidenced relatively well-preserved house foundations, standing walls, and borrow pits (see Sule 2010), while Kagalan is scattered with rocks and boulders. These factors made it impossible to undertake systematic linear coverage of the type carried out at Tudun Dangawo.

For Kirfin Sama Hill, I devised a Z-shaped trajectory enabling me to walk, collect and record the surface character of the site while avoiding obstacles such as structures and pits. I was, however, also restricted by the natural extent of the hill and the dry stone walling around the site perimeter. This same survey strategy was maintained at Kagalan, but was here additionally hindered by the rocky terrain which made it impossible to maintain strict lines of survey, as boulders had to be circumvented in several instances. Despite these problems, I am satisfied that the survey exercise achieved its aims, aiding understanding of the micro levels of the sites.

At both regional and site specific levels 5x2m sampling areas (boxes) were used for collection or recording. Due to certain practical problems which I will outline later, it was impossible to precisely state the extents of all the surveyed sites (site sizes and rank) at this level of research. But the combined use of two levels of survey makes the surveys fairly good and adequate for preliminary conclusions.

The results of these survey activities are now presented. My survey of these transects, with collection points at 1km and taking GPS points, expanding to 5km at the major 'X' transects, allow an overall picture of the find-spots identified, shown in Table 1, after which results are discussed site by site. Throughout, the recording system used was as follows:

0 - No find recorded

1 - Isolated finds: 1-2 objects found

2 - Scatter of finds: 3-5 objects found

3 - Concentration of finds: ≥ 6 artefacts found and many touching one another.

Next page: Table 1: Regional survey. The density of cultural materials retains the 0-3 system.

Regional survey, Kirfi		
<i>GPS Points</i>	<i>Density</i>	<i>Description</i>
>Gujimba – Kagalan-Kirfin Sama line		
K1	1	Plain sherds, -Near Gujimba settlement (single layer stone walls up to 2m)
K2	0	-Near elevated grounds with no cultural material.
330	3	Folded Strip Roulette pottery dominates -few BPR
- Makera iron slag		
		-Near slope of rock
331	0	- Modern Kagalan settlement -domestic settlement -mud houses
332	0	Slag scatter
333	0	Near a stream -Huge broken sedimentary rock scatters -Kirya trees dominates
334	1	- Plain sherds (Near Wosu)
335	0	
336	0	Near Jali settlement
337	0	Near Guyaba (silty soil with rock scatters)
338	1	rusted metal container -Irrigation field at submerged centre of the River Gongola
339	1	Plain sherds –(approaching the mound) -1 incised sherd
340	3	Folded strip roulettes -47c, 2 slag on mound
341	2	- Folded strip dominates -follows by Twisted string roulette, slag (2 pieces) - On the slope of mound due east of TDG1
342	3	-survey point approaching Kirfin Kasa
344	3	- Twisted string roulette dominates (on a mound similar Tudun Dangawo) -(343) The Kirfi Dye pits (few metres to our point 344)
344(a)	3	- Incisions, mound site near ‘GPS206 site’
344(b)	0	- Firki-like (flat clay surface) – Floodplain with crack
345	1	- Dye pits site on western edge of high ground facing River Gongola
346(b)	0	- sandy area
347	1	- Dye pits near Wanka
347b	2	- Dye Pits (too numerous to count)
>Kirfin Sama Hill – Cheledi line		
181	1	- near KR29, eastern edge stone walls
300	1	near the ‘death chamber’ well (marked on the maps ‘W’)
301	2	Plain sherds, near downhill abandoned site (KS2)
305	0	-silt soil
305b	0	- Kirfin Sama modern settlement
>Cheledi – Badara – Alkaleri line		
CH	0	Cheledi modern town
22	0	Near agricultural field
368	0	Standard Reference Beacon
2	0	
3	0	
4	0	
369	2	Near Babban Ware Ware settlement
6	0	
7	3	Folded strip roulette dominates
8	0	
9	0	
370	0	Modern settlement about half km west
11	0	
12	0	
13	0	Rail line (Bauchi-Gombe)
14	0	
371	0	
16	0	Near Bauchi-Gombe Trunk A road junction (Mararraba)
17	0	
18	0	
19	0	
372	0	Alkaleri Market

4.3 Site surveys

4.3.1 Tudun Dangawo

Tudun Dangawo is a small site, of about 0.2km², along the right bank of the River Gongola, at an altitude of 370m above sea level. It seems likely that the site actually stretched further along the river in the past, given that a series of cultural materials of diverse densities were noted during reconnaissance of the area. It appears as a mound running along the river with few incidences of erosion or breaks and it meanders in places. It appears hydrological changes have created a shift in the extent of the bank of between 200-300m away from the present waters indicating that the water level has decreased. According to local oral accounts only 2-3 occasional periods of flooding have pushed the water level nearer its former bank in recent years (SA 2010 & 2012).



Figure 46: Landscape view of Tudun Dangawo (left- facing NW, right – facing SE)

The soil at the receded portion of the river is clayey, but cultivated and irrigated. Farming activities have intensely modified the present vegetation system, where only few large trees, often with economic value, such as *Tamarindus indica*, shea, mango, palm and *Balanites egyptiaca*, have survived. Other thorny shrubs dominate the mound surface until the rainy season when they are cut down to make land available for farming activities. Places along the southern bank of the river running up to 1km are observed to possess higher degree of modern settlements and highly scanty vegetation cover than the northern bank of the river. There are two large gullies which cut through the area of the mound surveyed. The soil texture of the mound is fine and favours guinea corn cultivation today, and previously, cotton which ceased a few decades ago (MK 2011). There is also a minor road which cuts through the site to connect the settlements on the southern side of the river.

No built structures are visible on the mound, but there occurs a strongly patterned distribution of cultural materials, especially pottery.

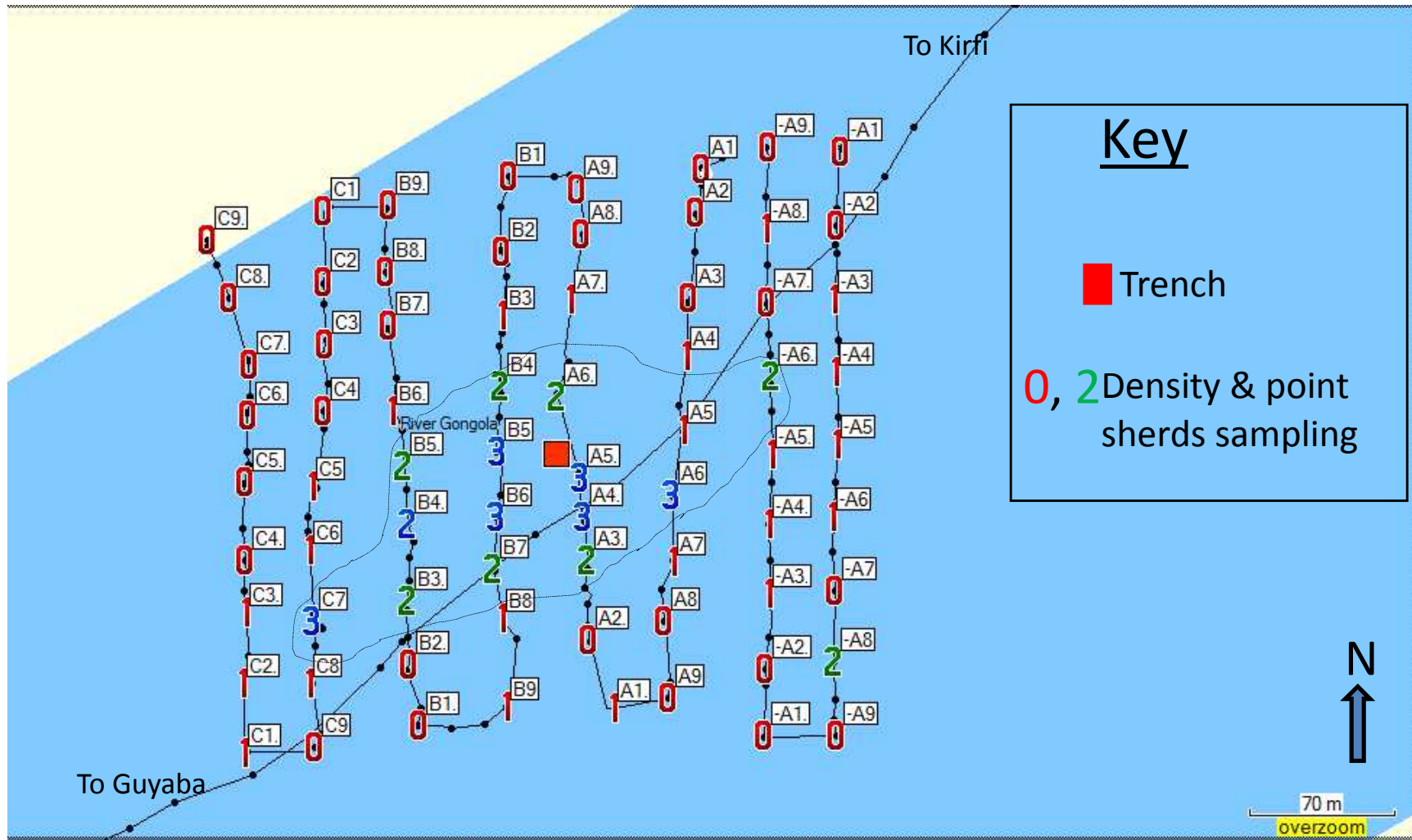


Figure 47: Tudun Dangawo Site showing the distributional density of artefacts (River Gongola is the white area in the top left corner). The dotted line highlights areas with high density of cultural materials.

These findings are not surprising. The test pit was placed in the area of densest remains. Closest to the river Gongola one observes a complete lack of cultural materials lending weight to the supposition that the river was once closer. To the east occur sporadic concentrations of surface materials, supporting the notion that there is a general continuity of surface evidence along the river shore, running through the modern settlement of Kirfi and perhaps as far as Wanka about 15km northeast. The shores of the River Gongola may thus provide extensive and potentially long-lasting evidence of human occupation. As discussed earlier, such a picture fits well with that painted by historical sources. Falconer (1911) commented on the economic importance of the river, and it may also have served as a good trading route connecting Borno with Kasar Bauchi and other Jos-Plateau populations, contributing articles of trade such as iron, textiles and slaves. The survey initially highlighted the occurrence of dyeing pits at Kirfin Sama (Sule 2010) and Wanka (209 pits recorded in 2012) and the visible high ground upon which the Tudun Dangawo site is situated. The concentration of sites and modern settlement can thus be attributed to the influence of the river on the economy of the population.

As one walks eastward, further away from the river towards Kirfi hill, fields begin to show the occurrence of silt and sandy soil over a slight undulated elevation and frequent water channels flowing into the river. The occurrence of a comparable carpeting of fine sand at a field location at Pekinga in the modern Republic of Benin was interpreted as possible evidence for earlier episodes of flooding and sediment deposition by the river (Paul Adderley pers comm. 2012). I suggest this may be the case here too. There was a gradual rise in elevation on the river side embankment from about half a kilometre towards the Wanka and Taure dyeing pits, with an obvious highest ground altitude being reached on the Taure-Wanka rise which was only exceeded by the height of the Kirfin Sama hills. The immediate flood plain area towards the river is presumably the old flood plain, resulting from channel migrations due to changes in the discharge of the rivers rather than to erosion.

Tudun Dangawo 2011 Surface Collection															
Sampling area	Dec sherds	Plain sherds	Total	Metal	Bone	Stone objects	Slag	Grind Stone	Cowrie Shells	Others	Smoking pipe	Spindle Whorl	Glass object	Handles	Terra-cotta
Trench Area	41	172	213			X	X								
E1	7	22	29												
2	13	63	76												
3	10	25	35												
4	4	17	21												
W1	20	71	91	X		X									
2	24	128	152			X	X	X							
3	4	36	40												
4	19	62	81				X								
N1	40	134	174											X	
2	20	76	96			X				X					
3	19	69	88											X	
4	10	30	40												
S1	16	74	90												
2	6	17	23												
3	3	13	16			X									
4	0	8	8												

Table 2: Specific distribution of artefacts at the Tudun Dangawo site. The sampling units were 5x2m around the test pits along four cardinal directions, where N1 is 'North' nearest the test pit while N4 is the last collection point in a northerly direction.

4.3.2 Kagalan

This is a conglomeration of sites covering about 2km² on a hill with an altitude of 470m above sea level.



Figure 48: Views of the Kagalan settlement sites, showing stone walls, stone foundations, the hill in the rainy season and the ruins of a former structure.

The site was identified following oral informants in 2010 and it is closely associated with the modern Kagalan settlement less than a kilometre away. Kagalan itself is a hill, broken into four sectors, covering an area of about 2km². The central sector, according to local information, was abandoned about 60 years ago with no knowledge of its earliest occupation. The site includes a rock shelter and 2 caves (see figure 48 & 49), which are about 200m apart.



Figure 49: Kagalan: entrance to cave I (left); rock shelter (shelter).

Two other hills situated to the north and another south of the main Kagalan site do not show traces of human occupation and are not discussed here. But the third, situated to the east between Kagalan hill site and the present village, shows remnants of house foundations and surface occurrences of slag and pottery. I term it here 'Kagalan II'. Oral history sees the former settlers of this hill as famous ironworkers responsible for the Tekkira mineshafts and furnaces (SM 2011).

A complex set of stone walling characterises the site. The circuit is aligned along the edge of the hills, some branches going down the terraces to connect with other segments of the walls, suggesting multiple phases of enclosure that are interpreted as resulting from expansion. These walls will be discussed in more detail later in this chapter. A rain-fed stream runs through the valleys, gently sloping down from the north to the south of the site to disappear into *Kawu Bella*, a major stream draining into the River Gongola. Around this stream is a buoyant gallery of shrubs and trees, utilised today for wood and fuel.

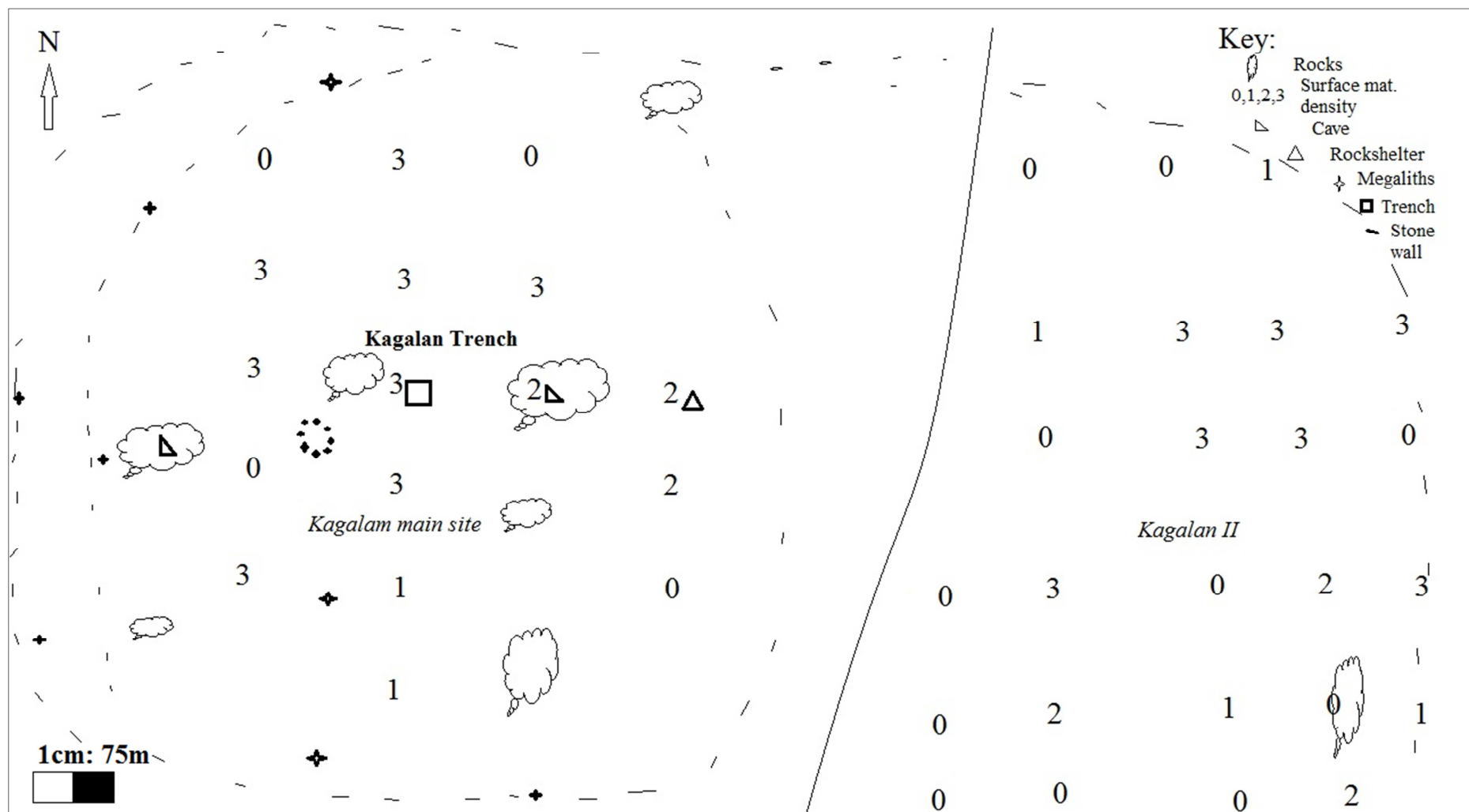


Figure 50: Distributional map of surface potsherds and other features in Kagalan .

Kagalan Surface Collection	Decorated sherds	Plain sherds	Total	Metal	Bone	Stone obj	Slag	Grinding Stone	Cowrie Shells	Others	Smoking pipe	Glass objects	Handles	Terracotta	
Trench Area	5	30	35												
N1	2	4	6												
2	0		4	4											
3	3	7	10	X											
4	1	5	6												
E1	5	22	27												
2	6	17	23												
3	17	61	78						X						
4	8	15	23												
S1	0	5	5			X									
2	0	0	0												
3	1	5	6												
4	5	30	35	X		X	X						X		X
W- Obstacle (rock)															

Table 3: Specific distribution of artefacts at the Kagalan site. The sampling units were all 5x2m around the test pits along four cardinal directions, where N1 is 'North' nearest the test pit while N4 is the last collection point in a northerly direction.

As indicated above, the relief made it impossible to survey Kagalan in a systematic grid. The stone monoliths (Sule 2010), rock shelter, cave, collapsed house foundations, ashy middens (archetypal of dyeing ashes heap) and the elaborate defensive walls as indicated in the map are the main features. The site survey recorded a fairly even distribution of blacksmith slag in four sectors of the hill, in addition to the frequent amount of potsherds and extensive spread of stone features. A total of six cowrie shells were found on the surface inside the cave and another two at the entrance.

A frequent feature are round stone foundations, sometimes with the remnant of the reddish eroded soil surrounding them, totalling 17, mostly around the northern half of the settlement site. The foundations are in two categories; large ones (average size 4-5m) and smaller ones (1-1.5m) whose internal spaces are in-filled with rocks of similar sizes. The instinct is to define the former as past house foundations and the latter as granaries. Fewer of the smaller structures were recorded in keeping with the ethnographically - observed fact that today, traditional storage granaries (*rumbu*) are shared by extended families, with only a few affluent individuals owning and operating *rumbu*, although today, people often use straw and corn stalks to construct it in similar style. It seems likely that Kagalan hill was dotted with compounds, the one sampled by the test pit seemingly largest. The area 50m north of the trench recorded a continuously elevated amount of cultural materials such as two extremely large house foundations. The archaeological structures (large house foundation, ash mound and deep rock hollow) situated about 70m northwest of the trench are associated with past royalty, where one large remnant of house foundations was explained locally as a meeting place for the traditional title holders (DM 2010).

At 60m southwest of the trench is a group of stone monoliths with a large round arrangement of stones (probably room foundation) about 40m to its north (figure 50, right). These features are connected by oral traditions. The site recorded seven singly occurring megaliths interposed within the stone walls, while the eighth being composite away from walls, shown below and located almost in the centre of the settlement site. The lone ones are found to be closely associated with the settlement walls.



Figure 51: Megalithic structures (group and isolated type) and ruins of a former stone feature at the Kagalan hill site

The area excavated was situated between two large broken granite outcrops. The largest, about 20m northeast of the trench, houses a major cave shelter up to 4-6m in height and nearly 2m wide at the entrance (facing north), on the floor of which can be seen ash, bones, cowries and potsherds. Although cowrie shells were used for body adornment in the past, its status as a former currency (Johnson 1970) cannot be dismissed here, considering the strategic function of caves as safe locations from attack. The cultural material built up at the entrance and on the floor includes much smaller fragments of pottery than adjoining sectors of the hill sites.

About 20m further southeast is a large overhanging rock providing a natural protection from both sun and rain. At least nine fragments of grinding stones were observed under the cliff, suggesting the use of this space for preparing food or other material processing activity. The habitable area under the overhang is approximately a 3-5metre corridor and the rock roof is about 4-6m high, suggesting that it might be suitable for seasonal and more temporary activity for the site occupants.

About 180m west of the test pit is another cave (figure 51). Oral tradition has it that the huge concentration of broken pottery there followed the final invasion by the Ningi warriors, resulting in the desecration of the contents of the cave. Local information attributes a sacredness of this structure to ritual conservations explaining why the fragments of pottery have not been completely destroyed after the final desertion of the hill (WZ, SK 2010). The area is dotted with huge granite boulders which create the narrow cave with its entrance facing south.



Figure 52: Cave II at Kagalan showing a high concentration of pottery.

The surface of the hill is very uneven and dotted with rocks, similar with situation to Pantaki and Turunku hills in Zaria, known former settlements sites (Effah-Gyamfi 1986). The site environs are relatively dominated by trees which could be due to the relative inaccessibility of the area and the likely reason for the growing wood carving industry in Kagalan, facilitated by the sparse availability

of raw materials as opposed to other localities in the zone. Tree species such as Gurjiya-Silk cotton (*Bombax buonopozense*), Kirya-*Prosopis africana*, Kurna-Christ's thorn (*Ziziphus spina-christi*), Aduwa-desert date (*Balanites aegyptiaca*) grow here and are important sources of charcoal for blacksmiths, together with other shrubs similar to those noted all over the region.

Other features in the vicinity of Kagalan indicate past craft activities. A depressed area covering a total about 150m² was surveyed about half a kilometre north of the modern Kagalan settlement. It is said to have been the main source of clay for pottery production, not only for the modern village, but all former ceramic makers who inhabited the other Kagalan sites. As discussed in Chapter Three, local historical sources from the main Kirfi settlements have recognised the high quality of their clay that resulted in long periods of use and distribution of Kagalan clay to all the settlements around the region.



Figure 53: Kagalan clay exploitation pits

About 4km north of the modern settlement of Kagalan is an extensive ironworking complex (figure 53), initially reported as Tekkira (Sule 2010). To the ironworking remains reported then can now be added about 20 different iron slag mounds and furnaces, recorded within a new westerly sector, discovered in 2011. The assemblages are referred to locally as Tasma, Kagalan or Tekkira, and ownership of the industry is allocated to the people of Kagalan. As well as the furnaces, the landscape comprises 15 deep shafts, with an abundant spread of iron ore around them.



Figure 54: One of the iron working ruins at Tekkira (near Kagalan settlement site), showing tuyère and furnace remains

These shafts are all concentrated within an area of about half a square kilometre and are located barely half a kilometre north of the slag mounds. These deep-pits appear to have been excavated, to a depth of up to 5-10m, to source iron ore (figure 54, left). A second form of ore exploitation is also apparent at Tekkira, involving shallow mines in which surface soils were cleared to expose iron ore minerals (figure 54, right). At least five such shallow mines were recognised close to the slag heap complex. These are on average 1m deep and typically contain many more impurities and crumbled lumps of ironstones than the deeper type, which is usually more compact and rocky in nature but richer in iron content (Isa Ahmed pers comm. 2012).



Figure 55: Deep (left) and shallow (right) iron-ore mines near Tekkira.

4.3.3 Kirfin Sama Hill

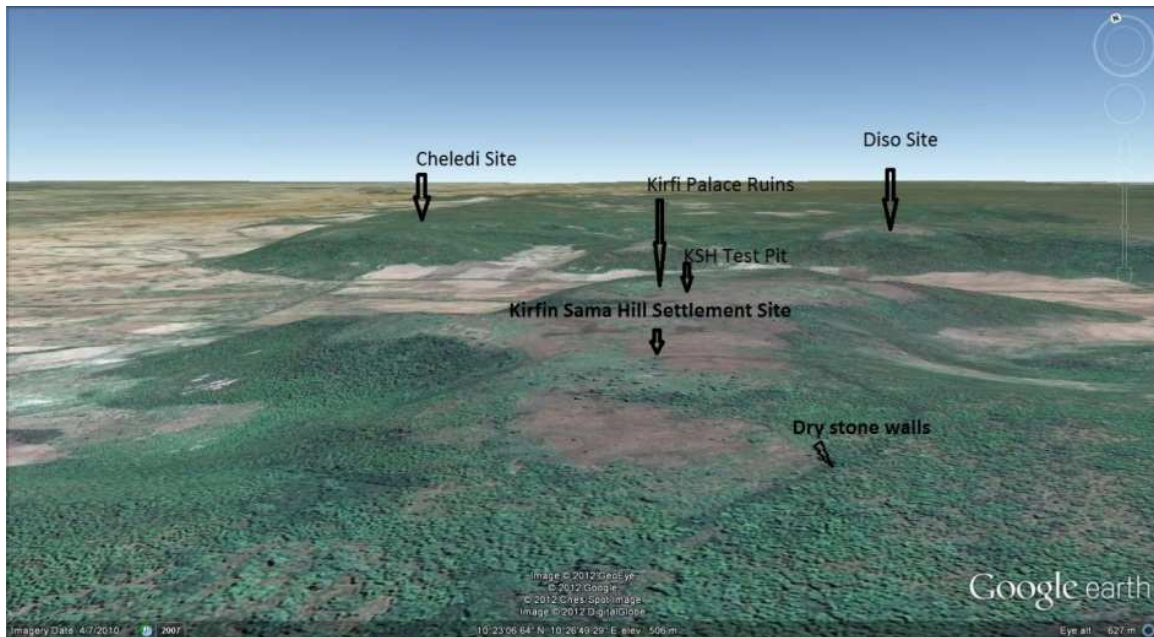


Figure 56: Wider view of Kirfin Sama and environs (facing north)

Kirfin Sama Hill is the highest of the three sites excavated, at about 500m above sea level, and it covers approximately 1km². The site is fairly well preserved, with the walls of collapsed buildings still standing in places at up to 5m high. The presence of these built monuments and former houses posed a serious problem in conducting the systematic survey, but a reasonable picture of the spread of cultural activities on the hill could nonetheless be attained.

There is an uneven distribution of cultural materials on the hill but these are spread out. In an earlier publication (Sule 2010), I used oral tradition to describe the history and settlement distribution of the site, calling it “Site A”. The main features of note are the complex of architectural structures. These structures are identified locally as five former settlements known as Zamani, Kal-bokko, Kal-lombo, Kal-kataffa and Kal-gwaja. There is a large so-called palatial compound at Kal-bokko and the stone walling encircles all these sites. However the domestic space was not studied in 2012, except for a brief random sampling. Pottery remains the major archaeological find, together with differing amounts of surface materials such as cowrie shells, iron points and spindle whorls.



Figure 57: View of Cheledi and Diso hill from the north-east edge of the Kirfi leg of the hill site, the structural remains at Kirfin Sama Hill.

The 2011 survey of defensive walls shows an unbroken stretch of dry stone walling laid around the outer edges of the hill (see discussion below). The top of the hill shows evidence of internal functional demarcations suggestive of a system of settlement divisions. Although it segmented the whole Kirfi hill into three sectors, it does not clearly correspond with the local description of the past multi-settlements (Sule 2010) on the hill, with five apparent settlement sectors.



Figure 58: Ruins of stone walls blocking the corridor between the Kirfin Sama & Cheledi hills, Structural remains at Kirfin Sama Hill, identified locally as a mosque

In addition to the main enclosure, a series of walls connect the two major Kirfi hills that run in a north east – south west direction. These are said to have offered the corridor a level of protection against the Ningawa invaders (DL 2011). The hills are separated by a narrow valley which exhibits a low density of pottery and iron slag in places, a low visibility which could be attributed to the sandy nature of the valley. The ‘Cheledi hill’ also encompassing Diso Hill was briefly surveyed in 2012 and it exhibits striking archaeological sites, such as the dry stone walls round house foundations and pottery. According to oral sources it is older than the excavated hill settlement, so offers a promising prospect for future archaeological work.

The southern region of the Kirfi hill evidences a general absence of cultural materials or features, except for some draught holes situated on the edge of hill, near a portion of wall in an area covered by shrubs. Draught is a traditional African game played by two or more players in pairs, using a known number of stones or wooden counters shared between one or two rows of holes drilled into stones (see figure 58, middle & right). Parallels can be drawn to the game boards reported by Sutton (1977:7) on Dutsen Dara, literally ‘hill of games’, in the Zaria region.



Figure 59: ‘Military watch post’ (location of *dara*) and its *dara*, that is to say game (two draught types)

MJ (2011) explained it as a creation meant for the relaxation of military guards on duty while maintaining surveillance for possible attacks coming from the Jukunawa axis to its south. The location overlooks a wide horizon.

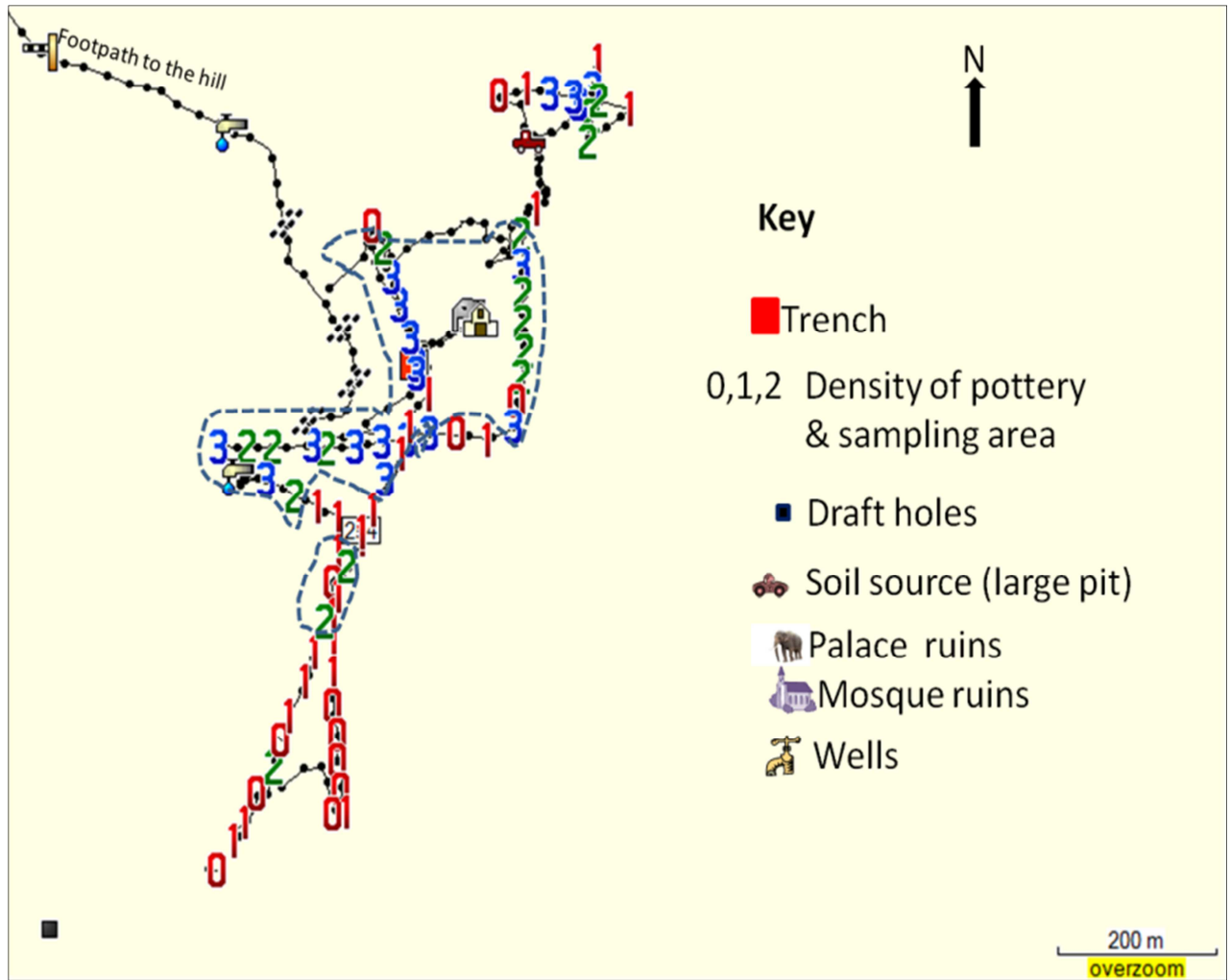


Figure 60: Artefact density and artefacts and features at the Kirfin Sama Hill site

Kirfin Sama Hill	Decorated Sherds	Plain sherds	Total	Metal	Bone	Stone object	Slag	grinds tone	Cowrie shells	Others	Smoking pipes	Glass objects	Handles	Terracotta
Trench	7	20	27		X								X	
N1	16	43	59				X							
2	10	40	50		X									
3	3	18	21					X	X					X
4	15	34	49			X					X	X	X	
E1	14	28	42		X	X	X							
2	8	64	72											
3	13	30	43											
4	3	19	22											
S1	18	60	78						X					
2	20	38	58	X	X								X	
3	1	5	6			X								
4	0	3	3											
West - hill slope														

Table 4: Specific distribution of artefacts at Kirfin Sama Hill site. The sampling units were all 5x2m around each of the test pits along four cardinal directions, where N1 is 'North' near the test pit while N4 is the last collection point in a northerly direction. X represents presence of particular artifacts in the survey unit indicated.

The value of oral traditions relating to this site, coupled with its age and size makes it appropriate to consider description of its surface materials in more detail. There is a high density of surface sherds at four areas of the hill, suggesting they were activity areas. At the northern end of the hill, one section displays some degraded level of a circular house and granary foundations with mud and stone constituents. From the total number of recorded plain pottery, six examples of Twisted Cord Roulettes decoration were observed usually in association with scatters of grooved/incised wares that appear singly or in multiple trends. Materials typically occur outside the perimeter of house foundations and are mostly associated with the smaller built structures which I interpreted as granaries. The majority of the grooved sherds do not occur in combination with any other decorations and have thicker bodies than all the other sherds with different decorations. A few perforated sherds exist together with the twisted cords and a few folded strip roulettes and incidences of braided decorated sherds were also observed. This sector seems to be a narrow area of occupation, situated just at the margin of the hilltop protected only by the defensive walls. Apart from the built features, pottery was the major cultural material with only a few smoking pipes noted.



Figure 61: A stone arrangement identified as a ‘former religious structure’ at Zamani site at the southernmost end of the Kirfi hills. It is said to have been abandoned in favour of the settlement downslope in the plains, known as Zamani. Traditions associate its occupation with Barogha Basini, Kirfi’s founder.

This complex site warrants a full description of the surface materials visible. It is pertinent to observe that the folded strip roulette-decorated sherds follow the high preponderance of plain sherds surveyed across this large unit, although only a scanty distribution of twisted cords decoration, at the tiny southern end of this zone. The grooved sherds that were recorded do not occur in combination with any other decorations per se. High levels of grindstones and fewer lower-grinding stones occur within the region, concentrated around the two visible compounds. Low levels of *Makera* type-slag were

recorded at two locations; one at the southern end of the hill near the draught holes location and around a third tiny area, with high densities of pottery as shown on the preceding site map. Pottery with multiple grooves also survives here, with a good number of vessel feet.

Special finds recorded here include small numbers of smoking pipes, cowrie shells, glass fragments, iron objects (mainly arrow heads) and spindle whorls, in the vicinities of the excavated area and at the southwest - northwest foot of the hill around 'Ture Gawa' well (about 10m deep). Modern wares such as metal containers, iron rods and tyres are witness to continued modern activity here, probably linked to farming. The vegetation is much more disrupted by farming and tree felling. It seems that at the south-east margin of the hill, tree growth has regenerated since the earlier abandonment.

4.4 Regional survey

Having described the remains visible at each of the three sites excavated, I want to finish now with a thematic overview of some of the sorts of archaeological evidence which was uncovered by field-walking but for which time did not allow a full study.

Dye pits

The survey recorded five large-scale industrial dyeing complexes of differing sizes and nature. Four are on the south side of the river while the last is on the other shore at Guyaba. The survey revealed that the river side stretch around modern Kirfin Kasa featured a group of 59 pits encircled by a high rise ash mound previously discovered (Sule 2010; see also figure 42, Chapter One above). Detailed assessment revealed it possessed basically similar round-mouthed pits ranging in width between 60 and 80cm and one to two metres deep; thickness of the walls ranged between 6 and 11cm. The pits are surrounded by the ash mounds. The ash mound developed due to a daily build of chemical - *katsi* - waste from the dyeing process in the past, and today is a prominent part of the feature quite noticeable from a distance. It is about 700m away from the River Gongola and is said to have been worked by the people of Kirfin Sama together with those of the adjoining Cheledi settlement, who were famous textile dyers in the past (MY, BR & MJ 2010).

The second dye pit complex (about 6km northeast of Kirfin Sama), unlike the first one around the mound, was cut into the northern edge of Taure, a moderately rising sedimentary hill about 10m above the floodplain and facing the river and about 1km away to the north. These pits were spaced in a haphazard manner. Sizes and shapes are similar to those of the Kirfi assemblage but show much more exposed and damaged rims due to erosion. A total of 29 surviving pits were surveyed, indicating it was smaller in the area it covers than the others. The ash mounds commonly found around dye pits

were absent, perhaps due to the same erosion factor that had affected the preservation of the pit profiles. It is said to have been operated mainly by the people of Wanka further north as well as those of Taure (15km due east).

About 4-5km further north is the historic Wanka settlement. The third, but largest surviving group of such pits, numbering 209, is found on a very steep sand mound that is in the process of being destroyed by the activities of mud brick makers. The pits populate the south-western edge of Wanka mound. They are severely damaged and eroded. There is an ash (katsi) mound deposit surveyed some 30m south of the dye pits. The depth, shape and nature of the pits are similar in all three of these dyeing complexes.

The fourth dyeing complex is at Guyaba about 500m north of the river. No pits were recorded here, but there was a huge ash mound covering up to 30m². Oral traditions attributed the waste deposit to the past dyeing activities of the people who lived there. The ash resembles the mound I observed at sites on the right side of the river, confirming such information. Houses have been built on it for nearly 100years according to local informants (BR 2011). Similar to this is the severely damaged dye assemblage, over a 15-20m area north of Wanka. The pits are covered by sand, but associated broken rims and ash mounds survive.

Stone walls

Important stone walling complexes were recorded at Kirfin Sama Hill, Kagalan, Gujimba and near Guyaba.

The Kirfin Sama Hill site is extensive, with an area of about 12km² surrounding sections containing the abandoned Zamani, Diso and Cheledi sites on the other northern segment of the hills. The hills are separated by a corridor, but the presence of cultural materials such as pottery and blacksmithing slag, and the fact that the walls connect them, identify them as a single settlement complex. This wall is unbroken on the terraces of the Kirfin Sama hills, while a second circuit at the base, intermittently climbing the hills in places, sometimes disappears. The lands on top of the hills are usually flat and contain mud-built structures, including what is described locally as a palace with walls up to 10m high.

What remains of the walls are dry stone structures surviving to a height of 2-3m, especially around the eastern part Kirfin Sama hill, from the palace area to the Zamani sector at the tail end of the southern part of the hill. The sedimentary rocks used in the construction are mostly well preserved. The stones are undressed and average about 25x18cm in size, composing a wall thickness of about 1m generally. Some parts of the walling still show evidence of mud coating.



Figure 62: Stone and mud walls at the foot of the Kirfin Sama hills (Dry stone walls up the hill-second line)

The thick foundations suggest an erosion of collapsed former walls of considerable height. The walling system at the Kagalan hill settlement is smaller than the one mentioned above but appears to be more complex as it cannot simply be said to consist of double layers throughout. It is clear that a second wall goes round, roughly combining two separate hill sites. It is significant that the expansion of the walls to the east appears to have developed to contain the smaller hill near the modern Kagalan settlement and the narrow drained valley in between. The second hill, which I refer to as ‘Kagalan II’, is said to be the more recently occupied settlement following the desertion of the main one (‘Kagalan I’, where my excavation took place) and before the final relocation to the present settlement (DM 2010, UK 2011). Another stretch of walls runs from the southern to northern parts of the hill creating another level of settlement at the western portion facing Gujimba. Single monolithic rocks seem to dot portions of these interior walls especially around openings, where local information describes them as the remainder of gates to the former city.

The walls are made of solid rocks of varying sizes (about 20x30cm) arranged over a width of approximately 1m placed on the extreme edges of the hills, with no traces of mortar. They are laid neatly on the very edge round the hill. The second Kagalan site, Kagalan II, is simply separated by a gully/valley on a low hill adjacent to Kagalan I, a few hundred metres east of the place of excavation, and is defined by the abundance of pottery, slag and house foundations. While the key feature of the main site is the dry stone foundations, the second is most likely a later extension, suggested by the existence of ruins of round mud foundations. This Kagalan II is enclosed by the poorly preserved ruins of the walls. The two sites are further surrounded by a second circuit of stone walls enveloping the sharp gully that separates the two hills. The second line of walls surrounding the second abandoned site shows heaps of collapsed mud, suggesting the combined use of rocks and earth in its construction as further attested by oral accounts (WZ 2011). This is an enforcing cultural feature that dominates the site as noted similarly in Kirfi hills and Gujimba. At places occur large stone monoliths. It is unclear whether they possess a ritual protective function or are merely stone frames

for support. The Kagalan excavation and other features described in detail below are enclosed within this important archaeological monument.



Figure 63: Stone monoliths within the ruins of former walls in Kagalan (left western side, right northern side, and part of the stretch of walls connecting the two hills)

Gujimba features the third stone wall complex, which is situated west of Kagalan in this survey zone. It is said to have been built by communal labour for defence, with the input of all groups such as Kirfawa, Denawa and the Fulani that co-existed in the region in the past (SG 2011). It consists of a single, yet simple round of city wall built with dry stone foundations, up to 2m high with mud used to reinforce the stone building to finishing, as was confirmed during the survey. Unlike the other two walling systems fashioned to fit hilly terrains, this is a plain landscape with small elevations at the south-eastern section while the western side is scattered with rugged boulders and a stream. The Kirfin Sama Hill, Kagalan and Gujimba walls give a good indication of the prevalence and variability of walling systems within the study area, where opportunistic exploration, resulting with the help of oral sources uncovered. One final, much degraded example can be mentioned to give a full sense of the types of remains seen in Kirfi. These are Tudun Gambo walls. Tudun Gambo is a low hill as bordering Guyaba to the northwest. Modern Guyaba is a settlement of learned Islamic scholars who migrated in the 19th century from Kano. The modern population are successful rural trade merchants who combine this activity with farming, Quranic education and seasonal fishing.



Figure 64: Guyaba settlement showing Kirfi hills in the far background, viewed from Tudun Gambo (right showing its walling)

At Tudun Gambo, the remains of broken dry sandstones, interpreted as former walls, are visible here. The width is typically 1m with many discontinuities. The exact shape and coverage of the wall cannot be fully reconstructed. The site appears to cover over one hectare, judging by the great amount of pottery, together with medium sized sandstones, on the surface. Extensive agricultural practices suggested by the transportation of waste manure from the modern town seem to affect the archaeological remains. The pottery noted is very thick with only twisted strip and folded strip roulettes observed, dominated by plain sherds. The settlement is said to have been founded by Mai Buyabu, who was a smelter originally from Guyaba, and it is said to have initially served as a camp with easy access to the Tekkira sites (SG 2011). Immigrant Hausa merchants ‘from Kano through Wudil’ (SM 2010) came later and dominated the settlement.

Gujimba (on the Kagalan axis)

Gujimba west of Kagalan, surveyed briefly in 2011, is an important settlement of the Kirfawa that was deserted, only to be re-occupied by the Fulani shortly before the commencement of the Jihad in the early 19th century. The significance of the settlement in oral tradition is that it was purposely created for the Jihad to support the defence of Yakubu of Bauchi against attack. Because it is an occupied settlement, only two features of archaeological importance could be surveyed. The remnants of its walling system over almost three quarter the settlement covering about 2km² was documented in addition to a giant baobab tree that is reputed to house the protective spirits of the founders of the settlement. Using oral sources (SG 2012) Gujimba is seen to be the support military garrison of Bauchi, through Kafin Madaki against the Ningawa onslaughts on the vassal polities of former Bauchi.



Figure 65: Gujimba walling system.

I conclude my survey here with the discussion of a site which is interesting because, of the significance of the site being mentioned in the early Sudanic Chronicle, as described earlier in Chapter Two. Badara is about 2km south of the River Gongola. It is distributed roughly between two areas on a low level hill and its slope base is about 300m northwest of the main road to Kirfi. The hill site evidences a small amount of pottery, displaying a high density of plain sherds, followed by incised wares with a considerable number of folded strip roulette, whereas the site noted at the slope, as shown below, is characterised by a high density of pottery materials with folded strip roulette decorations surveyed. The two sites are contained within a 0.5km² small area and with no likelihood that it will be extended over the undulating terrain. The vegetation is similar to that of Tudun Dangawo, with only highly dispersed trees and silt sands. The rock material is sedimentary.



Figure 66: View of Badara site (modern Badara in the background)

The sherds generally seem to have been excessively worn out, likely due to the rolling water action that causes a deep gully between the high rise of the mound upon which the present settlement sits to the east and the low hill site to the west. No local historical connection is said to exist between the modern inhabitants, who are settled Fulani, with the makers of the sites. The site did not fall within the 5km area set for that leg of the survey along the tarred road that links Kirfi to the Gombe - Bauchi roads and thus only impressionist observations were made.

4.5 Concluding remarks

To conclude, this survey has shown the variety of sites which occur within the area of study. Human activity seems to have focussed along the river channel and the hills. A hypothesis to be verified by subsequent excavation is that, in terms of material culture, the riverside (Tudun Dangawo) and hill sites appear to have been occupied at the same time/by the same people and thus to have functioned as part of one system. The hills and the water system therefore must be recognised as part of the integral socio-political aspect of the Kirfi cultural landscape where history, economics and settlement systems became inseparable.

Fundamentally six major types of site can be distinguished.

1. Mound settlements - These are characteristically located near the river and have pronounced elevations. Tudun Dangawo is one of these.

2. Hill sites (6 groups) - Such sites are strategically placed on the crests of hills, such as Kirfin Sama, Zamani, Tudun Gambo, Kagalan, Diso and Cheledi.
3. Plain ground sites (3) - Low elevations or near flat topography characterise these sites. Badara is one example of these.
4. Iron smelting – Common discoveries at these sites include slag, smithing wastes, furnaces or their walls, or tuyère fragments.
5. Mining sites – These are associated with the exploitation of mineral resources: tuyère places for the collection of clays and iron ore as further attested by oral traditions.
6. Dye pits – These involve pits and also ash mounds. Dyeing sites are situated in the vicinity of the river body, presumably due to the large water requirement for this activity.

How do the survey data accord with the excavation results to be discussed in the next chapter? Some preliminary comment can be made. The discussion of the strategic importance of the Kirfi palace in Chapter Two is useful in view of its centrality in the political development of Bauchi emirate in the Sokoto jihad. The other roles of palaces, besides seats of power, are as domestic interiors designed for multipurpose use such as the housing of slaves in transit, state visitors, the ruler and his family, including concubines. The last category is initially of slave status, and participates in the settlement's economic production of indigo, grain processing, but are respected too because of their place in the biological reproduction of royal children capable of expanding the political and social alliances of the state, as observed in Kano (Abubakar 1974). This will be examined further in the concluding chapter.

CHAPTER FIVE: THE ARCHAEOLOGICAL EXCAVATIONS

5.0 Introduction

This chapter presents the report of the three excavations carried out in Kirfi, describing the profiles, sections and the nature of finds, while also considering the implications of the radiocarbon dates obtained. An outline of materials recovered and the analyses of faunal remains are also incorporated.

Fieldwork began in early April 2011 and ended in late June 2011. During this period, test pits were excavated at three sites earmarked in 2010 for testing, namely: Tudun Dangawo (TDG2011), Kirfin Sama Hill (KSH2011) and Kagalan (KGL2011). Eight technical personnel, nine labourers from adjoining Kirfi communities and one archaeology trainee participated at one point or another throughout the field season. An average of four labourers (usually masons, who, by the nature of their trade, are familiar with the trowel) worked for about seven work-hours, every day. Ten days were spent at Tudun Dangawo site, with more than two weeks each at Kirfin Sama Hill and Kagalan.

5.1 General methodological overview

The trenches were 2 x 2m in size at all three sites. The selection of excavation areas was made after reviewing the character and density of the cultural materials on the surface following the surveys conducted in 2010. At this stage, I used a handheld prismatic compass to mark and align trenches with the four cardinal directions. After setting the northern points, the other three were set to make perfect squares. Coloured twine was used to demarcate the trenches, however to avoid collapse of the walls, I set back the trench corners by 20cm. At this stage a total collection of surface finds was carried out.

During excavation, small objects and finds were reported, removed and bagged and their context recorded. The finds for the day were taken to the finds area at the end of each workday. All soil was sieved at 0.5cm. I consistently used the north-eastern angles as my Points of Origin for digging, and refer to northern face for reference. Depths were measured in relation to the control points using a tape, controlled by a plumb bob.

Textile and polythene bags were used for the collection and storage of excavated finds and charcoal samples were sealed and preserved in aluminium foil sheets. Three layers of labelling system for finds bags were adopted at the camp site, to guard against accidental loss of tags or mix ups of objects in transit. Throughout, spits of 20cm were adopted, numbered consecutively from top to bottom. The use of spits proved necessary since the nature of the soil made it impossible to identify cultural layers during excavation. This hindered the plan to use cultural-context-based excavation system. Spit system is commonly used in archaeological excavations in West Africa, either wholly or partially, when cultural layers are difficult to define following cultural layers. Examples of the deployment of arbitrary spits include excavations at Kursakata in Borno (Connah 1981:93), Daima & Birnin Gazargamo (Connah 1981); Rafin Ndoko site, Kasakokogi West site and Kasakogi East (David &

Shaw 1989); Kasana in Ghana (Nilirmi 2008); Bukarkurari Labe, Dumge, Alargarno, Tuba Lawanti & Walasa sites in Yobe, northern Nigeria (Hambolu 2000), Na90/5a & na90/5b1 sites of Gajiganna, northeast Nigeria (Wendt 2007: 27) and a partial use of spits in Gao Ancien (Insoll 1996:34-35), and AK1 Méma in Mali (Togola 2008: 27). In the Kirfi case, as some of the cases cited, Occupation layers did however become apparent in section once excavation was complete. The general sampling strategy for pottery, including a definition of what were considered diagnostic sherds, is discussed in more detail in Chapter 6, but two comments can be made at this point. Firstly, at all levels of excavation both decorated and undecorated sherds up to a size of 28cm size were counted. All diagnostic material – rims, plus decorated sherds above 28cm – was exported to the UK for analysis, while basic information was recorded for others, before discarding them into the trench. The small finds are discussed in Chapter 7 and so, like the ceramics, are only discussed here in a general sense.

As well as describing the excavations, sections and profiles of the test pits, this chapter will include an interpretation of the faunal remains recovered. It should be noted that only preliminary analysis was possible at this stage, but it has already given some useful general information. It shows the preponderance of animals such as cattle, sheep, jackals/dogs, bivalves, crocodiles, antelopes, squirrels, birds, turtles, gastropods, catfish and hippopotamus as well as at least two instances of human bone. It can be noted that there was, on the whole, a general paucity of small bones. It may be that bones of tiny animals such as fish are poorly preserved in the soils of the region, or that they failed to be gathered by the sieving strategy adopted.

Fauna					
<i>TDG</i>		<i>KSH</i>		<i>KGL</i>	
Level	No of Bones	Level	No of Bones	Level	No of Bones
0	55	0	208	0	31
20	37	20	5	20	18
40	30	40	122	40	20
60	13	60	196	60	5
80	6	80	117	80	0
100	2	100	83	100	5
120	7	120	75	120	0
		140	2		
Total	150		808		79

Table 5: Distribution of faunal remains from all sites.

5.2 Presentation of Sites

As detailed in Chapter 4, the three sites investigated all lie within an area of 206km² falling between N10 26.04 and E10 19.28. A distance of 9km separates Tudun Dangawo from Kagalan and 7km separates Tudun Dangawo from Kirfin Sama Hill.

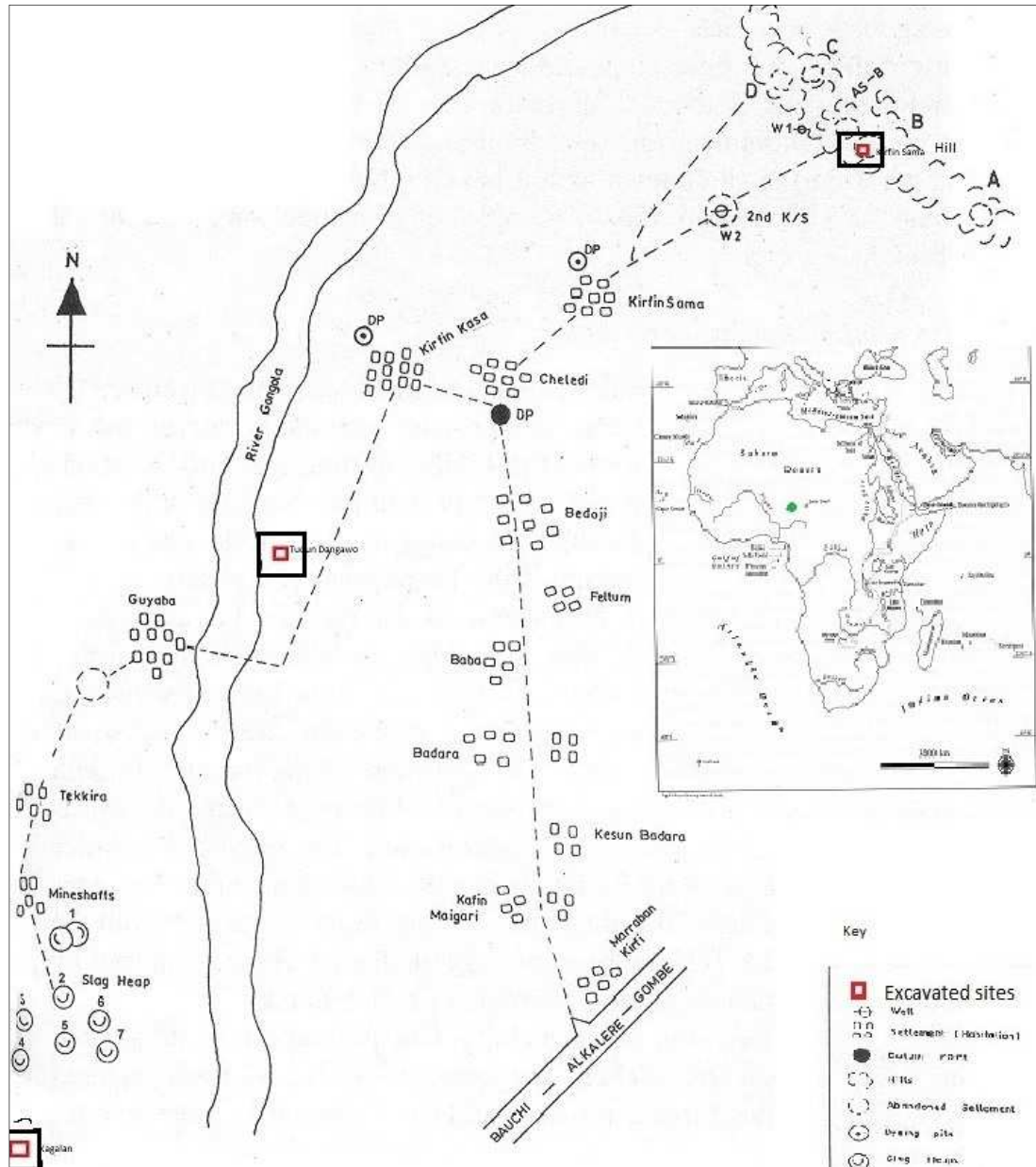


Figure 67: Sketch of the Kirfi area showing the three excavated sites. Approx. not to scale.

Summarising the outline provided in Chapter 4, one recalls that Tudun Dangawo is situated on an embankment running along the southern side of the River Gongola. The site is a mound which is, in fact, probably part of a chain about 40-50m wide that runs continuously along its southern bank. Local tradition speaking of past occupation (SA 2010) led me to this mound where I confirmed the presence of past occupational materials. The site evidences an abundance of surface sherds but an

absence of any visible structures. Excavation now supports the idea that there was a cultural deposit on top of a natural landform. No local memory exists relating to the site's occupation. It is associated with the so-called 'giant people' who ate any animal that came their way until a spirit disguised in the body of a cow entered the town, only to be consumed by the residents, thereby igniting the wrath of the god. Just one person survived, spared simply because she went out of town on a visit, only to return a find a flat land and every member of the community exterminated.

The Kirfin Sama Hill site is an abandoned settlement at the edge of the Kirfi hills (or Giwo as some Kirfawa prefer to call it), where the founder of modern Kirfi, Barougha Basini, is said to have settled nearly 1000 years ago. The site, which is marked by the existence of extensive standing remains, had already been the subject of some survey (Sule 2010).

Finally, Kagalan is supposedly one of the later settlements abandoned by earlier ancestors of the present Kirfawa of Kagalan, who now occupy the valley plains. The Kagalan area is about 1½ km² in size and is distributed across two adjacent hills. The valley sides are claimed to have been settled by the Kagalan people at various times of their history and the valleys are very wooded, with fully developed vegetation. The site is rich in visible archaeological remains such as stone monoliths, a rock-shelter, walling and scatters of both smelting and smithing crucibles.

Looking at the table below, one notes that Kagalan evidences the highest amount of pottery but the second density of small finds, followed by Kirfin Sama Hill in terms of pottery but with the least small artefacts, while Tudun Dangawo evidenced the highest percentage of small materials and the lowest amount of pottery generally. The above comments come of course with the caveat that issues of differential preservation may have affected the archaeological record.

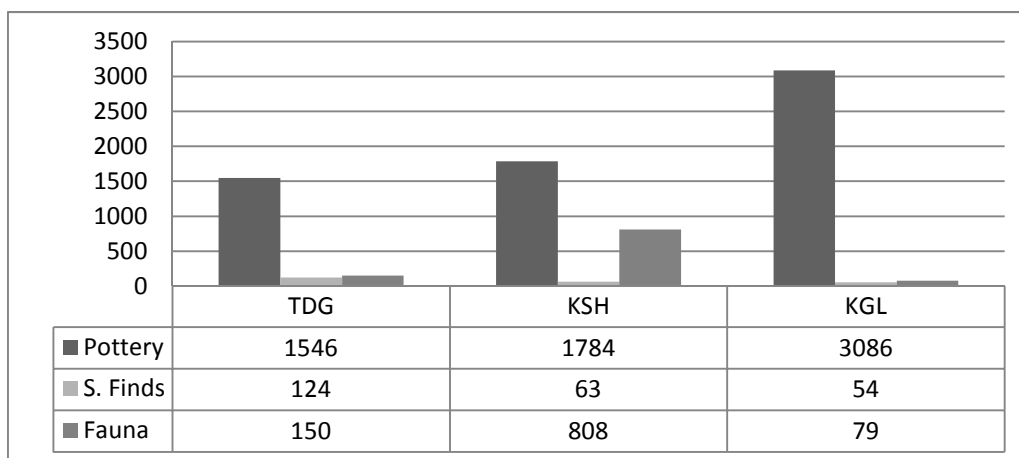


Figure 68: All Finds from Kagalan, Kirfin Sama Hill and Tudun Dangawo – (Total: Pottery 6416, Small Finds 241, Fauna 1037).

5.2.1 Tudun Dangawo (TDG)



Figure 69: Landscape view of Tudun Dangawo site.

The Tudun Dangawo mound is clearly defined from the adjacent areas by its height of about 5m above the surrounding landscape. It can be assumed to have represented a site favourable to human habitation than the plains during the likely annual River Gongola floods events making it favourable for access to the aquatic resources of the river all year round. The extent of past occupation was about 2 hectares judging by the distribution of the surface cultural materials. Two other loci of human activity at opposite ends to the mound were relatively less visible, due to intensive agricultural activity.

The Point of Control was situated at longitude N10°23.76 and latitude E10°23.16 at a total elevation of about 500m above sea level. As seen in Chapter 4, surface scatters on the site suggested a distribution of three areas of cultural occupation over an area of about 1km². The density of cultural materials determined through field walking in 2010 led to the earmarking of a 2x2m area for excavation in 2011. Because of the undulating nature of the landscape, one cannot completely eliminate the possibility that surface deposits and structures were washed away by running rains and the effects of cultivation, constituting secondary formation.

The trench was excavated to a depth of 1.60m at the southwestern point.

5.2.2 Kirfin Sama Hill (KSH)

Kirfin Sama Hill is a flat-topped area on a chain of hills running from the southeast to its eastern region. Local oral tradition is still lively and indicates the existence of a highly stratified society over the past six centuries, and the last group of which descended into the valley about 70 years ago. Kirfin Sama Hill lies about 2 km from the extant settlement of Kirfin Sama. The area excavated sits at the

western edge of the same hills, at longitude N10°23.21 and latitude E10° 26.89. The position of the trench was chosen due to the high abundance of its surface materials and its close association with standing remains. Its altitude is 507m.

Although the excavated area fell on the western edge of the hill, it revealed a likely prolonged period of occupation or signs of intensive human activity in the past. Oral traditions supported the idea that there had been longevity of human occupation in this part of the hill. Initial assessment of a gully about 10 metres south of the excavated pit evidenced in situ remains of pottery, stones, and bones (including a fragment identified as human skull), reinforcing my earlier decision to test that zone based on density of cultural materials on the surface.



Figure 70: The gully near the Kirfin Sama Hill excavation exposed arranged stones and human jaw.

The presence of fairly good architectural remains is noteworthy. These include structures identified locally as a palace built by the renowned 19th century architect Babban Gwani, associated with a Friday mosque, which is acclaimed to be the only found between Bauchi and the reaches of Gombe that existed since the Pre-Jihad Period. The palace's functional spaces contain sections identified by the local population defining domestic space, a place for the throne, and a slave estate nearer to the courtyard.

A hard rock basement was struck at 1.6m, terminating the excavation.

5.2.3 Kagalan (KGL)

The Point of Control for this unit was situated at longitude N10° 24.17 and latitude E10°18.21.

This site shares similarities with site KSH2011 in that it is situated on a hilltop, albeit at a slightly lower elevation of 469m above sea level. It is however said to have been abandoned about 100 years according to oral tradition. The hill was dotted with various types of trees and shrubs as described in

Chapter 4, suggesting that intensive farming activities might have ceased some time ago allowing vegetation growth.

Situated in-between two rock outcrops, the excavated area was on a sloping terrain away from the higher ground likely to have been occupied by the last inhabitants and on the northern side of the pit. At the eastern side of the excavation was a large rock complex housing a cave, while about 3 metres west of the trench was the edge of a group of rocks. About 30m east was a cave and pit situated less than a metre outside of the structural remains. The survey here evidenced traces of blacksmithing as shown by huge deposit of crucibles and house foundations.

5.3 Overview of excavation units

5.3.1 The Tudun Dangawo Excavation Unit

Profiles of all four sections of the trench at completion are presented below.

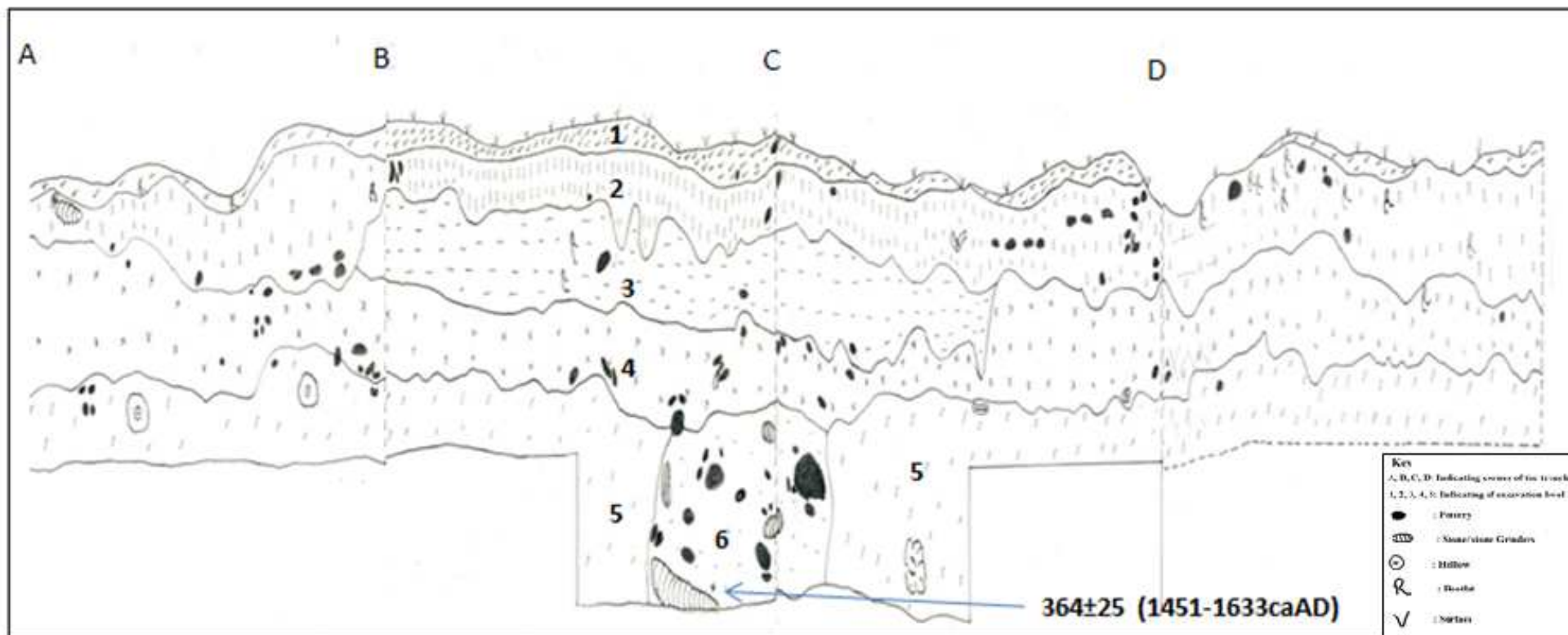


Figure 71: Tudun Dangawo sections at completion. The North face is the face marked 'D'.



Figure 72: View of the Tudun Dangawo trench (showing south section) at completion

At completion the southern wall, which was the clearest, presented 5 occupational layers, spanning 7 spits. Whilst excavation was on the whole ceased at 160cm, one quadrant (Quadrant 3, of 1m size, with an angle – C, which is the southwest corner) was continued to 160cm when the sterile layer was reached. The continued presence of high concentration of cultural materials such as daub fragments, considerable amount of charcoal, bones, large potsherds, sizeable stone boulder in this section of the trench suggests the presence of an in-filled pit. As mentioned the south wall was the clearest section to read, but evidence from the other three sections was consistent with it. The spits were as follows.

Level 1 (0-20cm)

The soil colour was a light darkish brown and ashy, consistent with the colour at the surface before it began to change to grey with a fine grained texture. A small granite boulder was recovered close to the southern portion of trench, seemingly a natural occurrence.

This level produced an enormous amount of potsherds. An exceptionally thick walled body sherd with a thickness of 4.3cm was recorded. The high volume of small sherds recovered in this layer (15.5kg) is probably due to fragmentation caused by soil tillage.

Level 2 (20-40cm)

The density of potsherds and other materials decreased in relation to the previous level and the soil colour began to change to dark grey. There were visible intrusions here of large pottery fragments on the western profile of the excavation, as well as a considerable number of bones, and fewer metals.

Level 3 (40-60cm)

The soil colour remained grey, with few materials. About 20 fragments of daub and wattle clay and two stone objects in addition to three natural stones were recorded. A relatively well preserved skull, later identified being from cattle, (Linseele 2011) was found in the north east corner of the trench. Associated with the skull was a pottery handle and a stone nearby with a chunk of charcoal (figure 72).



Figure 73: Tudun Dangawo level 3 cattle skull.

Level 4 (60-80cm)

The soil colour changed gradually from yellowish to a deep orange colour, and its texture became coarse. Spotty-black brick-like burnt daub fragments manifested themselves again, as well as charcoal. Soil colour changed more part of the trench to a dark brownish colour, suggestive of a feature where a charcoal sample embedded in a carbonised wood was identified. A small lone metal arrowhead was retrieved at the north-western corner of the trench.

The three stones encountered in level 3 became more pronounced and prominent in this level. Two stood together and the third about 40cm away. A region around the south-west corner, totalling $\frac{1}{4}$ of the trench, showed a sizeable concentration of potsherds (totalling 236). There was a corresponding difference in soil colour and a baked earth feature to its east, possibly a cooking hearth.

Level 5 (80-100cm)

At this level, the supposed daub detected in level 4 became more pronounced and extensive, maintaining an irregular circular shape. Toward the centre of the trench was an area characterised by

greyish compacted soil and sporadic yellowish soil particles. This is recorded as an 'activity area' of unidentified function.



Figure 74: Compacted daub feature and burnt area at Tudun Dangawo Level 5

The area had high concentrations of potsherds, mainly red in colour, and whose surfaces were relatively well preserved, in some cases embedded with burnt earth. A decrease in the density of pottery was observed, as only 72 sherds were collected and 1.4kg of minute sherds. Charcoal was sampled. Another stone protruded closer to the existing standing boulder near the centre of the trench, suggesting an intentional twin standing feature (Figure 12). Conversation in the field as to the likely function of the twin stones concluded without a verdict, as some informants (UK 2011) considered them as markers for burials, even though there is no evidence to indicate a burial ground or a tomb. A more plausible interpretation for the feature was that of a cooking stand (ID 2011).



Figure 75: Standing stones at Tudun Dangawo Level 5

Apart from the darkish brown soil that subsisted at the activity region, the surrounding areas presented a reddish grey soil, with a more compact texture and containing friable sand. An ash coloured deposit that occurred at the centre as we started at level 5 (80-100cm) began to shift towards the south-western angle.

Level 6 (100-120cm) – Quadrant sub-level 1

By this stage the test pit showed a general absence of cultural material, except for an intrusive potsherd close to the northern wall. The decision was therefore taken to discontinue the general excavation and to focus on a quadrant, where one noted a continuation of cultural materials. A reduced number of potsherds – 17 – was collected at this depth.

The soil colour around this zone continued to be reddish grey, with tiny patches of coarse white loose grit and fewer finds as opposed to the area with concentration of cultural materials. The area with high materials recorded darkish brown soil which persisted from the level three quarter above, recognised as a cultural layer due to bones, pottery and charcoal break-ups suggesting it was a rubbish pit.

This activity level yielded a small number of kaolin pieces. The south-eastern angle of the trench produced another natural stone boulder.

Level 7 (120-140) – Quadrant sub-level 2

The occurrence of cultural materials largely ceased within this quadrant but the pit feature at its south-western corner continued. This feature remained with cultural materials, due to the continuation of the place where high temperature activity likely took place, perhaps a fireplace and the refuse pit feature

associated with it. The remains I had earlier suspected to be daub, began to suggest I was in fact dealing with a burnt fireplace. The refuse pit theory (definition of the in-filled pit) subsists due to the jumbled nature of the remains; animal bone and 64 fairly well preserved pottery materials were recovered at this level.

The immediate surroundings of the presumed fire place were black due to the charcoal specks resulting perhaps from cooking activity and some ashy bits as well. However the soil colour surrounding the cultural features was reddish grey with large textured grit. Charcoal from this cultural phase of occupation provided us with a date of 364 ± 25 bp [OxA-26211]. Once calibrated, this date falls between 1489-1647AD.

Excavation ceased at 160cm, at the south western quarter of the excavation, identified as a major activity area. Broken pottery enmeshed with burnt charcoal was the common character of the in-filled feature noted. Sixty four potsherds were collected at this depth. Toward the bottom of the pit the fire place was still evident, containing the usual enormous amount of broken pots, but with large bone remains and a fragment of stone grinder below the two other grinding stones that had been removed earlier. Found underneath the activity area was a fragment of a granite boulder that was underlain by a virgin soil deposit. No further effort was made to continue digging after reaching a hard soil that marked an abrupt stop in cultural material after the grinding stone was collected. A possibility exists that more materials might have continued at the southwest corner of the trench, in the quadrant.

Interpretation of TDG 2011 – Chronology and features

Following the characteristics of the faunal remains analyses (Linseele 2011 and Manning 2013) we know that fauna represented at Tudun Dangawo includes sheep/goat (*Ovis aries/Capra hircus*), domestic cattle (*Bos Taurus*), large canid (*Canis familiaris*), monitor lizard, freshwater fish, mollusca, rodentia, reptilia, birds, crocodile, catfish (*Clarias* sp.) and jackal. Manning (2013) observed that, ‘overall, the bones from Tudun Dangawo belong primarily to wild taxa, especially smaller taxa such as birds, reptiles and Mollusca’ shells and commented that a fairly wide range of taxa is represented. Level 20-40 is entirely calcined suggesting the animal bone was burnt to a high temperature prior to deposition (Manning 2013).

Following examination, the rocks found at level 4 did not appear to be tools, due to the absence of any wear, but we can suggest extrapolating from prevalent ethnographic practices in the Kirfi area that they were erected to support cooking activity. The key points to highlight here, is that what appears to be a pit, stretching from levels 7 to 4, was dug into an occupation content termed level 5 – the earliest occupation level. The pit contained pottery, bone and grinding stones and can be interpreted as a refuse pit. It yielded a date of 364 ± 25 bp (OX-A-26211). Subsequently, near horizontal levels of occupation built up. These could not be dated, as attempt to run C¹⁴ failed. But it contained a hearth.

The sporadic recovery of daub at regions outside the pit may be indirect evidence for some kind of shelter. Extensive cultivation of the mound is a possible factor for the disappearance of structures, while the use of relatively perishable materials for such constructions is another factor.

In summary, three cultural features were unveiled at Tudun Dangawo; mud walling caused by a collapsed building on the landscape as shown by the daub, the stones and associated burnt horizon in spit level 60cm & 20cm suggesting a hearth, and a refuse pit containing bones, pottery and grinding stones.

5.3.2 Kirfin Sama Hill Excavation Unit

Profiles of all four sections of the trench at completion are presented below.

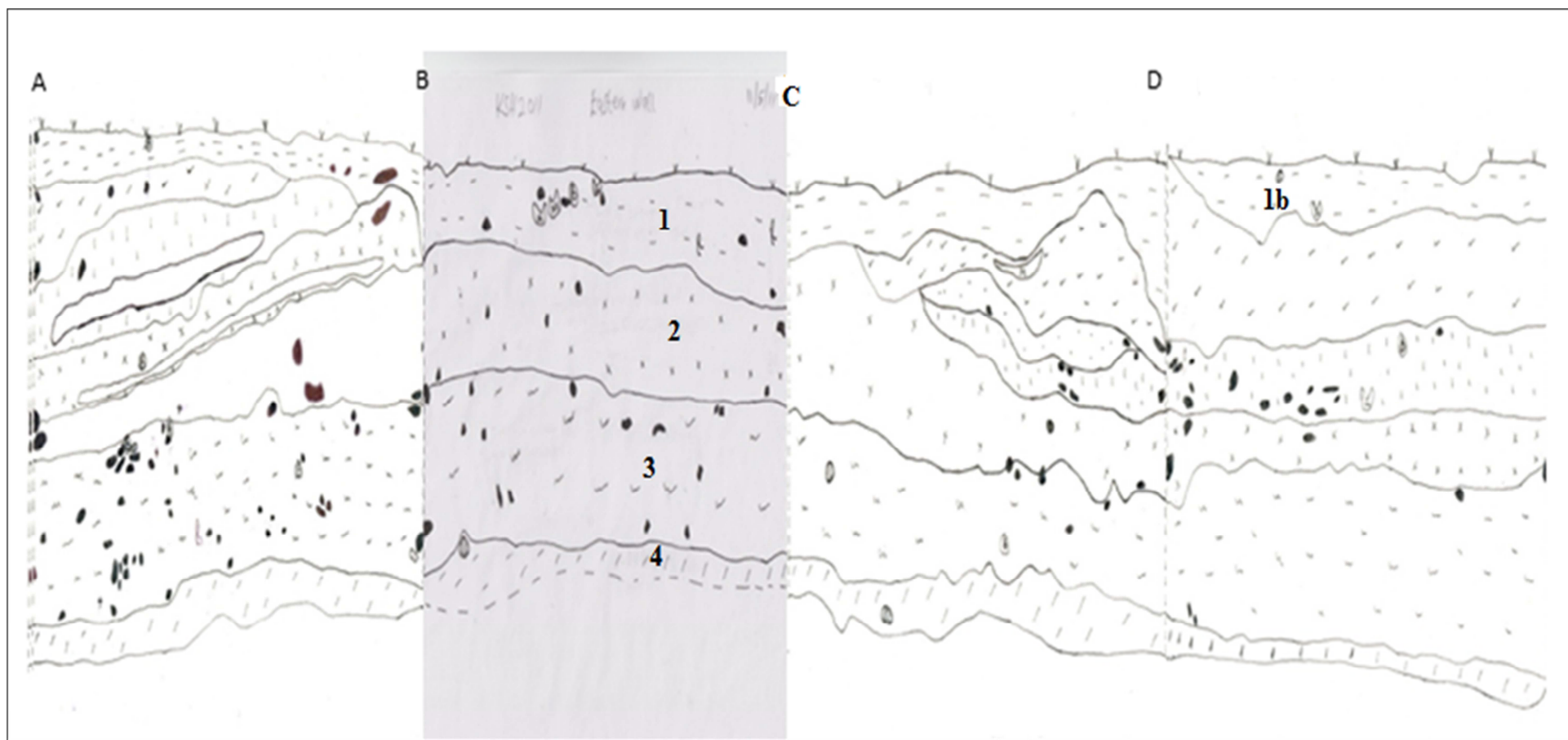


Figure 76: Kirfin Sama Hill sections at completion. The North face is that running A – B, see Figure 71 for key.



Figure 77: Kirfin Sama Hill, north section at completion

Level 1 (0-20cm)

As well as potsherds, this level yielded a variety of objects such as 3 metal arrowheads, a shell bead, 2 fragments of glass, a cowrie shell and a stone ball. Soil texture was loose and generally reddish in colour, except for the south western section which had whitish patches.

Level 2 (20-40cm)

Pottery is the principal cultural data from this level. Other cultural items such as a spindle whorl, 2 iron objects, 3 pieces of slag and an arrowhead were recovered. Most of the materials occurred around the centre of the trench. Ashy soil dominated this level.

Level 3 (40-60cm)

Here the quantity of potsherds decreased. The soil was mostly dark brownish in colour, but erratically reddish brown in the major part of the eastern half of the section. Two conspicuous layers of ashy loose soil sloping down from east to west were visible in the northern profile. These ashy deposits meander and infiltrate cultural layers 4 & 5 respectively, and appear to result from two separate episodes of burning or the dumping of refuse. A broken granite grinder was identified at the eastern wall.

Level 4 (60-80cm)

A single cowrie (*Cypraea annulus*), an enormous quantity of potsherds and two metal objects were recovered. Two spindle whorls were obtained and charcoal fragments were plentiful. The soil was

heterogeneous; the western section was light brown, the north-eastern corner dark brown and the south-eastern corner more reddish.

Level 5(80-100cm)

This trench exhibited three variant soil colours of nearly equal extent;

- (i) The eastern slope was blackish brown with many charcoal fragments.
- (ii) The central deposit was reddish brown.
- (iii) An ashy/whitish deposit was apparent toward the western section. An arrowhead was found at the southwest angle, while bone was found at the down slope of the western wall in association with a bone. Another arrowhead was collected in the northern section at 90cm during the drawing of profiles.

As excavation continued the three soils reduced to two:-

- (i) The eastern half was darkish brown.
- (ii) The western deposit remained ashy. The texture of the deposit was fine and powdery with a sporadic existence of reddish grains. The centre of the trench yielded potsherds and charcoal. A natural rock was found at the south western angle, while two others occurred at the middle of the trench.

Level 6(100-120cm)

The deposit was darkish brown and homogenous; with its texture remained loose, with the appearance of lateritic grains. Only a few potsherds, bones and a tiny fragment of a finely made clay item (small find, see Chapter 7) were found.

Level 7 (120-140cm)

This level yielded an extremely diminished return of cultural materials.



Figure 78: Kirfin Sama Hill, western section

The eastern half of the trench evidenced a compacted reddish grey soil – locally called *marmara*. The darkish brown (anthropogenic level) did not end at the same depth as the other section due to the slope. The eastern section was higher ground while the western section sloped downward. Sterile ground was reached at about 180cm.

Interpretation of KSH2011 – Chronology and Features

The ashy deposits visible at this site tend to confirm the idea of a successive layering of deposits due to an accumulation of waste products over time. Wastes accrued are burnt down over a period of time which leaves traces markedly differentiated by colours and texture based on the nature of the materials involved. The daub likely represents the remains of fallen structures.

The southern wall conspicuously presents a thin layer of ash-coloured deposit sloping downwards towards the west, and its slope conforms with the higher terrain settlement that exists at the eastern side of the trench. In fact the same slope exists in the northern section, where western section is generally lower.

The faunal composition is a simple one containing; domestic cattle (*Bos Taurus*), sheep/goat - *Ovis avaries/Capra hircus*, catfish – (*Clarias* sp) (some of which belonging to individuals over 60cm in size), Mollusca, Nile perch (*Lates niloticus*), large and small wild bovid, hippopotamus (*Hippotamus amphibious*), birds and cowrie shells (both *Cypraea annulus* and *moneta*) and squirrels. Cattle bones are abundant in this site, but may come from just one or two individuals and show signs of butchery, suggesting a single feasting episode (Manning 2013). Examination of other cattle bone suggests the

animal was used for traction. Wild taxa were present in the bone assemblage as well as catfish and Nile perch, which are deep water fish.

The trench appears to cut through a midden. During the one week investigation of trash disposal by the modern Kirfi people in the month of February 2012, it was recognised that the excavated area was a deposit (*Jijiu*) with all the functions of a midden as a secondary disposal system for the community. Although middens accumulate refuse from different households, there exists a social relationship between these households which suggest is that we can approach the reconstruction of the social and material culture distribution of the makers of the middens from the finds recovered. Ash layers and the kind of debris containing remnants of walls, as with the reddish clay in Kirfin Sama Hill, are likely to be particles from collapsed walls. The deposition of the wide range of materials such as spindle whorl and spinners are indicators of domestic living around such areas. I cannot however make a categorical statement as to whether the excavated midden was a communal or single household refuse serving just a tiny household. MD (2012) observed that there could be up to two or three of these functional *Jijiu* in the entire settlement and they are formed usually over several decades and controlled by the action of periodic burning.

Oral history (MJ 2012) interpret the nearest mud built remains (15m away) to the former palace of a chief with regional power, containing sections for wives, slaves quarters, guests house and palace staff, chief's throne or main entrance, and 2-3 accompanying compounds.

Two dates were obtained from Kirfin Sama Hill: 1205±30bp (Ox-A26213) and 174±25bp (OxA 26212); the main issue concerns the gap of 1,000 years in these samples recovered from depths of 110cm and 130cm respectively. Since obtaining the radiocarbon results, we have clarified this apparent discrepancy. A thin, reddish-brown layer is visible at the base of the trench, which went unnoticed during excavation because of its similarity to the sterile basal level immediately below. It is clear that the sample which yielded a date of 1205±30bp (OxA-26213), actually originates from this reddish-brown layer which, yielded only small pottery fragments, and like the basal layer, slopes upwards to the east. The much younger date 174±25bp (OxA-26212) comes from the brown layer, just above. There is no confusion in the actual context recorded, organisation of data or in the relationship of the charcoal samples. The pottery examination, though utilising few samples for Xrf from the site has shown no great difference in the material elements between this thin layer and Context F above it. The few pottery below the diagnostic sizes, show an anecdotal indication to be thinner sized sherds than the levels above and curiously finer grain texture than above as well. Most likely the 1000 year age gap thus reflects two distinct phases of occupation, can hardly be decipher by this method. The lowest layer represented low-intensity human activity whereas Context F and above evidenced an increased accumulation of cultural debris.

The structures still standing on the site today remain undated. Even oral histories recorded by Abubakar (1974) recognise the colonisation of sectors of the hill at different times. This is the reason that, today, all the modern settlements on the plain claim origin to these different sectors identifiable on the hill. The trench excavated is only about 5m away from the western edge of the hill and such location could have aided the decision making for the siting of the midden during the early occupation of this sector. It is unlikely it started as a discard zone due to the low level of artefacts at this deposit. The fact that it produced low amounts of cultural materials, might suggest a short and distinct cultural episode represented by a thin deposit. This is interpreted as a problematic phase where evidence is scanty and questionable until more dates are tested from the context. It could be a reflection of unintentional attempts by people to settle on the landscape, or even a casual representation of people who may have lived at other segment of the hill. The end of that occupation and the commencement of the next shows a wide time lag. However, as deposits grew in height it became convenient to shift places. Being close to the top of a hill would favour dumping waste, the same way La Cruz (1986: 4) on his 'topography' factor in Murcielago, Costa Rica recognised that when refuse is formed on such edges, some of the garbage flows down the slopes over time, without negatively affecting the organisation of the plain environment.

A parallel to the Kirfin Sama Hill midden may be provided by a test pit at the site of Garumele (Linseele & Haour 2010) further recognise that burning is a necessary step to prevent stench and neutralise pests, and recognised further that ash layers are built up as a result of accumulated dumping of ash from domestic hearths.

Refuse middens can form rapidly. Considering the oral traditions (SA 2010) by living witnesses attributing the abandonment of the hill site over the second half of the last century, and by the existence of cultural remains such as glass objects in level 1 of the trial, we can envisage such a rapid accumulation from the near base layer persisting to the latest deposit of occupation. The Daima III phase at Daima in Borno provided a comparable situation where layers of ash were noticeable, some white others black and similarly containing charcoal fragments and lumps of fired clay (Connah 1981: 167-168). These layers contained materials such as clay beads, animal figurines that are a popular feature of the Daima III cultural developments. A date provided by Connah (1981: 165) extended Daima III occupation from about 700AD to 1150AD, and it is possible that this phase should be extended further due to the recovery of items such as cowrie shell and a fragment of smoking pipe that are typically late items. The smoking pipe find, he suggested, makes it possible that occupation extended up to the 17th or 18th centuries AD.

In conclusion, we can say that the cultural deposit at Kirfin Sama Hill was a midden, which shows evidence of diverse economic activities such as textile working and feasting but shows no evidence of kingship and royalty.

5.3.3 Kagalan Excavation Unit

Profiles of all four sections of the trench at completion are presented below.

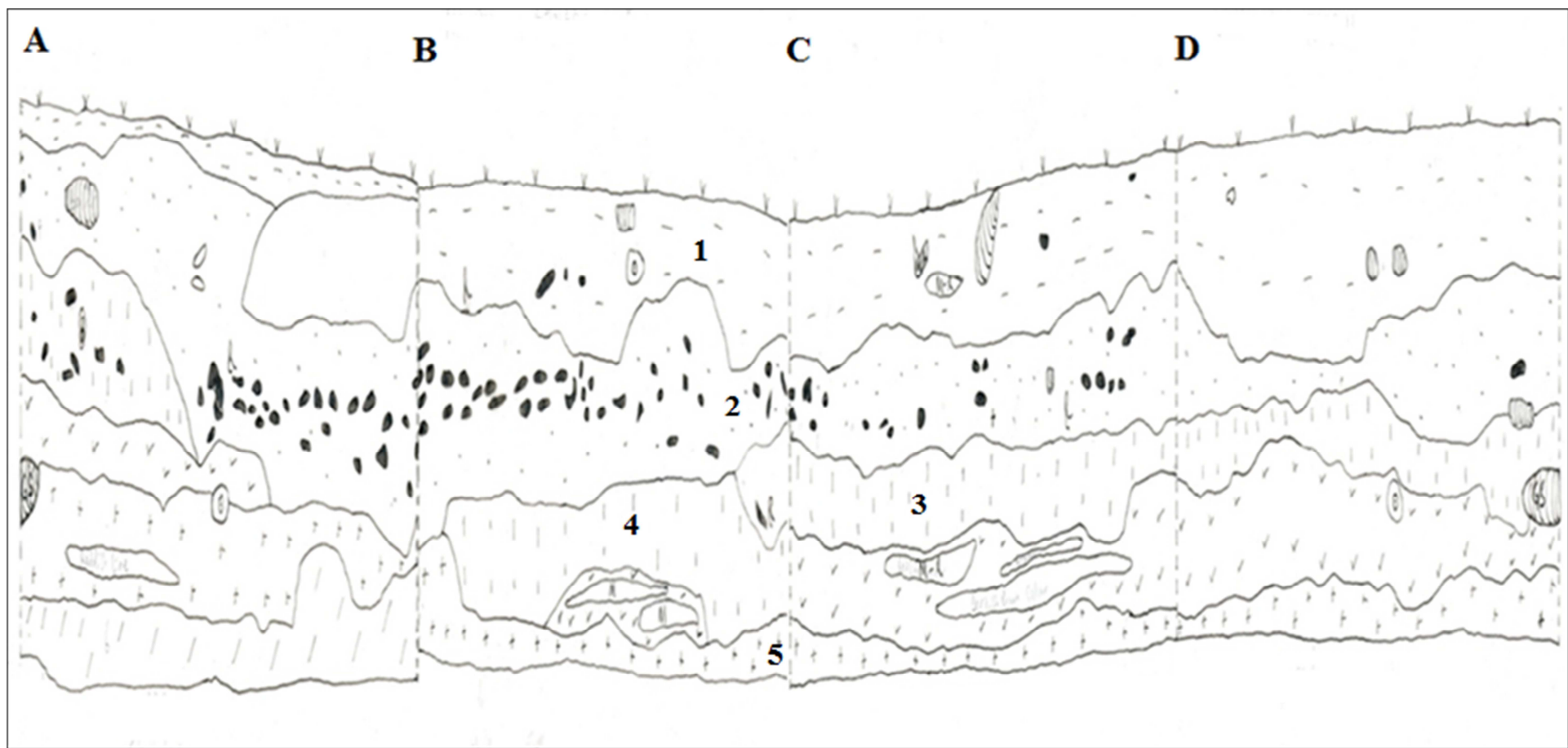


Figure 79: Kagalan excavations profile (North is the section marked A-B). See Figure 71 for Key.



Figure 80: The Kagalan site, west section at completion

The trench was situated in-between two boulder complexes, 20m NE of one housing a cave and just 5m to the bottom of the one west of it. The surface provided 2 flecks of glass, metal objects, cowrie shells and small potsherds.

The northern profile of the trench presented 6 stratigraphic layers differentiated by colour variations. However 3 levels combining 2 and 3 respectively seems to suggest a cultural layer due to the homogeneously lower levels of cultural materials.

The trench was excavated to a depth of 1.4m, terminating upon reaching sterile soil.

Level 1 (0-20cm)

This is a dark brown soil deposit with frequent stone inclusions. Pottery materials were dense, and finds included an arrowhead, iron ring, grinding stone, polishing stone, and a terracotta figurine.

Three cowrie shells were recovered, of which one is a *Cypraea annulus* while two had the back sides removed, possibly an intentional act of modification to suit an ornamental purpose. All were in a dark brown soil deposit.

Level 2 (20-40cm)

The soil was generally a darkish brown with certain sections of a pale grey colour. There was a high density of cultural materials and a large rock head protruded near the centre of the trench. This cultural deposit produced metal objects, a clay spinner (a rare find in this trench), fragments of grinding stones and plentiful natural stones. The soil deposit beneath a boulder: near the south-west angle, is reddish, beginning at level 40cm. There was an extraordinary amount of potsherds (490),

which were very thick and suggestive of intensive dumping around the north eastern section of the trench.

Level 3 (40-60cm)

A light red soil exposing the stone noted above as a large rock body still appearing at the centre of the trench. Cultural materials continued to be dense, and broken pot filled with red soil was recovered. A colossal numbers of potsherds (1621; more than double from the two spits above) were counted in this level. A charcoal sample from this level was dated to 316 ± 27 bp (OxA-26214).

Metal arrowheads were also discovered in the middle portion of the trench. 37 small fragments of rocks were also encountered (though not in a regular pattern) suggesting human activity. In between, was the discovery of 5 stone balls which, according to local informants (UK & WZ 2011), resemble implements used for grinding herbal medicine.

Level 4 (60-80cm)

A variant soil colour was reached at the base of the conspicuous large rock at the centre of the trench. It marked a possible transition of activity, given that just 255 potsherds, far fewer than were found above, were recovered at this level. The size of the stone began to shrink at 70cm suggesting that its terminal base was nearly exposed. A very hard soil, as previously observed, continued to be exposed with only chunks of reddish and yellowish brown coarse texture. The vicinity of the eastern walls maintained a considerable amount of potsherds.

Level 5(80-100cm)

The soil was a homogenous yellowish grey, tempered with small whitish grit and becoming more condensed in texture compared to level 4 above. The interesting finds here include polished stone artefacts and a fragment of metal arrowhead in association with a bone and charcoal specks close to the southern wall. A catfish pectoral spine was the only identifiable faunal remain.



Figure 81: Kagalan site excavation at level 5 (showing the stone platform in situ)

The eastern wall showed a curved reddish burnt-coloured fragment of what appears to be a hearth. This may represent a former specialised firing place (*matoya*) for pottery. The possibility of it being part of burnt plaster fragment of a collapsed building cannot be ruled out completely, but local sources of information (WZ 2011 and UK 2012) favour the former argument. *Matoya* is a large pottery firing place such as those I described in Chapter 3.

Level 6 (100-120cm)

Another *mazoz*i (polished stone) similar to the one collected at level 5 was retrieved. This is a reddish yellow deposit whose texture became increasingly harder. A grinder (stone) close to the centre of the excavation was recorded. Very few sherds came from this context - the majority coming from the western side. The level is dated to 667 ± 28 bp (OxA-26215).

The western section (immediately next to the wall) was dominated by a new ashy-like soil deposit different from the other regions. Its texture was rather loose and not as compressed as the layer above it. The colour of the south eastern angle was strikingly yellow, while the wall at the northern side was becoming sandy and whitish approaching the sterile baseline.

Level 7 (120-140cm)

This context produced a limited amount of cultural material. The soil was pinkish in colour and uncommonly hard. Only 10 potsherds were collected. The sterile layer was reached shortly thereafter.



Figure 82: Kagalan excavation east section at completion

Interpretation of KGL2011 – Chronology and Features

Broadly speaking, six cultural layers have been reconstructed from the Kagalan sections. The evidence recovered raises the possibility that the inhabitants of Kagalan practiced potting in that area over a long timescale. This suggestion is made in view of the high number of potsherds recovered and the sustained occurrence throughout the stratigraphy of possible pottery manufacturing implements as suggested by ethnographic analogy in modern Kagalan (see Chapter 3). The earliest dated phase of human occupation of the site is between the late 13th and late 14th century AD, represented by burnt fragments or daub. This goes with assumption, that the burnt fragment was a post ceramic firing ditch, based on the ethnographic knowledge that if potting manufacture took place around the large rocky structure then firing might have been somewhere further away, probably behind a compound building.

However various strands of evidence points to a possible potters' workshop. Firstly, there are the stone polishing tools – *Zuza* (pl. *Mazozzi*) resembling pebbles used for the polishing and burnishing of leather-hard ceramic vessels and a vessel filled with red slip (see Chapter 7, also Mayor 2010: 660, fig. 10c). The large rock resembles those used by potters as platform-forms. They use natural boulders or bring in rocks from another location for such reasons. They knead their clay which sometimes

demands the use of force to break the dry clay and to display their wares on top or to dry finished pots. The rock has the stable face looking up, which has smooth worn places indicative of repeated use. The oval-like shaped rock suggests a careful selection of a suitable platform locally (surrounding rocks granitic) and a deliberate placement in the upright position to provide a podium for the ceramic makers in the period that followed during 15th /17th century AD.

In addition to pottery as a major economic activity of the people, the richness of iron ore in the region may also have been exploited. Iron was an important resource for the manufacture of tools at the site. Iron slag (smelting and blacksmithing crucible) and objects such as arrowheads were found throughout the later phases of occupation, but were absent in the earlier part of occupation (spits 5-7). Chapter 4 has already documented the occurrence of several large mounds of iron slag and massive volumes of discarded tuyère and furnace remains, about 2km northeast of Kagalan. Blacksmithing is also generally acknowledged to be one of the traditions of the Kagalan people and commonly claim that the slag mounds are 'factory remnants' from their ancestors (DM 2011, UK 2011 & SM 2011 & NW 2012). Four sectors of the Kagalan abandoned hill settlement are dotted with considerable amounts of blacksmithing slag, sufficient to warrant the existence of that economic activity on the landscape, as shown earlier in the survey. We have no idea of age of those smelting or blacksmithing finds. The association of the features to former Kagalan occupants can only be viewed as a possibility that, in a region where as elsewhere in Africa, there exists a strong association between women the potters and men the iron workers (Barley 1984, David & Sterner 2012, Haour 2013).

The pottery-making workshop seems to have thrived between late 15th – mid-17th century AD on the basis of the radiocarbon date. The recovery of the bone of a human infant may be evidence of a burial within domestic spaces; as oral traditions I collected indicate that the dead are still buried in the backyards (WZ 2011). It may be that the use of that space has changed several times over the long period of its occupation. The bone recovered is only a fragment of either a femur or tibia of a human baby, found at a level of 20cm, therefore it is not a complete enough for a meaningful conclusion.

However, if the pattern of deposition is anything to go by, we can argue that cultural layer 1 as seen from the southern section, is a post-17th century AD deposition that most likely sustained until the time of the site abandonment. The makers of the youngest material culture deposit were the ones weakened by the historically recognised guerrilla warfare and booty capture by the Ningi warriors during the 19th century AD, which was attested by oral sources (such as DL2011). It is reasonable to state that, with the gradual collapse of built structures of the low - ceramic and metal consumer settlers in the 13th /14th century AD, the need for functional space to address the need to produce more pottery led to the provision of adequate infrastructures to support the craft.

After the peak of pottery production inferred by the volume of broken pottery at level 3, a likely diminished need for such material might have resulted in a corresponding change in the use of space.

This paved the way for burial of the dead around the vicinity because it became free space and we should expect that a proper burial is somewhere to the north of the trial trench, considering the effect of slight material movement that the land contour tends to facilitate. The gentle sloping of the site surface to the south and the two protruding stone foundations of former houses indicative of a compound, gives a typical picture of the excavated area as falling in the marginal section of such compounds akin to backyards.

Level 4 witnessed a high amount of tiny fragments of potsherds (perhaps less than the diagnostic sizes described earlier) with 1396 in number, plus an additional 12kg that was too small to be counted. This same level produced the highest number of metal objects (10) and iron slag (8). Out of the 5 areas on the Kagalan site with high amounts of blacksmith wastes (archaeo-metallurgical analyses needs to determine whether they are smelting or forging slag) one was located at about 17m northeast of the excavation. Oral tradition (UK 2012, DM 2011 & WZ 2011) believed that such were remnants from forging workshops and that blacksmithing is generally understood to be practiced within a domestic settlement setting today in the Kirfi region.

Surface collection such as the two glass fragments within the area of excavation, can attest to a 20th century occupation of the site and, by implication, further supports the suggestion of the period when the site was abandoned, as indicated earlier in this chapter.

Faunal evidence shows the presence of Mollusca, *Auchenoglanis* sp (a genus of claroteid catfish native to Africa), sheep/goat-ovis aries/ capra hircus, rodentia, small wild bovid, bird and small carnivore. Manning (2013) commented that, of the 3 sites, Kagalan 'produced the smallest assemblage and the least taxonomic diversity. Birds and small wild bovids appear to dominate and no obvious cattle bones could be identified'. This evidence contrasts remarkably with the economic systems tenable at the two other sites where cattle were important.

5.4 Concluding Remarks

There is relative similarity in the depth of human occupations at all sites, with none of the three excavated trenches exceeding 1.6m. A combination of arbitrary spits (levels) and contextual occupational layers as emerged in the sections was made necessary by soil conditions.

We are beginning to define the phases of cultural development with the results of the absolute dates, given in full below.

Site & Location	Excavation depth	UnCal /Calibrated Dates ⁴
Kagalan, 10 24'17''N 10 18'21''E		
OxA-6214	-40-60cm (Charcoal)	316 ± 27bp (1489-1646calAD)
OxA-26215	-100-120cm (charcoal)	667 ± 28bp (1276-1391calAD)
Kirfin Sama Hill 10 23'45''N 10 26'10''E		
OxA-26212	-100-120cm (charcoal)	174±25bp (1661-1954calAD)
OxA-26213	-120-140cm (charcoal)	1205 ± 30bp (694-894calAD)
Tudun Dangawo 10 23'45N 10 23'10''E		
OxA-26211	-120-140cm (charcoal)	364 ± 25bp (1451-1633calAD)

Figure 83: list of radiocarbon dates obtained for the sites.

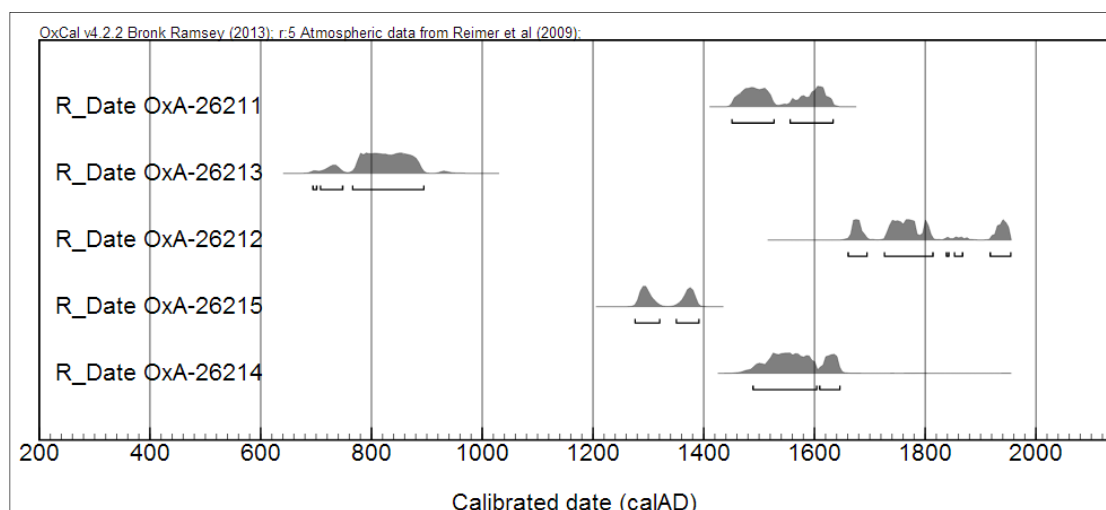


Figure 84: Graph showing chronological sequence of the Kirfi area (all dates within 2 sigma range).

The dated deposits in the three sites suggest that people have lived, at different times, in the area over the last millennium. Although we are not able to decipher contemporaneity of the existence of the various settlements, it is plausible that the earliest inhabitants of the river site at Tudun Dangawo lived at approximately the same time as the later inhabitants of Kirfin Sama Hill, a time when Kagalan was also occupied. It may be that the three sites were mutually interdependent on each other, with due recognition to the specialisation of each other. Considering the dates and the emphasis on relationships between the hill occupied sites today, we might argue that those were the principal settlements of the so-called Kirfi people.

⁴Ramsey, C. 2009. Bayesian analysis of radiocarbon dates. *Radiocarbon*, 51:1: 337-360. (OxCal 4.1 web interface 2012) system and programme used to calibrate the dates mentioned above and selecting highest probability ratio, with integrity usually above 90%.

The sites faced similar risks of attack (as evidenced historically by accounts of the Ningawa, for example), and they developed similar strategies, such as defence as shown by the walling systems (Chapter 4) and their economies utilised wild animals including those of river origins. Although defensive walls are associated with militarism, the traditions of the Kagalan did not show its people as warriors who attacked, but rather as people who adopted a defensive strategy. The fact that the settlement was associated with iron working skills which are acknowledged to encapsulate a high sense of spiritual and supernatural forces, and the discovery of stone monoliths at the centre of the site, may further indicate religious importance in the past. Modern traditions relating to Kagalan from within (SM 2010) and those collected at Kirfin Kasa and Kirfin Sama modern settlements did not associate Kagalan with political power historically.

Broadly speaking, we can say that Tudun Dangawo supplied economic data, Kirfin Sama Hill produced articles of daily life and Kagalan evidence of craft production. The sample of archaeological finds and cultural features help to inform the oral traditions collected from the Kirfi region. Tudun Dangawo, unwalled and by the river, yielded no evidence of permanent architecture, and on the limited basis of just one date does not appear as old as oral traditions had suggested. Kirfin Sama Hill evidenced the long-term build-up of a midden, which shows evidence of diverse economic activities such as textile working and feasting but no evidence of kingship and royalty. The data from Kagalan on the other hand fully fits with the modern Kagalan's reputation as a potting centre, through the archaeological recovery of a probable potters' workshop.

In view of the recovery of artefacts and faunal evidences from the excavations, it remains now to see what the analysis of the finds from these three trenches can tell us about their occupations, in the next chapters.

CHAPTER SIX: POTTERY

6 Introduction

This chapter presents the ceramic material recovered from the archaeological excavations carried out at three Kirfi sites in 2011. The aim is to provide the first ceramic type-series for this region, using ceramics as a tool for locating social and technical variation between settlements and people. The importance of pottery to archaeologists working in West Africa cannot be over-emphasised (Connah 1981, David *et al.* 1988, MacEachern 1994, McIntosh 1995, Gronenborn & Magnavita 2000, Haour 2008). Ceramic materials were widely used in past settlements, they survive well, and they can provide us with valuable knowledge about the technology, and social and economic organisation of their makers.

My ceramic analysis involved four processes; sampling, documentation, classification and analysis. The essence was the consistency in the treatment of sherds tracking the formal and non-formal properties and allowing flexible sorting of data to seek out any correlations between variables. Here attributes are recorded following, for instance, S. McIntosh (1995), who developed a typology for the pottery from Jenne-jeno.

During the Kirfi work every sherd, large or small, was collected and recorded during excavation thereby giving us quantitative data. But since analysis of the total assemblage would have been wholly impractical, a selection was made based on size. The collection of ceramic materials was purposive, whereby potsherds were sorted into different categories. Decorated potsherds above 28cm, and rims, as diagnostic samples, were transported to UK for analysis on an 'Export Certificate for Cultural Objects No 541', from the National Commission for Museums and Monuments, Nigeria. Non-diagnostic sherds were counted and information concerning their size and shape was recorded; these sherds were then included in the backfill at the end of the excavation. As discussed later, sherds are defined as decorated when the body surface shows intentional modification by way of impressions, or incisions, or the addition of substances such as paints or clay. Plain sherds show no such modification. In this text, it should be noted, the term 'undecorated' is used to refer not to plain sherds, but to the plain portion of decorated sherds which are not decorated overall.

Although rims of all sizes were exported for analysis, upon a closer sorting in the UK I realised that only rims with length above 5cm could be reliably analysed for shape and at this point I set aside rims under 5cm in size.

6.0 Presentation of assemblage

The excavations yielded a total of 6416 pottery sherds from the three sites. This comprises 261 rim sherds and 1364 decorated sherds and 4791 plain sherds.

	TDG	KSH	KGL	Total
Plain	1127	1329	2335	4791
Diagnostics	419	455	751	1625
Total	1546	1784	3086	6416

Table 6: Distribution of pottery based across all sites: Total sherds number 6416.

6.1 Methodology used for analysis

The assemblage considered here consists of 6416 items. This can be split into two classes: firstly rims and decorated sherds (diagnostics, or feature, sherds), and secondly plain sherds. The first group contains rims of above 5cm and decorated sherds also above 28cm in diameter. The second includes all plain sherds (irrespective of size), counted for quantitative reasons and information about attributes.

Basic trait information such as sherd thickness, colour, fabric, and surface finishing were collected for all diagnostic sherds, while in addition for rim sherds rim angles and thickness at 3 points were recorded to allow a reconstruction of sherd profiles.

Classification into rim types involved the examination of curvature from the point above the neck until its termination at the lip. A diameter chart was used to record mouth sizes at the rim. Above all, I have recognised the need to reconstruct vessel shape from a geometric perspective, as discussed by Shepard (1985: 225-227). The shape classification here utilises vessel proportion and contouring as for understanding pottery forms because it is easily calculated and understood in comparison to ratio, where the naked eye can characterise and define four areas of analysis; end point (of the curve at base and lip), inflection points (where a curve changes from convex to concave, or concave to convex; at which a curved line is joined by a straight one; or at which a straight line changes direction'), corner point (a radical change in contour) and point of vertical tangency (point of maximum diameter).

Orton *et al.* (1948) and Lawton (1967) realised the need to standardise approaches in defining pottery forms and developed scheme to assess pottery on the basis of these morphologies.

6.1.2 Diagnostic sherds

The diagnostic sherd assemblage numbered 1625 items.

Diagnostics	TDG	KSH	KGL	Total
Rim	72	87	102	261
Deco	347	368	649	1364
Total	419	455	751	1625

Table 7: Distribution of diagnostic sherds across all sites.

6.1.3 Introducing Sherd attributes

Seven major data attributes necessary for the understanding of pottery forms and characteristics were exploited for the purpose of this research. Each sherd was examined in view of the following physiognomies;

1. Context (sherd ID, site and depth)
2. Part of the vessel (rim , base or handle) – additionally for rims, type, diameter, and angle
3. Thickness
4. Decorative motif
5. Fabric (texture and inclusion)
6. Colour
7. Surface finishing (burnishing & red slip)

6.1.4 Setting out basic terminologies and definition of other attributes

The analysis recognised every sherd in terms of its basic identification number containing site code, year of excavation and its stratigraphic depth, built into the database. This analysis utilised a Microsoft Access database developed jointly by Jeremy Bartholomew IT programmer of the Robert Sainsbury Library, (UEA) and myself. Attributes recorded during the ceramic analysis were entered into this database, which was then used to return results based on queries along relational attributes.

6.1.5 Classification based on Part of the Vessel

The research works on the principle that any pot contains four basic components; the rim, the body (including the shoulder), the base and sometimes the auxiliary handle.

Rim

Rim types were defined using a correlation of rim shapes, diameter and angle. Rim angles were measured using the method outlined by McIntosh (1995) for the Inner Niger Delta (see figure 84). The major limitation encountered was due to the fact that Kirfi pot-lids are reversed in relation with the Inland Niger Delta-types. The Kirfi type lids are bowl-like and are placed in upright position with an erect handle at the centre of the lid, unlike the Inland Niger Delta examples that are turned upside down. Rim is vital to reconstructing a probable complete pot, in line with systems adopted by other scholars (McIntosh 1995, Haour 2003, Wendt 2007).

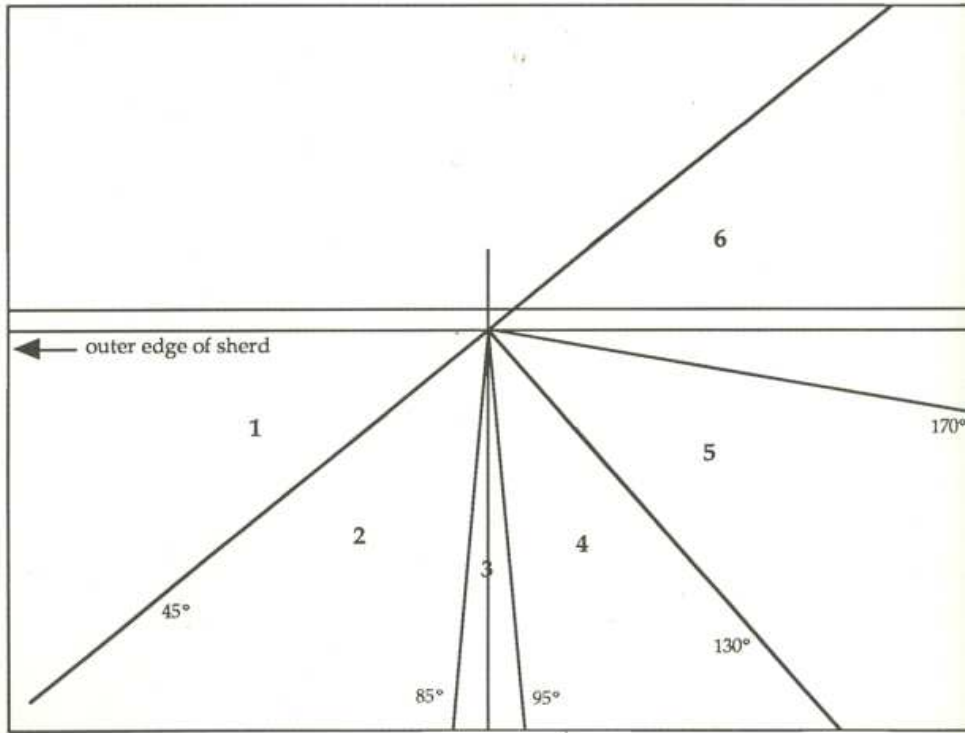


Figure 85: Chart for the determination of rim angles (Source: McIntosh 1995: fig. 3.6)

6.4.1 Description of assemblage

A total of 261 rim sherds were studied from across the three sites. A total of 7 major groups were identified, namely; S (simple), C (carinated), T (T-Rim), K (Thickened-Out), L (Lamp), E (Everted) and D (Lids). Further subdivisions into 19 categories were also made (Figure 85).

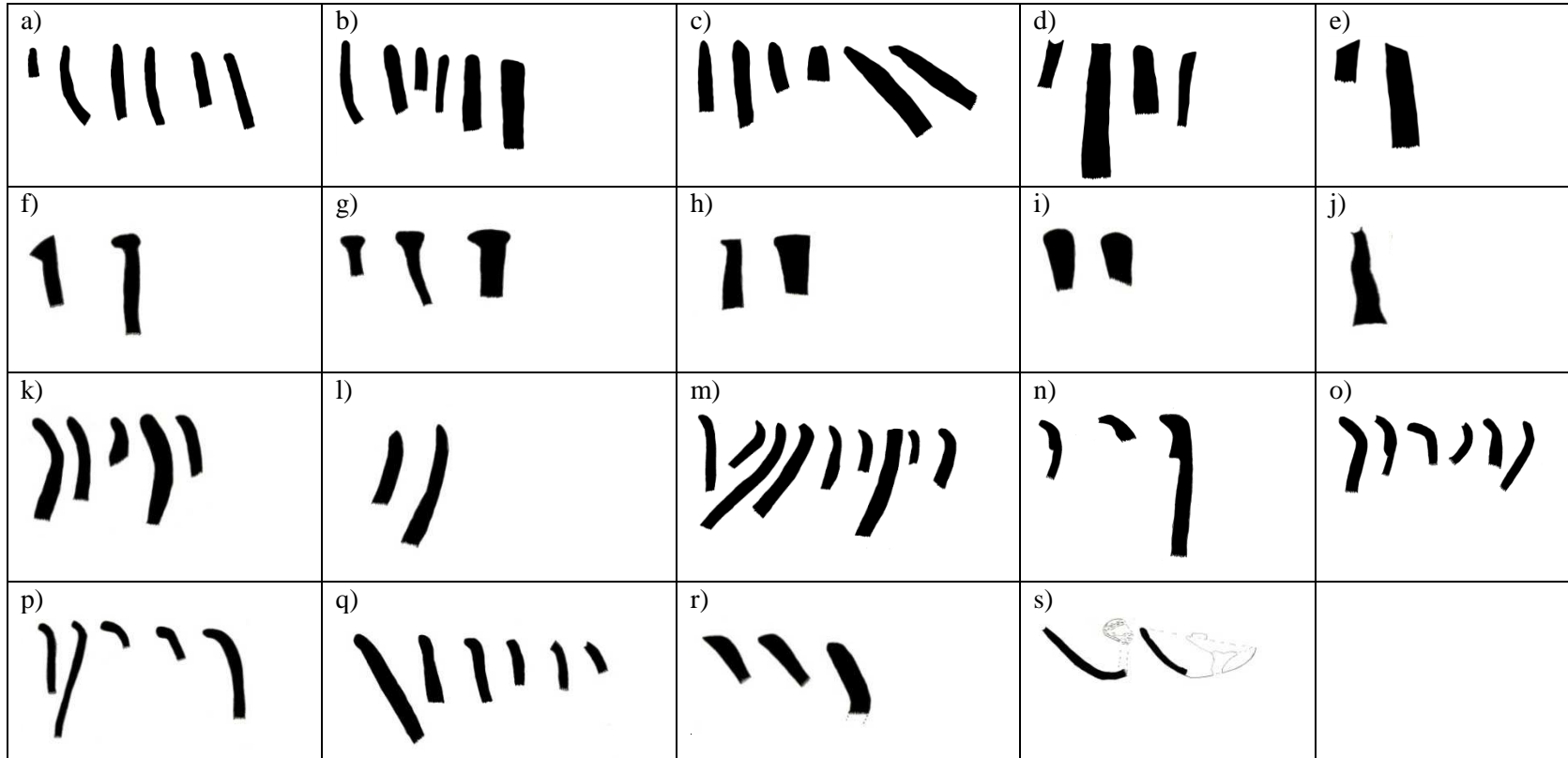


Figure 86: Rim Types from Kirfi sites (Not to Scale): Top Row: Simple rims (Group 1) a) S1 b) S2 c) S3 d) S4 e) S5

Second Row: Carinated rims (Group 2: f), T-rims (Group 3: g), thickened-out rims (Group 4: h and i), Lamp (Group 5: j)). Third Row: Everted rims (Group 6: k) E1 l) E2 m) E3 n) E4 o) E5)

Bottom Row: Everted rims continued (p) E6 9) E7 r) E8) and Lids (Group 7: s) D1)

Group 1- Simple: (Open rim vessels) – 90 sherds

These rims range in angle between 90-180^o, open mouth unrestricted vessels.

S1:

A total number of 15 sherds fall under this category, with rim angle ranging between 90 - 180^o. They are open vessels with a rounded lip, and 20% out of the group possess groove-like stampings below their lip while others show traces of paint. One sub-type (d) also has incision on its lip, possibly intentional. But up to 80% of this vessel type consists of plain sherds. This form is a typical neck-less bowl with a near straight profile. Similar rims are common in published assemblages from sites relatively close to Kirfi. They occur at Samaru West, Zaria (Effah-Gyamfi 1981, fig. 3-from F) and also fig 4c from Tsauni, Zaria, Category F at Kufan Kanawa (Haour 2003, Fig 7. 16).

S2:

Eighteen sherds constitute this category. This is a fairly straight rim with 15 sherds (a-f variants) also having rounded lips while 3 possess relatively flat ones. One has an incision run on its lip perimeter, another 3 with lip stamping. The angle of these rims is close to 90^o, which distinguishes this group from S1 which they otherwise resemble. A sherd from Samaru West resembles this form (Effah-Gyamfi 1981, Fig 3-2g).

S3:

This group comprises of tapered lips but majority with characteristics of slight tapering-out in the uppermost side of the rim. A total of 30 rims with 3 variations constitute this group. The group contains rim mainly of angle of 90^o (near vertical) but also includes a variant with nearly 170^o (wide mouthed). One lip bore incisions or stamps (band of 8). They have near absence of slip finishing and resemble the local eating bowls (*Tukunyar chin tuwo*) used today. They are large, ranging between 25-30cm, and typically about 2cm thick, which is consistent with a need to preserve the warmth of cooked food.

S4:

Twenty three sherds constitute this group with most at angles of 90^o, but also a group at 130^o (c & d class) also feature. They are upright, basically flat lipped, and the greater majority have deep channels/grooves on the lip. Out of these sherds only one has an impressed decoration. Sherds are highly compacted, and usually with no other decorations than the grooves on the lip. They are generally poorly burnished or not at all. We have upright and slim thickened sherds with wide mouth diameter. Here lip and profile morphology is a basis for further sub classification as a distinct group from the other simple type.

They have thinner upper parts; where Sub-Type A is prominently with depressed rim/lip, 'b' sharp angular rim, 'c' raised exterior lip rim and 'd' inwardly raised lip (inverted). Type 44 at Jenne Jené is similar to this group (McIntosh 1995).

S5:

This group involves sharply tapered rim sherds. These are upright sherds with two opposing sharp tapering that are represented by the drawn sherds. Only four specimens were recorded. These can be classed functionally as bowls.

Group 2: Carinated sherds

These are perhaps bowls. They are defined mainly by huge amplification of ledged-out bands, being part of the rim.

C1

Only two sherds fall within this category. Both are ledged-out conspicuously with 'a' being completely flat in the interior, while the type 'b' protrudes a little inside. This item is highly compacted with a seeming good finishing.

Group 3: T-Rim

T1:

Only three sherds fall into this category. It involves flat-topped lips, protruding on either side of the rim giving it a T shape. Angles are within 90-130° range, similar with rim type from the Méma in Mali is fig. 6.3:7 (Togola 2008) and Type 5 at Jenne Jené (McIntosh 1995).

Group 4: Thickened Out-Turned Rim

K1:

This group contains just three sherds. They are flat-topped to the extent that they will stand if placed upside down, with sharp angular ends at the interior but extended outward, unlike the K2 group that are curved.

K2:

Two sherds fall into this category. One falls into rim angle 90° and the other nearly 130°. They have oval angle and less pronounced angles at the lip than do the K1 sherds. They are all very thickly bodied.

Group 5: L-Type

L1:

Only a lone example of this category exists. Its complex base and the rim typically suggest *Fitilan kasa* (incense burner). It may range between 85 – 130°, was difficult to be more definite because the item was small and has a radical curvature at its base. It is similar in character to be a clay lamp described from the Yoruba region of Iloja in southern Nigeria (Ogundiran 2002: 118), which used Shea-butter as fuel.

Group 6: Everted Category

E1:

Thirty seven sherds make up this group. They are gently everted with usually elongated rim morphology. A modern analogue might be the *Tukunya Tuwo*, (used for cooking millet-corn meal). Sub-class 'A' are observed to be blackened conceivably suggesting a cooking use. A similarity exists between this group and Category A at Kufan Kanawa, Niger (Haour 2003: 98).

E2:

This group of 7 rims resembles E1, but it has upright looking pointed rim. They range between 45 – 130°. They have large thick bodies. Compared to E1, they have more sharply pronounced contours.

E3:

Forty sherds belong to this group. They have more pronounced angles at the exterior than do E1 & E2 at the exterior. They have restricted mouths and resemble the modern water jar (*randa*) for storing water.

E4:

This class features a sharp external eversion which follows extended rim lips, and are extended and stand if placed in an upside down position. The Neck/Shoulder is usually thicker than in preceding rim categories. There are 5 sherds here and all range between 130-170° angles. All have overhanging elaborations and probably represent another jar type.

E5:

Fourteen sherds belong to this group. They also have a significant eversion with a longer and straighter rim region than E4 above. They have incision on lip character with a flattened upper arm of the rim. Some of fig. 85: m-3d is similar to Tsauni type rim (Effah Gyamfi 1981: 63). Category E identified at Kufan Kanawa, Niger (Haour 2003) resembles this group.

E6:

This is a deeply curved or (sharply) everted rim, often with a short lip. Twenty-three sherds represent this group, with 'a' highly dominant with 19 items.

E7:

This category contains 22 sherds. They have a tiny lip, because of a noticeable degree of eversion at the rim lips. The group 'a' is large, while 'b' is near upright but also fine ware. Form 2c at Tsauni resembles this type (Effah-Gyamfi 1981)

E8:

Six sherds are enumerated in this category. They have a faintly everted rim, with a near flat narrow pointed lip. Its interior is sharply tapered and near flat exteriorly. The 'b' type is blunt lipped-tip. Fig 4b & c from Tsauni in Zaria (Effah- Gyamfi 1981) and fig 6.2:15a from the Méma (Togola 2008: 46) is similar to this type.

Group 7: The Lids

D1:

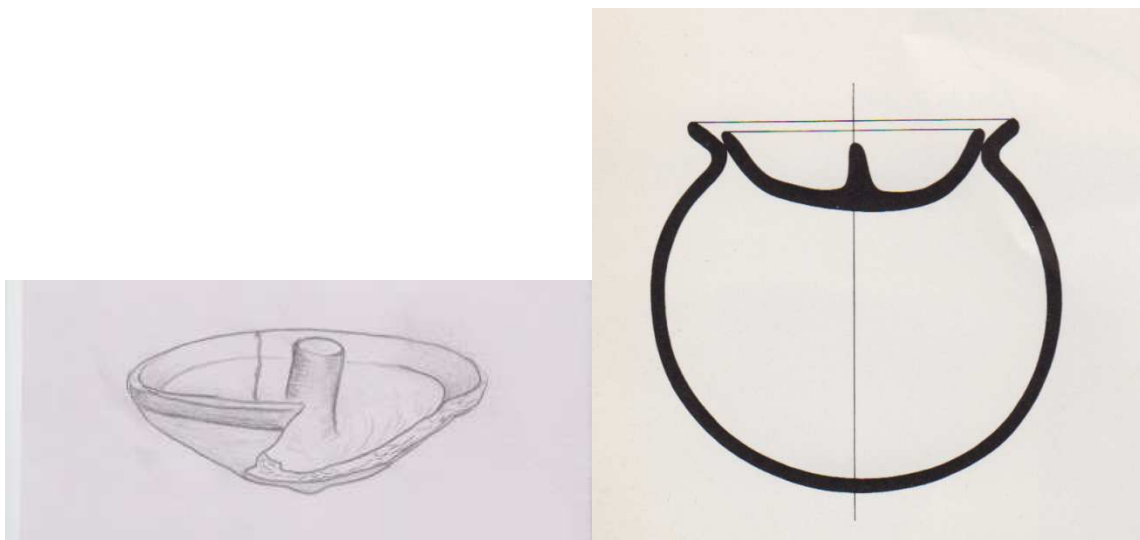


Figure 87: The D-type pot lid (right: a scheme showing a pot lid from Northeast Nigeria - Source Leith-Ross, 1970)

This category includes 6 items and appears like a bowl with its handle built into the inner centre of the vessel to support grip. It seemingly functioned as jar or pot stoppers. Leith-Ross (1970:38) illustrated a concave pot lid closely resembling D1 and reported to be widely in use by groups such as Bolewa, cousins of the Kirfawa in the northeast of Nigeria.

6.4.2 Vessel distribution

The chart below shows the occurrence of the various rim types through the various levels at the three sites.

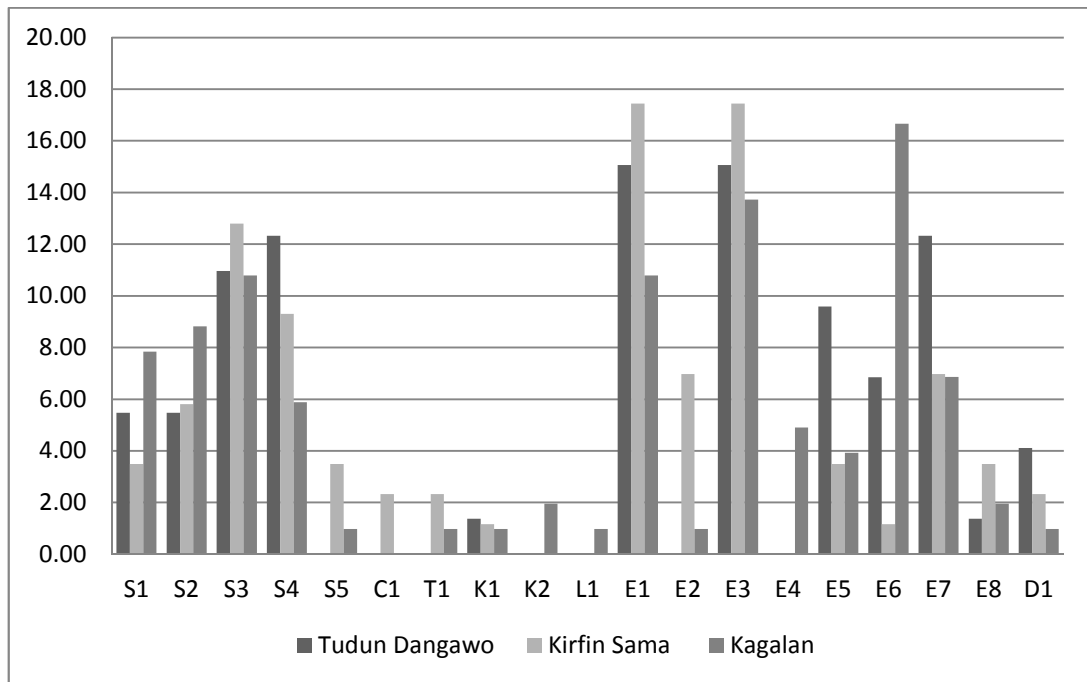


Figure 88: Occurrence of rim types at all sites. The vertical axis represents percentages.

TDG	S1	S2	S3	S4	S5	C1	T1	K1	K2	L1	E1	E2	E3	E4	E5	E6	E7	E8	D1	Total
0	2	1	2	2							2		5		5	3	2			24
20		1	1	2							1		5		1	2	2		3	18
40	1			1				1			1		1				1			6
60		1	2	1							6						4			14
80			3	3														1		7
100																				0
120	1	1									1				1					4
Total	4	4	8	9				1			11		11		7	5	9	1	3	73
%	5.48	5.48	10.96	12.33	0.00	0.00	0.00	1.37	0.00	0.00	15.07	0.00	15.07	0.00	9.59	6.85	12.33	1.37	4.11	100
KSH	S1	S2	S3	S4	S5	C1	T1	K1	K2	L1	E1	E2	E3	E4	E5	E6	E7	E8	D1	Total
0		1	5		1		1				4		4		1	1	2			20
20				2	1						2	1	5						1	12
40		1	2	3			1					3	1		1		1	1		14
60		2	1	2				1			4	1	2				1	1	1	16
80	3	1	1	1	1	2					4	1	3				2	1		20
100			1								1				1					3
120			1																	1
140																				0
Total	3	5	11	8	3	2	2	1			15	6	15		3	1	6	3	2	86
	3.49	5.81	12.79	9.30	3.49	2.33	2.33	1.16	0.00	0.00	17.44	6.98	17.44	0.00	3.49	1.16	6.98	3.49	2.33	100
KGL	S1	S2	S3	S4	S5	C1	T1	K1	K2	L1	E1	E2	E3	E4	E5	E6	E7	E8	D1	Total
0											2	1				2	2			7
20	1	2		4							1		5	3	2	4	2			24
40	7	4	11	1	1		1	1	2	1	6		9	2	2	10	2	1	1	62
60		1		1							2					1	1	1		7
80		1																		1
100		1																		1
120																				0
Total	8	9	11	6	1		1	1	2	1	11	1	14	5	4	17	7	2	1	102
%	7.84	8.82	10.78	5.88	0.98	0.00	0.98	0.98	1.96	0.98	10.78	0.98	13.73	4.90	3.92	16.67	6.86	1.96	0.98	100
G. Total	15	18	30	23	4	2	3	3	2	1	37	7	40	5	14	23	22	6	6	261

Table 8: Occurrence of rim types at all sites by level. The % row shows the proportion of each rim type at each site, all levels confounded.

Some general comments can be made on the distribution of rim types between sites.

Tudun Dangawo site: This site is dominated by the use of everted rims (60.28%), presumably representing pots and jars, with bowls constituting the remainder. Table 1 gives an idea of vessel distribution, where types S5, C1, T1, L1, E2, E4, are completely absent, and K2 and E8 make only isolated appearances. However it witnessed a visible use of D1 (lamp), during the period of level 20cm occupation. The younger levels show the dominant overall ceramic product of the settlement as E1 (15.07%), followed by S4 and E7 (12.33% each).

Kirfin Sama Hill: This settlement utilised most of the ceramic types reconstructed in the region except for three (K2, L1 and E4). The most popular vessels of this settlement were pots and jars E1 and E3, each accounting for 17.44%, respectively) followed by bowls S3. From 80cm upwards one witnesses apparent diversification and intensification of wares.

Kagalan site: This settlement has a deeper and longer time depth for pots of E3 and E6 type with 30.4% of the overall consumption at the settlement. Bowls S3, S2 and S1 follows in terms of preferences, but with an indication that S1 is an earliest choice commodity visible since level 100cm and continued until the uppermost level. There is a great variety of rim types at this site; only carinated ware is totally absent.

In the analysis of rim usage over time, we are hampered by the small numbers issued from the lower levels. It is however possible to say that Kagalan made or used a greater variety of morphological types than did the two other sites. Data about lids are usually scarce in archaeological sites, but they are present at all the settlement sites. Tudun Dangawo is noted to be the most constrained in terms of wide options for lids, Kirfin Sama Hill have shown a consistency and prevalent vessels throughout periods of occupation.

6.4.3 Classification of Handle Types

The classification was into two groups; body-handle and handle only. That is to say, a differentiation was made depending on part of the body survived with remnant of handle, or solely the handle. Handles are scarce compared with the overall number all sherds observed at all sites. H3 is obviously popular and is represented at all sites, followed by H2a. H1 is present at Kirfin Sama Hill and Kagalan and absent at Tudun Dangawo while H2b is absent at Kagalan but present at the two other sites.

TDG	H1	H2a	H2b	H2c	H3	G. Total
0		1	2		1	
20					1	
40		1			1	
60						
80						
100						
120				1		
Total		2	2	1	3	8

KSH	H1	H2a	H2b	H2c	H3	G. Total
0	1					
20			2			
40	1					
60			1	1	1	
80		1				
100	1	1				
120						
140						
Total	3	2	3	1	1	10

KGL	H1	H2a	H2b	H2c	H3	G. Total
0		1			2	
20		5			2	
40	3	7		2	6	
60		1			1	
80		1				
100		1				
120						
Total	3	16		2	11	32
G. Total	6	20	5	4	15	50

Table 9: Distribution of handles types across sites

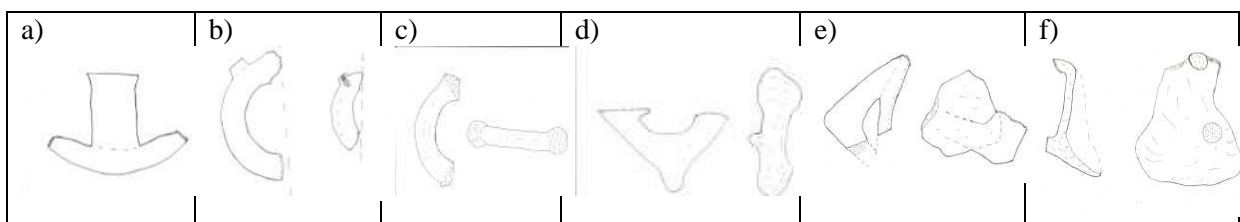


Figure 89: Handle type from Kirfi sites: a: H1, b: H2a, c: H2b, d: H2c, e: H2c & f: H3 (d & e are sub-classes of the same type)

H1a: Six sherds were counted of this lid-handle type. The group have remnants of the body but its major attribute is the upright or slightly slanted upright rounded handle, presumably once fixed at the

centre of the vessel. The range of the handles height is 25mm-45. Clearly these can be connected with rim category D1.

H2 (a-c): This class includes all the variably curved/rounded (V, Y and U) shaped handles that are mounted as pot handles as described below;

H2a: This subgroup numbering 20 are relatively small in size, although all rounded in shape. They are described as vertical type and were fixed at one side of the ware. They usually have relief feature at one end which are elongated up interpreted to be upper end of the handle. The thumb is meant to press it as support while the vessel body is carried or the content is poured out.

H2b: Items in this sub-group are rounded in shape and in orientation. They are slightly curved and seen in ethnographic practice to occur and made to be placed horizontally at two ends of the bowl such as *Kaskon wuta*. They are evenly curved with no sharp bend. Five samples recorded.

H2c: These 4 handles are roundish but are V shaped and they fall under the horizontal category, because according to ethnographic parallel they are placed at two ends of the upper part of the pot to assist in carrying the vessel. They are large in size associated with large *Kaskon Wuta* (ceramic fire place). Size is used as a distinguishing criterion between this class and H2a as they are 'Y' shaped in outlook. We recorded four samples here.

H3: This group contains 11 body/handles, where the body displays the handle break sometimes surviving to a degree of length. It is believed that the handles were fixed to carry the body of the vessels as opposed to H1 above. Group H3 contains attributes such as relief that are present in H2a but are either there in H2a, or here broken or not complete to be fully assessed.

From ethnographic information a vertical handle is usually for fairly light vessels such as kettles or beakers, while a horizontal handle is placed at the two ends of the body circumference with the size or volume of vessel in mind. The latter is well studied in modern Kirfi tradition. The distribution of the handle types in archaeological terms has significantly shown that H3 is the dominant handle system for all the three settlement sites followed by H2a and H2b. This would suggest the use of bowls, less frequently pots, but also of jugs and kettles.

6.5 Characteristics based on sherd thickness

For the purpose of categorisation of sherds into types based on thickness, measurements were taken for body sherds at two points, whereas three measurements were taken for rim sherds; near the tip of the rim, at the middle section and at the lowest part of the sherd. These give an average size that enabled characterisation into; thin (3-6mm), medium (7-9mm), thick (10-12mm), and very thick (>13mm) sherds.

On the basis of initial assessment, medium sized pottery occurred most frequently in the Tudun Dangawo assemblage, followed by thick pottery sherds, with very thick least common. On the other hand, Kirfin Sama Hill shows thick pottery in near same prevalence with medium sherds. Thin sherds potteries are in the minority. Kagalan however showed a very high percentage (double) of medium pottery, followed in number by thin pottery. Very thick wares are very much a minority, as was the case at Tudun Dangawo. These characteristics indicate that the medium sized wares are preferred at all three sites, followed by the thick bodied wares. It is notable that level 40cm included a high proportion of thick vessels.

The assemblage from Kirfin Sama Hill utilised more thick sherds than the other sites. The ceramics generally show some level in the specialised use or production of medium thickness, although there is a noted utilisation of thin bodied wares.

6.6 Characteristics based on fabric (texture and inclusion).

Microscopic examination of the cross section of the ceramics has revealed the mineral presence of quartz, mica and sand grits of varying sizes and degrees and also a lower frequency of organic materials. Some of these materials have been added for functional reasons as observed in the potting practices in Kirfi today, to improve plasticity. Organic materials are rarely used in the making of pots today, but the burnt impressions on the walls of some archaeologically recovered specimens suggest that they were used in the past, although no definite conclusion yet can be made on their specific composition.

The microscopic character of fabric confirms to a certain extent an initial hypothesis, developed after the ethnographic observations of pottery making, that potsherds were sometimes ground and put again into clay preparations in southern Bauchi area. Sand rich in quartzite, silica were seemingly used as well in the improvement of clay conditions, as shown by XRF elemental analysis (see K₂O & SiO₂ at table 19). Admittedly silica presence can be due to its presence in the primary soil sources than intentional inclusions.

The characterisation of fabrics into six types is based on the texture of the material composition distinctive due to the presence of organic or inorganic constituents as follows; fine inorganic, medium inorganic, coarse inorganic, and on the other hand fine organic, medium organic, and coarse organic. Sand grits containing the broken rock materials added usually defined the texture.

TDG	Fine-Inorganic	Medium-Inorganic	Coarse-Inorganic	Fine-Organic	Medium-Organic	Coarse-Organic	Totals
0cm	13	74	44	3	2	2	
20cm	20	52	16		2		
40cm	8	41	4	1		1	
60cm	15	56	15		2		
80cm	2	12	5		2	2	
100cm	1		1				
120cm	6	13	4				
Total	65	248	89	4	8	5	419
%	15.5	59.2	21.2	1.0	1.9	1.2	100

KSH	Fine-Inorganic	Medium-Inorganic	Coarse-Inorganic	Fine-Organic	Medium-Organic	Coarse-Organic	
0cm	2	50	28	1		3	
20cm	6	38	23		1	6	
40cm	4	25	22			1	
60cm	8	56	24		1	6	
80cm	6	46	22		1	2	
100cm	4	38	13				
120cm	1	10	2				
140cm	0	4	1				
Total	31	267	135	1	3	18	455
%	6.8	58.7	29.7	0.2	0.7	4.0	100

KGL	Fine-Inorganic	Medium-Inorganic	Coarse-Inorganic	Fine-Organic	Medium-Organic	Coarse-Organic	
0cm	18	54	7	0			
20cm	77	134	15	2	3	1	
40cm	180	156	12	5	3	1	
60cm	16	33	2	1	1		
80cm	2	5	2				
100cm	7	8	4				
120cm	1	1					
Total	301	391	42	8	7	2	751
%	40.1	52.1	5.6	1.1	0.9	0.3	100

Table 10: Distribution of sherds based on fabric

Tudun Dangawo

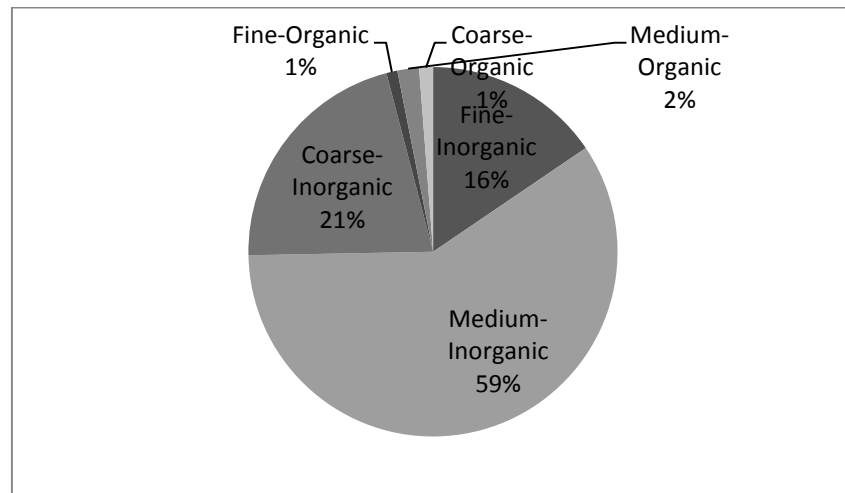


Figure 90: Fabric composition at the Tudun Dangawo

The majority of pottery at this settlement optimally used medium sized non-organic inclusions to manufacture pottery, followed by the coarse inorganic materials. Organic materials overall formed only a negligible 4% of the traditions and organic fabrics are wholly absent in the lower part of the sequence (Table 6).

Kirfin Sama Hill

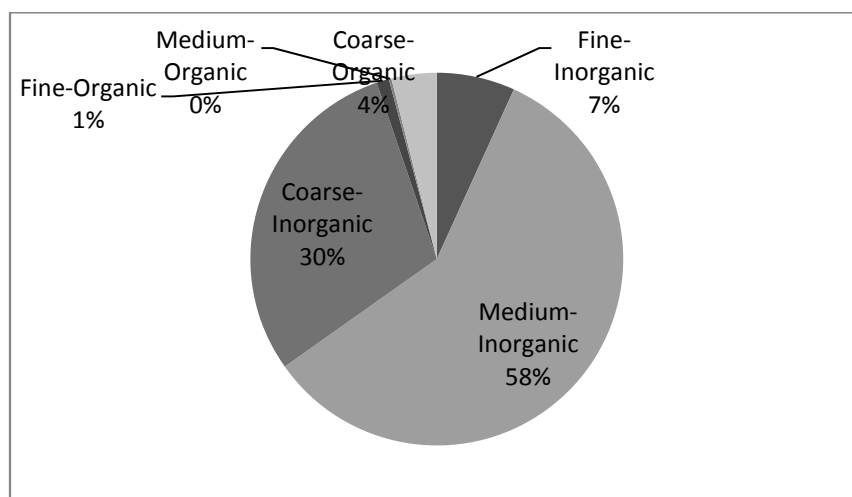


Figure 91: Fabric composition at Kirfin Sama Hill

Reminiscent of common fabric type at Tudun Dangawo, this settlement nearly absolutely preferred inorganic tempering, first either the dominant medium or the relatively evidenced coarse because, finer inclusions are only rare with 7% occurrence. Only a total of 5% use of organic tempering is observed which have not demonstrated to signify any peculiarity of pot type or even function so far.

The oldest parts of the sequence evidence no use of organic inclusions and higher rate of use of coarse organic (4%) tempering than all the other sites.

Kagalan

The site shows different pattern of fabric to the two other sites. Though medium inorganic was the principal fabric character of the potters, finer tempering was preferred than the coarse grained noted alternatively elsewhere. The proposed potting manufacturing context at level 40cm dated to 316±27bp has displayed unambiguous evidence of use of finer fabric as oppose to the general traditions observed in the sequence of fabric event. The dominant use of medium inorganic materials noted generally was not the case at level 40cm anymore, but as an only alternative for the ceramic users or makers.

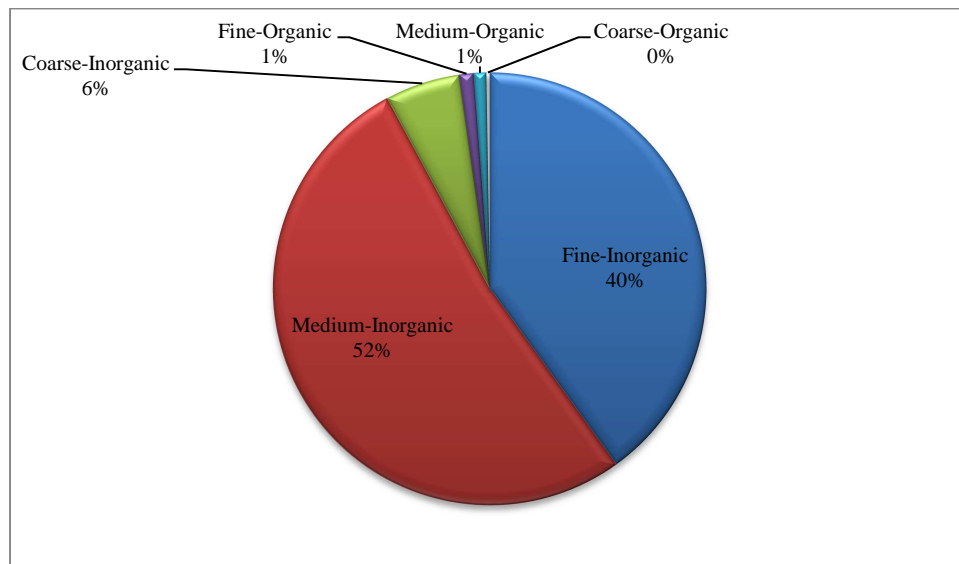


Figure 92: Fabric composition at Kagalan

Organic tempering was insignificant at about 2%, less than all the other sites. The levels from the earliest 120cm up to 60cm display a total absence of organic tempering of whatever texture.

Sites Comparison on the basis of on fabric

It is worth observing that all the sites show very low frequency of organic tempered wares and remarkable total absences of that attribute at all the lowest excavation levels across the three sites (TDG100-120cm, KSH120-140cm & KGL60-120cm). Tudun Dangawo and Kirfin Sama Hill share similar traits in the maintenance of fabric tradition, Kagalan was at odds due to higher culture of finer texture materials.

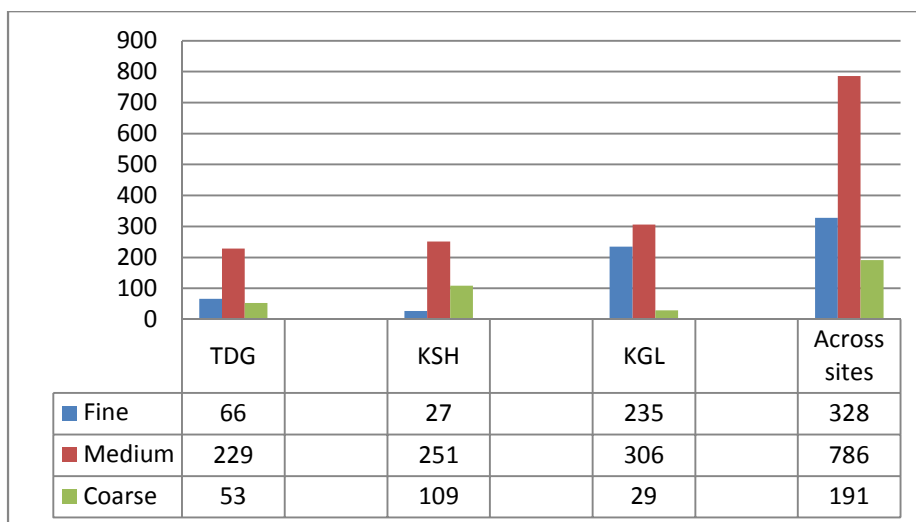


Figure 93: General site fabric distribution figures (figures for organic + inorganic combined).

On the basis of fabrics the Kagalan site shows specific shifts between levels 40 & 60cm where there was a marked change from the normal trend as shown by the artefacts (see table 10). By and large we can clearly see broader consumption frequency favouring inorganic materials of medium texture, likely with qualitative parallels from the modern potters to aid our understanding of the situation.

6.7 Characteristics based on colour

Treatment of colour as an essential element enables the creation of the pottery into four basic classes; brown, orange, red and black. Although variation exists at nearly all levels of excavation (see table 12), the pattern of variation behaviour convince to argue for the source of the pottery clay from local geology of the region.

It is likely that clay constituents, more than firing methods, were determinant in defining group attributes of assemblage. Firing is however also an important attribute in pottery analysis that yields information about finishing conditions. It is not overriding determinant, as Shepard (1956) remarks that colour alone defies full and exact description.

TDG	Brown	Orange	Red	Black	Total
0	50	43	38	7	138
20	39	25	26	0	90
40	31	16	7	1	55
60	54	23	5	5	87
80	8	5	5	5	23
100	1	0	0	1	2
120	13	6	3	1	23
Total	196	118	84	20	418
%	46.9	28.2	20.1	4.8	100

KSH	Brown	Orange	Red	Black	Total
0	44	25	15	0	84
20	54	14	5	1	74
40	30	9	12	1	52
60	62	21	8	4	95
80	62	5	9	1	77
100	41	7	4	3	55
120	10	2	1	0	13
140	4	1	0	0	5
Total	307	84	54	10	455
%	67.5	18.5	11.9	2.2	100

KGL	Brown	Orange	Red	Black	Total
0	59	9	10	1	79
20	130	53	32	17	232
40	203	63	71	20	357
60	37	8	6	2	53
80	6	2	1	0	9
100	12	6	1	0	19
120	2	0	0	0	2
Total	449	141	121	40	751
%	59.8	18.8	16.1	5.3	100

Table 11: Sherd colour at all sites (Total: 1625)

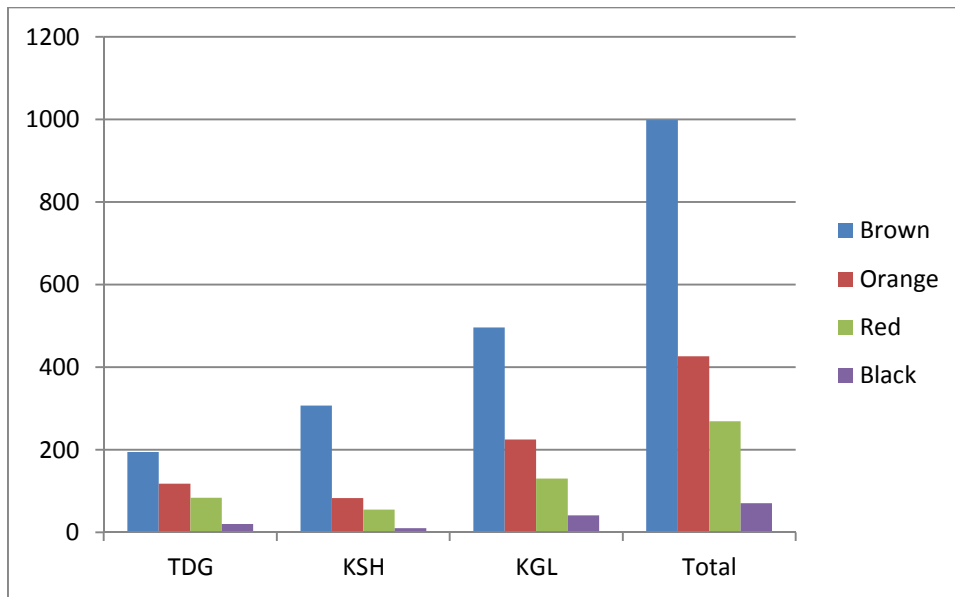


Figure 94: Sherd colour across all sites

Tudun Dangawo

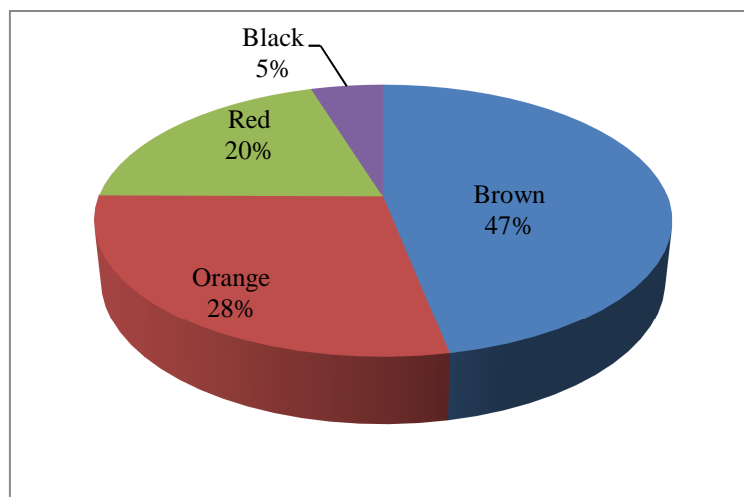


Figure 95: Sherd Colour characteristics at Tudun Dangawo

The samples from Tudun Dangawo show a consistent predominance of brown sherds. Orange follows but there is indication that red colour wares are equally preferred being the next numerous with orange almost throughout the site occupation with exceptionally low level of black wares (5%), except at levels 80 that shows orange as dominant colour.

Kirfin Sama Hill

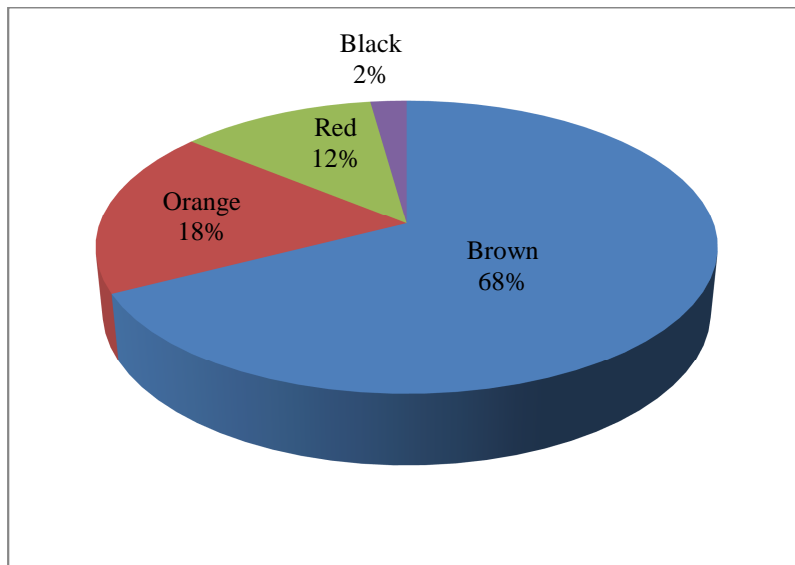


Figure 96: Sherd Colour characteristics at Kirfin Sama Hill

The characteristic behaviour of the Kirfin Sama Hill sherds maintained a similar pattern observed at Tudun Dangawo but with brown markedly dominant (28%), followed by orange at 18%. While the site has used only fairly little red especially at levels 40cm and 80cm when the rate of red was second only to the brown. Black sherds are a minority throughout.

Kagalan

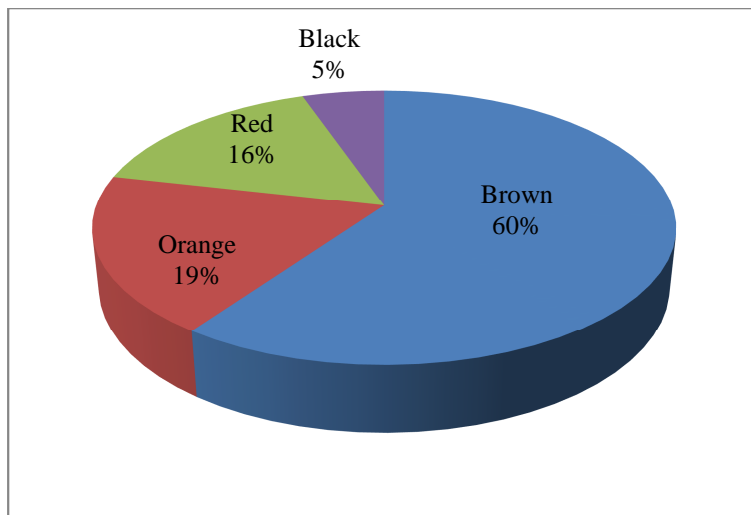


Figure 97: Sherd Colour at Kagalan

Use of brown was the ultimate preference here as well with a 60% representation of the colour element. There is a relative balance here in the distribution of orange and red wares with black being far less prominent.

Comparison of sites based on colour

The use of colour as a criterion for classification is to be treated with caution, in view of the effect processing (atmospheric conditions, firing and oxidization) that pottery undergoes in relation to clay composition (Shepard 1956:102-113). On the basis of colour, the three sites show a level of similarity than difference with the consistent abundance of brown fabrics, steadily followed by orange and at a relatively lower density is the red and infrequent use of blackish clay. While the geology of the region is likely a factor in such distribution, as evidenced by the colours of the clays used to make modern pottery in Kirfi area, firing technique likely also impacted on the final visual character of colour. Colour characteristics simply display relative similarities in the distribution of the grouped fabric colour the sherds show. Kagalan provides a general mean average percentage in of all colours except where it has the maximum black colour sherd use. There is no indication of common use of black colour materials for certain wares. Only few variants of S3, E1 & E3 show black, which are suggestive of eating bowls today. Black clay occurs sometimes in isolation near riverbeds (Shepard 1956, Lawton 1967) or results from the oxidisation process resulting from during firing of minerals.

Therefore, this sample of colour pattern tends to agree with traditions for local sourcing of raw materials if we are to work with the soil materials as material constituents influencing colour side by side effect of firing system. Black clay is sourced according to tradition (SG 2011) near the river banks. That explanation however is not sufficient to argue for geological characterisation of this nature. The local situation for clay selection and consumption at the three sites seems to be similar in nature considering the variability patterns observed in the character of the above chart.

6.8 Characteristics based on surface treatment

Finishing entails a number of treatments, such as burnishing and coating by a slip, which is red in the case of Kirfi sites. In view of the low level of knowledge about the archaeology of *Kasar Bauchi* ceramics, this research utilised burnishing as a useful attribute. Indeed it is considered a good diagnostic feature due to the poor visibility in the other relational surface finishing methods to locate variations. It is useful to examine the execution of burnishing at three functional structures of the pottery; inside or outside, inside/outside or a total absence of the burnishing.

Burnishing; to certain extent the context for this finishing may sometimes reveal the function of a vessel. This is observed in terms of display of sort of polish finishing at; internal or external, or combining both inside/outside or even zero level of burnishing in some instances recorded.

Burnishing is achieved once a finished vessel is leather hard and tools used include polished river pebbles, baobab seed beads or a piece of a broken calabash (Lawton 1967, Crossland 1989). Shepard (1956) typically refers to burnishing as polishing for lustre and fine finishing. Wares finished by

evening and smoothing, a process which technically involves the use of hand alone are not technically burnished.

Burnishing						Red Slip					
TDG	In	Out	In/Out	Nil	Total	TDG	Interior	Exterior	In/Outer	Nil	Total
0	38	9	86	5	138	0	7	11	29	91	138
20	17	8	61	4	90	20	3	10	25	52	90
40	17	2	30	6	55	40	1	3	9	42	55
60	29	2	55	2	88	60	7	3	22	56	88
80	6	14	12	3	35	80	6	0	7	10	23
100	0	0	2	0	2	100	0	0	0	2	2
120	5	0	18	0	23	120	2	3	5	11	21
Total	112	35	264	20	431	Total	26	30	97	264	417
%	26.0	8.1	61.3	4.6	100	%	6.2	7.2	23.3	63.3	100.0
KSH						KSH					
In	Out	In/Out	Nil	Total	In	Interior	Exterior	In/Outer	Nil	%	
0	25	1	52	6	84	0	2	3	13	64	82
20	20	4	42	8	74	20	4	3	8	59	74
40	14	0	36	2	52	40	1	3	11	37	52
60	27	4	58	6	95	60	1	6	12	76	95
80	20	2	52	3	77	80	3	6	11	57	77
100	17	2	32	4	55	100	1	3	9	42	55
120	2	0	9	1	12	120	0	1	11	0	12
140	4	0	1	0	5	140	0	0	1	4	5
Total	129	13	282	30	454	Total	12	25	76	339	452
%	28.4	2.9	62.1	6.6	100	%	2.7	5.5	16.8	75.0	100
KGL						KGL					
In	Out	In/Out	Nil	Total	In	Interior	Exterior	In/Outer	Nil	%	
0	28	1	49	1	79	0	2	9	19	49	79
20	64	6	155	7	232	20	17	17	43	155	232
40	91	6	252	8	357	40	28	25	94	210	357
60	18	0	33	2	53	60	0	2	11	40	53
80	4	1	4	0	9	80	0	0	2	7	9
100	10	0	8	1	19	100	0	3	3	13	19
120	0	0	1	0	1	120	0	1	0	0	1
Total	215	14	502	19	750	Total	47	57	172	474	750
%	28.7	1.9	66.9	2.5	100	%	6.3	7.6	22.9	63.2	100

Table 12: Occurrence of burnishing (left) and red-slipping (right) – Total 1624

Burnishing is recognised as an important variability aspect of pottery manufacturing to the modern Kirfi potters whose execution sometimes correlates with red-slipping and with potential to understanding vessel function.

Red slipping; this is the application of liquid red clay suspension on the body of a vessel after drying before firing. Although some potters in Kirfi (AM 2010, HW 2010) see this as decoration, traditionally archaeologists treat it as surface finishing, and is treated here as such. It is defined as a secondary coat of fine clay suspension, used to improve colour, and texture and to render the body of the vessel less porous (Lawton 1967: 19).

Although brown and other dull colours are used, red slipping is the most common technique in Kirfi today. Vessels are in similar manner to burnishing are interrogated in relation to appearance inside,

outside or both as well as when a ware is completely un-slipped as observed in modern pottery production in Kirfi. A cloth mop is used to add layers of the slip until the desired finish is achieved. Polishing which is described by Shepard (1956:66) as a process of rubbing until lustre is obtained typically in both slipped and un-slipped wares comes frequently with slipping. Therefore polishing here refers to burnishing.

Tudun Dangawo

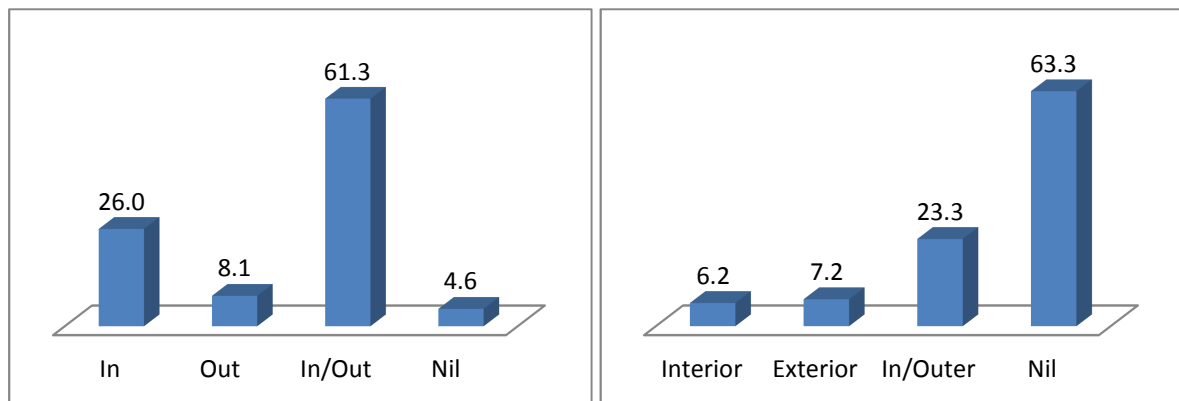


Figure 98: burnishing (left)/red slip (right) at Tudun Dangawo

Throughout the levels excavated at Tudun Dangawo, including an in-filled pit feature dated to 364 ± 25 bp, there was a tradition of burnishing both the interior and exterior sections (61.3%) of their vessels. However there is notable proportion of wares where only interior (26%) is burnished and a limited need for wares where burnishing is witnessed merely at the exterior (8.1%) and a 4.6% of pots completely without burnishing. Level 80cm shows a marked departure from this rule with a greater proportion of vessels that are burnished at the exterior of the wares. The majority of sherds here are not slipped, while the one quarter that are slipped are done both in/exterior of the sherds.

Kirfin Sama Hill

Kirfin Sama Hill too has a high proportion of vessels that are burnished both inside and out (62.1%) followed by those with a fine finished interior (28.4%).

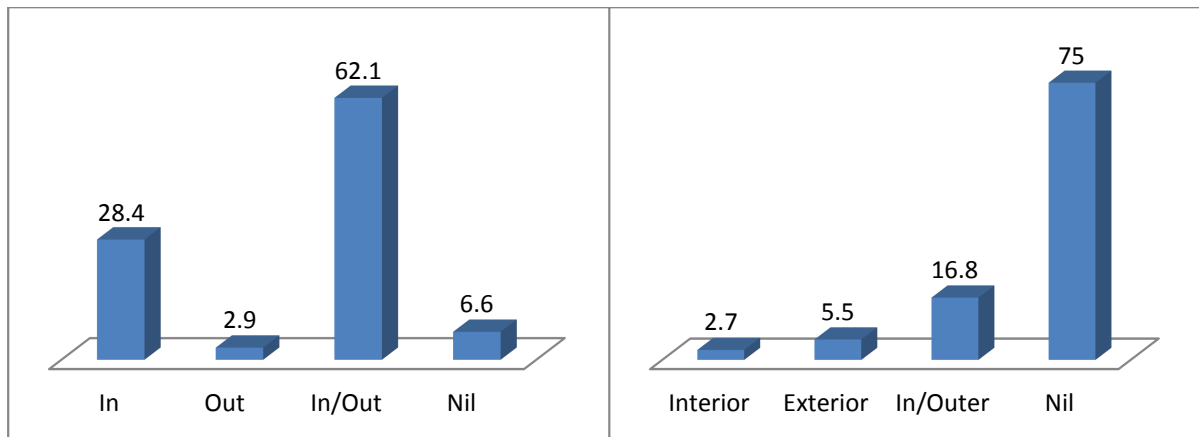


Figure 99: burnishing (left)/red slip (right) chart for Kirfin Sama Hill

Nevertheless the burnishing pattern above was a possible shift from the earliest level of site occupation at level 140cm, when evidence shows instead the utilisation of vessels whose insides (4 sherds) are burnished as against an isolated one (1 sherd) with all sides finely finished. Greater majority of the sherds are without slipping, whereas the tendency exists where they prefer to slip both inside and the outside parts of the vessels.

Kagalan

Here two thirds of vessels used were finished both inside and out. Ceramics with a burnished external surface were very rare (1.9 %), while vessels burnished inside are common.

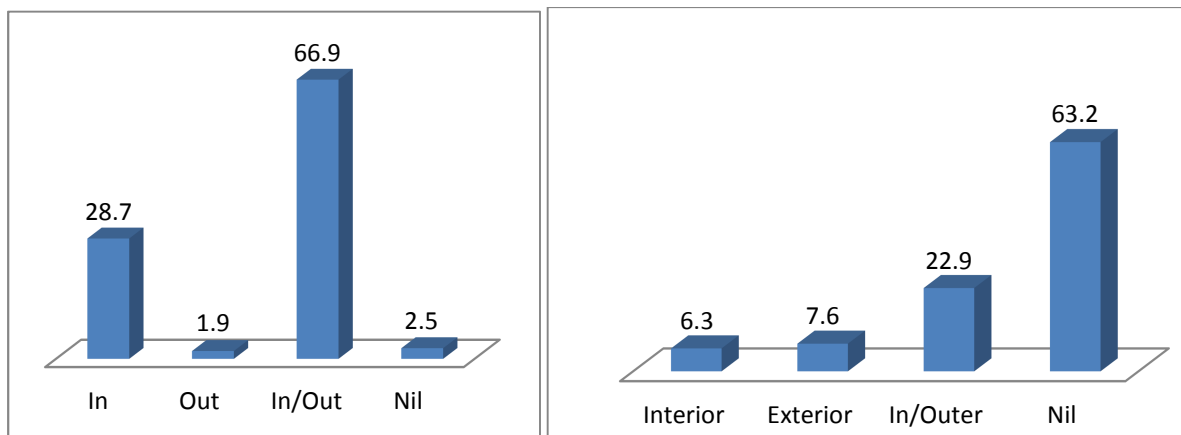


Figure 100: burnishing (left)/red slip (right) chart for Kagalan settlement site

At level 100cm we see a situation unlike what later persisted. The trend was to have the interior of sherds better treated than the both 'In/out' portion of the pottery, even though with a narrow gap. There is no evidence of externally burnished pottery; some isolated sherds occur that are unburnished. When the two thirds of sherds are slipped, preference is also mainly to do both inside and outside of the vessels, but finishing by burnishing is preferred in parallel with no slipping generally.

Comparison of use of burnishing and slip at all sites

On the statistic of this trait of finishing I assume there was greater requirement for burnished products generally, at all the Kirfi sites, with a corresponding lower level of internally burnished wares. Vessels at all three sites are mainly with traditions of no slipping, but with high preference for burnishing in both inside and outside.

Ethnographic information indicates that utilitarian vessels are described generally as requiring burnishing both inside and outside, whereas un-burnished serves a function usually to do with storage than utilitarian use.

An observed phenomenon is when greater percentage of sherds is burnished inside/out which might suggest overriding the necessity to apply slip, considering the 64% wares with no slipping at Tudun Dangawo. But direct observation of the occurrence of the two attributes show that red slip is mainly applied on the interior when it is burnished and so also with the exterior when it is equally slipped, and one sees no slip on either side of the pot when it is not burnished.

The situation at Kirfin Sama Hill is similar to that mentioned above. Burnishing in/out is high with 62%, while red-slipped wares were significantly also many, high numbers stay only with surface being burnished with no slip application. There is a situation where not to require slipping when vessel surface is well burnished. At Kagalan settlement as well, potters liked the choice to finishing wares by burnishing in/out (66.9%), whereas wares up to the 23% are red slipped in/out. But up to 63% of sherds are without any red slip at all, as similarity observed at all the other sites.

6.9 Classification based on decorative motif

The range of decorations studied from the Kirfi sites includes four broad categories: incisions, roulette, applied relief (appliqué), and painting. For range of decorations see appendix 2.

FDG	Roulette	Applique	Incised	Paint	Undec	Others	Indistinct	Total
0cm	114	2	49	14	103	3	1	286
20cm	76	0	32	14	61	3	1	187
40cm	51	1	23	14	31	2	4	126
60cm	90	1	47	16	58	2	3	217
80cm	11	1	15	7	14	1	2	51
100cm	0	0	2	1	2	0	0	5
120cm	30	2	17	11	12	3	0	75
Total	372	7	185	77	281	14	11	947
KSH	Roulette	Applique	Incised	Paint	Undec	Others	Indistinct	Total
0cm	55	1	49	9	48	1	2	165
20cm	54	0	42	8	47	0	2	153
40cm	34	1	24	6	36	1	1	103
60cm	59	1	47	18	60	2	1	188
80cm	50	1	45	12	56	4	0	168
100cm	47	0	24	3	35	1	0	110
120cm	8	0	5	1	11	0	2	27
140cm	5	0	2	0	3	0	1	11
Total	312	4	238	57	296	9	9	925
KGL	Roulette	Applique	Incised	Paint	Undec	Others	Indistinct	Total
0cm	51	2	46	23	32	3	3	160
20cm	99	23	136	103	95	24	2	482
40cm	173	33	219	156	195	34	5	815
60cm	32	4	27	14	25	5	1	108
80cm	4	0	3	2	3	0	0	12
100cm	6	0	13	7	7	0	0	33
120cm	0	0	1	0	1	0	0	2
Total	365	62	445	305	358	66	11	1612

Table 13: Major decorations across all sites. This table lists occurrences of decorations rather than numbers of sherds, and as one sherd can have more than one decoration, numbers differ from the figures in table 6. ‘Undec’ represents zones left undecorated between decorated areas. ‘Indistinct’ refers to sherds which were not plain but where the mode of decoration could not be determined.

Incisions

These decorations are commonly found on the archaeological materials though they are today not favoured by local potters because this technique is described as painstaking compared with rouletting. The category includes incisions proper and channel: in distinguishing these two decorations, I follow the criteria proposed by Ogundiran (2002) on the basis of material from Ilare district in southern Nigeria. Incision includes lines performed by dragging knives, thorns, sharp sticks and other sharp pointed instrument with a V-sections making a line less than 2mm thick. Grooving, sometimes referred to as channelling, is achieved with a blunter, U-shaped tool, and leaves a line wider than 2mm. Four main schemes are noted on the Kirfi materials; criss-cross, curves, lines (single or multiple) and herringbone.

Roulette

Rouletting involves the use of a wide range of materials to create tools typically 5-10cm long that are rolled or impressed upon vessels before firing (Soper 1985, Haour & Manning 2010). Rolling leaves continuous bands of motif, which are repeated after every revolution. David and Shaw (1989: 126) argued that rouletting has functional advantages in absorption of heat when cooking or evaporation

when cooling, reduction of friction when handling and they consider it to be less laborious than other decorative types and therefore facilitating large scale production.

Rouletting provides a rapid and easy method of texturing ceramic surfaces. Some roulettes such as twisted cords are easy to make, prone to being copied, while others such as braided strip are technically complex and may have been adopted and transmitted through established social networks (Gosselain *et al.* 2010: 7-8).

Roulettes have often been discussed in West African archaeology as a possible indicator and important criterion for suggesting the nature of social relationships between identities, polities and cultures. Much has been written on the diversity and forms of roulettes (e.g. Connah 1981, Effah-Gyamfi 1981, Soper 1985, Gronenborn & Magnavita 2000, Wendt 2007 and Mayor 2010). Haour *et al.* (2010) made a recent attempt to harmonise understanding of the making and meanings of roulettes through the multiple use of ethnography, experiments and archaeological evidence. This built on the pioneering classification proposed by archaeologist Robert Soper (1985). He had raised the need to use ethnographic and experimental examples in order to better understand archaeological data. He proffered a three-fold classificatory system; natural objects, carved roulettes and cord, fibre and composite roulettes. This was revised nearly three decades later by Livingstone Smith *et al.* (2010:52), who also classified roulettes on the basis of materials used: assembled materials (round fibres, strips, fibre+wood), modified materials (wood, bone, fruits) and unmodified materials (e.g. shells, recycled finished objects). They break down the 'assembled' category into simple tools, involving strips or cords that can be twisted, folded, knotted or braided, and tools on a core, which are made on a flexible or semi rigid core.

Consideration is given here to the sherds featuring roulette decorations from the excavations conducted in Kirfi. These include; cord roulettes (twisted cord, braided and twisted knotted cords) on one hand, and strip roulettes on the other.

Twisted String/Cord Roulette: This is 'made by rolling fibres in the palms of one's hands, on a thigh or on the ground and then knotting the ends, or one end if the roulette has been given a double or triple twist' Livingstone Smith *et al.* 2010: 54. This category is one of the most common decorative types of my study area and has been identified at sites relatively close by, such as Turunku and Zaria (Effah-Gyamfi 1980), or the Kaduna valley (David & Shaw 1989), as well as more widely across west Africa (see Arazi & Manning 2010 for a full survey). The collaborative execution of this decoration together with the folded strip rouletting also noted in my sites is equally reported in Ilare, southern Nigeria (Ogundiran 2002).

Braided Strip Roulette: This tool is little used in West African practice today, only reported from Mali. It remains poorly known archaeologically but is known from sites in Cameroon and Mali from

the 1st to the second millennium (Mayor 2010). Rolled impressions of this roulette ‘generally display parallel rows of concave impressions of which the edges form a sawtooth, in the manner of the steps of a staircase’, notes Mayor (2010: 181), adding that impressions are greatly distinctive ranging from fine to large, and are also discreet in their levels of tightness. Rows may change direction at a right angle to form a herringbone pattern. Two main varieties (tightly and loosely braided strip roulettes) exist in the archaeological record under consideration.

Knotted Strip Roulette: Soper’s (1985:67) knotted or plaited strip roulette refers to the ‘use of a narrow ribbon-like strip of flexible grass, palm-frond or similar medium which, when knotted together, gives a roulette with an intricate angular surface’. It is easily confused with folded or braided strip decorations. Haour (2010) describes it to usually ‘display parallel, often diagonal, rows of convex impressions’ that often arrange in pairs and creating rows dumbbell-like shapes. Her literature survey indicated that Kano and Dia region of Mali presented possible examples of West African types in comparison for the much-better known East Africa cases presented by Soper (1985).

Folded Strip Roulette: This involves the use of ‘a single strip folded over itself, and each strand is alternatively twisted and folded over the other’ (Livingstone *et al.* 2010: 60). I have recorded the use of this motif in Kirfi today, even though it is observed to be in little use despite its simplicity.

Knotted Twisted String Roulette: This is a twisted cord roulette into which a knot has been made, resulting when rolled in a pattern which resembles that of a twisted cord but with an undulating line at the border, made by the knot.

The appreciation to study roulette decorations over the decades has resulted into application of vagaries of terminologies to describe the motifs. Below is a table highlighting some of the published reference across West Africa region of the common types encountered at sites.

Folded strip roulette
‘Folded strip roulette’ Haour & Keita, fig 3.37.a
‘Twine’ McIntosh 1995
‘accordion pleat roulette’ Nixon 2009: 239, fig 16, nos 38, Tadmakka, Mali
‘Type R, rice grain roulette’ Haour 2003, fig 7.4 & 7.8,- Kufan Kanawa, Niger
‘pleated strip roulette’ Haour 2008, figs. 5c, Garumele, Niger
‘nodular roulette, Connah 1981, figure 4.9.16, Chad Basin, Nigeria
‘twisted strip roulette’ Gronenborn 2001, fig 6.6.9-10, Dikwa, Borno; Gronenborn & Magnavita 2000 fig 1, Borno
‘Loosely folded rolled strip roulette’ Haour and Keita 2010: fig 3.41.a &b and fig 3.43.a (what I called loose fpr)
‘Maize-cob roulette’ Ogundiran 2002, fig 10.5, Yorubaland, Nigeria
Braided strip roulette
‘knotted strip roulette’ Haour 2010, fig. 3.44, from Uganda - I referred to the peak of the finishing as braided strip roulettes.
‘braided strip roulette’ Mayor 2010, figs. 3.46.a, 3.47a, 3.48.a & 3.49 from Mali
‘scoubidou’ Mayor 2010 (cf. Mayor 2005: 183)Burkina Faso
Twisted string roulette
‘twisted string roulette’ fig. 5a, Haour 2003, Garumele, Niger
Fig 16: 39- 2009
Twisted Knotted Cord roulettes
Referred to as ‘Twisted Knotted Cord roulettes’ by Arazi and Manning, 2010 Fig 3.6, p142
Knotted strip roulette
‘cord roulette motif’ Ogundiran 2002, Ilare, southern Nigeria fig 10-1 4b
Plaited cord & accordion roulette, Soper 1985, Kenya
Stabbing (triangular)
‘finger and finger-nail impressions’ Connah 1981: 58
‘stabbing’ Haour 2003, fig. 7.7.5, Kufan Kanawa, nigeria
‘calabash-end motif’ Crossland 1989: figure 10:1-f, Begho, Ghana
Applique
‘relief’ David & Shaw 1989,:406,plate 12a&b, Kaduna valley, Nigeria
Langlois 2009: Fig 2:7, 9 & 10
Grooving
‘Grooving’ Connah 1981, figure 4.9.4
‘simple incision’ Mayor 2010, fig. 3.47.a
‘Channel’ Togola 2008, fig 6.36 (a?)
‘grooves’ Ogundiran 2002, fig. 10-1.8, Ilare, southern Nigeria
Incision
‘incisions’ Gronenborn 2001, fig 6.6.5- Kukawa, Borno
‘incised motifs’ Ogundiran 2002, fig 10-1. 9a
‘fine channelling’ McIntosh 1995: 207, fig 3.35, Jenne jeno, Mali
‘single, double or multiple lines’ Hambolu 2000, illustrations 16 & 17

Table 14: Common roulettes found at the Kirfi sites, and correspondence with other published materials.

Appliqué

This is an act of adding extra part of clay onto the vessel. Two kinds of decorations characterise the Kirfi material; on the one hand single bands of 3-5cm referred to as relief-lump and those with twin or double relief lumps.

Stamping

Though I widely called it stabbing, these designs are accomplished by impressing the body of the vessel with one or several points. The shape of the tool determines the shape of the impression. Figures represented in Pl. LVII (Camps Fabrer 1966) for North-West African material show good examples of this decoration.

Painting

Painting involves the use of coloured sediment made from a combination of soil minerals, plant resources and gum Arabic to create motifs on the surface of pottery. They are depictions of geometric patterns and other compounds of lines and abstractions. White, black and red colours occur on the Kirfi material.

Relation to a field on placement

Choice of placement of decoration as appeared in the studied sherds is relevant as potters usually look out for visibility, major points of inflections serving as boundaries and thus creating basically 3 preferential placements: rim, shoulder and upper body, near the middle part).

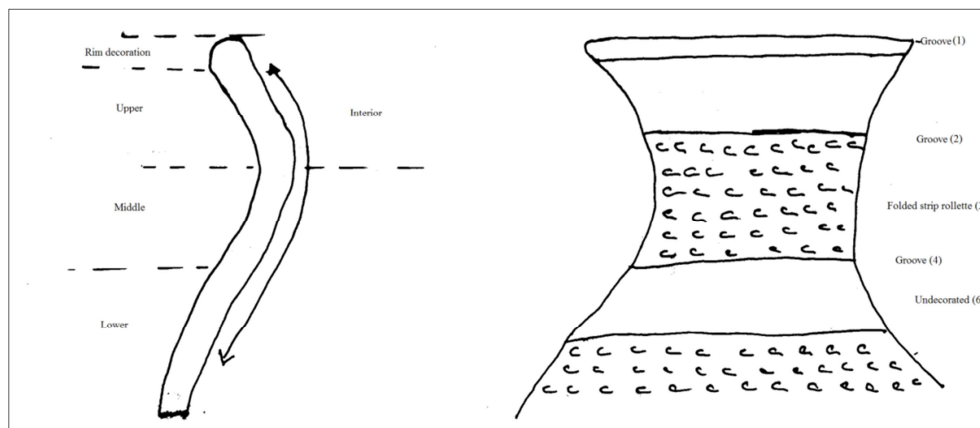


Figure 101: Schematic representation indicating preferential decoration placement

It is important to note where and why decorations are placed and this scheme tried to examine a correlation for favoured portions, useful mainly for rim sherds. The sherds, show individual appearance of motif, thereafter looked at them collectively as they appear in compound manner; thereby making it worth to state those boundaries usually exists between one decoration and another. This is described as an ‘undecorated’ field on the face of the pottery itself when it covers a space of up to 5cm.

Tudun Dangawo

Levels	Dec	Undec	Total			LevDec%	Lev%Undec
0	138	467	605			22.8	77.2
20	90	311	401			22.4	77.6
40	55	147	202			27.2	72.8
60	88	109	197	57		44.7	55.3
80	23	42	65			35.4	64.6
100	2	13	15			13.3	86.7
120	23	38	61			37.7	62.3
Total	419	1127	1546				
%	27.1	72.9	100				

Table 15: Decorated and undecorated sherds Tudun Dangawo (Total 1546)

On the whole, less than a third (29.1%) of sherds were decorated at Tudun Dangawo. Apart from level 100, decorated sherds seem more common in the bottom part of the sequence. This is likely a result of the materials issued from the pit region that started at 100cm (Chapter 5). It might well be that the earliest cultural level witnessed re-use of good wares as indicated by the visible evidence of repairs and mending, as observed relatively from 60cm below.

Kirfin Sama Hill

The majority of the sherds were undecorated, between 68% and 81% depending on the level. There is no obvious pattern throughout the stratigraphy. It will be recalled that the Kirfin Sama Hill stratigraphy was characterised by gently sloping layers probably consistent with a midden (Chapter 5).

Levels	Deco	Undec	Total			LevDec%	Lev%Undec
0	84	221	305			27.5	72.5
20	74	157	231			32.0	68.0
40	52	134	186			28.0	72.0
60	95	257	352			27.0	73.0
80	77	308	385			20.0	80.0
100	55	183	238			23.1	76.9
120	13	57	70			18.6	81.4
140	5	12	17			29.4	70.6
Total	455	1329	1784			25.7	74.3
%	25.5	74.5	100.0				

Table 16: Decorated and undecorated sherds at Kirfin Sama Hill (1784)

Kagalan

As was the case with the other sites, decorated vessels were the minority, often accounting for just a fifth of sherds in each level. One can tentatively suggest a slight increase in the prevalence of decorated vessels, but it is difficult to be definite giving the greatly different size of the assemblages from different levels (compare for example level 40cm with 120cm). On that note, it is important to remark that level 40 witnessed a high density of materials (1580 sherds): this is the context associated with other tools and features noted in chapter 7, together suggesting a possible potter's workshop.

Levels	Deco	Undec	Total			LevDec%	lev%Undec
0	79	267	346			22.8	77.2
20	233	539	772			30.2	69.8
40	357	1223	1580			22.6	77.4
60	53	192	245			21.6	78.4
80	9	38	47			19.1	80.9
100	19	67	86			22.1	77.9
120	2	9	11			18.2	81.8
Total	751	2335	3086				
%	24.4	75.6	100.0				

Table 17: Decorated and undecorated sherds at Kagalan (Total 3086)

Overall all the excavated trenches show considerable amount of sherds that are not decorated (4791), as opposed to the total decorated sherds (1625) with slight shifts only observed at the changes per levels.

6.8.1 Variation in decoration - roulette

All roulette motifs are important to the settlements under study. In the discussion below, I will use the following abbreviations: FPR-folded strip roulette, BPR-Braided strip roulette, KCR - knotted twisted cord roulette, TGR - Twisted string roulette).

Tudun Dangawo: out of the total number of roulette decorated sherds at the settlement, twisted string is the dominant accounting for over half the sherds, followed by folded strip 30.6%. Knotted twisted cord roulettes are also conspicuous while braided strip rouletting is quite minor.

TDG	FPR	BPR	KCR	TGR
0	72	16	5	21
20	32	5	9	30
40	4	2	6	39
60	4	1	16	69
80	0	0	2	9
100	0	0	0	0
120	2	1	5	22
Total	114	25	43	190

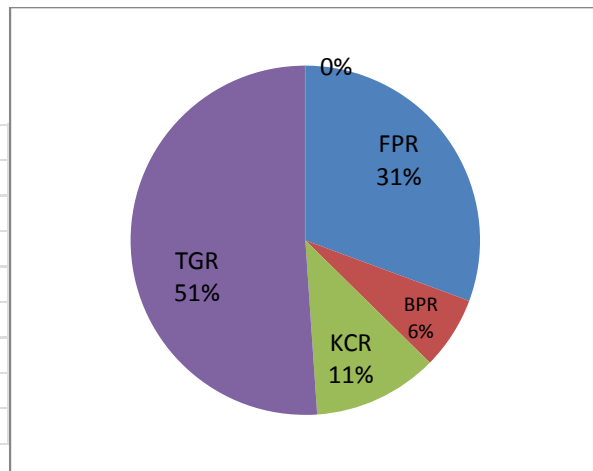


Figure 102: Distribution of Roulette decorations at Tudun Dangawo.

Kirfin Sama Hill: The combined roulette assemblage here is dominated by folded strip followed by twisted string, even though there is a relative abundance of braided strip and only a fairly low presence of knotted string roulette. Folded strip appeared right from level 120cm, but went on to become a dominant decoration; it is a position that was maintained rigorously throughout the period of settlement occupation.

KSH	FPR	BPR	KCR	TGR
0	33	3	4	15
20	33	11	2	8
40	25	6	2	1
60	43	5	0	11
80	29	5	3	13
100	20	7	5	15
120	2	1	1	4
140	0	0	1	4
Total	185	38	18	71

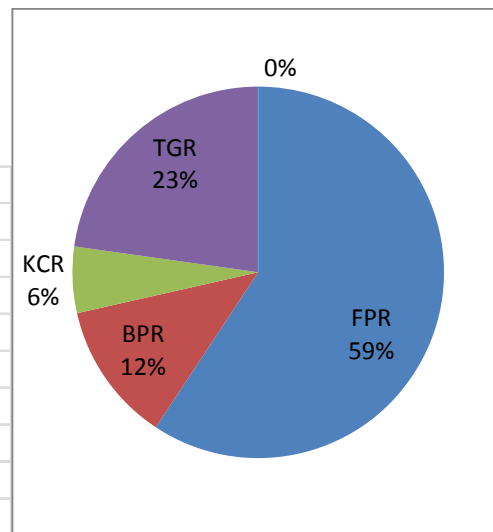


Figure 103: Distribution of Roulette decoration at Kirfin Sama Hill.

Although twisted string was the second choice, it was present in the assemblage even before the appearance of folded strip roulette at 140cm level, when it became popular from 100-60cm and continued throughout the remaining layers.

Kagalan: As at Kirfi Sama, folded strip is by far the preferred roulette at this site, while braided strip, not important at the two other settlements, is quite common (20%) overall. Twisted string and knotted twisted strings only occur in small numbers.

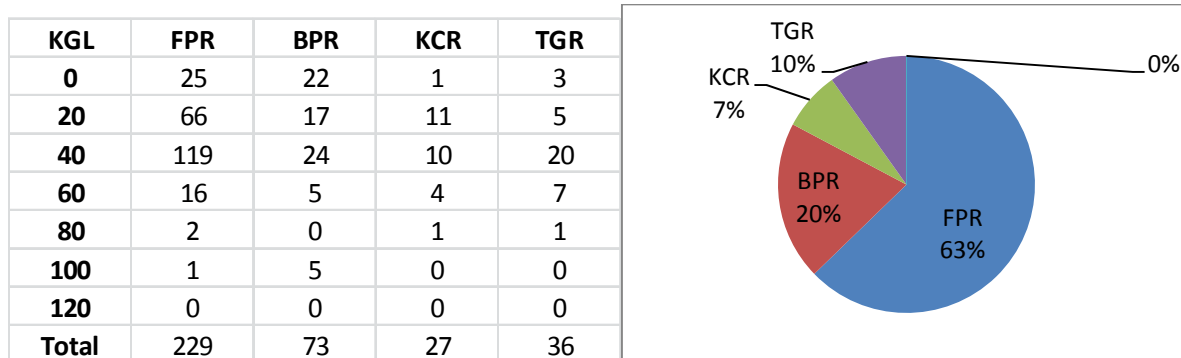


Figure 104: Distribution of Roulette decoration at Kagalan.

Overview

Folded strip roulette is a good indicator of traditions. Of the technique recorded at all the settlement sites are represented by a mean average of 81.0% tightly folded against more minor representation of loosely folded (19.0%) roulette. Loose and tight roulette impressions are simply a product of the way the roulette was folded. Folded strip roulette is the second in terms of ratio here following twisted string roulette at Tudun Dangawo site, but is by far the leading roulette traits at both Kirfin Sama Hill and Kagalan.

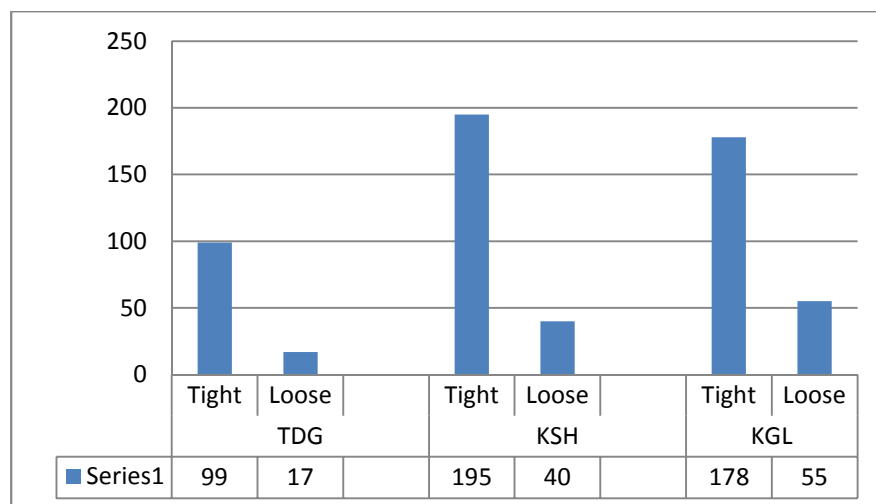


Figure 105: Distribution of Folded Strip Roulette types at all sites (Grand Total 528).

Folded Strip was a tradition of the youngest levels at 20-0cm at Tudun Dangawo constituting up to 91%, while at Kirfin Sama Hill it was absent at the oldest level 120cm but appeared at the next level and progressively became the tradition of all the subsequent occupants of the settlement. Although folded strip roulette was observed at 100cm, its true manifestation was during period of the 60cm and much more revolutionary at 40cm but maintains the status throughout thereafter.

Knotted twisted cord roulette occurs throughout the sequence at Tudun Dangawo, except for a brief absence in level 100cm. At Kirfin Sama Hill too it occurs throughout the sequence but it was overall little used. At Kagalan on the other hand one sees a noticeable increase in the share of knotted twisted cord in the upper levels.

Braided strip roulettes appear to be a sensitive marker as their overall occurrence varies greatly between sites and are noted to be only important during 20-0cm level periods, with 64% and 20% presence. The decoration was completely absent during the earliest phase of Kirfin Sama Hill but seemed to grow in popularity over time. The pattern is similar at Kagalan where this decoration grows in popularity in the uppermost levels.

Twisted string roulette was very popular in the middle levels of Tudun Dangawo. Tudun Dangawo site is dominated by fine twisted motif (64%), medium (46%) sized executed roulettes dominate at Kirfin Sama Hill even though large cords average of 41% was followed; Kagalan had a clear choice for medium sized cords as opposed to Tudun Dangawo.

6.8.2 Paint analysis

Generally paint is comparatively less popular than roulettes at all sites, but post depositional factors may be considered. Of the painted pottery, white is the dominant colour used; black and red only appeared sporadically. The major patterns are horizontal lines, singly or in multiples, although some sherds occur whose surface indicates the whole body was covered. The lines show patterns such as zig-zag; herringbone is a common example of composite decorations.

TDG	Total	%	KSH	Total	%	KGL	Total	%
0	14	18.2	0	9	15.8	0	23	7.5
20	14	18.2	20	8	14.0	20	103	33.8
40	14	18.2	40	6	10.5	40	156	51.1
60	16	20.8	60	18	31.6	60	14	4.6
80	7	9.1	80	12	21.1	80	2	0.7
100	1	1.3	100	3	5.3	100	7	2.3
120	11	14.3	120	1	1.8	120	0	0.0
Total	77	100.0	140	0	0.0		305	100.0
%				57	100			

Table 18: Distribution of painted sherds at all sites

Tudun Dangawo: Painting was considered a sporadically important decorative motif of the settlement, noticeably since its inception at 120cm. However the peak of its presence at level 60cm, when use was up to 20%, after which it continued to be available at a stable 18.2% throughout until the settlement was deserted. Proportionate quantity of parallel, fish spine and crossing were recorded here mainly situated within 20 and 60cm levels.

Paint-TDG	Single Line -P	All-Over - P	Multiple Lines	Fish spine
0	10	3	0	0
20	8	3	3	1
40	7	6	1	0
60	9	3	4	6
80	5	2	0	0
100	1	0	0	0
120	4	5	1	0
Total	44	22	9	7

Figure 106: Some popular painted sherds at Tudun Dangawo

Kirfin Sama Hill: There was no evidence of painting at the earliest phase of occupation at 140cm, until the beginning of the second phase at 120cm when it barely appeared. However levels 80-60cm that witnessed 31.6 and 21.1% saw appreciable use of painting. Thereafter consumption was maintained, especially in the form of multiple lines and thin lines motif as well throughout up to the late periods of occupation. 60% of the black painted vessels are from this site making them the dominant consumers of the black paint traditions, while not a single instance of red paint was noted.

Paint-KSH	Single Line	All-Over	Multiple Lines	Fish spine
0	8	0	0	0
20	5	2	1	1
40	4	1	1	0
60	10	2	6	0
80	10	1	2	0
100	3	0	0	0
120	1	0	0	0
140	0	0	0	0
Total	41	6	10	1

Figure 107: Some popular painted sherds at Kirfin Sama Hill.

Kagalan: There is no evidence of the use of paint at the earliest 120cm level. Painted wares began to appear at level 100cm and only in a minor way, until the period 40cm with 51.1% when it became a popular motif in use. It seems to maintain its popularity thereafter.

Paint-KGL	Single Line	All-over	Multiple Line	Fish spine
0	12	4	7	0
20	62	12	35	8
40	112	18	32	12
60	9	3	2	0
80	1	1	0	0
100	3	4	0	0
120	0	0	0	0
Total	199	42	76	20

Figure 108: Some popular painted sherds at Kagalan

It is worth noting from evidence observed that the greater variability of painting motifs, such as the multiple lines-crossings, fish spine, parallels (spikes at one side of the line or both sides) all appeared distinctively at the Kagalan site and mainly dominate the 0-40cm levels. This suggests that a compound of painting motifs at the site consisted of later innovations (post-dating a spit level where we have a date of 316±27bp). Multiple lines started appearing based on the evidence at hand at the 14th century AD dated level at Kagalan. Fishnet and lines crossing pattern appeared only at Kagalan site.

First, 369 painted sherds are decorated in white, while only 17 are black and four in red. Of the extraordinarily few black sherds six are from Tudun Dangawo only a lone one from Kagalan, and 10 from Kirfin Sama Hill. Moreover 30 of the sherds observed to possess interior painting, 24 came from Kagalan, five from Kirfin Sama Hill, and only one from Tudun Dangawo. One would argue that vessels painted in the inside were not used for cooking or water storage. Ethnographic information (SA 2012) has indicated the existence of this practice, for pots needing to keep medicinal concoctions which ensure body protection against evil harm.

6.8.3 Incised motifs

Incisions include lines that are either single (both thick and thin), multiple or herringbone, whereas grooving is classified into single, double and multiple. Crescent and circular patterns are the most popular stabbing motifs.

Tudun Dangawo: out of the total use of incised decorations containing all classes of both single and multiple lines and the other compound herringbone, levels 0cm showed high representation of the motifs followed by at 60cm. Grooving followed by incision are popular at the settlement.

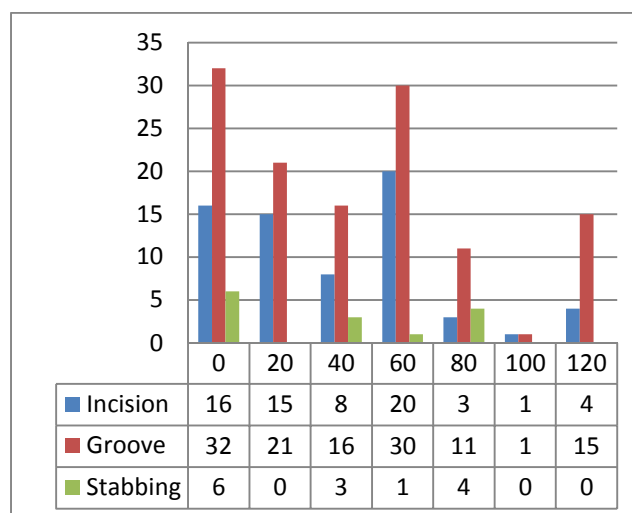


Figure 109: Incised sherds at Tudun Dangawo

Incision was popular in the earliest level of the in-filled pit feature, but the need for it dropped later until at 60cm again, which maintained a good presence through to 0cm.

Kirfin Sama Hill: Grooving was used throughout the settlement occupation.

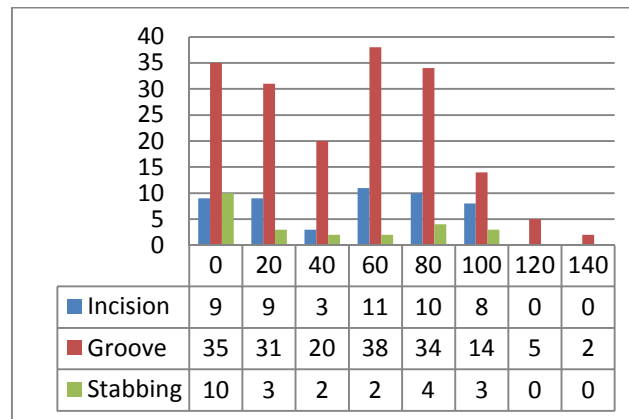


Figure 110: Incised sherds at Kirfin Sama Hill

Kagalan: Incision became a prevailing decorative motif at level 40cm with 49% presence. Although in quantitative terms it only dropped but still with a huge volume of 315 sherds at level 20cm.

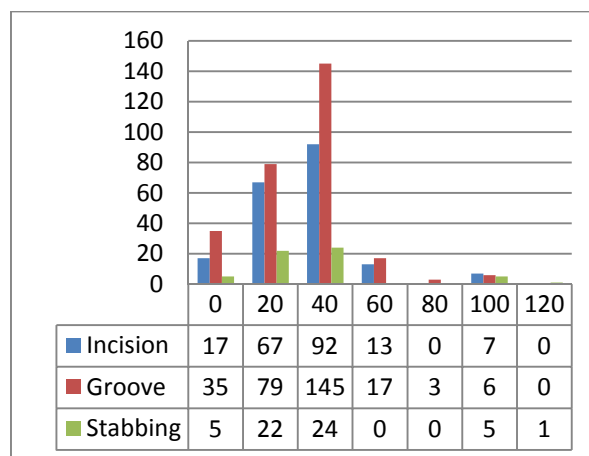


Figure 111: Incised sherds at Kagalan

Therefore grooving is the predominant decorative techniques through the three settlements, with comparatively lower level of incision, and very infrequent appearance of stabbing at the younger levels.

In order to enhance the stylistic and morphological study of the Kirfi materials, I arranged for clay characterisation to be carried out.

6.10 Clay material characterisation

X-ray fluorescence (XrF) and SEM analysis (including thin sections) were carried out on representative samples at the Geotechnical Microanalysis Laboratory of the School of Environmental Science, University of East Anglia, by Bertrand Leze (Chief Technician). Samples from every spit level of the excavations were examined in view of the 10 major chemical signatures, which provided an order that the pottery studied are products with direct bearing to the parent soil types present in the region of study. Samples were randomly but systematically selected ensuring at least one sherd per level for each site.

The results suggest local sourcing of clay materials; the characteristic elements traced in the sherd samples produced related densities in line of the properties expected from the Keri-Keri geological formation. While it is not a conclusive result yet in view of limited samples (red, brown and sand mix each) collected in comparison from only 3 sites, the source of provenance on the other hand is scanty, being restricted only to the historically claimed Kagalan major clay sourcing centre were tested representing a case for the whole Kirfi region.

Chemical analysis for ceramic production and distribution

Chemical Composition of selected sherds												
Sample	SiO ₂ (%)	TiO ₂ (%)	Al ₂ O ₃ (%)	MnO (%)	MgO (%)	Fe ₂ O ₃ (%)	CaO (%)	P ₂ O ₅ (%)	K ₂ O (%)	Na ₂ O (%)	LOI (%)	Total (%)
TDG Site												
0	60.6	1.13	17.6	0.05	0.76	6.57	1.08	0.17	2.85	0.48	6.48	97.8
20	64.8	1.02	16.6	0.06	0.87	5.31	0.99	0.14	3.26	0.83	6.83	100.6
40	65.2	1.11	17.6	0.07	0.82	5.78	0.91	0.19	3.78	0.66	3.46	99.6
60	60.8	1.00	14.9	0.20	0.73	5.43	0.91	0.23	3.43	0.79	6.18	94.6
80	60.2	1.13	19.1	0.14	1.02	7.20	0.99	0.24	3.19	0.83	5.72	99.8
100	62.8	1.09	17.3	0.05	0.98	5.74	0.75	0.33	3.79	0.52	7.31	100.6
120	61.7	1.09	18.0	0.06	1.09	6.04	0.95	0.35	3.81	0.71	6.32	100.1
KSH												
0	59.5	1.24	20.8	0.08	0.97	7.25	1.28	0.50	2.92	0.55	5.7	100.7
20	66.8	1.15	16.6	0.05	0.75	5.32	0.79	0.26	2.76	0.43	4.91	99.8
40	61.8	1.18	18.6	0.06	0.99	6.27	1.16	0.68	3.16	0.52	5.86	100.3
60	62.1	1.24	21.4	0.05	1.06	7.81	1.03	0.36	3.23	0.64	1.14	100.0
80	58.0	1.44	20.5	0.08	1.06	8.12	1.20	0.62	3.58	0.58	5.37	100.6
100	62.7	1.09	17.9	0.05	0.82	5.10	1.03	1.17	3.42	0.56	6.35	100.2
120	52.3	1.58	22.2	0.19	1.72	11.37	1.08	0.12	3.90	0.51	5.3	100.3
140	65.3	1.15	18.8	0.06	0.91	6.22	1.07	0.25	2.93	1.17	2.78	100.6
KGL												
0	66.7	0.74	15.7	0.03	0.81	5.61	1.02	0.08	4.14	0.95	3.01	98.8
20	57.5	1.27	19.8	0.06	1.31	8.07	1.17	0.94	3.65	0.57	5.94	100.3
40	57.3	1.59	18.4	0.08	2.35	10.0	1.75	0.34	2.74	1.24	4.36	100.1
60	56.3	1.46	18.0	0.07	1.85	8.89	1.61	0.34	3.03	1.17	6.09	98.8
80	62.2	0.97	17.9	0.04	0.70	6.50	1.21	0.39	4.27	1.82	4.37	100.4
100	60.1	0.81	17.6	0.09	1.58	8.33	1.67	0.25	3.56	1.00	4.9	100.0
120	66.8	0.70	15.3	0.04	0.74	4.34	1.29	0.16	4.42	2.36	4.33	100.5

Table 19: major chemical elements analysis from ceramics at the three sites

Silica (SiO₂), a naturally occurring mineral commonly in the form of sand and quartz, and iron (Fe₂O₃) are the chemicals noticed to have shown potential for characterisation of the raw material types of the ceramics.

Levels	TDG		KSH		KGL	
	SiO2 (%)	Fe2O3 (%)	SiO2 (%)	Fe2O3 (%)	SiO2 (%)	Fe2O3 (%)
0	60.6	6.57	59.5	7.25	66.7	5.61
20	64.8	5.31	66.8	5.32	57.5	8.07
40	65.2	5.78	61.8	6.27	57.3	10.0
60	60.8	5.43	62.1	7.81	56.3	8.89
80	60.2	7.20	58.0	8.12	62.2	6.50
100	62.8	5.74	62.7	5.10	60.1	8.33
120	61.7	6.04	52.3	11.37	66.8	4.34
140			65.3	6.22		

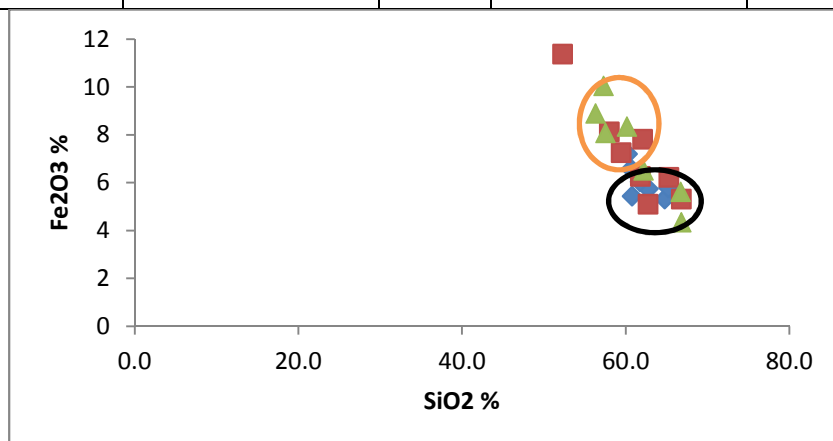


Table 20: Clay origin correlation, dividing into two groups on the basis of silicon and iron oxides. Diamond shapes indicate Tudun Dangawo, square Kirfin Sama Hill, and triangles Kagalan.

The average continental Fe₂O₃ ratio in the soils of West Africa is 4.50% (Nuhu, W. Pers Com 2012), which shows a relative chemical similarity between the clay materials of the three settlements. The iron oxide content of Kagalan settlement from the graph shows a higher concentration in relation to a corresponding lower silicon oxide, followed by Kirfin Sama. Although Tudun Dangawo is also above the normal, it shows a chemical character similar to that of Kirfin Sama Hill than Kagalan on the group ‘B’ clay source. On that basis we tend to see the distinction of two sources of clay that might have implication for past settlement relationship and social contacts. We also see Kagalan and Kirfin Sama Hill showing some level of diversity in sourcing clay materials than the exclusive Tudun Dangawo. But to sound a word of caution, Zoila (2012: 46) in a provenance studies in Cameroon observed that differences in chemical signatures may be due to the use in production of clays collected at different depths of same geological formation rather than of real large-scale spatial difference in source. The results presented here will therefore need to be expanded in future.

Group B circled in black shows a relatively higher level of silicon oxide containing usually quartz and sand percentages and lower iron oxide. But even with this seeming difference we should not undermine the fact that clay materials are likely sourced locally and the general mineralogical characteristics is normal when traditions during generations favours intensive digging and collection of raw materials at chosen locations. One therefore expects traditions of tempering with sand and other inorganic inclusions at the Group A raw material user settlements.

Also K₂O, which is an ionic compound of potassium and oxygen, represents feldspar and mica from the chemical composition table above, has shown Tudun Dangawo ceramics with a stable oxides with a slight decrease at the youngest level probably accounting for the use of rich clay that did not require separate paste inclusion. On the other hand Kirfin Sama Hill started at 140cm with a low feldspars and mica but improved the tendency by addition of pastes thereafter except 20-0cm that show another level of decrease. Kagalan was so different in that respect with very good temper containing high amount of K₂O since the earliest phase of the settlement until its abandonment.

This use of XrF was an attempt to explore the archaeometry of excavated archaeological sherds and clays from the Kirfi region to order the sequence of pottery production and distribution. Clay deposits from the so called ancient retained source of Kagalan that serviced Kirfi was sampled and analysed. It suggests presence of the major local sources that originates from the local geological formation. Three separate soils were sampled and analysed. The grey is the major constituent for the ceramic production. A light grey for tempering was sampled as well as the red coloured used to red slip finished wares before they are fired.

Sample	SiO ₂ (%)	TiO ₂ (%)	Al ₂ O ₃ (%)	MnO (%)	Mg O (%)	Fe ₂ O ₃ (%)	CaO (%)	P ₂ O ₅ (%)	K ₂ O (%)	Na 2O (%)	LO I (%)	Tot al (%)
KGL 10C1 Clay - M	53.0	2.24	15.9	0.32	1.4 6	10. 9	1.47	0.1 8	2.3 7	0.9 6	12. 99	101 .8
KGL 10C1 Clay-M	53.3	2.41	16.0	0.13	1.5 2	10. 1	1.51	0.1 3	2.1 6	0.9 4	12. 99	101 .1

Table 21: Comparison of modern clay sample from Kagalan clay pit (grey coloured sample)

I attempted to compare chemical elements of the modern clay source with those from the excavation at Kagalan; this was to provenance sourcing in view of the popular traditions for the acclaimed superiority of Kagalan source in use over long period. Factors such as the amount of organic materials decay and the effect of temperature sustained during firing generally impact on the elemental result of the archaeological clay minerals from the Loss of Ignition (LOI) shown to be higher here compared those in Table 19. It is interesting though that Fe is significantly better preserved in the modern clay than those from the archaeological samples. Titanium oxide is higher in the modern samples, which

all goes to show a pattern generally in conformity, but not detailed enough to make a statement denoting social and cultural meaning until further studies with interest on provenance of the clay materials for pottery production in the Kirfi area is conducted. The chemical elements shown here only reflect possible regional implication of clay materials from the regional geological formation.

6.11. Concluding Remarks

Generally, the greater quantity of the sherds is plain, with a greater use of burnishing that goes with slipping to finish the ware.

In terms of decoration we see that incision, roulettes and painting are the preferred decorations of Kirfi sites. The preferred regions of decorations are the neck at the exterior, but some rims such as the S4 type have grooves on their rim lip, as those noted from Kirfin Sama Hill.

Consistency of techniques is more recognisable in the roulettes; the assemblage from the Kirfi sites shows a clear bias to the use of multiple techniques. It is frequent, for example, to find folded strip roulettes placed around the neck region of the vessel and below, with a narrow zone left undecorated and another level below. It is common to find the margins of roulettes tidied with single grooves, then the broad line of paint is applied at the lower portions of the roulettes. The fact that sherds tend to feature multiple decorations is clearly reflected in the fact that tabulating instances of decorations (as in Table 13 above) leads to much higher numbers than tabulating sherd numbers (as in table 7 above). On average 2 techniques of decoration are observed per sherd.

Single grooves are usually associated with roulettes, but they occur in the minority situation alone. But when herringbone incisions are noted, they occur with painted line decorations. Single or multiple lines of decoration are complementary with other decorations such as roulette. Therefore herringbone incision is a notable decoration of the Kirfi sites, where well impressed lines are clearly cut into the clay to create 2-3 rows of fish spikes pattern. This occurs also with fish spine pattern occurring together with paints.

On roulettes, folded strips are the dominant characteristics of all sites. The majority of these decorations are tightly folded whereas extremely rare cases of the loose technique are observed, mainly at Kagalan. Twisted string rouletting occurs principally over greater areas of the parts of the sherds with not much association with other decorations in contrast with the situation with folded strips. Knotted twisted strip roulettes, when they occur, are never found alone on sherds, but are in combination with other roulettes and often apparently at the upper parts of the vessel neck; they even overwrite the ends of the twisted string roulettes with which they are most commonly associated. They appear not to be meant to stay alone, but rather as a support, noted from the marginal positions as they are placed.

CHAPTER SEVEN: FINDS OTHER THAN POTTERY

This chapter will examine non pottery artefacts recovered during the excavations, that are not from pottery vessels. Such materials include stone objects, shells, metal, bone, ceramic, glass and those not clearly definable. All items were brought to the United Kingdom, except for some of the slag, daub and grinding stones, due to difficulties of storage and cost. Sizes and weights of these artefacts were recorded on site and a representative sample (typically one third) was exported for the purposes of laboratory characterisation and examination.

This chapter describes and examines the significance of these objects in terms of human interaction and economic systems. Artefacts will be treated in sections, based on the nature of the artefact as well as the raw materials and production technique. The finds from the three sites under study are examined in turn (for list of finds, see appendices 1a,b & c).

Tulungagung	Metal Obj					Bone/Shell			Stone Obj			Ceramic					Glass Obj		Unidentified Obj	
	Ring	Arrowhead	Knife	Slag	Other	Cowrie Shell	Shell	Bone Obj	Grinding Stone	Ornament/Tool	Zuza	Terracotta	Smoking Pipe	C. Disks	Spindle whorl	Burnt Clay-WD	Others	Glass		Unident Obj
0cm	1	1	3	9	1				2			1	14	3		3				
20cm			1	4									3	2					2	
40cm	2			4						1	1		1	1		20			1	
60cm		4		1				1		1				2		6			1	
80cm																2				
100cm				2	1											2				
120cm									1	1	1			1		9			6	
Total	3	5	4	20	2			1	3	3	2	1	18	9		42	4		6	123

Kirifin Sama	Metal Obj					Bone/Shell			Stone Obj			Ceramic					Glass Obj		Unidentified Obj	
	Ring	Arrowhead	Knife	Slag	Other	Cowrie Shell	Shell	Bone Obj	Grinding Stone	Ornament/Tool	Zuza	Terracotta	Smoking Pipe	C. Disks	Spindle whorl	Burnt Clay-WD	Others	Glass		Unident Obj
0cm		1	2	2		2	1	2	1			2	2		1			2		
20cm		1		3	1								2	2	1				1	
40cm	1	2												1					2	
60cm					2	2								1	1				1	
80cm		1		1									1		2				2	
100cm			1	1				2				1	2							
120cm												2	1		1					
140cm																				
Total	1	5	3	7	3	4	3	2	1			5	8	4	6			6	2	60

Kagalan	Metal Obj					Bone/Shell			Stone Obj			Ceramic					Glass Obj		Unidentified Obj
	Ring	Arrowhead	Knife	Slag	Other	Cowrie Shell	Shell	Bone Obj	Grinding Stone	Ornament/Tool	Zuza	Terracotta	Smoking Pipe	C. Disks	Spindle whorl	Burnt Clay-WD	Others	Glass	
0cm	1	1	1	7		3			1			1		1					1
20cm		6	1		3					1			1	1	1				
40cm		1		8	3														3
60cm				2															2
80cm					1					1									
100cm										1				1					
120cm																			
Total	1	8	2	17	7	3			1	3		1	1	3	1			6	54

Table 22: Artefact distribution at all sites

7.1 Tudun Dangawo Settlement Site

Small finds from this site, as shown on Figure 104, included metal artefacts such as rings, arrowheads, knives, slag and other categories of metal objects; stone objects identified as grinding stones, stone tools and stone pebbles, called *Zuza* locally. There was a high amount of ceramic material identified as terracotta, smoking pipes, clay disks and burnt clay (daub).

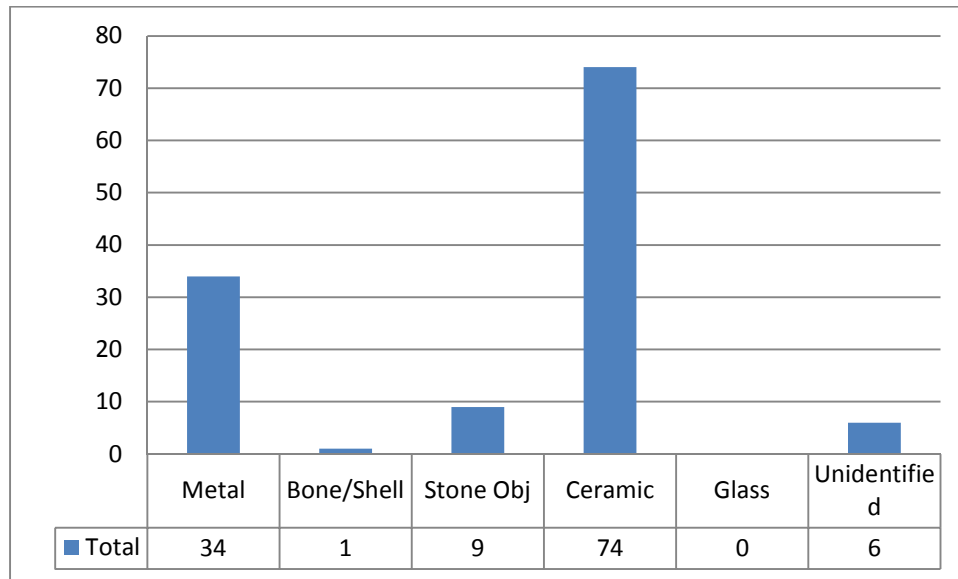


Figure 112: The distribution of small finds at Tudun Dangawo Settlement Site (total 124).

7.1.1 Ferrous Objects

The site produced 34 ferrous objects, constituting 27% of all small finds. Metal objects are more prevalent near the terminal levels, although an unidentified metal object was collected at the uppermost level of the in-filled feature interpreted as a pit (see Chapter 5), at 100cm, in addition to 2 pieces of slag. Evidence of metal working and use is mainly evident from a level of 60cm and much more popular towards the final phase of the settlement. In this chapter I discuss the various objects in terms of their likely use, insofar as this could be determined from their shape.

Three circular iron rings are suggestive of iron rings used in tying or clipping, likely to bundle bunches of materials. These artefacts are similar to those H, J & K named specimens measuring 2.2cm in diameter, interpreted as clips at the Kaduna valley site by David and Shaw (1989: 337). Five pointed objects interpreted as arrowheads, all occurring between 60-80cm, could be an indicator of hunting practice or of warfare. There are associated artefacts such as knives suggested by their blades and cutting edges for use in butchery related activity.

Four blades, thought to be knives, were recovered between 0-40cm. One is rectangular in shape and another is triangular. These were possibly tools for craft production, while a third appears to be a

normal domestic knife. They are all indicative of having had hafted wooden handles when in use, as is the case with the knives in use today by woodcarvers and those used in Kirfi households.

7.1.2 Slag

The site produced 20 pieces of slag, which have been examined using optical microscopy. Sixteen samples have been attributed to smithing, due to the spongy character of the body, rather than smelting, thereby implying a possible smith's for the processing of metal products on the site.

7.1.3 Other metal objects



Figure 113: Left: Metal objects from Tudun Dangawo site & the earliest known key from West Africa – Tadmakka, Right, (Source Nixon 2008).

An object thought to be a key was recovered at a depth of 0cm. Although it is rusted, its shape is clear. Some of the earliest evidence of key in West Africa came from Kumbi Saleh and Essouk-Tadmakka (Mali). Nixon (2008: 325) reported his item, dated to the 9th century AD, as an indicator of the need to safeguard valuables such as gold and other valuable commodities slaves which are known to have dominated the economies of these settlements. The examples (Nixon 2008, figures 8.01 & 8.02) appear to be related to large complex door-frame. The Tudun Dangawo find is a much simpler key and is supposed to be quite a recent example in view of its morphology and the context in which it was recovered.

A tiny elongated, rectangular metal artefact, excavated at level 0cm, appears to have functioned as a chisel. It is sharp at one end and blunt at the other, supposedly the head. A manual of a museum collection, RSCM (1981: 38) refers to a similar tool in Hausaland called *Kulhi*.

7.1.4 Bone objects

One pointed bone tool about 3.3cm x 0.4cm was recovered at the 60cm spit level. The point suggests its past use as a sharp weapon, similar to the metal arrowheads.

7.1.5 Stone objects

These stone artefacts include upper and lower grinding stones and stone balls (or millers). These 9 items account for less than 1% of the overall small finds. Such objects are commonly discussed in West African archaeology (David and Shaw 1989, Togola 2008, Connah 1981). Shape and wear patterns make stone objects such as grinders and tools morphologically distinct from naturally occurring stones.

A near complete lower grinding stone was recorded in the in-filled pit feature between the levels at 120-140cm. The sandstone has a depression in its centre, presumably from the grinding activity. In addition two fragments of stone grinders were recorded at a level of 0-20cm, with other fragments evident throughout the sequence.

7.1.6 Other stone objects



Figure 114: Stone objects; A Pebbles (Zuza); B: Carnelian

Four objects fall into this category.

The first is an irregular, quadrilateral-shaped, semi-precious stone recovered at the topmost level. It is well polished and glossy on all edges and faces. It is assumed to be an object designed for adornment, although it has no hole in it to suggest it could have been used as a pendant. This could be due to the product being distributed before the hole was drilled. It might have been the case that buyers had the choice of defining how to use it and for what purpose – pendant, ear or mouth plug.

Ilorin (north-central Nigeria) was renowned for the working this type of stone into beads, known under its Hausa name of *lantana*, in the 19th and 20th centuries until in the 1920s when the practice died out. Items were transported to Old Oyo. The stone is another form of chalcedony, a type of crypto-crystalline silica, possessing a small amount of iron oxide. It is suggested that the raw materials were mined around the River Niger before they were brought to Ilorin (O’Hear 1990). The Oba of Benin is believed to have been wearing jasper beads since the 17th century, described as a glossy stone marble illustrated somewhere as coral which O’Hear reported that Leo Frobenius had investigated. These show the continued use of the precolonial interregional trade routes using the transatlantic system for commodity distribution. The introduction of alternative routes by European traders shows a link with Yoruba, Benin and the western fringes of the Hausaland, where the Islamic

caliphate attempted to penetrate. These networks might give a clue as to how this material found its way across to Bauchi.

A piece of a thin glazed object was collected at a level of 40cm. It has transparent stripes with coloured lines, possibly highly industrially finished suggesting a more modern origin.



Figure 115: Polished stone artefact and flaked tool, Tudun Dangawo

An oval quartzite flaked stone with sharp edges was recovered from the in-filled pit at 120cm deep. One face is smooth, indicative of its external face, while the second face is rough as a pointer to the cut portion from a core stone. The tool is definitely manmade, although precisely when it was used is unclear.

Two pebbles were collected: one, at a level of 40cm, a small translucent object, while the other, at 120cm, a polished bodied stone with upper and lower faces, worn through use. Such stones exist as natural river pebbles and they used in the burnishing of pottery as extensively observed in modern Kirfi settlements. A much larger version is said to be used in grinding herbal concoctions. These stones are locally called *Zuza* or *Mazoz* (Pl: *Mazoz*) and have similarly been reported ethnographically, as a part of the potters' toolkit in Mali, Sudan and southern Niger (Tobert 1988, fig7a&d, Gosselain 2010, Mayor 2010; figure 8).



Figure 116: Left to right: Stone pebbles from Kagalan, level 80cm, Pebble from Tudun Dangawo, Pebble from Tudun Dangawo.

7.1.7 Ceramic materials

A fragmentary piece of a fired clay object was recovered, apparently an animal figurine with one horn, with the second one broken. The front side is grooved. The figurine is burnished and red-slipped.



Figure 117: A terracotta figurine excavated at level 1

The Daima III period of Borno (Connah 1981: 182-187) is characterised by the representation of animal figures such as antelope heads and his figure 8.9 (Connah 1981) shows a humped ox with its horns broken off. This is a good parallel in that styles, themes and expression are in tandem with the wider traditions. The function of these types of objects remains debated. Animal figurines are a popular theme in the material discussed by Berns (2011) from the Upper Benue, barely 100km southeast of my study area. Berns (2011), discussing expressive and ritual capacities of clay of varying degrees, examines ethnographic items found associated with shrines. We know that even the Nok terracottas (Jemkur 2006, Rupp 2009), though much older than our period of interest, substantiate the evidence from other archaeological situations from northern Nigeria and indicates

long periods of historical continuities in respect to rituals and religious points of view. And our case I assume should not stray too far from such interpretive model. Therefore these objects from the Kirfi region may prove to be alternative sources for discussing religious systems, where oral histories are not forthcoming.

A total of 18 smoking pipes in varying degrees of preservation were recorded. These occurred in the uppermost spits only, from a level of 40cm until the context of the site abandonment, which shows very fine finished pipes.



Figure 118: Smoking pipes from Tudun Dangawo. Upper row: A: Complete oval bowl, B-I: fragments of bowls, all decorated except C; Middle row A: A spheroid base with remnant of stem & hole, Lower row: A: Complete squared mouth stem, B-E complete mouth pieces, F-G: Fragments of stems

All pipes were made of clay and basically fall within three colours; glossy red is more predominant followed by grey and two yellowish items.

African smoking pipes have been categorised broadly into two groups: elbow-bend pipes that have an angle between the stem and the bowls, and those with no angle, which are called barrel tubes or tube pipes (Edward 1983). The first is the type commonly found in West Africa and it is associated with tobacco smoking, whereas the second is associated with cannabis consumption, a popular practice in southern Africa. These pipes are made from clay and fired, with varying degrees of decoration and finishing. Their cultural contexts typically accept them as post 1600AD across sites in West Africa such as Daima III, Kongon Makeri, Kasakogi and Rafin Ndoko in the Kaduna valley (northern Nigeria) and Ilare (southern Nigeria), Mema and Jenne Jenno (Mali), Dawu (Ghana) (Shaw 1960, Philips 1983, David & Shaw 1989, Ogundiran 2002, Togola 2008). The origins of West African pipes have been greatly debated, with Muslim Arab worlds, Europe and the Americas have been argued as

potential sources. This is due to a number of factors; for instance Edward (1983) mentioned that water pipes could have been introduced from Persia and Portugal for cannabis, but that the elbowed type came later from America. Even the linguistic sources support this premise; a lack of deep rooted native names for the substance smoked, other than wide spread 'taba' for *Nicotiana rustica*, a species popular in eastern North America, serve as an indicator. There is a striking resemblance structurally between the pipes found in the south eastern United States with long wooden stems and those of West Africa. It is worth observing that people had likely devised different ways of consuming cannabis and tobacco for a long period. The medium through which these substances are utilised differs; some never leave traces for archaeologists, especially when plants are consumed, snuffed or chewed. But smoking pipes are an innovation that left evidence of the consumption of these substances in the Americas, Europe and Africa that have resurfaced in the excavations.

It is considered that the use of cannabis preceded tobacco in eastern and southern Africa due to the correlative use of water bowl pipes that were found in excavations in Zimbabwe, but not tobacco types. Some of the Kirfi types resemble Edward's (1983: 304 & 312) illustrated decorated pipes from Mali, and the 'Awraja pipes' for the 'big man'. It remains speculative as to what substances were smoked before the introduction of tobacco. Whatever they were (Edward 1983: 317), the introduction of smoking pipes and tobacco into western Africa indicates widespread continental contacts where indirect evidence from American Indian regions, such as botanical evidence, records high levels of wild tobacco species, and the pipes themselves demonstrate greater antiquity than those of West Africa. But the theory that the English introduced tobacco in Morocco, which was then transported to West Africa by the Moroccans through the invasion of the Songhai in 1591, could also be a potential channel. Edwards (1983: 318) therefore concludes that it is ... 'fairly certain that tobacco would have been introduced to West Africa from somewhere in the territory of the eastern United States or Canada' and that the 'French or even English would have been more likely intermediaries than the Portuguese'.

All the Tudun Dangawo bowls show evidence of blackening, indicating they were used for smoking. On the basis of typology, the samples from this site fall into Types I & II of the 8 types defined by Shaw (1960: 272-275) as the basis of materials from Ghana. Shaw's Types I (shown in Figure 110 in the bottom row) are bowls that are fairly thin with convex sides, rounded and nearly all undecorated. Type-II on the other hand has thick sided bowls and is decorated with intricate incisions in a herringbone pattern. Interestingly however, is that what I refer to as type A, shown in the lower row of the photo above, is similar to what Shaw, from his excavation in Dawu, Ghana, calls Type 9, collected from Geili, Sudan (Shaw 1960: 304).

Unlike Shaw's specimens that are without bases, one of Kagalan's types (middle row in the picture) has a complete roundish seating base. Although a parallel concept from England is shown by ledged-

out relief below the bowls (Higgins 2003), although less well defined than this, the stages involved in the casting and production of superior finished pipes are akin to the ones found here. Their possession of a flat foot-like base that can seat a pipe makes it a trait for consideration in classification.

None of the specimens resemble the Spanish types illustrated by Thurstan Shaw who suggested that smoking pipe types found in West Africa derived from influences from Europe and the Americas. It is useful to note that, on the basis of their context, it is probable that the Kirfi materials were deposited as late as between the 19th – 20th century.

Another class of artefacts recovered at Tudun Dangawo is ground ceramic sherd, characterised by the deliberate grounding of the edges of the artefacts. A total of 9 such items were recorded, mainly from levels between 0-80cm although one specimen was found at the lowest spit level. They are all made from burnished sherds and also show evidence of red slipping on all sides.

Three shapes were found; triangular, rectangular and circular. All sides of the triangular specimens are abraded while the last group only survive as fragments. The edges of the samples shown in the middle row of the photo below are all worn-out, mainly on the two sides, except the seemingly oval shape at the centre that is grounded at all sides. This suggests the two extremes at the middle could actually fall into triangular or circular shape categories, if they were complete. Triangular shapes are reported elsewhere, for instance from Kufan Kanawa, Niger and other sites in northern Nigeria (Haour 2003, David and Shaw 1989).



Figure 119: Utilised sherds. Upper row: triangular utilised sherd, irregular rectangular shaped; Lower row: Circular pieces

All but three of the ground sherds are decorated with twisted cord roulette and a single groove. The disks are never flat but curved-in. The artefacts margins show evidence of chipping and grinding from polishing them to achieve the desired tool. Such fabricated edges are expected to have been done after

a pot had performed its final primary function. These kinds of artefacts are popularly referred to as utilised sherds, in view of the fact that they are manufactured to serve another major function after the expiration of their initial purpose (See Connah 1981, Haour 2003: 107 for discussion).

7.1.8 Burnt Clay-Daub

A total of 42 pieces of burnt clay of varying sizes and weights were recorded throughout the excavation, except at the level of 20cm, which was most likely due to the randomness of the samples areas, rather than absence at that level.



Figure 120: Tudun Dangawo specimens of burnt clay

The average weight of items examined and discarded at this site is 52g. The items are commonly darkish brown with patches of yellow, highly compacted, and characterised by multiple impressions indicative of the disappearance of stalks and grasses that were used as elements of wattle and daub huts, akin to finds noted in Mali by McIntosh (1995: 216). It principally occurs at the Tudun Dangawo settlement, a site associated with evidence suggesting cooking activities as shown by the hypothesised cooked remains of a large mammal, noted by the bone remains enmeshed in broken pots, situated in relation to stone pillars interpreted to resemble a tripod stone cooking stand. These burnt clay finds (6 samples were found) must have clogged and settled into these solid states as a result of frequent and dedicated heating activity, or perhaps by a single episode that resulted in this (informed by the cooked bone being from a single carcass).

I also recorded patches of a reddish mud deposit at the Kirfin Sama Hill and Kagalan settlements sites. They both show 2-4 visible traces on sections of the excavations. The difference here lies with the possibility of the Tudun Dangawo as burnt wattle and daub remains, while the reddish features covering about 7-13cm noted at Kirfin Sama Hill and Kagalan as eroded, but also broken pieces of mud building originating from a more permanent architectural system.

Disappointingly some samples went unnoticed as a simple chunk of natural clay, before it became obvious we were dealing with cultural material at spit level of 20cm. Only small samples for examination were transported to Norwich.

7.1.9 Other Ceramics

A miniature jar was recorded in the Tudun Dangawo settlement at a level of 20cm, that resembles three miniature ‘Tulu’ pots of 5 x 7 inches for carrying water, which was found at a hill site in the Kaduna region of northern Nigeria, as reported by Slye (1973:10-11). The object’s texture is coarse but the interior seems to be slipped red and it is well fired. The finishing was not carefully done, and the unevenness of the surface is noticeable. However, the neck of the vessel is adorned with multiple incisions, bordered on the upper and lower sides of the shoulder by single lines of grooving. The mouth is tight and only sufficient for one finger to go through. Morphologically it resembles Tulu for transporting water, popular in the Gongola valley and Kasar Hausa today (Berns 2011) and it resembles the water jar (*Tulu*) reported archaeologically from Kaduna Valley (David & Shaw 1989).



Figure 121: Miniature pot from Tudun Dangawo (left) and use of pot type near Kano (source: Heathcote 1976).

Leith-Ross (1970: 38) shows an object resembling the miniature pot in shape. This item was initially thought to be a clay toy made by children, similar to the ways they collect and play with clay and make craft items for fun. However Okoro (2008: 123) has examined sources of evidence to argue that, although children participated in several stages of viable potting traditions in the Salaga region of Ghana, there is no clear information about who made toys of this type. Here the assessment of the ability to maintain a good vessel shape from a tiny chunk of clay made me disregard its manufacture by children but I suggest adult manufacture for a different purpose.



Figure 122: showing other ceramic artefacts from Tudun Dangawo: A-Perforated object, B: Model pot, C: Terracotta. D-E: Sherd objects (right water jar, source Leith-Ross 1970)

It is possible that it was a template (pot model) for use by potters. There are two explanations for this; either it served as a cast made by one potter for another in the same settlement, or a medium to aid potters at another settlement easily convey style requirement to another; to give the required specifications, especially for mass production, or for parents to provide a learning or illustrative tool for the children. It is perhaps a model (Ogundiran pers comm. 2012); one potter tries to explain the making of an uncommon product to their peer group, because this kind of vessel was scanty at the Tudun Dangawo sites. We have to begin to look at this site as one that practiced pottery making in view of the evidence of two stone pebbles for pot manufacturing.

7.1.10 Unidentified materials

Only six items fall within this category. They resemble cakes of burnt soil materials, and are interpreted to be burnt fragments of a hearth.

7.2 Kirfin Sama Hill

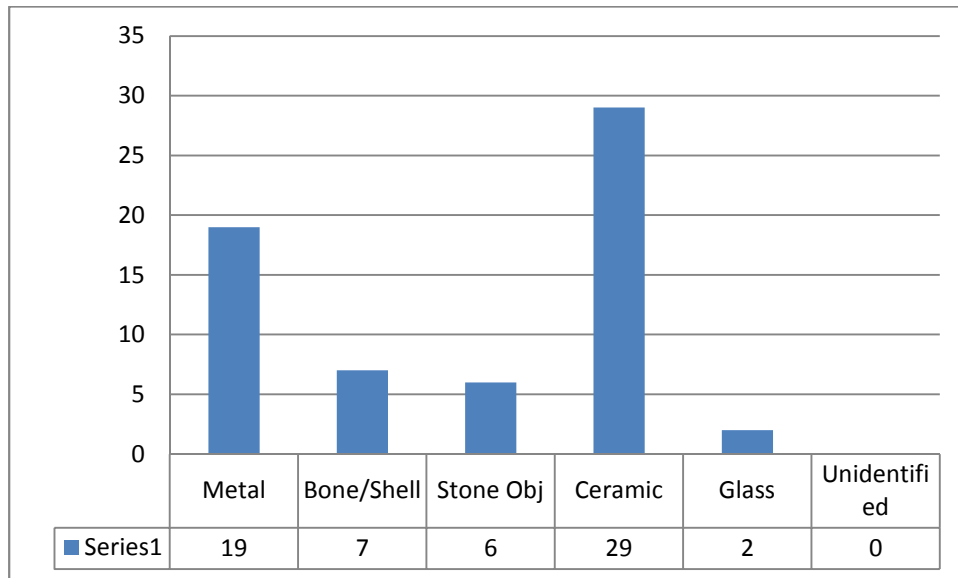


Figure 123: Distribution of small finds at Kirfin Sama Hill (total 63)

7.2.1 Ferrous Objects

Nineteen metal artefacts were recorded at this site, constituting 30% of all small finds. All the metal objects were recovered above a level of 100cm.



Figure 124: Metal objects from the Kirfin Sama Hill

An iron ring was recovered at a level of 40cm, interpreted perhaps to be remnant of a clip, with similar finds at the Tudun Dangawo site. It is similar to the clips observed on a horse bridle at the palace of the chief of modern Kirfin Sama in 2012, as it appeared to be associated with *Ragama*

(horse dress related), noted by RSMS (1981: 46). There is a consistent association of the settlement with royalty and a buoyant ownership of up to 100 horses in the past (MK & MM 2012).

Five arrowheads were recovered. They may have been used for hunting. Hunting is claimed to be a prominent economic system in West Africa (Connah 1981, David and Shaw 1989), while evidence of the consumption of wild animals at Kirfin Sama Hill is shown by the fauna from the site (Linseele 2011, Manning 2013). The artefacts are relatively well preserved. They are all pointed at both ends, except one found at a level of 40cm which is broken at one end, doubtless a preservation issue. A second arrow at the spit level of 40cm also shows indication of a thorny side called *Kaimi*, which makes arrows stick to the body of their targets. One of my informants (IG 2012) stated that thorny arrows are used exclusively for hunting here. I expected arrowheads for warfare to be barbed, but the fact that the use of poison (Yabi) is effectively executed on arrows makes it less desirable to compromise the arrow with the use of much *kaimi*. Any attempts to remove a struck arrow results in creating more pains and destruction to the body. But it is said that the use of poison for hunting is much less powerful, because once targets are hit, hunters follow the tracks of the animals to capture them later. On the basis of the complexity of making those arrows it is difficult to reach any conclusion about the function of, when multiple features denote differences in their usage. It is specifically mentioned (IG 2012) that the arrows are a medium through which the poisons are sent, as it is 'not the amount of damage that the arrow causes that matters, but the ability of the poisoned head to spill blood'.

This group makes up the artefacts classified as knives, due to being of a bladelet nature defined by their sharp edges. These are cutting tools, some associated with calabash decoration rather than the normal domestic type, especially those recorded at 0cm. They are of irregular shape with shallow angles but with a regularity of the extended portion that are not sharp, and likely to have hafted ends. The main circumference of the objects are believed to be sharp for cutting activities, but the one recovered at 100cm level is square with the narrow side blunt, possibly for handling.

7.2.2 Slag

The seven pieces of slag found occur discretely within the sequence, at 0cm & 40cm and later at 80cm & 100cm. The upper occurrence is thought to be smelting slag as opposed to the smithing slag recorded above (0-40cm). This assessment is based on a preliminary visual characterisation on the basis of low vesicles (Edwinus Lyaya Pers Comm. 2012), but fuller analysis is on going. It shows however that the context is associated with both smelting and smithing activities. On smelting, he suggests that the Archaeometrical analysis is beginning to show him that the smelting slag from all three sites was achieved using same technological process of non-tapping technology (pitting system). According to him (Edwinus pers. Com 2013) the microstructure of the slag is thick, made possible by gradual cooling process of the slag, which settled in the base of the furnace before it is collected. He

sees a tendency of the three Kirfi sites from the samples analysed, so far to have used similar technological system of smelting iron. He has not progressed to identification of sources yet. On the other hand oral traditions (MY 2010) linked smelting to a site on the plains about 5km NE of the hill settlement, but report that blacksmiths were common on the settlements that scatter the Kagalan hills.

7.2.3 Other Metal Objects

A metal bar identified as a key was collected at a level of 60cm. It is 7cm long and sharply slanted at the lower part. All interpretation by local informants agreed with the identification of the object as a *makulli* for the locking of valuables. We have corresponding key find from Tudun Dangawo that are artefacts associated with need to safeguard items of value.



Figure 125: Artefact from Kirfin Sama Hill identified as key

Another object of no precise group and of poor finishing was found at 20cm depth. It is conceivable what it served as a suspension, to support a heddle/loom during textile production, which is further attested by oral tradition (MJ 2011).

This is an oval shaped slag or re-fired stone material containing high iron oxide. It is black in colour and perhaps was a counting instrument.

7.2.4 Bone/Shells object



Figure 126: Ivory objects, cowries & glass objects from the Kirfin Sama Hill

Four cowrie shells were found at Kirfin Sama Hill; two at 0cm and the others at 60cm depths. The species identification is inconclusive at this time. However, they are obviously of the family *Cypraeidae*, namely shells of small marine gastropod molluscs. Two species are known: *C. moneta* species from the Maldives, the popular money species, while the second is the *C. annulus* which came largely during the 18th century from Zanzibar during the peak time of the slave trade. It is white with a shiny surface looking like an egg and is called *Wuri* in the whole of the study area. It is well-known that cowrie shells from medieval West African contexts have commonly served as ornaments or as a form of currency (Johnson 1970, Lovejoy 1974, Eyo 1979, Connah 1981, Haour 2010: 173). Cowries used in Africa according to Eyo (1979: 13) ‘came mainly from the Maldivian Islands in the Indian Ocean and the coast of Zanzibar in East Africa’ while the latter is *Cypraea annulus* and became a widely acceptable token for payment of internal exchange or external trade. Eyo (1979:45) noted that Ibn Batuta’s record indicates the purchase of cowries ‘at 1,150 to the gold dinar’ and they had been seen at the kingdom of Mali by AD 1352. Palmer (1928: 123) mentioned that ‘in Sharefa’s time cowrie shells first came to Hausaland, although the actual time has been questioned.

7.2.5 Bone objects

Only three artefacts fall into this category. At a level of 100cm two fragments of ivory smoking pipe bowls were recovered. They are concave, indicating they are broken parts of a round-whole, with their insides clearly glossy, resulting from the firing of a tobacco substance. The undecorated sample is thicker than the incised decorated one which barely shows a simple rim. These items were recovered at a greater depth than any of the clay smoking pipes, and just above a level dated to 1205±30bp.

Importantly, pipes are ‘chrono-stratigraphic type-fossil’ types that appeared in the post-1500AD dated sites in West Africa through the influence of the transatlantic trade (Connah 1981, Insoll 1996: Ogundiran 2002: 70). The date range of this find to 1661-1954calAD therefore fits with this well-known trajectory. But it is a good indicator that the earlier consumption of tobacco had a local cultural preference to use pipes made from ivory, with the use of clay being adopted later, but commonly also. It is argued that ivory has always been an important trade commodity, but was an elitist product for ‘big men’ coming from the elephant and hippopotamus, very common in the forested regions of Nigeria and also locally in the Yankari area is home to date having a great number of elephants (NCF & WWF 1987).

A shell artefact identified as a bead was recovered at the top most level, 0cm, of the excavation. It is seashell with a hole at the centre, possibly for threading onto a twine together with others. This object was found complete but its structure is deteriorated as it scales and peels off easily. Although beads of a similar nature functioned as jewellery (David & Shaw 1989), oral traditions (IG & IS 2011) attribute this firmly to Muslim a rosary. Tasbeeh which is believed to originate from Buddhist traditions became a famous attribute of the Arabs and other Muslims in their supplications. It contains a group of 99

beads tied to a twine, and separated into 33 subgroups, simplifying the counting, used for Muslim ritual supplication. The assumption that the context of the find is of a later cultural development could be a reflection of the belief system of the final occupants of the sites. The site has a richly preserved oral history and the partial remnants of a former congregational mosque are situated about 35m NE of the excavated area (Sule 2010).

It is argued that the thick shells from the pulmonate snail - *Achatina Marginata*, which is a popular land specie in West Africa - were convenient for over 5000 shell beads found at Kongon Makeri (David and Shaw 1989: 340). This could have come from a similar source to that of the Kirfi jewellery.

7.2.6 Stone Objects



Figure 127: Stone tools from Kirfin Sama Hill

Two types of grinding stones were collected here, all at 0cm depth. A complete elliptical/oval shaped upper grinding stone made from sandstone was recovered at the uppermost level of the excavation. The lower part is almost flat in shape, favourable for grinding, while the upper part is curved, facilitating handgrip. The two sides of the grinder are rough and worn suggesting that it was put to another use apart from grinding, perhaps hammering or crushing. The sources of the raw material could be local to the region due to the availability of sandstone in the southern Bauchi state. A similar stone hammer is used as a pottery shaping tool, using pounding techniques in a stone mould, in the Bandiagara region of Mali (Morin & Wastiau 2008).

A rounded granite ball was also recovered. It is not quite spherical because the upper part of it is crushed to flatness (rough) while the surface of activity is worn and reduced to a partial flat surface, due to grinding. Stone balls exist in a natural state due to the geological process but they are culturally put to use for grinding or crushing. They are sometimes associated with the creation of rock hollows

usually found on inselbergs across sites in northern Nigeria. But this example is unequivocally treated as a product for crushing iron slag (Bala 1978, Shaw 1978, Sutton 1978, David & Shaw 1987).

A tiny spherical sandstone ball, reddish in colour and 1.6cm in circumference, with a carefully finished surface but a highly coarse texture, was also recovered. The abraded texture observed on one portion of the ball may suggest that it was used for polishing and fashioning small objects (perhaps jewellery). But other than that precise function of the object, it cannot conclusively be commented upon.

7.2.7 Ceramics

A total of 29 objects fall into this category, and are grouped into five broad headings.

The first group are five fired clay figurines, all incomplete. Two of these figurines (one at 0cm, the other at 120cm) strikingly resemble each other, looking like fish tails and 'T-shaped' in nature. Two others resemble the legs of animal figurines. The same explanation can be provided for the kind of animal representations associated with rituals as noted earlier for the figurines from Tudun Dangawo. The nearest similarities are those from Daima III, upper Benue and the Kaduna valley. Figurative terracotta could be a type of sacred ceramics used in ancestral worship, healing and the protection of hunters or warriors and for attaining success in other economic endeavours (Berns 2011: 240). They are also considered as crucial vehicles for effecting ritual transformations which affect forces that influence outcomes such as the challenges of rainfall, good harvests, averting misfortune and healing, as observed in the other region along the Gongola valley (Berns 2011: 250-251). The silence of these themes in the anthropological sources collected is due to the changes brought about by conversions to Islam, as is the case in other parts of the region.



Figure 128: Clay figurines from the Kirfin Sama Hill

The third category contains indistinctive objects, although they are highly adorned with vertical/horizontal incisions and are made up of highly compacted material, suggesting terracotta, in contrast to other normal ceramic utensils. They may be useful in discussing about personal identities of what figures they represent, but this is unclear at the moment.

They are either decorated with relief/applique or incision. They are only fairly diagnostic enabling no precise assessment beyond recognition; seeing them akin to legs of the animals, with no indication of human being representation whatsoever. However, looking at human figures from Katsina, Sokoto and Jukun (eg Chesi and Mezeder 2006: 119-131, Berns 2011), one observes the occurrence of adornment, represented by bangles at the shin (leg) and sometimes amulets (wrist) on the human figures, similar to the representation of the fragmentary nature of the Bauchi finds, and this poses a problem for interpretation.

Another group of artefacts is represented by eight smoking pipes. Three of the eight remnants of the pipes are diagnostics. Parts of the bowls are represented with two clearly showing their bases. One of the bases is oval and well-constructed (see Figure 121, top middle), similar in style to the type recognised at level 0cm at the Tudun Dangawo site. They are well finished suggesting they are imported items.



Figure 129: Smoking pipes from the Kirfin Sama Hill (Last 2 below are made of ivory)

Interestingly however, the three diagnostic samples show elbowed-stems (stem-bowl) similar to Group III-E-type (Similarly B-type) described by Shaw from his typology at Dawu in Ghana (1960: 298). The item with the feet (middle upper row) resembles the later 17th-18th century AD smoking pipes from the Brong site in Ghana and Begho as shown by figure 21: type b (Crossland 1989, Posnansky 2010). The other one, which is a longer bowl type, could be a variation of the category,

which raises similar concerns that a flat rounded base exists. Although the Tudun Dangawo types discussed earlier were not sharp-bent or elbowed types, the ones from Kirfin Sama Hill are, but there is an elaborate base on one specimen from each on the sites. While they are expected to be fine traded objects - with the excellent finishing observed of the sitting pipe type – they are likely to be dated to colonial periods or even later, as the site was allegedly abandoned less than a century ago. These finds occur widely except 40, 60 & the earliest 140cms.

Overall, all the pipes are polished and red slipped, where three showing horizontal bands of incised decoration near the rims. The three fragmented ones show simple rims of the former round bowls, with evidence of blackened burnt clog inside. They can be categorised generally into narrow (4) with about 2.2cm, and large bowls (2) with 2.6cm circumferences as shown by the reconstruction of the mouth orifice with average thickness of 0.4cm.

Following this are the clay disk class of artefacts. These are ovoid-shaped ceramic objects that were cut and polished (see above for discussion of similar items at Tudun Dangawo). Of the four disks found, only one is decorated with a deep single groove overlain by folded sting roulette decoration. The large one has a circumference of 5.6cm and is 1.3cm thick, while the medium disks are on average 3.7cm circumference and 1.2cm thick, distributed between 40cm and up to 60cm respectively. Three are complete circles but the fourth is broken, giving it an angular outlook but maintaining the polished edges, on an area rounded to a circle if it were complete. All are red slipped and well burnished on both sides.

The precise function of these objects has not been positively established using ethnographic research in the area of study, although there are vague references to them being objects associated with fishing (MK 2011). However, they do not possess the same description as net sinkers by David and Shaw (1989:315-318) but fit their interpretation of ceramic disks in their account. They could not attribute these objects to any precise function either, but they point to their use in other parts of West Africa as gold weights. In the same vein McIntosh (1995: 217) also reported the use of these disks in Begho and Gao as weights using the Islamic ounce (*uquiya*) measurement system, especially when they are isolated, and also highlighted their potential function as pottery pavements, as Ogundiran later pointed out in Mali. However, we have no direct evidence yet from this area of a prized commodity such as gold and its trade. Finally, ceramic disks have been associated in the literature with architectural features. They are reported as wall or column tiles in the Yoruba region of southern Nigeria by Ogundiran (2002: 115). They have been found generally at Ife, Okun and Iloyi settlement sites dating from the 11th- 15th centuries but reportedly connected with ritual settings. A link is observed between the prevalent cord roulette decorations commonly found on the pottery to those on those disks that paved the walls and this suggests common sourcing of the tiles, from the pots around them. They were used to adorn the surfaces of vertical mud features or columns. However, the current research has not

yielded a sufficient density of materials associated with built structures to warrant their explanation at this stage as wall tiles, but only because we simply have not excavated a fully paved structure yet. If they are wall tiles, then would conclude that all the sites are associated with domestic built structures. In summary, however, the function served by the Kirfin Sama Hill disks still remains to be determined. But, the worn edges indicate to us functional purpose due to rubbing, grinding and polishing activity.

A fourth group of artefacts consists of six spindle whorls or beads. These were found evenly distributed through the stratigraphy, with the lowest appearing at 120cm of the excavation. Only two are fragments but all are diagnostic enough to show their preserved halves and parts of the holes for the fixing of spindles. These are oval shaped beads with holes at the longest vertical centre to accommodate the rolling sticks that are inserted into it them to serve as handles. The largest in size was found at 80cm depth is 3.0cm in circumference and 2.9cm in height.

Two of the objects are decorated with multiple incisions, two others are undecorated, while the final two are completely painted with white colour and another band of single lines. They are all elongated and more prominent at the upper end of the whorl, except one specimen, collected at 20cm depth with a bead for adorning the body. That bead has cracks and is painted with a thicker single line near the centre. It will therefore not be surprising if the bead type was a pendant or neck bead. Although archaeological excavations at Jenne Jenno, Mali have shown an antiquity of spindle whorls to 1000AD, they also recorded how spindle whorls are recycled to serve as fetish necklaces which are a powerful element of ritual practice (Fisher 1984: 115).

Beads are fundamentally similar to spindle whorls, having an oval shape with holes cut through their interior. The clay is moulded while a stick is forced through it to leave the hole impression, and the size of the hole is seen to be a distinguishing factor between spinners and beads for body adornment. According to traditions (IG 2012), beads require smaller holes to allow twine to hold them together as a pendant, while spinners need to have larger sized holes to accommodate a rolling stick that would have penetrated it, which is not distinguishable here.



Figure 130: Spindle whorls (upper row - last has no hole), other ceramic objects (middle row), Clay disks (row below)

7.2.8 Others

A total of six utilised artefacts were found that fit into the ‘others’ category. They are not discussed together with clay disks because of suggested functional interpretive model for them.

The first is a clay ball. This is a single undecorated spheroid-shaped object found at 60cm depth. It is, in every manner, similar to a spindle whorl but is lacking the vertical hole. It is interpreted as a counting stone or bead, or perhaps even a spindle whorl that was mistakenly finished without the usual hole, making it a discarded item.

The second subgroup of the others type is the ground sherd objects. Four objects are listed as ground sherds. Two objects were found at levels of 20cm or near triangular forms, with the exterior surface polished. Instead of the wear observed is at the edges as in the case of clay disks, these are showing worn external faces of the sherds which are likely to be the result of grinding activity. The second sample shows, that the longest dimension is finely worn in addition to the facial grinding. The triangular utilised sherd is thick.

However, another two specimens displaying poorly executed polishing at one edge with a whitish substance stuck to the other faces, were collected at 40cm depth both measuring about 3.7 x 2.8cm and 0.9cm thick. They are perhaps tools used to plaster or for filing the uneven surfaces of utensils under construction.

One sherd bears a large perforated hole with a rough body finishing. It may be a kind of pendant but it should also be noted that pots used for steaming purposes (couscous) are constructed with multiple holes in them to facilitate the escape of vapour, while chicken huts are constructed with vents to facilitate ventilation for domestic birds called *Akulki* which often display such perforations.

7.2.9 Glass

The Kirfin Sama Hill site's level 0cm produced evidence of glass use with two artefacts. These are certainly from two different objects due to microscopic differences observed in the colour of the material source. Though both are transparently white in colour, they are all base angles of bottles. Though they are fragmentary, their description is useful especially as it relates to relative dating of the context where they occur. The enormous amount of glass ware at other sites in west Africa, such as those of the Inland Niger Delta studied by MacIntosh (1995) have produced a high variation in chemical content and context likely to correlate with the sources, but these remain to be done here. On this basis, a comparison made with artefacts from India, and East and Southeast Asia, has left only possibilities of their origin. However, Boachie-Ansah (2008: 51) specifically identified Netherlands, England, Belgium and Germany as sources for the glasses bottles found in his excavation at Fort Amsterdam in Ghana. This is possibly due to the high quantity (several thousands) of glass products, with some in relatively good shape, enabling analysis dating since the 18th century. Wine glasses are some of the prominent finds. Yet glass is certainly considered to be an exotic material in the archaeology of Hausaland where we have no evidence of local production of glass. Ife is specified to have shown deep rooted local glass manufacturing industries dating from the 11th century up to recent times (Ogundiran 2002: 118). The Kirfin Sama Hill finds could indeed, given their context, be very recent.

7.3 Kagalan

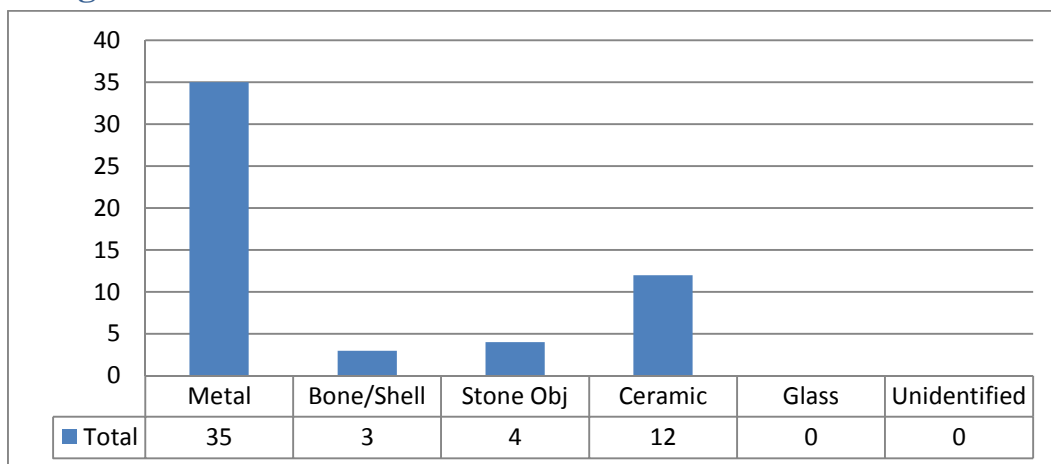


Figure 131: Distribution of small finds at the Kagalan (Total 58)

7.3.1 Ferrous Objects

A total of 35 metal objects (60% of all small finds) were recorded, including slag. The latter is mainly assumed to be blacksmithing slag, even though six resemble smelting observed visually due to their weight, chunky size and the absence of vesicles (Edwinus pers comm. 2013).



Figure 132: Metal objects from the Kagalan

A single circular object was recovered at 0cm depth. This appears to be a ring-clip with a terminal overlap. It is comparable to the items discussed above for the Tudun Dangawo site.

Eight pointed artefacts thought to be arrowheads were recovered; four of these are complete, measuring 9.5cm with two ends of the objects pointed, it is expected that they were thicker for the target while the thinner yet pointed ones go into a reed handle, while the four fragmentary ones have an average height of 3.3cm with, however, the same thickness. The objects are all square in shape and are straight.

Two blade-like artefacts suggested to be tips of knives were also excavated at levels 0 & 20cm respectively. The irregular triangular knives have the lower portions indicative of the sharpening while the upper usually flat surface is blunt. They are likely to be tiny hand knives that did not require hafting.

7.3.2 Slag

A total of 17 pieces of smelting slag were documented at Kagalan. No scientific analysis has so far been conducted on them, to test for their chemical composition or even methods of production and classification as smelting or waste from forging activities.

Iron slag only occurred above levels 100cm at both the Tudun Dangawo and Kirfin Sama Hill, and 60cm at Kagalan, maintaining a presence almost throughout occupation until abandonment. There is reasonable correlation between the presence of iron slag and iron objects, including arrowheads, at the sites, except that, no iron objects were recorded beyond 60cm at Tudun Dangawo, and the Kirfin Sama Hill shows no iron slag between levels 40-60cm, but it appeared at 80-100cm thereafter. This research is interested only in these finds to show the presence of smelting/smithing with no intention

to carry out serious chemical or mineralogical analysis at this stage. It awaits fuller analysis by Edwinus Lyaya at University College London on the samples to reconstruct type categorisation between smelting and Smithing, and the method or efficiency of the smelting, to know if tapping or non-tapping methods were employed and an effort to reconstruct efficiency levels, combining the study of tuyère, slag and furnace walls. I can only suggest, at this stage, that ironworking was important in these three settlements.

7.3.3 Other metal objects

Three pointed metal objects were collected during the excavation. These artefacts are of a similar length to the arrows but are thought to be needles, as they possess curved-ends that are mostly broken. The three objects are about 0.6cm thick. Ethnographic examples from Kirfi show similar items as *masilla*, which are needle-like with a hole at the blunt edge, which were produced to hold jute twine, popular for the sewing of jute bags for storing the agricultural harvest, items which have virtually disappeared in the last decade (MM 2012). However, another informant (IG 2011) recognised the points as a tool kit from the traditional hair barbers for the removal of *belu* (Uvulectomy). The curved ends are directed into the throat to cut the intestine-like growth, deep in the throat, that is commonly believed by Hausa people to cause pain and even result in death if not done on time.

Three bent pieces of iron objects with pointed ends also occur at the site. A clearly recognisable hook at 20cm shows similar attributes to the other partially fragmented pieces at both 20cm & 80cm, likely broken at the sharp twists. They are possibly hooks for some other activities the proximity of the site to the River Gongola possibly suggests participation in a fishing-related economic system. One of these items was subjected to chemical analysis. The high level of oxygen that negates the quantity of iron oxide is attributed to a post depositional event to do with object conservation.

Formula	O	Fe	Si	Al	Ca	K	Mg	P	Ti	Sr
Concentration	75.6	9.9	7.0	3.4	2.2	0.84	0.49	0.41	0.21	0.03

Table 23: Major chemical elements for the hook artefact at 80cm from the Kagalan

At 20cm a metal figurine resembling a human foot was found, of poor material finishing. However, it did not offer the possibility of clear interpretation, other than a possible play object for children or a fragment of another kind of cultural material not recognised so far.

7.3.4 Bone & Shells objects

60% of all small finds are bone or shell artefacts. At the youngest level of 0cm, three cowrie shells were found. For further details about this see chapter five. The significance of cowrie shell as a medium of exchange, and as an object of decoration in West Africa was discussed above. A thinly manufactured circular bone artefact, with a hole at the centre, was also excavated at the 0cm level.



Figure 133: Bone ring from the Kagalan

This ring is believed to have been precious jewellery – a pendant for adorning the body - but the nature of the raw material as bone makes it difficult to situate, in view of an absence of information from ethnographic data during fieldwork. It is interesting that the level of carbon oxides, with a corresponding percentage of oxygen oxides (Table 24), confirms the use of material akin to bone for its manufacture.

Formula	C	O	Si	Ca	Al	Mg	K	P	Fe	Mn	Ti	As
Concentration	55.9	40.8	2.0	0.55	0.48	0.11	0.07	0.06	0.04	0.03	0.01	0.01

Table 24: XrF elements for bone rings from the Kagalan site

7.3.5 Stone Objects

Four stone objects were recovered.



Figure 134: Stone tools found at the Kagalan Site

A grinding stone was found at a level of 0cm, made of vulcanite stone. It has a flat well-polished lower face while the three other sides of this rectangular shaped piece are designed for handling. One end of the tool is broken in a well-cut manner, while the other is partially broken and flattened, as if it

were used for hammering. The object could have initially served to grind herbs and other things, as it is relatively smaller than the traditional grinders. One experimental observation is that it was much more convenient to hold for the potential use of smoothing something using the lower polished surface, than it would be to grind. The wear analysis favours its use for smoothing, considering that the thumb and the third finger conveniently hold the sides of the tool, while the second finger rests on the upper face in order to firmly push the lower face into action. The depth of traditions relating to pottery may suggest the object was used for panel beating and formation of the body of the pottery vessels (*Zuza*).

Three stone pebbles were recovered; two are oval shaped, while one is round. The larger of the oval pebbles, recovered at 80cm depth, shows the lower part to be highly worn. The smaller oval shape is broken, it was found at 20cm and is made differently, from quartz. However, the ball type is 3.0cm circumference and 2.1cm in height with one side more intensely worn than the other sides, signifying an area of activity and handling respectively.

They are perhaps natural river pebbles that were put to use to burnish the surface of pottery during manufacturing, as recognised and called *mazoz*i by all the potters interviewed in Kagalan (for example LK & HK 2011). They form part of the important tool kits of the potters even today. Mazoz*i* based activity related to potting may therefore have quite a time depth as the specimens from Kagalan issued from a context dated to 667±28bp.

7.3.6 Ceramics

The site produced a total of 16 ceramic objects.



Figure 135: Ceramic small finds from the Kagalan site

The 0cm spit level produced a single clay figurine, seemingly the fragment of an animal leg. It is decorated with a vertical band of grooves aligned along a belt of relief around the front face. The

fragment, likely to be a representation of an elephant leg, seems to occur not only here but also at the Kirfin Sama Hill.

At a level of 20cm a fragment of a smoking pipe stem was found. A hole was clearly visible at its centre and the black body is well polished but there remains little of this object to reconstruct the pipe for any useful classificatory typology.

Four ground sherds were excavated. Two specimens are imperfectly round, ground on all sides, undecorated but burnished and red-slipped initially on one face. One is triangular, with all three edges worn, both faces undecorated but well burnished and slipped. Finally, one item was rectangular, showing four angles even though one end is broken, exhibiting no trace of the wear observed at the three other sides. It was found at 40cm depth.

A single clay spinner was recovered at this site. It is 3.8cm in circumference and 1.1cm thick with a hole neatly executed at the centre up to 0.4cm in size. Technically equivalent to a spindle whorl, this single find is a perfect circular baked clay artefact that looks like ceramic disks, but is structurally different because of the hole in its centre. Clay spinners, according to the ethnographic record (MY 2011 AS 2011), are specially manufactured for spinning purposes and therefore are not cut or grounded at the edges, as was the case with the disks.

Three further clay artefacts from Kagalan were a probable sharpener, four perforated sherds and a tuyère fragment. The sharpener occurred in the context dated to 316 ± 27 bp is a thick fragment, the remnant of a sherd object that is decorated with 6 grooved lines and was found at the 40cm spit level. The clay texture is extremely fine but also very hard and the grooves indicate they were intentionally made and used to draw pointed objects, for the purpose of sharpening them with micro cuts. It is therefore considered to be a tool for repairing other tools (in the way of sand paper).

Four fragments of different utilised sherd objects were recovered: one at 0cm, two at 40cm and one at 60cm. They are large bodied and possess a fine whitish sediment on the inside and all the way through the supposed hole. This (0cm & 40cm) is likely to be part of a container that served as a steamer or drainer. It is known that, in the preparation of kaolin to serve as paint, a process is undertaken to sieve out the large chunks and prepare a solution, perhaps for painting pottery. They are curved in shape.

The second group of utilised sherds were barely 0.9cm thick. They are slim, well finished with a glossier outlook and are slipped red coloured and seem to be straight with rims shown above the holes if they are placed upright. These orientations suggest the first types are either the bases or the peaks of the artefact while these are the sides. The crude finishing of the first and fine for the second are indicative of variations. Unfortunately no clear function can be discerned at this stage.

Finally, a putative tuyère fragment was recovered in association with the context dated to 316±27bp, bearing impressions achieved by the burning of imprinted plants on the clay during firing. Though limited in quantity, this is but another indicator that this period witnessed iron working which is in keeping with the oral traditions, the presence of smelting slag heaps and furnaces about 2km north of the site, and the recovery of slag at the site itself. But it is not clear at this stage if the find is a fragment from a forge or smelting tuyère.

7.4 Concluding remarks

On the basis of small artefacts distribution one can state that all the sites were used as human settlements, displaying related but sometimes different levels of economic specialisations. Tudun Dangawo displays some indications of potting activity through the recovery of a possible potting model as well as of pebbles that are commonly used for burnishing pottery. It also displays varieties of objects near the top whose nature suggests they are of modern origin, some likely to have been exchanged through trade.

On the other hand, Kirfin Sama Hill featured terracotta fragments relating to animals, whose functions remain obscure. The settlement confirms textile production, as an important economic activity, which oral traditions and ethnography about cotton production, shown earlier in Chapter 3, reflected. The terminal period at the site seems to be modern, with the appearance of objects like fragments of wine bottles.

Kagalan's diversity is reflected by the consistency of iron working, from the processing evidence, and those to do with the making of pottery. In all cases except Kagalan, the ethnographic and oral histories collected, have been consistent and useful in providing a working trajectory for the ancient economic systems of the inhabitants of these sites. Generally, metal processing and use from the artefacts excavated, as well as slag, is an important economic character of the three sites under study, but only from after the topmost levels to 60cm at both Tudun Dangawo and Kagalan, while up to 100cm at Kirfin Sama Hill. Ceramic production, which is the mainstay evidence for this research as shown in the preceding chapter, is displayed in the making of specialised and utilised tool kits for all the sites. All the settlements employed stones as tools.

CHAPTER EIGHT: CONCLUSION

The archaeological research described in this thesis was undertaken in order to supplement the inadequacy of oral histories and historical sources in reconstructing settlement history in the southern Bauchi area within the past 1000 years. The central aim was to gain a better understanding of settlement occupation in the southern Bauchi region and consider how it related to wider economic, religious and social networks. Only very few archival sources were available, and no local manuscripts were known which might inform us on socio-political and economic systems during the period 1000-1600AD. Some sources existed to address the most recent history, going back about two hundred years, but they had obvious limitations; exaggerating events, diluting sense of time, and manipulating facts to suit group sympathy to the detriment of the general history of the peopling of the region. Therefore, this archaeological project was begun. It should be appreciated, however, that ethnography and oral accounts have been extremely valuable in creating a framework through which archaeological work could be structured.

As this work now draws to a close, its significance will be examined in terms of the chronological framework now created, in terms of the data obtained on economic systems, site specialisation, and trade relations, and finally in terms of the insights into questions of political influences and of the character of social identities.

First of all, as regards chronological framework, this research has added five absolute dates to the known archaeological data for the region. Unquestionably these five, issued from three separate sites, are a small number, but they should be seen in the context of a region where hardly any radiometric dates existed prior to the present research. In view of these new absolute dates, then, I can now tentatively propose a rough outline for phases of human occupation of this part of the Bauchi region. Occupation is evidenced at Kirfin Sama Hill in the last part of the first millennium AD ($1205\pm 30\text{bp}$), a date issued from the basal layer of this apparent midden; finds associated with this layer included few fragments of pottery and bone. This seemingly represented low-intensity human activity whereas layers above, from which we have a date 1000 years younger, evidenced an increased accumulation of cultural debris. The relationship with the architectural remains still standing on the surface of the site remains unknown. The clearest sequence is that at Kagalan, where we have two dates falling roughly in the middle third of the second millennium ($667\pm 28\text{bp}$ and $316\pm 27\text{bp}$) and

evidence for a possible potters' workshop. The evidence from Kagalan points to a stable life-ways and a developed economic system. We have evidence from a similar period (364±25bp) from a refuse pit at Tudun Dangawo, containing pottery, bone and grinding stones and topped by levels of occupation with no discernible evidence of structures, possibly a result of later cultivation of the site, possibly because relatively perishable materials had been used.

The final abandonment of the sites can most likely be placed during the 19th century, based on oral evidence and on surface finds. A disruption in the occupation of hilltop settlements as it happened generally in other parts of northern Nigeria is attributed to new political systems facilitated by the 19th century Jihad of Uthman Ibn Fodio and the subsequent creation of a Caliphate administered from Sokoto. That is proven to have changed traditional systems across our region, when a new city-capital emerged in Bauchi.

We can at this stage say little of the early settlement. The early Kirfin Sama Hill date stands alone for now. Though we have some idea from central Bauchi region of settlement from the nearby site of Kariya Wuro, which may predate the initial period of occupation of Kirfin Sama Hill, Kariya Wuro is poorly dated and the materials from Kirfi have not demonstrated a clear relationship with those from Kariya Wuro.

One working hypothesis for now is that at some point the Gongola river valley and the adjacent hills witnessed rapid economic resource exploitation and competitive human relations. The periods from 13th century up to the end of the early 19th century might be envisaged as periods of competitive social relationships where politics played a key role, as later shown with the Sokoto Caliphate's political expansionism, which altered earlier settlements and led to the final integration of the political system into modern times. The subsequent centralised political system shapes and reflects upon the regional and sub-regional settlement structure.

In any case, the archaeological research reported here has certainly led to a reassessment of the chronology provided by oral tradition. The site of Tudun Dangawo was claimed to be the original home of all the Kirfawa, but is in fact a fairly recent settlement according to archaeological data. The site of Kagalan is which is believed by tradition to have thrived about 200 years ago, and have been abandoned only about a century ago, produced data which suggest its peak came about 400years ago.

The survey of cultural materials and artefacts found during the research shows markedly different natures for the sites. Tudun Dangawo is well situated to take advantage of the embankment created by the river Gongola and seems to have employed built structures prone to decay, as suggested by the recovery of wattle and daub remains. Kirfin Sama and Kagalan hill sites apparently had some concern for defence purpose as elaborate walls were constructed around them. The later palace of a ruler at Kirfin Sama Hill and the oral histories associated with it who worked textile so important as described as a monarchs trade as observed from spindle whorls, show that it was an important site accommodating administrative chiefs and slaves of the chiefdom from thread of Ningawa and Jukun powers, while the Kagalan settlement evidenced distinctive trades of metallurgy and potting.

With reference to the artefactual evidence discussed in Chapters Five to Seven, we can say that groups of people who relied on similar, but sometimes distinct, economic systems lived side by side within the landscape of Gongola valley. On the basis of archaeological evidence from this case study, we know that iron working is important to all the settlements sites from the 15th century onward considering the earliest appearance of iron slag and utilised artefacts and their subsequent popularity at all sites. We have no finds earlier than the level dated 1489-1646calAD for Kagalan, or the post 1661-1954calAD for Kirfin Sama Hill and beyond the upper level of the in-filled pit feature at Tudun Dangawo dated to the 1451-1633calAD, although I recognise that many more excavations may bring other cultural contexts to the fore. The oral histories combined with this archaeological record of iron production and consumption indicate metal's importance to the economy of the people of the region and the period between the 15th and 17th centuries appears to be one of intensification in that regard. The abundance of furnaces and slag heaps and the availability of ferruginous deposits in the area must have favoured the industrial working of iron. Episodes of high levels of artisan migrations in the states of the Hausaland are recorded for the 1840s, due to perceived overtaxation, and resulting in Hausa artisans and merchants moving outward reaching to as far as Old Oyo and Adamawa.

The rich alluvial and clay deposits from the decayed parent rock became a source of material for a Kirfi production of ceramic wares. Pottery is the most dominant cultural material found throughout the occupational phases of Kirfi. The stone platform found at Kagalan site, existing together with stone polishing artefacts and the remains of a container of red clay used as pottery slip, suggest the excavated area was utilised as a potter's workshop. The huge

quantity of potsherds associated with the rock platform is reminiscent of discarded pieces sometimes dumped at times when the decision is made to move work places. At Tudun Dangawo too, potting may have been practiced, judging by the recovery of burnishing stones and of a model of pot.

Textile-making, as shown indirectly by the presence of great numbers of dye pits and corroborated by historical texts and oral histories, appears to have been an important craft in Kirfi. Historically it is known that in the 18th century and most especially in the 19th century groups of specialists migrated from Kano and Zaria regions wishing to expand markets, avoid the huge tax regimes prevalent in their home areas, and explore markets as far as Adamawa. Though dye pits are not directly situated in the sites excavated, the tools associated with weaving are represented at Kirfin Sama Hill by spindle whorls and at Kagalan by a clay spinner.

The economy of Kirfi also consistently utilised animal resources for subsistence, as shown by the faunal remains recovered, occasionally featuring cut marks. The animals represented are in tune with the wild and domesticated animals seen to exist or have existed in the region, but it is reasonable to suppose that wild species were much more available in the past and that the character of Kirfi might have been closer to that of modern Yankari game reserve just nearby. On the weight of economic evidence at hand, Tudun Dangawo displays primarily wild animal species, especially birds, reptiles and Mollusca. Bones were exposed to high temperatures, indicative of roasting. The Kirfin Sama Hill cattle remains also show possible evidence of a 'feasting event' while pathological assessment suggests the use of cattle for traction purposes, which in modern practice associates with pulling of carts. This goes a long way towards supporting traditions I collected speaking of the supremacy of agricultural activities. Nearly all male informants interviewed during the period of this research are principally farmers during the rainy season, but some engage in other secondary crafts as a specialisation and way of dealing with the long dry seasons every year. While we noted the existence of 'the dry season eaters' migrating to urban centres today (*cin rani*), it could be a similar situation where similar situations coupled with population expansion as noted in historical texts in the Hausaland served as one the influential factors for the migration of people due south to the reaches of Bauchi. The presence of crocodile and perhaps hippopotamus as well as of freshwater fish of above average size at Tudun Dangawo, Kirfin Sama and Kagalan, indicates access to deep waters. They are all less than 10km from such water, where Tudun Dangawo

is indeed less than 500m away. Detailed analysis of the Kirfi fauna is a priority for further work by Verle Linseele (Katholieke Universiteit Leuven). But what can already be pointed out is the obvious economic diversity, with all three sites revealing mixed terrestrial and aquatic resource strategies. The fact that people of the hilltop sites had access to deep-water fish gives a further indication that they functioned as part of an integrated landscape.

The river Gongola is a clear attraction for past settlement. The modern Fulani pastoralists describe the river as the factor that attracted them to the valley. As indicated in Chapter Four, my surveys revealed a high density of cultural materials aligned with the riverbank of the Gongola. This, together with the apparent continuity in settlement and track locations as recorded in historical sources in the past 200 years (for example by Rohlf's at the time of his visit), all suggest that the river favoured considerable population densities in southern Bauchi region for this last millennium.

It seems clear to me that neighbouring polities such as Borno and Hausaland had, through economic exchanges, considerable cultural impact on the people living in Kirfi. The most marked impacts could have occurred largely through trade, but they were likely mainly facilitated by political developments over the wide region known today as northern Nigeria. The population here I believed was politically conscious of its status and likely diplomatic standing through relations with political systems around them. The stone and earth wall systems that dotted the region, as recorded in Chapter Four, are believed to have served for protection if they were at all involved militarily in direct warfare. It is pertinent to recall here Connah's point (1981) that the savannah is rich in floral and faunal diversity compared with other ecological zones, and therefore offer a very attractive incentive to humans and to the practice of pastoralism (as seen today by the economies of the Fulani). Speaking of a 'corridor model', Connah points out that the savannah could have served as a convenient passageway for conquerors, traders and pastoralists – citing movements as diverse as those of Fulani herders, the Seyfawa rulers of Borno and trade across the Sahara. Regions like southern Bauchi likely provided refuge for these groups. It is in this regard too that the social conditions argued by Kopytoff's internal frontier model (1987) are relevant, resulting in the diaspora creating new cultural entities away from their original abode.

The examination of the artefacts at the three sites considered here shows the presence of exotic goods and products serving as strong indicators of a social and cultural network beyond regional boundaries. These exotics include carnelian, with a likely origin at the River

Niger and associated historically with Hausa and Yoruba traders, smoking pipes, glass and cowrie shells; they point to the integration of markets in the Nigerian hinterlands into wider systems. This is perhaps especially the case with those linking Africa with Europe and the Indian Ocean in the 19th century. Archaeological finds such as the cowries found at the sites suggest this, while the upper levels of Kagalan and to an extent those of Kirfin Sama Hill provide examples of exotic products of European origin such as glass and smoking pipes which suggest the last 200 years were a period of intense relationships that opened up African markets to European items through administration, military campaigns and exploration. There is no doubt however that there must have existed strong local and regional trade networking in items which are not archaeologically visible but which are attested historically. Kirfi was strategically located for important centres such as Kano and Borno and slaves and salt found in the Bauchi plateau, as well as items such as dyed cloths and calabashes, were probably exchanged with these people. Clearly the quantity of dye pits and iron-producing remains visible in Kirfi today lend support to this idea.

In terms of shedding light on the traditions of origin of the Kirfi people, the oral traditions collected have been valuable in understanding different layers about origins in the stories. The direction now connects to Borno, a later influence, but Hausa links are implicit elsewhere. There is a possibility that the reference to roots to Yemen in the Middle East via Birnin Gazargamo is by the people connected to the ruling dynasty of Kirfi, who may be minority. The common people with little attachment to the kingship provides accounts deeply rooted to Hausaland (Borno vs. Hausaland). We cannot rule out the tendency that the elite's roots have profoundly played into dominance of the east coming, as a strategy, of emphasising exotic roots. This is commonly found in most West African societies, where today's Muslim elites identify with Arabia due to an association with Islam. This (Borno version) is likely one of the recent waves of migration into Kirfi, but the strong presence of traditions of Gunfu and Kamberi, described as lost identities but recognised by the reference to their burials and stone built structures (well documented in the records of colonial administration collected in the last century), feature a semblance that I perceive as the 'nameless Hausa' cultural identities. This is much more played down but it is because they had no Islam or central kingship to be prestigious.

Trying to reconcile this with archaeological data can only be speculative at this early stage. We have seen from pottery that there was a kind of consistent use of characteristics and forms that are typical to sites in Hausaland and sometimes to those of the later Borno state when

they were massively expanding their political spheres which resulted in the extension of their cultural traditions to these margin communities. Pottery of Kirfi show strength in parallel with pottery of Hausa areas, noticeably the rim forms but also decorations. Most of the pottery recorded at the three dominant Kaduna valley sites, fit well with Kirfi types as indicated in Chapter 6. Another principal decoration of the sites relevant to our period which distinguish Borno with many other West African sites is its prominence for the use of sgraffito. This is like incision executed on a body of a finished vessel when the surface is dry. It is completely absent in my archaeological record.

Looking at historical angles, one can describe the histories of Hausa states and that of Borno as intertwined with each influencing the other in the last 1000years. These relationships left the cultural traditions in the Bauchi region a reflection of the continuing dialogue between the socio-political as well as economic systems that transpired in the two powerful polities where Sokoto finally conquered them all. Therefore I can only argue that the pottery shows dominant characteristics noted in the pottery traditions of the Hausaland.

The three sites excavated show strong cultural relationships, indicating shared values among the population that inhabited them. The differences can be attributed to relative functional specialisations and to any ranking or hierarchy that existed among them. The Kirfin Sama Hill site is possibly the largest and politically most important site, that may have had a hold over the whole of chain of hills and whose landscape witnessed different episodes of human occupation judging by the extent of cultural features. On the other hand Kagalan shows crafts; metallurgy, pottery making and the possibility of ritual significance, when we understand they are symbolically associated with containment and material transformation which require supernatural interventions. Tudun Dangawo for its part appears to be of a more 'mundane' nature, involving potting and food processing.

On the strength of archaeological evidence, this research cannot describe the identity of the people who lived at the sites into specifics; Bolewa, Kirfawa, Jukun, Hausa or Agalawa that traditions and historical sources always mention, but it noticed a sense of strong cultural relatedness between the themes and cultural characteristics observed at the sites. Where differences occur, it is likely due to the fact that each of the sites was specialised in a particular sphere within the overall social group(s) that inhabited the region during these times. But I will argue that there is cultural affiliation achieved through social connections between the occupants of the sites to express the kind of inter-site cultural relationships

visible through the pottery and other artefacts. The majority of the rim forms, which by implication accord with pottery types, studied by David Aiyedun and Thurstan Shaw (1989) from several sites of the Kaduna valley (about 350km from Kirfi), and those from the Zaria region (300km from Kirfi) show that the vast region characteristically shares common vessels forms. If types are suggestive of functions we should then expect similarity in the kind of social activities they all do with these potteries. Metal tools such as rings, blades and points and stones including grinding stones and pebbles occur over this wider Kasar Hausa and Kirfi sites.

I submit that, in agreement with the argument made by Blench (2010) for a splitting of West Chadic languages in the last millennium (when Adamawa languages were pressed further south), I see this as a result of more informal trader/artisan/migrant contact over the centuries that resulted in the strong influences of Hausa expanding its territory. This expansion, noted through other sources through slave raiding, economic merchandise, and artisans' movement. This expansion of the Hausa are archaeologically visible through the acceptance of Hausa way of life (living on hills and surrounding same with stone walls and tradition of making cloths noted through dye pits) recorded in the Kaduna Valley, Zaria region, and Kano sites that have also been recovered in the southern Bauchi area, a frontier zone between the fully known region. In the order of appearance of decorations, roulettes dominated by folded strip and twisted string, incisions (including grooves) and later twisted cord roulettes are commonplace, with significant appearance of painted wares as composites. Except for the combination of these diverse roulettes and incision that are so popular here, the general picture of decorations at Kirfi site accords with data from slightly better known sites (such as Kaduna valley and Zaria) in the Kasar Hausa, which together with evidence of similar settlement preferences and economic activities lends weight to the idea of sustained Hausa cultural traditions in the Kirfi area.

It is worth observing that the contribution of this research has succeeded in laying a foundation for the understanding of its past history, potentially working in tune with existing knowledge from other parts of northern Nigeria. Further archaeological studies should build on this to look at other areas in the modern Bauchi state for a proper understanding of the settlement systems and its implication for past socio-political of the whole northern Nigeria. This three-year research is by no means conclusive - I recognise that more needs to be done in the application of archaeology to contribute to the early history of West Africa. But the three sites described in this thesis add to what we know from a region, Bauchi, that had been

previously almost totally ignored by archaeologists. Ethnoarchaeology, despite its odds, remains the best method for our drive at the past 1000years. But linguistic and material culture will continue to tell us more about these relationships while oral traditions suggest frameworks for archaeologist. A lot more needs to be done by archaeologists, archaeometallurgists, archaeobotanists and historical linguists.

We begin to see that, rather than going by the uncritical acceptance of myths such as Bayajidda, forcing a strict zoning of Hausa areas (as done for instance by Adamu 1974), we should consider that social and cultural traditions are perhaps better located in technology and styles of making. Here archaeology can clearly make an important contribution. It will show us to be more cautious in defining boundaries; this study confirming that social boundaries are fluid and that there were several episodes of relationships between the vast region known historically as Kasar Hausa and southern Bauchi in the last 1000 years.

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Dr Mahmoud Hamman. Former Director Arewa House, 2 March 2012, Zaria.

Dr Nuhu Waziri, Specialist on West African Geology, formerly of School of Environmental Sciences, UEA

Dr Edwinus Lyaya, 2013. Archaeo-metallurgist, UCL

Primary Sources (Oral interviews)

Name Initials/M - Male; F - Female	Age	Occupation	Place f interview	Dates
AA/Abubakar Mohammed, M	15	Pottery making & selling	Alkaleri	26-2-12
AB/Aminan Babba	39	Geophagy & women in crafts	Kagalan	4-3-2012
AD/Abbakar Muhammad, M	75	Dyeing, Rituals, River Gongola, barbing, weaving	Kirfin Sama	27-2-12
AG/Abubakar Shago, M	28	Civil Servant	Cheledi	June/July 2010
AH/Mohammed Ashiru, M	50	Blacksmith	Guyaba	June 2010
AI/Aisha, F	35	Geophagy	Kirfin Sama	3-3-12
AJ/Abubakar Njidda, M	62	Cotton Spinning & Secret rituals	Cheledi	29-2-12
AK/ Abdulhamid Korau, M	61	Textile making	Zamani	24-2-12
AK/Alhaji Kawu, M	70	OT, Settlement Systems	Kirfin Sama	10-5-11
AM/Amina Kagalan, F	61	Potter	Kagalan	May June/July 2010, 2011 & 2012
AN/Aminu Katsinawa, M	55	Famer, Civil Servant	Katsinawa, Toro	01-3-12
AS/Aliyu Sarki II, M	68	Chief/Pensioner	Kirfin Sama	May/July 2010

AT/Adamu Tanko, M	52	Textile Production	Cheledi	29-2-12
AU/ Adamu Sindigawo, M	29	Nomadism, pots & farming	Cheledi	2-2012
AY/Ali Yakubu, M	86	Textile making	Zamani	24/25-2-12
BB/Babaji Baduku, M	67	Tanning & Dyeing	Cheledi	3-3-12
BG/Basiru Garba Bununu	30	Pottery merchant	Alkaleri	26-2-12
BH, M		Ethnography	Kirfin Sama	10-5-11
BJ/ Babaji Sadiq, M	64	Dyeing & weaving	Cheledi & Zamani	26-2-12
BR/Ibrahim M. Barde, M	95	Textiles	Kirfin Sama	13-05-11
BW/Bello Wuro Denga, M	75	TDG, Trading	Cheledi	13-5-11
DB/Danbala Barau, M	37	Textile production	Kirfin Sama	29-2-12
DD/Danladi Ladan	33	Retail	Cheledi	2—3-12
DL/ Muhammadu Dilli, M	58	OT, Ningawa Raids	Cheledi	12-6-11
DN/Dan Asabe, M	41	Farming, Barsha-Potting	Kagalan	29-5-11
DZ/Dan'azumi Kagalan, M	40	Blacksmith	Kagalan	July 2010
GM/Garba Magaji, M	66	Weaving, dyeing	Kirfin Kasa	23-2-12
GU/Gaiya Umaru, M	26	Guide, Economic System	Kagalan	16-5-11
HA/Harira Abdulkadir, F	27	Geophagy	Kirfin Kasa	3-3-12
HM/ Hamidu Makeri, M	65	Blacksmith & wood carving	Cheledi	28-2-12
HR/ Hardo Kirfi, M	70	Weaving, dyeing	Kirfin Sama	23-2-12
HS/Haladu Musa, M	57	Dye pits & Dyeing	Wanka	29-2-12
HT/Hamza Shitu, M	24	Brickmaking	Wanka	29-2?-12

HZ/Huraira zamani, F	60	Pottery	Zamani	24 – 30/05/10
IA/Ibrahim Alabura, M	105	Textile production & OT	KS	22-2-12
IG/Ibrahim Guyaba, M	35	Royal Barber/cyclist	Guyaba/Kagalan	May/June/July 2010
IM/Ibrahim Bawa, M	95	Weaving, Spinning, OT, Dyeing & Trading	Kirfin Sama	13-5-11
IN/Alhaji Inuwa, M	63	Merchandise, geophagy & crafts	Cheledi	3-3-12
IT/Ibrahim Tsofo, M	67	Wood carving, plants & medicine	Cheledi	29-2-12
JM/Dada Jummai – Blind woman, F	75	Potting: Red-slipping, Burnishing	Kagalan	29 & 30-5-11
KB/Yakubu Danladi, M	30	Farming	Kagalan	2010 & 2011
KG/Baba Kana-Gawo, M	70	Farming	Tudun Dangawo	31-7-2010
KK/Abdullahi Kule, M	70	Woodcarving, plants & medicine	Cheledi & Kirfin Sama	28-2-12
KS/Kani Sale, M	47	Farming	Wanka	29-2?-12
LB/Laraba Baba Yelo, M	62	Textile making	Kirfin Kasa	2-3-12
LY/Mallam Aliyu, M	82	Weaver/Dyer	Zamani	June /July 2010
MA/Muhammdu Adamu, M	40	Rituals, Medicine, Blacksmithing & Barbing	Cheledi	28-2-2012
MD/Majidadi, M	39	Economic Systems	Kirfin Sama	10-5-11
ME/Mohammed Danladi, M	25	Pot merchant, Bauchi pots	Alkaleri	26-2-12
MF/Madaki, M	67	KS Hill settlements & Economic systems	Kirfin Sama	10-5-11
MG/Muhammed Goje, M	35	Settlement systeme & society	Kirfin Sama & Cheledi	2011 & 2012
MH/Muhammadu Manga, M	55	Blacksmith	Zamani	June 2010
MI/Musa Ibrahim, M	51	Farming, Brickmaking	Wanka	29-2-12
MK/ Maikeke/ M	55	Farmer	Kirfin Kasa	10-05-2011
ML/Musa Kallamu, M	37	Blacksmithing, rituals & Diseases	Chaeledi	28-2-12

MM/ Maman Maryam, F	62	Food vendor	Cheledi	26-2-12/2-3-12
MN/Muhammadu, M	75	Chief/Farmer	Kagalan	June/July 2010
MO/Maryam Oho, F	27	Food, pottery & settlement system	Cheledi	26-2-12
MS/Musa Makama, M	75	Oral Tradition	Textile production	23-2-12
MT/Muktar Kagalan, M	29	Guide	Kagalan	18-5-11
MU/Musa Galadima, M	48	Carving, Vegetation,	Kagalan	12-6-11
MW/Muhammadu Wanzam, M	35	OT, Rituals practices	Cheledi	3-6-11 - MW
MY/Musa Yakubu, M	85	Barber, Fishing, Smelting	Zamani	May 2010
MZ/Manzo Makeri, M	80	Blacksmiths & Rituals	Cheledi	28-2-12
NK/Nasiru Umaru, M	24	Social systems, festivities	Kagalan	18-5-11
NN/Nina, F	67	Pottery	Kagalan	2011 & 2012
OP, M	78	Ethnography	Kirfin Sama	10-5-11
OT, M	50	Ethnography	Kirfin Sama	10-5-11
SG/Sarkin Gujimba, M	50	Chief/Cattle Rearer	Gujimba	July 2010
SK/Sarkin Kagalan, M		Local Chief, OT & Settlement Systems	Kagalan	31-7-2010
SM/Sarki Mustapha, M	102	Traditional Chief	Guyaba	May 2010
SR/Baba Sarkin Ruwa, M	27	TDG, KS, Fishing, R. Gongola	KK	21-2-12
SS/Samaila Abdullahi, M	52	Settlement System, Dyeing & R.Gongola	Cheledi, Wanka & Taure	23-5-11 & 2-2012
ST /Sarkin Tekkira, M	64	Nomad	Tekkira	05/2010, 2011
SW/Shuaibu Wanka - UBE, M	57	Settlement Systems	Cheledi	22-5-11

SZ/Sarkin Zamani, M	62	Village Head	Zamani	June/July 2010
TB/Tabawa Denga, F	43	Potter	Kagalan	May/June/July 2010
TL/Talle Aisha, F	59	Potting, Deco chaine	Kagalan	30-5-11
UK/Usman Makeri, M	55	Blacksmith	Kagalan	2010, 2011 & 2012
UW/Umar Wuro Denga, M	56	TDG, Trading	Cheledi	13-5-11
WB/Wamban Bauchi, M	70	OT, Kirfi, Sokoto, Bauchi	Kirfin Kasa	1-6-11
WZ/Waziri, M	55	Farmer/Prince	Kagalan	2010, 2011 & 2012
YA/Yahaya Abdullahi, M	43	Medicines, plants & rituals	Cheledi & Guyaba	2-2012
YF/Yusuf Abdullahi, M	55	Leatherwork, Farming	Zamani	May 2010
YG/ Yakubu Guyaba	46	Blacksmith	Guyaba	2010
YK/ Yakubu, M	14	Cotton Spinning	Cheledi & Kirfin Kasa	28-2-12
YM/ Yakubu Madaki, M	59	Weaving, dyeing	Kirfin Kasa	22-2012
ZK/Zakaria Muhammad, M	37	Blacksmith	Guyaba	June 2010

General Appendix

Appendix 1a: Table of small finds for Tudun Dangawo.

F/No	Context	Basic Description	Length/ Wth -cm	Thick - cm	Material	Fuller Description and Interpretation
1	TDG1120	Miniature jar	4.9; 4.8	0.9	Ceramic	Pot model with incisions and double groove
2	TDG11120	Ground edge sherd	5.4; 3.4	0.6	Ceramic	Rectangular, but 1 edge of tool grounded.
3	TDG1160	Ground edge sherd	2.6; 2.2	0.5	Ceramic	2 faces polished for grinding. Burnished and exterior red slip
4	TDG1160	Ground edge sherd	4.1; 3.0	0.9	Ceramic	Triangle sherd, burnish & externally red slipped
5	TDG1140	Smoking pipe- stem	3.4; 2.1	0.6	Ceramic	Burnished, red-slipped, with hole
6	TDG1140	Fragment of a ground edge	2.6; 2.1	0.7	Ceramic	2 sides worn
7	TDG110	Fragment of a ceramic ring	4.1	2.4	Ceramic	Half size remnant of the ring object, curved and burnished exterior
8	TDG11120	Ceramic artefact with one face polished	7.6; 3.3	0.8	Ceramic	Object decorated with twisted cords and a single groove. Decorated face black
9	TDG1160	Fragment of perforated object with hole	3.1; 2.7	0.8	Ceramic	Tiny fragment of clay object, well burnished and red slipped
10	TDG110	Broken point	3.5	0.7	Metal	Slightly bent and broken at one end, arrowhead
11	TDG110	Iron ring	2.0; 1.5	0.3	Metal	A ring or clip
12	TDG110	Blade	2.2; 0.8	0.4	Metal	Looking a flat chisel head
13	TDG110	Blade	3.6; 2.8	0.4	Metal	Tri-face cutting tool, with a hafting end broken
14	TDG110	Blade	4.0; 1.3	0.2	Metal	A cutting tool
15	TDG1120	Blade	3.3; 1.8	0.2	Metal	Cutting instrument, not likely for home use but craft tool-sides sharp
16	TDG110	Metal object	5.0; 2.0	0.5	Metal	Key
17	TDG1160	Point	3.3; 0.8	0.3	Metal	Possibly incision piercing tool for potters?
18	TDG1140	Thin iron artefact	3.3	0.3	Metal	Broken object, curved
19	TDG1140	Broken ring	2.1; 0.6	1.0	Metal	Possibly a clip
20	TDG1160	Point	2.7; 1.3	0.6	Metal	Arrowhead
21	TDG1120	Smoking pipe - bowl	2.0; 3.3	0.5	Ceramic	Frag of Smoke pipe with burnt interior. Fine. Fine, imported type?
22	TDG1120	Smoking pipe – bowl with multiple incision	2.4; 1.6	0.5	Ceramic	Finely made stem- imported?
23	TDG1120	Smoking pipe – mouthpiece	2.5; 1.2	0.7	Ceramic	Imported?
24	TDG1120	Ceramic disk with perforation	5.5; 2.6	1.7	Ceramic	Broken artefact, with a thin edge and remnant of a broken surface.
25	TDG1120	Pentagonal shaped sherd, with sides worn	4.0; 3.2	0.7	Ceramic	Undecorated but finely made and red slipped
27	TDG110	Triangular sherd, with worn edges	4.0; 3.8	0.9	Ceramic	Undecorated, but red slipped piece
28	TDG110	Triangular sherd, with worn edges	3.9; 3.1	0.6	Ceramic	Exterior side with knotted cord roulettes
29	TDG110	Finely made clay object with a hole and a square tip.	5.0; 3.1	1.0	Ceramic	Smoking pipe stem, mouthpiece. Imported? Red slipped and polished

30	TDG110	Clay object with a hole. Smoke pipe stem, mouthpiece	3.8; 2.2	0.5	Ceramic	Fine made smoking pipe bowl. Remnant of the smoked substance glued to the interior. Imported?
31	TDG110	Frag of a clay object with one horn and a groove	4.6; 2.3	2.0	Terracotta	Animal figurine?
32	TDG110	Oval shape clay object with hole	2.5; D-2.7	0.9	Ceramic	Smoking pipe stem, mouth piece, well-polished. Imported?
33	TDG110	Clay object showing a broken hole and a circular round base	3.4	2.5	Ceramic	The base/seat of a smoking pipe, with the remnant of the stem. Imported?
34	TDG110	Fragment of a clay object.	2.9;2.9	0.6	Ceramic	Smoking pipe bowl. Good finish, red painted and with incisions.
35	TDG110	Clay object at a sharp angle	2.4; 2.1	0.6	Ceramic	Red-slipped object. Function unknown.
36	TDG110	Fragment of clay object	6.2; 3.1	1.0 D:2.4	Ceramic	Smoking pipe- stem, mouthpiece intact, broken at angle. Reddish, glazed& highly deco with incisions
37	TDG110	Fragment of a clay object with incisions, and painted red.	1.9, 2.0	0.5	Ceramic	Smoking pipe bowl
38	TDG110	Fragment of a clay object incised deco.	2.6; 1.4	0.4	Ceramic	Smoking pipe stem, well- polished. Clay colour yellow. Imported?
39	TDG110	Fragment of a polished clay object with a remnant of hole	2.2; 1.7	0.7	Ceramic	Part of a smoking pipe stem
40	TDG110	Fragment of a clay object	2.4; 1.4	0.3:thin	Ceramic	Smoking pipe bowl. Reddish painted. Imported? Inside burnt.
41	TDG110	Fragment of a clay object	2.4; 2.0	0.7	Ceramic	Smoking pipe bowl (showing dots and incisions at the exterior).
42	TDG110	Fragment of clay object near base, with burnt interior and criss-crossed incision outside.	2.6; 1.5	0.8	Ceramic	Smoking pipe bowl
43	TDG110	Fragment of a fine clay object with	2.7; 2.0	0.3	Ceramic	Smoking pipe bowl. Twisted cords deco and rim
44	TDG1160	Point	3.3; 0.9	0.4	Bone	Unidentified material, but with a pointed one face and a deep groove at one end.
45	TDG1160	Metal object with sharp edges – Arrowhead	2.0; 1.1	0.2	Metal	Rusted and pointed – thin. Arrowhead
46	TDG110	Irregular quadrilateral shaped, polished at all edges and faces	2.7; 1.1	0.4	Stone - Carnelian	Adornment and imported?
47	TDG1140	Fragment of a thin Stone object	2.1; 1.8	0.3	Stone	Polished stone-glazed-like
48	TDG11120	Oval flaked stone.	3.8	0.4	Stone	Cutting tool, blade-like at edges (rough at one side, while smooth at the other)
49	TDG1140	Polished translucent pebble	4.9; 2.6	1.6	Stone	River pebble for brushing pottery & herbal preparation- <i>Zuza</i>
50	TDG11120	Polished stone pebble	6.2; 3.2	2.1	Stone	Burnishing tool for potters- <i>Zuza</i> (lower & adjacent sides worn due to use).
51	TDG110	Burnt clay with grooves	2.4; 1.4	0.7	Ceramic	Wattle and daub remain
52	TDG110	Grass impressed daub and wattle	2.6; 2.5	2.0	Ceramic?	Burnt clay
53	TDG110	Grooved square impressed burnt clay	3.0; 1.2	0.9	Ceramic?	Burnt clay
54	TDG110	Round chunk	4.7	2.7	Ceramic?	Burnt clay
55	TDG1180	Burnt clay with grass hollow impressions	4.7; 5.2	2.0	Ceramic	Wattle and daub remnant

56	TDG11100	Unidentified Iron object	2.4; 1.0	0.6	Metal	Unidentified rusted iron material
57	TDG11100	Impressed/incised object	1.8; 2.5	1.0	Ceramic	Wattle burnt clay with grooves and daub?

Appendix 1b: Table of small finds for Kirfin Sama Hill.

F/N	Context	Basic Description	Length/ Width	Thick	Material	Fuller Description and Interpretation
1	KSH1120	Spherical sherd with small hole at centre	2.6	2.7	Ceramic	Little cracks, line of white paint. Clay bead.
2	KSH1120	Smoke pipe bowl	3.2	4.5	Ceramic	Band of multiple incisions and fishbone deco enclosed by incisions. Red glazed. Mouth piece and upper combustion portion broken
3	KSH1120	Fragment of smoke pipe- mouthpiece	3.3, 3.2	1	Ceramic	The mouthpiece
4	KSH1180	Fragment of smoking pipe- stem and mouthpiece	5.6, 2.2	0.5	Ceramic	7 bands of incision at mouthpiece
5	KSH110	Bead with a hole	2.4	2.7	Ceramic	Painted black, with red line round circumference
6	KSH11120	Fragment of a bead- or Spindle Whorl?	2.4	2.3	Ceramic	Red slipped, half broken showing hole
7	KSH11120	Fragment of a fine burnt sherd	2.5, 1.1	0.6, 0.7	Ceramic	Highly polished and seemingly burnt sherd
8	KSH1160	Ceramic disk	3.7, 3.8	1.2	Ceramic	Burnished, red slipped and edges grounded
9	KSH1180	Ceramic bead or whorl	2.5	2.2	Ceramic	With incisions achieved by turning ball during production and painted white
10	KSH1180	Spindle whorl with hole	3	2.9	Ceramic	Ball with double incisions at middle of body
11	KSH110	Smoking pipe-stem	4.3; 3.3	0.6	Ceramic	Well-polished smoking pipe. RS with its base
12	KSH110	Fragment of smoking pipe	2.0; 1.0	0.4	Ceramic	Fragment of smoke pipe at the mouthpiece - stem, with band of 6 incisions
13	KSH11100	Fragment of smoking pipe-bowl	2.2	0.4	Ivory	Criss-Crossed incisions bordered by 5 incisions. Inside shows gloss due to burn, red slip and well-polished.
14	KSH11100	Fragment of smoking pipe-bowl	1.9; 2.0	0.8	Ivory	Fired bowl, hole observed,
15	KSH110	Shell bead with a hole	1.0; 0.8	0.2	Bone or shell?	Bead with scales of white and reddish composition.
16	KSH110	Fragment of glass	1.7;0.8	0.4	Glass	The base of the bottle
17	KSH110	Fragment of glass	1.4; 1.1	0.2	Glass	Fragment with sun stains
18	KSH110	Cowrie shell	2.0; 1.3		Sea Shell	Currency or decoration
19	KSH110	Fragment of Cowrie Shell	1.0; 1.1		Sea Shell	Currency or decoration
20	KSH110	Clay figure –leg?	4.8; 2.8	2.8	Terracotta	Animal (Anthropomorphic) leg with 3 grooves
21	KSH1120	Oval sherd	5.6; 5.1	1.3	Ceramic	Rough edges, but fashioned to be round, with decoration; groove & folded strip roulette decoration at exterior face.


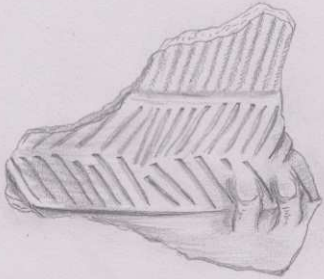

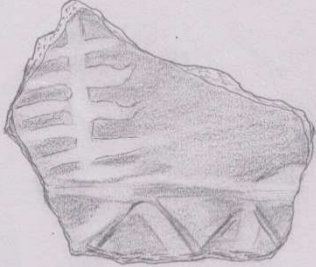
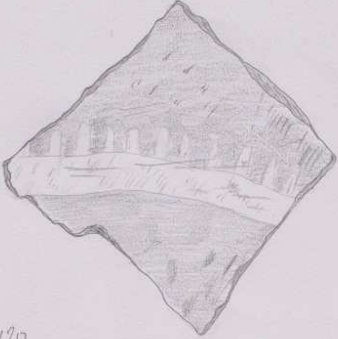
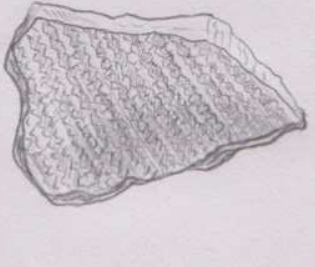
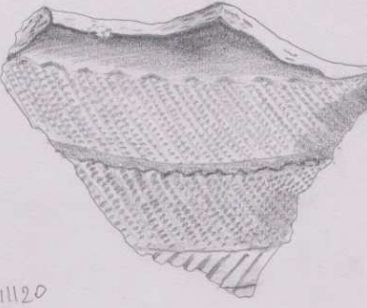
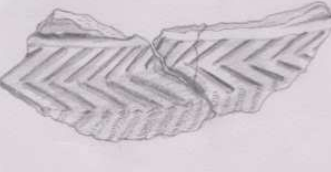
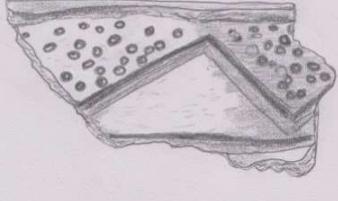
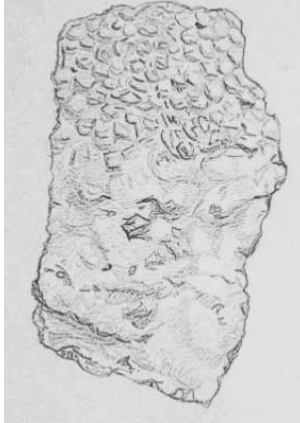
22	KSH1120	Broken sherd with 1 edge ground.	5.7;4.4	0.8	Ceramic	Undecorated sherd originally showing soot and indication the rim was reused for the rubbing.
23	KSH1120	Triangular sherd with worn edges	4.7; 4.4	1.0	Ceramic	Broken smooth worn artefact, looking triangular in shape
24	KSH11100	Fragment of decorated clay	4.4; 4.0	1.5	Ceramic/Terra cotta	Yet to be identified, but is adorned with multiple vertical/horizontal incisions.
25	KSH1140	Semi-circular artefact	3.1	0.3	Metal	Broken Iron ring or clip
26	KSH110	Multi-faced blade	2.4; 1.3	0.3	Metal	Knife
27	KSH11100	Blade	2.3; 2.1	0.2	Metal	Knife
28	KSH1160	Iron key	7.0; 1.1	0.7	Metal	
29	KSH110	Point	11.6	0.7	Metal	Broken on transport: to be restored. Arrowhead
30	KSH110	Blade	3.3; 1.7	0.2	Metal	Knife
31	KSH1140	Point	10.2	0.6	Metal	Arrowhead
32	KSH1180	Point	8.4; 0.5	0.4	Metal	Arrowhead
33	KSH1120	Point	10.8; 0.6	0.5	Metal	Arrowhead
34	KSH1120	Sharp angular object	6.0; 2.2	1.0	Metal	Small anchor
35	KSH1160	Half spherical clay sphere	2.6	2.2	Ceramic	Textile making or body adornment with perforation, incisions and white paint deco
36	KSH1160	Oval clay object	2.5	2.2	Ceramic	Counting stone. Or faulty bead/whorl, with no decoration
37	KSH80	Rectangular sherd with worn edges	3.4; 2.5	0.8	Ceramic	Plain sherd tool for polishing with worn edges
38	KSH1140	Ceramic disk, with worn edges	3.7	1.1	Ceramic	Reused undecorated tool
39	KSH11120	Terracotta	4.0; 2.8	2.0	Ceramic/Terra cotta	Leg of elephant. Foot is hollow. Chained leg or incensed burner?
40	KSH11120	Elongated artefact	2.4; 2.1	1.1	Ceramic/Terra cotta	Fish-tail like figurine, broken at one end, with incision
41	KSH110	Spherical stone tool with a flatten-worn base	7.0	3.8	Stone	Medium handheld stone tool for grinding medicinal or foodstuff- Granite
42	KSH110	Oval stone	12.8; 7.2	3.8	Stone	Grinding stone, which may have also served as hammering and pounding tool? All sides worn, with lower being pronouncedly worn
43	KSH1140	Point	8.9	0.7	Metal	Arrowhead broken at one end
44	KSH1160	Oval slag ball	2.6	1.9	Slag	Counter?
45	KSH1140	Thickly perforated sherd object	5.4; 4.3	2.1	Ceramic	Large utilised sherd with perforation
46	KSH110	Spheroid stone ball	1.6	1.6	Stone	Jasper-like with sand texture body and portion looking polished.
47	KSH110	Ledged 'T' head clay object	2.9; 2.3	1.2	Ceramic/Terra cotta	Fish tail like object
48	KSH1140	Rectangular worn sherd.	3.7; 2.8	0.9	Ceramic	Utilised sherd artefact with whitish residue

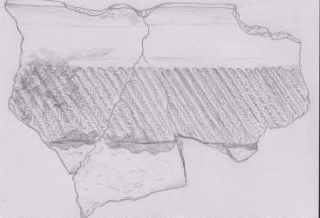
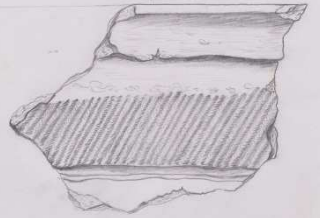









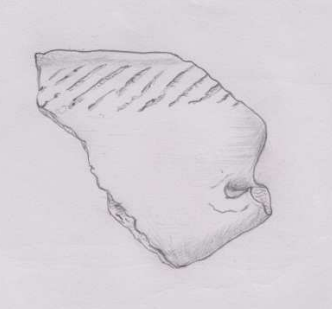
Appendix 1c: Table of small finds for Kagalan.

F/No	Context	Fuller Description	Length/ Wdh-cm	Thick- cm	Raw Material	Fuller Description and Interpretation
1	KGL1120	Round sherd with hole (0.4cm) at centre	3.8cm	1.1	Ceramic	Cotton spinner or bead
2	KGL110	Terracotta figurine – animal leg?	1.9	2.3	Ceramic	Band of incisions on a beaded adornment
3	KGL110	Rounded bone artefact- ring	1	0.2	Bone	Disk like object
4	KGL1120	Half broken clay pipe showing hole	3.9; 2.3	0.7	Ceramic	Smoke pipe- stem
6	KGL110	Fragment of clay object with perforation	4.1; 2.3	1.3	Ceramic	Well-made hole remnant with deposit of white substance inside
7	KGL1140	Fragment of clay object with perforation	5.6; 3.2	1.6	Ceramic	Perforation and deposit of white substance
8	KGL1140	Rimmed sherd artefact with perforation.	3.7; 4.5	0.9	Ceramic	Undecorated sherd showing perforation radius, polished, red slipped and glossy. Use unknown.
9	KGL11100	Fragment of ceramic tool with grounded face.	2.6; 1.9	0.8	Ceramic	Part of a tool for rubbing & polishing
10	KGL1120	Trapezoid metal point	5.8; 3.8	0.2	Metal	Cutting tool
11	KGL1120	Two ends pointed	9.1	0.5	Metal	Piercing tool, long end for hafting
12	KGL1120	Pointed	5.1	0.4	Metal	Short pointed artefact
13	KGL1120	Hook	2.6; 2.5		Metal	One edge point, other broken & bent
14	KGL1120	Point	8.7; 0.4		Metal	One edge point
15	KGL1120	Point	9.5; 0.4		Metal	One edge sharp, other blunt
16	KGL1120	Point	9.3; 0.4	0.3	Metal	Arrow head
17	KGL1120	Point	4.3; 0.6		Metal	Point at one end
18	KGL1120	Hook	2.7; 1.6	0.4	Metal	Angular metal artefact pointed at one end. In the shape of a human foot.
19	KGL1120	Human foot metal image	2.5; 1.2	2.6	Metal	Seem to be made from slag, uneven
20	KGL1140	Rectangular iron point	11.3; 0.6		Metal	Thread hole broken at end- <i>masilla</i> for jute bag sewing
21	KGL1140	Rounded point	9.1; 0.4		Metal	Head of the broken needle likely a <i>masilla</i> .
22	KGL1140	Broken point	3.4	0.3	Metal	Hook or Needle
23	KGL1140	Rectangular point	10.4	0.5	Metal	<i>Masilla</i> showing it broken head
24	KGL110	Iron ring or clip artefact	1.8; 1.5	0.7	Metal	Oval shaped ring with for clipping due to overlapping ends
25	KGL110	Point/Blade	2.2; 1.1	0.3	Metal	Piercing object

26	KGL110	Point	3.7	0.7	Metal	Pointed with indication of the broken head. Arrow or needle?
27	KGL1140	Rectangular ceramic tool with worn edges	4.6; 3.0	1.0	Ceramic	Polishing or grinding tool, with one face black
28	KGL1140	Ceramic tool with multiple grooves	3.1; 1.8	0.6	Ceramic	Grooves due to sharpening
29	KGL1120	Rounded ceramic tool, with worn edges	3.9;3.3	0.9	Ceramic	Edges for grinding, with one face black
30	KGL1120	Triangular shaped ceramic tool, with worn edges	3.4; 3.8	1.0	Ceramic	Undecorated, but burnished and red slipped, with the edges worn out due to grinding activity
31	KGL110	Round sherd object	4.7; 4.0	1.0	Ceramic	Edges of plain sherd grounded due to secondary use- polishing?
32	KGL1160	Perforated clay object	3.0; 2.0	0.8	Ceramic	Red slipped fine object with a hole
33						
34	KGL1120	Tiny tri-faced stone object broken at one end.	4.1; 1.9	1.6	Stone	Polishing or small thing grinding tool. A stone pebble - <i>Zuza</i>
35	KGL11100	Round stone pebble	3.0	2.1	Stone	Pebble for burnishing- <i>Zuza</i> . Worn side
36	KGL110	Broken granitic stone tool	6.0; 5.5	3.5	Stone	Smooth lower side, Stone Grinder, possibly for herbs and other stuff than foodstuff. Polish wear than coarse.
37	KGL1180	Triangular shaped stone	7.7; 4.4	2.7	Stone	Burnishing tool - <i>Mazosi</i> and used for grinding medicinal concoctions. Lower side highly worn
38	KGL1180	Broken pointed iron object	2.1;	0.4	Metal	Iron hook
39	KGL1160	Baked curved clay with plant impressions	5.2; 3.5	1.2	Ceramic	Could likely be a tuyère fragment?

Appendix 2: Table of various sherd decorations identified across all sites

 <p>painting – thick, black; undecorated (upper & lower parts)</p>	 <p>Applique – lump; folded strip roulette; herringbone</p>	 <p>Stabbing – dotted; folded strip roulette, undecorated</p>	 <p>Painting - fish spine (2 rows) & groove</p>	 <p>Painting – parallel - 1 side</p>
 <p>Folded strip roulette – tightly folded</p>	 <p>Folded strip roulette – tight</p>	 <p>Incision – herringbone; groove - singular</p>	 <p>Stabbing – dotted, groove</p>	 <p>Folded strip roulette – loose</p>

 <p>Incision – Herringbone & roulette</p>	 <p>Folded strip roulette - tight</p>	 <p>Folded strip roulette-tight</p>	 <p>Braided Strip roulette - Tightly folded</p>	 <p>Braided strip roulette-Tightly folded, Groove & undec</p>
 <p>Incision- Herringbone, 2 rows & folded strip roulette & Groove</p>	 <p>Groove - Single</p>	 <p>Incision – multiple & Stab - multiple</p>	 <p>Incisions – multiple & Groove</p>	 <p>Paint –fish spine - 1 side</p>
 <p>Twisted cord roulette - Medium</p>	 <p>Knotted twisted cord roul., Twisted cord roulette, Groove</p>	 <p>Applique - Single</p>	 <p>Incisions - multiple</p>	 <p>Braided strip roulette - Loose</p>



Folded strip roulette



Knotted twisted cord roulette



Twisted cord roulette,
Incision, Groove & Paint



Twisted cord roulette



Knotted twisted cord
roulette



Knotted twisted cord
roulette & twisted cord
roulette



Folded strip roulette - Loose



Knotted twisted cord
roulette



Braided strip roulette – L &
Incision -multiple



Incision – multiple & Stab –
triangle shaped



Braided strip roulette -
Loose



Paint – fish spine, 1 side



Twisted cord roulette -
Large



Paint, multiple incisions &
stabbing – square



Paint- 2 sides



Paint – fish spine, 1 side



Incision - single



Incision & Stabs

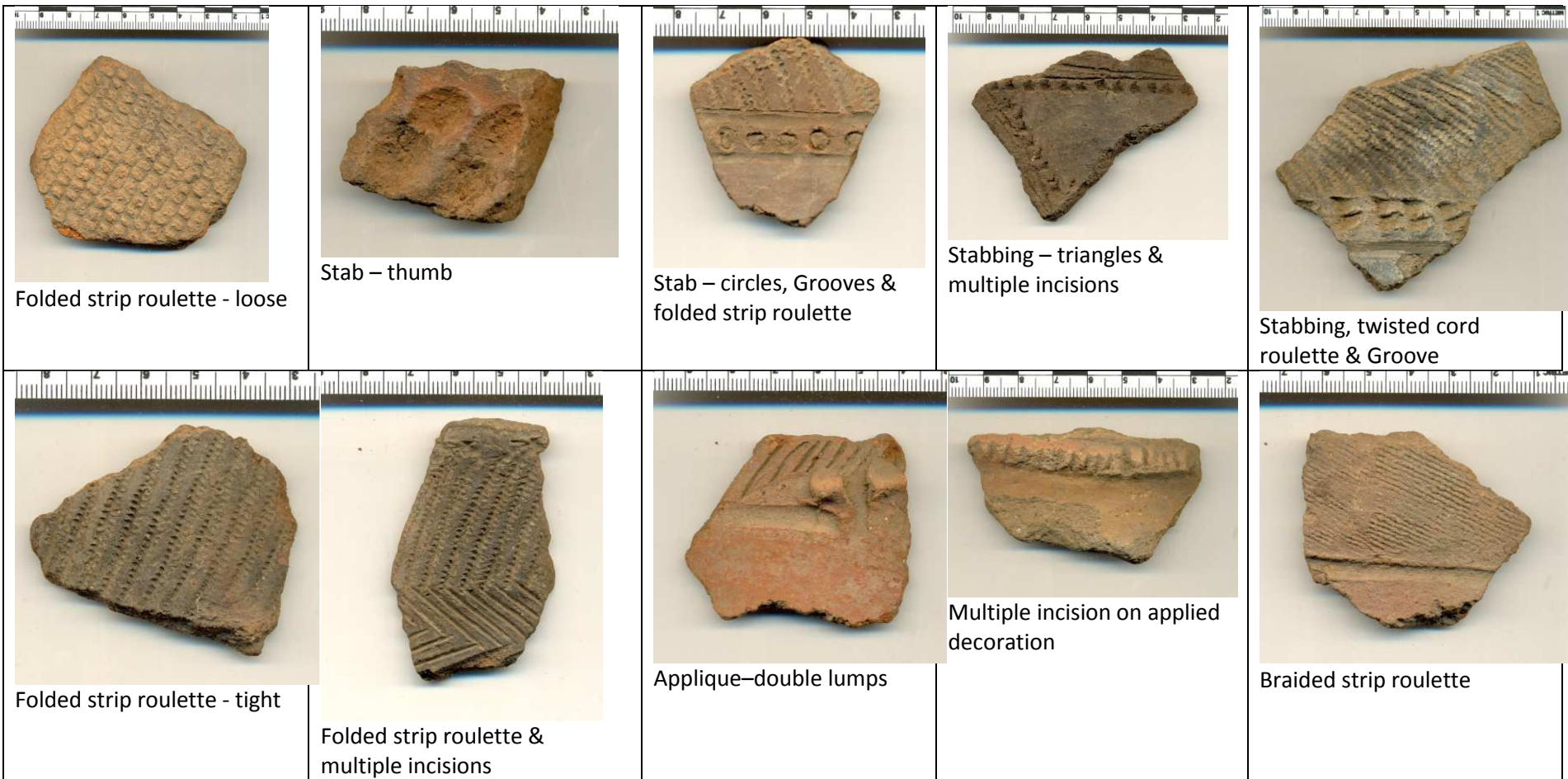


Incision – 3 sides & Groove



Folded strip roulette – Tight
& Groove







Folded strip roulette & Groove



Folded strip roulette



Braided strip roulette & multiple groove



Groove, incision & multiple stabbing



Wavy incision & twisted cord roulette



Wavy lines, Groove & fish spine



Stabbing circles & painting



Stabbing - Square



Multiple incisions



Stabbing - crescents



Multiple incisions



Twisted cord roulette & Painting



Twisted cord roulette - large



Twisted cord roulette & Groove



Knotted twisted cord roulette & twisted cord roulette



Twisted cord roulette - large



Twisted cord roulette

Appendix 3a: Preliminary Analysis of Faunal Remains I: 2011

Veerle Linseele, Katholieke Universiteit Leuven - Belgium

Tudun Dangawo Site

0-20 cm

Large bivalve

Minimum 2 gastropod species: 1 small terrestrial snail?, 1 *Limicolaria*?

Monitor lizard: 2 vertebrae

Crocodile: 1 dermal scute

Bird: 2 bones

Dog (or jackal): maxilla, loose teeth, 1 distal metapodal, 2 first phalanges

Sheep or goat: minimum 8 bones

Cattle: upper molar, 2 teeth

Several 10's of unidentified bones (check for more identifiable remains)

20-40 cm

Large bivalve

Gastropod: *Limicolaria*?

Catfish (*Syndontis*): pectoral spine

Dog (or jackal): maxilla, pelvis

Sheep or goat: upper molar

Cattle: several humerus diaphysis fragments and distal end, fragments of a metacarp, diaphysis metapodal with butchery marks

Several 10's of unidentified bones (check for more identifiable remains)

40-60 cm

Large bivalve

Minimum 2 gastropod species: 1 small terrestrial snail?, 1 *Limicolaria*?

Catfish (Clariidae): neurocranium fragment

Frog or toad: ilium

Bird: coracoid

Dog (or jackal): upper jaw, phalanx 1

Sheep or goat: lower molar

Cattle: lower molar, molar, diaphysis tibia, rib

About 20 unidentified bones (check for more identifiable remains)

40-60 cm

Cattle: skull fragments, including ear bone

60-80 cm

Monitor lizard: dentale

Small rodent: femur

Sheep or goat: tooth, thoracic vertebra

9 Unidentified bones

80-100 cm

Sheep or goat: proximal metatarsal (+ 2 unfused distal metapodal epiphyses that probably go with it) – burnt, calcaneus

Sheep: talus – burnt
7 Unidentified bones

100-120 cm
2 Unidentified bones

120-140 cm
3 Unidentified bones
1 specimen not bone?

120-140 cm
Animal large than cattle: 9 bones

120-140 cm
Animal large than cattle: about 10 bones

Kirfin Sama Hill Site

60-80 cm cowries
Cypraea annulus?

60-80 cm (bag 2)
Large bivalve
Catfish (Clariidae): operculum (check if identification as Clariidae is correct – certainly fish), ceratohyale
Bird: 2 bones
Small rodent: 1 bone
Sheep or goat: scapula (small, check if not antelope), mandibula and teeth fragments, humerus, 5 ribs, calcaneus, and other bones
Cattle: predominant animal in this sample, represented by a.o. upper molar, teeth from lower jaw, humerus fragments, radius fragments, vertebrae, ribs (chopped in pieces of similar size), pelvis fragments, phalanx 1, phalanx 2, phalanx 3.
Several 10's of unidentified bones (check for more identifiable remains)

Kagalan Site

Surface collection
Cowry (bigger species than *Cypraea annulus?*)

0-20 cm
Gastropod
Turtle: 3 carapax
Sheep or goat: pelvis
About 25 unidentified bones (check for more identifiable remains)

0-20 cm teeth
Squirrel?: maxilla
Sheep or goat: upper molar
Cattle: tooth

0-20 cm

Cowry shell: 3 specimens among which 1 *Cypraea annulus*?, 2 with back side removed

20-40 cm

Bivalve

Gastropod: *Limicolaria*?

Human: femur and tibia (?) of baby

Sheep or goat: deciduous upper molar, ulna

About 10 unidentified bones (check for more identifiable remains)

40-60 cm

Bivalve

Dog (or jackal): 2 metapodals

Sheep or goat: lower molar

Small antelope: upper molar

About 15 unidentified bones (check for more identifiable remains)

60-80 cm

Bivalve

Dog (or jackal): canine

2 unidentified bones

80-100 cm

Catfish (unidentified): pectoral spine

100-120 cm

Large bivalve

Unidentified (not clear from notes if bone)

Appendix 3b: Preliminary Analysis of Faunal Remains II: 2013

Kat Manning, UCL

The following is only a preliminary assessment of the species present, with some notes on particular features and taphonomic features. Unfortunately due to time constraints and the nature of the assemblage (i.e. the high frequency of wild taxa), it was not possible to conduct a full and quantitative assessment of the animal bone.

The animal bone from the Bauchi State excavations are in a varied state of preservation and fragmentation indicating differential deposition processes.

A diverse array of wild taxa were identified whilst domestic cattle and sheep/goat were also present. No domestic (or wild) pig was recorded. All three sites revealed mixed terrestrial and aquatic resources strategies. Crocodile and possible hippo, as well as freshwater fish, which are above average size, suggest access to deep waters. Numerous bird species are also represented, and may well be aquatic species also.

Kirfin Sama Hill produced the largest sample, with levels 80-100cm in particular yielding a good-sized assemblage. A number of taphonomic features were noted including numerous instances of butchery and burning. These are discussed in relation to each site assemblage. The material was assessed on my experience of African fauna and with some use of the reference material housed in the Institute of Archaeology, UCL.

❖ Tudun Dangawo

The following is a list of species present at this site:

Sheep/goat - *Ovis aries/Capra hircus*
Domestic cattle - *Bos taurus*
Large canid (cf. *Canis familiaris*)
Small wild mammal
Freshwater fish
Mollusca
Rodentia
Reptilia
Bird
Crocodile
Catfish - *Clarias* sp
Medium canid (cf. jackal)

Overall, the animal bones from TDG belong primarily to wild taxa, especially smaller taxa such as birds, reptiles and mollusca. There also appears to be a fairly wide range of taxa represented. Level 20-40 is entirely calcined suggesting the animal bone was burnt to a high temperature prior to deposition.

❖ Kirfin Sama Hill

The following is a list of species present at this site:

Sheep/goat - *Ovis aries/Capra hircus*
Domestic cattle - *Bos Taurus*
Catfish - *Clarias* sp. (some >60cm)
Mollusca
Nile perch - *Lates niloticus*
Large wild bovid
Medium wild bovid
Small wild bovid
Hippo (would need to be check at NHM) - Hippopotamus amphibious
Bird

Cattle are particularly abundant at this site, although from an initial overview, it seems likely these belong to only one or two individuals. There are many fragmented long bones and based on the number of identifiable elements, which appear to be mostly cattle it is likely the fragmented material is also cattle. These bones show abundant signs of butchery; primarily chop marks indicating fairly expeditious processing of the bone, probably for marrow extraction. Many of the bones also show intermittent charring, suggesting the meat may have been roasted whilst still on the bone. Cattle also have an even body part representation and a good state of preservation suggesting they were not exposed to scavengers and were rapidly disposed of. These four features lead me to believe the cattle remains may represent a single feasting event.

Two cattle bones also demonstrated clear signs of pathology with a 1st and 3rd phalanx showing exostoses on the plantar face. This is very likely due to the animal being used for traction.

In addition to the cattle remains, KSH also produced a number of wild taxa, and most notably several massive fish bones (one catfish and one Nile perch). These are both deep water fish, and if the identification of a hippo 2nd phalanx is correct, it would suggest the inhabitants had access to deep water fishing grounds.

❖ **Kagalan**

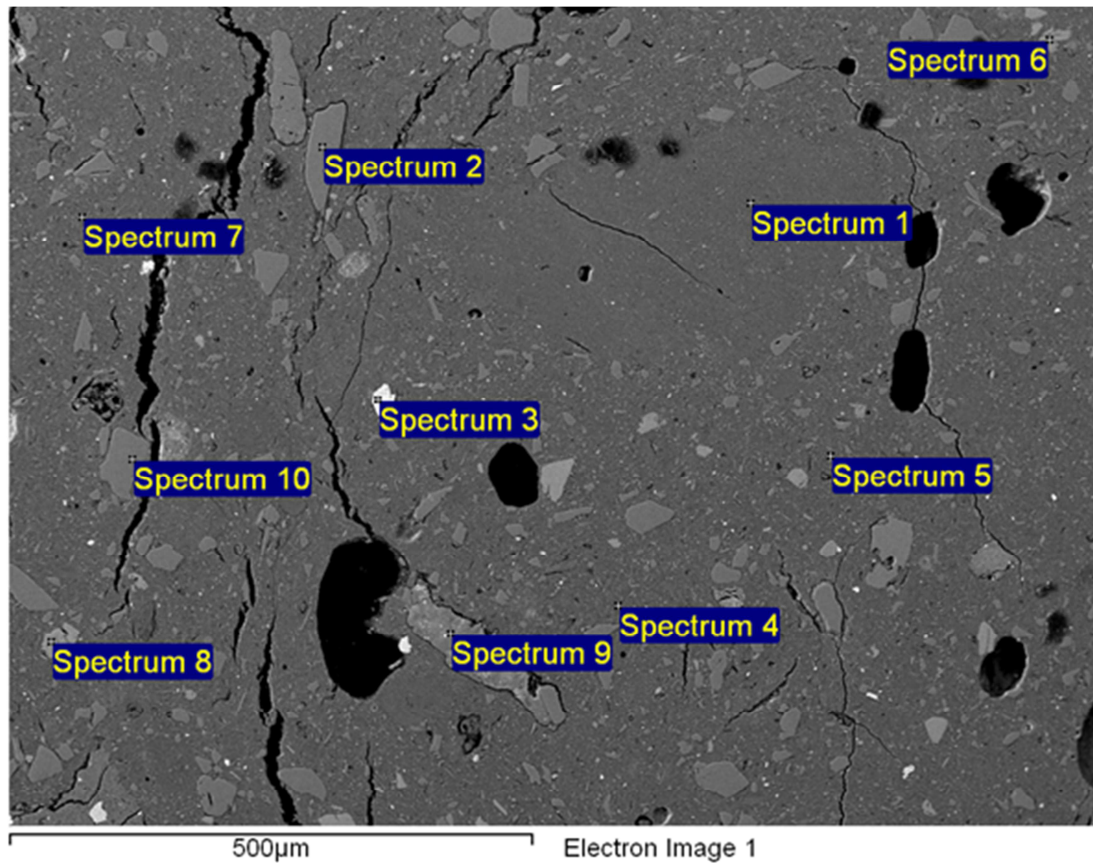
The following is a list of species present at this site:

Mollusca
Auchenoglanis sp.
Sheep/goat - *Ovis aries/Capra hircus*
Rodentia
Small wild bovid
Bird
Small carnivore

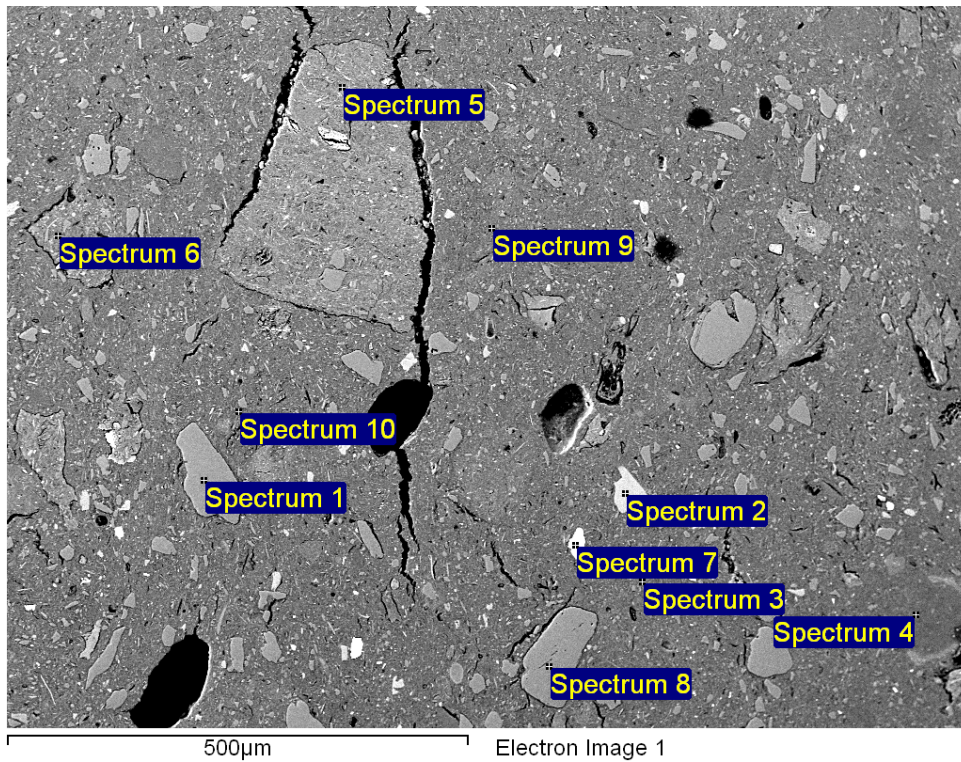
Kagalan produced the smallest assemblage and the least taxonomic diversity. Birds and small wild bovids appear to dominate and no obvious cattle bones could be identified.

Appendix 4: Ceramic Thin Sections

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Item 1: SEM image of sample KSH1180 (Coarse fabric) showing; spectra -4-5-7-Mica / Feldspar, Spectrum 3 Titanium/ Manganese/ Iron oxide, Spectra 6-8 Feldspar, Spectrum 9 Mica and spectra 2-10 Quartz. See individual full scale chemical flow graphs and electron images at the appendix.

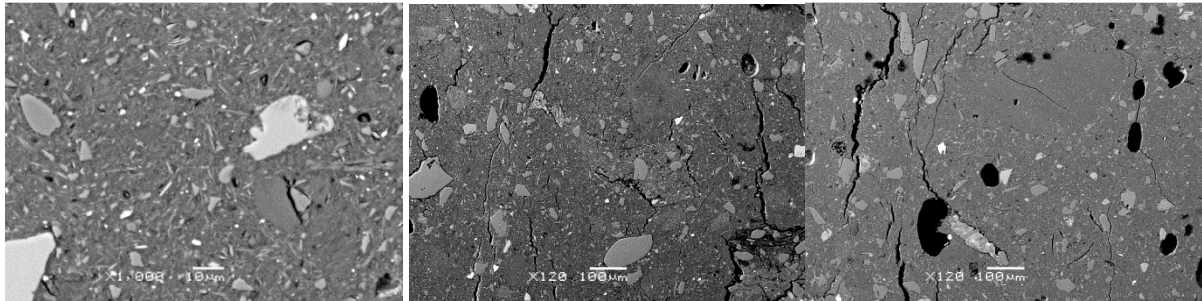


Item 2: SEM image for second part of the sample indicating; spectra 1-8 Quartz, spectrum 2 Feldspar, spectra 3-4-5-6-9-10 Mica and spectrum 7 Titanium Oxide

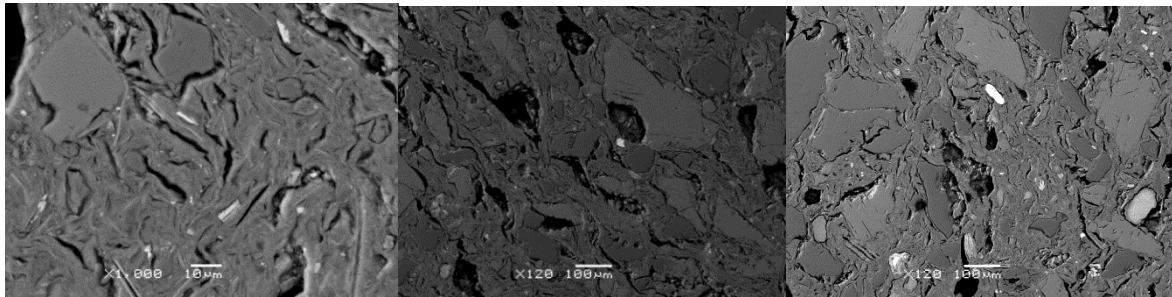
Note: I randomly selected 10 samples based on visual characterisation into fabric, aided by simple magnification glasses I adopted throughout the analysis of the pottery assemblage. The above is only displaying result from a single sample. They were used simply to verify my grouping into six; fine organic and inorganic, medium organic and inorganic and the coarse organic and inorganic categories. This was using SEM method to test the reliability of my criteria to identify fabric and further assist in the identification of the clay mineral elements through the calibration of the elemental proportions in the minerals. However the technique explores mainly the inorganic constituents which additionally provided a picture of the clay composition. Although 10 samples here is representatively small to reflect on provenance of the sources of clay materials used in the making of pottery in the region. It has corroborated tentatively with assumption that the excavated potteries are mainly products of local production.

The sample C5 came from KSH1180. This examination clearly mainly indicate the presence of chemical elements showing; mica, feldspars, quarts, iron oxides, titanium and manganese. This provides us information about the kind of mineral composition making up the soils for pottery at the Kirfi settlement sites at the context, examined at 10 spectra pin pointed. The sampled confirm the agaries of fabric that formed the classified coarse fabric sherd. Below is individual scale of mineral element tracked.

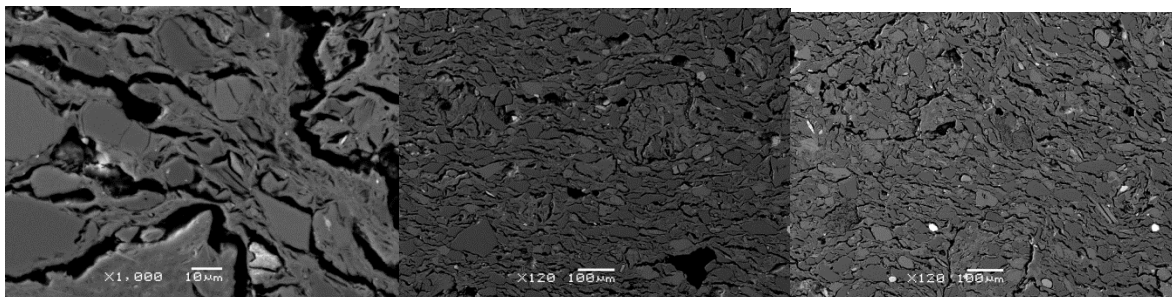
The character of the images below follows only a deliberate attempt to track the grain sizes and nature of organization that is generally prevalent in the samples and as observed visually generally. It was aimed verifying the visual approach adopted. (Note different magnification)



Fine/Fine/Fine



Medium/Medium/Medium



Coarse/Coarse/Coarse