Early Dietetics of the Ahanta: An Archaeological Study of Dixcove and its Neighbourhoods, Western Region, Ghana.

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Abstract

This paper presents results of historical archaeological investigations undertaken at Dixcove and its neighbourhoods on early dietetics of the Ahanta, one of seven ethno linguistic groups settled along Ghana's coastline who interacted with Europeans in the early seventeenth century.

The study had two main objectives which were: one, to recover food related cultural materials from the archaeological record and two, use the data to reconstruct past dietary patterns of the Ahanta. Data for the study was derived from four sources. Archaeological data recovered from reconnaissance surveys and excavations in the research area constituted the primary data source used for the study. The bulk of the archaeological evidence was direct and comprised a variety of molluscs and faunal remains of both domesticated and undomesticated species. Historical data documented by early European traders, ethno-historical data collected from selected indigenes in the research area and ethnographic data constituted other data sources used for the study.

The study revealed that the Euro-Ahanta encounter which spanned over four hundred years directly impacted indigenous dietetics and food-ways. New foreign cultigens like maize and cassava introduced by Europeans did not only become major staples adopted by the indigenes but eventually overshadowed millet, the main staple of the people. It also necessitated the invention of new technologies to process and prepare them for consumption. Maize and cassava flour for example became the principal ingredients for the preparation of kenkey and bread. Other major novel introductions included molasses, sugar, wheat flour, alcoholic beverages (wines, schnapps, gin, whiskies), and non alcoholic beverages (mineral water, syrups).

The research was financed by the University of Ghana Faculty Development Grant and the Ghana Denmark Archaeological Project (GDarch Project). Some final year students of the Department of Archaeology and Heritage Studies, University of Ghana, Legon, and locals from Dixcove assisted the writer in the excavations.

Introduction

This paper presents results of historical archaeological investigations undertaken along the Dixcove coastline on early dietetics of the Ahanta, one of seven ethno-linguistic groups settled along Ghana's expansive coastline. The research constituted part of a wider study of the Anglo-Ahanta encounter at Dixcove titled "*An archaeological perspective of cross cultural contact at Dixcove and its environs in the early sixteenth to late nineteenth centuries*", funded by the *Ghana Denmark Archaeological Projects* (GDarch) and the *Faculty Development Fund* of the University of Ghana. The study, undertaken in phases, is on-going, and this paper represents the third reporting on aspects of the research.

The study had two overarching objectives which were: one, to recover food related cultural materials from the archaeological record, and two, to use it to reconstruct, deepen, and enhance our knowledge of past dietetics of the indigenous Ahanta settlers of the area. Data for the study was derived from four sources. The primary data source was archaeological, recovered from reconnaissance surveys and excavations undertaken at *Ntwarkro* (Upper Dixcove) and *Daazikessie* (Lower Dixcove), the two major suburbs of Dixcove. The bulk comprised of a variety of mollusc species and faunal remains of domesticated and undomesticated species. Historical data, documented by early European traders who interacted with the indigenes, ethno-historical narratives derived from selected resource persons in the research area, and ethnographic data, constituted other data sources used. Some final year students of the Department of Archaeology and Heritage Studies, University of Ghana, Legon, and four locals recruited from Dixcove, assisted the researcher in the excavations.

Brief historical antecedent of the Ahanta of Dixcove

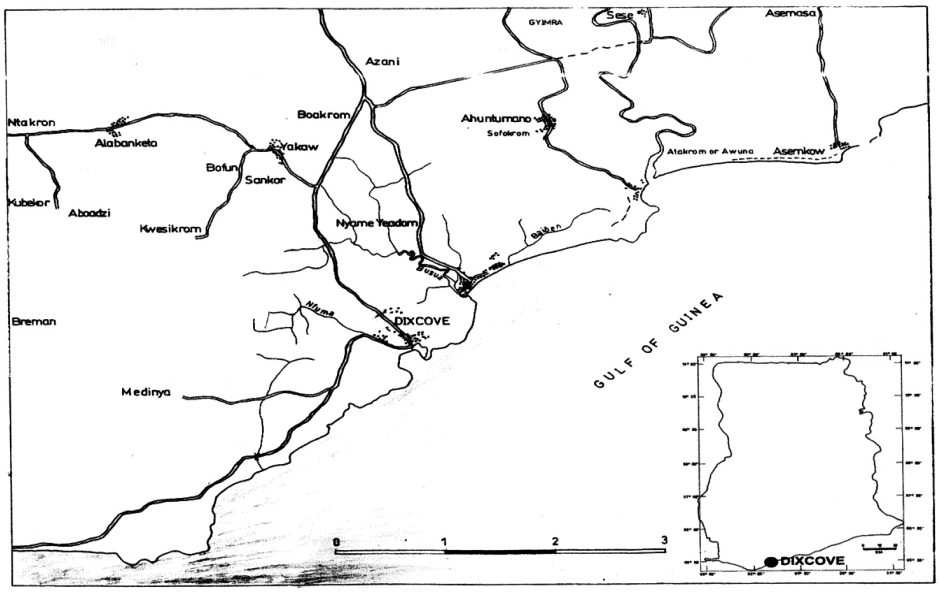
The people of both Upper Dixcove and Lower Dixcove assert in their oral traditions that they were originally Akans who migrated from external sources to settle at Dixcove. According to the former, they migrated from *Nduaso* in the Brong Ahafo Region, while the latter assert that they migrated from *Eguafo* in the Central Region. Barbot (1732: 14 - 154) noted that "the kingdom of the Ahanta was made up of a commonwealth of several small states and chiefdoms; one of fifteen kingdoms which made up the Gold Coast and which extended two leagues from East to West between the villages of *Boesira* (Butre) to the West and *Sama* to the East. Its main villages were *Boetre, Poyera, Pando, Sacunde, Sama, Anta* and *Tacorary* which was the largest". Bosman (1705:12), also described the Ahanta as "potent, populous and very martial"

The research area, originally called *Efiema*[1] (also *Nfuma* and *Infuma*) has a long history of cross cultural contact with Europeans, especially the English, which dates to the early sixteenth century (Bosman 1705: 164; Lawrence 1963: 293). It developed from a small fishing village to become an important economic epicenter, noted for the export of palm oil, gold, salt and later, slaves during this period (Dumett 1987: 47; de Marees 1987: 26). Dixcove and its environs also had abundant reserves of lime, wooden beams and planks required for building and refurbishment of European trade stations and ships on the Gold Coast[1] (Lawrence 1963: 294; Bosman 1805: 245), while the cove, located in the heart of Dixcove, was a preference berthing port for European trading vessels which called there to take in freshwater, embark and disembark cargo from Europe and America (Lawrence 1963: 292, 298). Vestiges of the Anglo-Ahanta contact are still evident in the town, the most imposing being Fort Metal Cross, built in 1692 by the *Royal Africa Company* to facilitate their commercial activities with the locals. Others include several dilapidated European styled houses along the beach front.

Geographical background of the research area.

Dixcove (latitude 4° 45'N, longitude 1° 58'W) is located in the Western Region of Ghana. It lies within the South-Western equatorial climatic zone and experiences double maxima rainfall annually with a high mean of 1,700 mm. The inflow

of the South-West Winds all year round is responsible for this relatively high rainfall pattern, much of which occurs between mid April to late June(Dickson & Benneh 1973: 28). Temperatures and relative humidity levels are also high all year, averaging 34° centigrade and 80% respectively (Wills 1962: 56 – 67).



MAP 1: MAP SHOWING DIXCOVE AND NEIGHBOURING VILLAGES

The topography consists of several gentle rolling hills rising averagely to 20 - 70 meters above sea level (Ghana Survey Department, 2005: Sheet 0402A1) and is underlain with the *Precambrian Upper Birimian Rock Series*. The main mineral types associated with this geological formation are phyllites, limestone, schists, quartzites and hornstones (Kense 1985:12 - 16).

Major streams in the research area include *Mawu, Busua* and *Nfuma* all of which flow into the *Nfuma* Lagoon, located in the heart of Dixcove. They are home to several species of freshwater molluscs, crustaceans and fishes, most of which are exploited for food.

Vegetation in the research area is characterized by very thick forest. *Carapa procera D.C, Corynanthe pachyceras K, Myriatus spp.,Trichilia spp*., *Celtis spp, Bussa occidentalis, Afrormosia elata and Chlorophora excels*constitutes some of the main trees types. The undergrowths are sparse and are home to several species of rodents and terrestrial molluscs.

Fishing, fish processing and fish mongering are currently the principal vocations of the people. Some of the major species caught and processed include swordfish (*Xiphias gladius*), *Alecti alexandriaos, Caranx crysos* and Tuna (*Opuntia sp*). During the fish off-season, subsistence farming and animal husbandry are undertaken with maize, tomatoes, pepper and okra constituting some of the principal crops cultivated, while goats and sheep are reared alongside.

Early dietetics of peoples of the West African sub region

Much of what we currently know about early dietetics of the peoples of West Africa was derived from medieval Arabic authors who called the region *Balid as Sudan* (the land of the Blacks). There is also considerable corpus of information on the subject by European mariners who visited the Guinea Coast to trade in the late fifteenth to early sixteenth century.. The main limitation of the former is that much of what they documented was derived from second hand sources and limited to the Sahel and northern savanna geographical belts, hardly extending southwards to the coast. European commentaries on the other hand focused mainly on ethno-linguistic groups, settled on the coast. The major limitation of the latter was that some were fortuitous, unfavourable, contemptuous and calumnious because they regarded the native coastal populations as "pagan". Despite these limitations, no one can gainsay the relevance of these sources as prime data for the reconstruction of early dietetics of the peoples of the sub-region.

According to Lewicki (1974: 21), the earliest Arabic account on indigenous dietetics was by the geographer Ibn al-Faqih al-Hamadhani, titled *Kitab al-Buldan* (circa A.D 903). Other notable accounts can be found in the *Kitab al-Masalik* by Al- Istakhri (circa 933 A.D) and *Kitab al-Masalik wa l-mamalik* by Ibn Hauqal (circa 967 A.D). All of the above named scholars noted that the following cereals were widely cultivated in the sub region and constituted primary staples of the peoples: bulrush millet (*Pennisetum typhoideum,* Arabic-*anili*), Fonio (*Digitara exilis,* Arabic - *funi* and *acha*), Sudan wheat (*Priticum aestium*, Arabic-*qamh*), and two varieties each of sorghum millet (*Sorghum vulgare* and *Sorghum arundinaceum*, Arabic-*dhura* and *durra*) and rice (*Oryza glaberrima* and *Oryza sativa*). *Oryza barthii* and *Oryza breviligulata were* also named as important rice varieties widely consumed but collected in the wild. Other non-grain cultigens named as basic foodstuffs included a variety of tubers (*Dioscorea cayenensis,*

Dioscorea alata, Dioscorea dumetorum and *Dioscorea rotundata*), broad beans (*Vicia faba*, Arabic - *ful*), chick pea (*Cicer arietinum*, Arabic - *bimmas*), Bambara ground-nuts (*Voandzeia subterrana*), kidney beans (*Vigna sinensis*, Arabic - lubiya) and date palm (*Phoenix dactylyfera*).

A variety of vegetables and fruits were also documented of which the following were named as very important. They included mulkhiya (*Corchorus olitorius*), onion (*Allium cepa*, Arabic-*basal*), cabbage (*Brassica oleracea*), aubergine (*Solanum melongena*, Arabic - *badinjan*), Pumpkin (*Cucurbitapepo*), Turnip (*Brassica rapa*), Melon (*Cucumbis melo*, Arabic-*bittikh*), tamarind (*Tamarindus indica*), baobab (*Adansonia digitata*, Arabic-*tadmut*), jujube (*Ziziphus jujuba*), orange (*Citrus vulgaris*), dum palm (*Hyphaene thebaica*), figs (*Ficus carica*, Arabic-*tin*) and cucumber (*Cucumis sativus*, Arabic-*maqathi*).

According to Ad-Dimashqi (1923: 239) and Al-Bakri (1913: 267), two prominent Arab writers during the medieval era, the above foods were complemented with seeds of wild grasses, fruit of wild trees and animal husbandry. The former for example, posited that "the peoples fed on meat, milk and grain (Arabic name - *hubbub*) which the earth itself produced in spring as well as millet brought from elsewhere" (Ad-Dimashqi 1923: 239 - 240). The latter, on the other hand, noted that for areas where unfavourable climatic conditions made crop cultivation difficult or impossible; animal husbandry involving the keeping of camels, cattle, sheep and goats including bee keeping took precedence and was complemented with the collection of wild foods and hunting. Writing of the peoples settled in these areas, Al Idrisi (1866: 412) further intimated, "they had only a small number of camels and fed mainly on the roots of the plant named *Aghristis* which the Arabs call *najil.* The plant grows on sandy soil. They grind it with grindstone, obtaining flour from which they make bread which they use for food".

Other edible wild grasses collected and documented by Al Idrisi included gomshi (*Panicum turgidum*, Arabic *mrokba*), deger (*Cenchrus prieuri*, Arabic - *kreb*) and kiiri (*Sorghum virgatum*). On how grains were processed, Al-Omari asserted that the above named grasses were first threshed on a threshing floor to obtain the grain, after which it was washed, grounded in wooden mortars and made into dough for bread, porridge and pancakes (Al Omari, quoted in Lewicki 1974: 45).

Regarding the consumption of meat and fish, Lewicki (1974: 79) notes that except for wealthy tribal chiefs and overlords, these significant protein sources played a minor part in the nourishment of many tribal groups in the region. They ate meat only on solemn occasions and during the celebration of religious rites. He named antelopes, gazelles, hares, oryx, giraffes, ostriches, turtles and hippopotami as principal game exploited by populations which lived by hunting game in the sub region.

The only method of meat preservation documented by Arab scholars was that of drying it in the sun after it had been cut into small slices, while salting and drying constituted the principal techniques recorded for preserving fish ((Al Idrisi 1866: 478; Al Bakri 1913: 156). Other notable foods documented by Arab writers comprised of vegetable oils derived from the Shea tree (*Butyrosperum parkii*), Palm tree (*Elaeis guineensis*) and Sesame (*Sesamum L*), honey, salt, Ashanti pepper (*Piper guineense*) and kola (Cola spp.).

Several early Europeans writers described the Dixcove area as being covered with several hills, well watered and heavily forested with very fertile soils, from which the people cultivated numerous crops (Barbot 1732: 12 & 151). Bosman (1705: 12 - 13), for example, noted that: "*Anta* (Ahanta) country produced rice, sweet red maize, potatoes, yams and sugar cane, larger and in greater plenty than any other place along the coast. It also afforded the very best sort of palm wine and oil in great quantity, also coconuts, bananas, oranges, small lemons and all sorts of tame, as well as, wild beasts elephants, tygers, wild cats, deer's, serpents some of them about twenty feet long and others smaller".

Deer meat is a delicacy in the study area and may have been so in the remote past. Ethnographic investigations by Posnansky (1984), Mauny (1954), Lewicki (1974), Clark& Brandt (1984) have clearly indicated that native populations on the Gold Coast exploited some 200 floral resources for food before the coming of Europeans. Some of these plants were also important constituents in traditional medical preparations. An inventory of some of the commonly exploited varieties included African rice (*Oryza glaberrima*), sorghum (*Sorghum vulgare*), millet (*Pennisetum miliaceum*), cowpeas (*Vina unguiculata*), oranges (*Citrus sinenis* and *Citrus aurantium*), fonio (*Digitaria exilis*) and varieties of tubers (*Dioscorea spp*.)

The archaeological investigation

The archaeological research was undertaken in two phases. The first involved conducting reconnaissance surveys on foot, one each at the ancient settlement quarters of *Ntwarkro* and *Daazikessie*. No cultural materials were retrieved at *Daazikessie* because the original settlement quarter had been heavily built upon by the indigenes. The situation was further exacerbated by the very convoluted settlement pattern there which precluded the recovery of any archaeological data. The settlement pattern at *Ntwarkro* however was less dense and cultural materials were recovered. The following constituted the total quanta discovered during the above exercise: European ceramics 13, local pottery – 26, faunal remains – 6, shellfish remains – 35 and lithic grinders – 5.

The second phase involved the excavation of ten units at different locations at Dixcove. Five were opened at *Ntwarkro* and another five at *Daazikessie*. The main cultural materials recovered comprised the following: pottery of local manufacture, European ceramics, hammers, querns, nails, door hinges, fragments of roofing slates, screws, bricks, shellfish remains, lithic grinders, floral and faunal remains. Other items retrieved included copious quantities of slag, tuyeres, fragments of imported alcoholic beverages, bottles, imported smoking pipes, inkwells, writing slates, illuminants, metal knives, blades, roofing tiles, glass beads, healthcare and beauty product containers, metal bangles and anklets.

Though a wide array of cultural materials were found, only finds related to dietetics were used for the study. To facilitate classification and analysis, they were categorized broadly into two types namely: finds directly related to dietetics, and finds indirectly related to dietetics. The former included faunal, floral and shellfish remains, while the latter included lithic grinders, beverage bottles, querns, local pottery, glassware and imported ceramics. The tables below show the quanta of cultural material retrieved according to units.

Types of cultural material	Level 1	Level 2	Level 3	Level 4	Level 5	Total count of cultural material
Faunal remains	1	36	9	17	5	68
Mollusc shells	16	92	119	124	13	364
European ceramics	37	33	-	1	-	71
Floral remains	-	-	-	1	26	27
Local pottery	9	37	42	85	24	197
Total count of cultural materials according to strata level	63	198	170	228	68	727

Table.1: Table showing types and quantum of food related cultural materials recovered from Unit 1

Cultural Materials	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	Level 9	Level 10	Level 11	Level 12	Total count of cultural materials
Faunal remains	25	42	19	33	78	213	164	138	124	45	15	-	896
Imported ceramics	26	39	72	57	43	43	89	166	185	115	16	-	851
Molluscs shells	442	341	178	427	706	594	898	298	341	408	185	23	4841
Floralremains	2	-	9	11	13	11	21	15	-	2	-	-	84
Local pottery	11	32	66	52	85	125	147	113	140	220	126	12	1129
Stone grinders	1	3	-	1	-	1	-	3	-	-	-	-	9
Total count of cultural materials	**507**	**457**	**344**	**581**	**925**	**987**	**1319**	**733**	**790**	**790**	**342**	**35**	**7810**

Table.2: Table showing types and quantum of food related cultural materials recovered from Unit 2

Types of cultural materials	Level 1	Level 2	Level 3	Level 4	Level 5	Total count of cultural material
Mollusc shells	-	2	3	1	2	8
Imported ceramics	-	-	1	-	-	1
Faunal remains	-	1	4	-	-	5
Total count of cultural materials according to strata level	**-**	**3**	**8**	**1**	**2**	**14**

Table 3. Table showing types and quantum of food related cultural materials recovered from Unit 3

Types of Cultural materials	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	Total count of cultural materials
Local pottery	11	27	29	45	32	21	9	2	176
Mollusc shells	2	59	83	288	293	453	199	2	1379
Faunal remains	-	9	7	16	22	17	7	2	80
Imported ceramics	-	6	4	25	33	16	19	-	103
Total count of cultural materials according to strata level	**13**	**101**	**123**	**374**	**380**	**507**	**234**	**6**	**1738**

Table 4. Table showing types and quantum of food related cultural materials recovered from Unit 4

Types of Cultural materials	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	Level 9	Level 10	Level 11	Total count of cultural materials
Local pottery	51	61	84	5	111	135	257	229	167	43	19	1162
Imported Ceramics	13	42	52	122	143	94	42	26	2	1	-	537
Mollusc shell	786	132	294	22	176	90	79	126	31	26	15	1777
Floral remains	3	6	11	91	131	171	111	73	4	3	2	606
Querns	-	-	1	-	-	2	1	-	1	-	-	5
Total count of cultural materials according to strata level	**1178**	**484**	**870**	**772**	**1103**	**1207**	**646**	**618**	**238**	**97**	**50**	**7263**

Table 5. Table showing types and quantum of food related cultural materials recovered from Unit 5

Types of Cultural materials	Level 1	Level 2	Level 3	Level 4	Level 5	Total count of cultural materials
Local pottery	26	128	193	26	11	384
Floral remains	-	6	19	13	3	41
Shellfish remains	19	47	126	427	32	651
Faunal remains	120	35	28	3	-	186
Imported ceramics	9	13	3	-	-	25
Total count of cultural materials according to strata level	174	229	369	469	46	1287

Table 6 Table showing types and quantum of food related cultural materials recovered from Unit 6

Types of cultural remains	Level 1	Level 2	Level 3	Level 4	Level 5	Total count of cultural materials
Local pottery	164	324	249	130	19	886
Faunal remains	-	-	-	-	-	-
Floral remains	12	3	39	110	50	214
Shellfish remains	14	32	39	71	13	169
Imported ceramics	1	-	-	-	-	1
Total count of cultural materials according to strata level	**191**	**359**	**327**	**311**	**82**	**1270**

Table 7: Table showing types and quantum of food related cultural materials recovered from Unit 7

Types of cultural remains	Level 1	Level 2	Level 3	Level 4	Level 5	Total count of cultural materials
Faunal remains	-	-	-	-	-	-
Shellfish remains	12	66	112	133	91	414
Imported ceramics	-	1	-	1	-	2
Floral remains	21	110	115	127	89	462
Local pottery	78	39	150	110	43	420
Total count of cultural materials according to strata level	111	216	377	371	223	1298

Table 8. Table showing types and quantum of food related cultural materials recovered from Unit 8

Types of cultural remains	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Total count of cultural materials
Faunal remains	13	21	41	19	13	2	-	109
Shellfish remains	22	27	33	10	19	5	5	121
Floral remains	-	55	126	110	9	11	7	318
Local pottery	8	4	11	127	199	123	13	485
Imported ceramics	8	1	-	-	-	-	-	9
Total count of cultural materials according to strata level	51	108	211	266	240	141	25	1042

Table 9. Table showing types and quantum of food related cultural materials recovered from Unit 9

Types of cultural remains	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	Total count of cultural materials
Floral remains	-	-	-	-	-	-	-	-	-
Local pottery	18	40	110	199	167	112	73	11	730
Imported ceramics	5	2	19	10	3	4	1	-	44
Shellfish remains	132	381	468	472	121	93	34	3	1704
Faunal remains	88	118	117	188	91	3	-	-	605
Total count of cultural materials according to strata level	**243**	**541**	**714**	**869**	**382**	**212**	**108**	**14**	**3083**

Table 10. Table showing types and quantum of food related cultural materials recovered from Unit 10

Analysis of finds directly related to dietetics

A total of 11,463 shellfish remains belonging to a variety of species were recovered, of which only 35 were recovered from ground surface. The bulk were relatively well-preserved, having retained their main distinguishing physiological attributes like natural colouration, shapes and shell lineaments which made it possible to establish genera and specie types. They were classified broadly into two genera (classes) namely: *Bivalvia* and *Gastropoda,* andnine specie types. The following species were identified as belonging to the genera *Bivalvia*: *Aca senelis* and *Arca afra,* while the following belonged to the genera *Gastropoda*: *Thais haemastoma, Tagelus angulatus, Semifusus morio, Donax rugosa,Pitaria tumens, Patella safiana and Terebra s.p*

Palm kernel shells (*Elaeis guineesis),* constituted the only floral material recovered from the study area (Plate 1). The breakdown according to loci is 727 for *Ntwarkro* and 1,025 for *Daazikessie*. The writer is awaiting results of flotation analysis to establish other floral resources exploited, which will be published in a subsequent issue. Majority were unbroken with the nuts still intact. Except for those recovered from strata levels 1 - 3, all were well-worn, attested by their dull blighted exterior colourations and minute irregular-shaped interstices some of which extended 2 – 3 mm inwards into the shell. It was difficult to scientifically conjecture the cause of these numerous pores. They were apparently the result

of the boring action of insects trying to reach the nut within. Another notable characteristic feature of shells from Level 4 to the occupation level was their easy friability, disintegrating with application of little pressure. That they were found at all levels is indicative that palm fruits constituted an integral aspect of traditional diet.

Plate 1. Some palm kennel shells from the study area

A total of 2,566 faunal remains comprising mainly the long tubular bones (*femur, tibia, humerus* and *fibula*), short tubular bones (*metacarpals, metatarsals* and *phalanges*) and teeth were recovered. The bulk of the faunal inventory was heavily fragmented, denuded and lacked established reference marks to facilitate identification. Those recovered from Units 2 and 5 were also severely charred thus, making identification of species a daunting task. This handicap notwithstanding, 410 fragments (representing 15.97%) out of the total were identified and classified broadly into four phyla groups, namely: *Mammalia, Aves, Reptilia* and *Pisces.*

The analysis revealed that species belonging to *Mammalia* were the most exploited in ancient Dixcove and totalled 254 (61.9% of total fauna). Some specie types

identified under this phylum were giant rat (*Cricetomys gambianus*), dwarf shorthorn (*Bos sp*.?), cane rat (*Cricetomys gambianus)*, wild pig (*Potomocheoerus proms*), grasscutter (*Thryonomys swinderianus*), cow (*Bos Taurus*), goat (*Capra sp*.), and sheep (*Ovis aries*).

Pisces constituted the second most exploited phylum. A total of 91 remains (representing 22.19% of total fauna) were identified. They comprised of mostly the larger bone parts such as the vertebral columns and skull and were identified as belonging to *Prionoce glauca, Alecti alexandrines, Istiophorus albicans, Caranx crysos* and *Decapterus rhonchus;* all on-shore species. Off-shore species identified included *Arius heudeloti*, *Clarias gariepinus,* and *Clarias gariepinus.*

Reptilia was the third most exploited, of which 54 remains (representing 13.1% of total fauna) were identified. They included remains of monitor lizard (*Varanus noloticus*), tortoise (*Kinixys spp*) and giant ground pangolin (*Manis gigantean*). *Aves* were the least exploited and only 11 remains (representing 2.6% of total fauna) were recovered. They were identified as belonging to chicken (*Gallus gallus*) and guinea fowl (*Numida meleagris*).

The upper and lower limb bones of larger species like cow, goat and sheep showed a pattern consistent with forceful disarticulation exemplified by jagged fractured edges. There was also evidence of marrow extraction exemplified by fine 'V' shaped cut marks on the bones. White and Folkens (2005: 60) assert that cut marks on bone specifically to extract marrow display fine narrow 'V' shaped parallel and sub-parallel striate lines where the blade of the tool cut the bone. Further analysis of the bone assemblage revealed the preferred bones for marrow extraction in order of exploitation were the *femur, humerus, tibia, radius, metapodials* and *proximalphalanges*. According to Outram (2000: 23), marrow cavities of the above named species have the highest concentration of oleic fatty acids (the tastiest part of marrow) and probably explains why they were the most preferred.

Tables 12 - 19 below show the quantum of both diagnostic and non-diagnostic faunal remains recovered. It also gives names of the skeletal part identified according to units and stratigraphy levels and other descriptive attributes associated with them. Note that no faunal material was retrieved at Units 7 and 8.

Table 11: Unit 1

Level	Count of Diagnostic Parts	Count of Non Diagnostic Parts	Name of Body Parts	Gnaw Marks	Burnt	Charred	Butchering Marks	Whole	Fragments	Genus/ Species
1	1		Vertebrae	----	----	-----	----	1		Pisces
2	6	30	Neural spine (x1), skull (x5)	----	----	----	----	----	6	”
3		8						9		
4	3	20	Scapular (x1), dentasy (x3)	-----	----	-----	-----	1	16	”
5	0	0								

Total faunal remains from Unit 1: 68

Table 12: Unit 2

Level	Count of diagnostic parts	Count of non-diagnostic parts	Name of body parts identified	Gnaw marks	burnt	charred	Butchering marks	whole	fragments	Genus/species
1	25	6	Vertebra (x2), femur (x1), ilium (x1) ulna (x1)	---	---	---	---	2	3	Rodentia Pisces
2	42	21								
3	19	3								
4	33	9	Skull fragments(x3), vertebra (x4), ulna (x2)	---	---	---	---	2	7	Pisces Rodentia
5	118	9	Ulna (x1), clavicle (x2), rib (x2), skull frag. (x3), tibiotasus (x1)	---	---	---	---	3	6	Rodentia Aves. Reptilia

6	23	11	Ribs (x5), lower jaw (x1), vertebrae (x2), boneshaft (x1) & humerus (x2)	---	---	---	---	3	8	Bovid. Bos.
7	64	7	Rib (x1), calcaneum (x3), boneshaft (x2) & tibiotarsus (x1).	---	---	---	---	1	6	Bovid. Aves. Rodentia.
8	138	2	Fibula (x1) & ulna (x1).	---	---	---	1	1	1	Bovid
9	124	21	Rib (x4), unla (x5), lower jaw (x1), radius (x6), humerus (x2) & fibula (x3)	---	---	---	---	6	15	Bovid Rodentia.
10	145	9	Boneshaft (x1), unla (x3), clavicle (x3) & humerus (x2).	---	---	---	---	1	8	Bovid Aves.
11	62	5	Cleithium (x1), rib (x1) & ulna (x3).	---	---	---	2	0	5	Bovid. Pisces.
12	0	0	-------	---	---	---	---	---	---	-----

Total count of faunal remains from Unit 4: 80

Table 13: Unit 3

Level	Count of diagnostic parts	Count of non diagnostic parts	Name of body part	Gnaw marks	burnt	charred	Butchering marks	whole	fragments	Genus / species
1	0	0	---	---	---	---	---	---	---	---
2	0	1	Opercula	---	---	---	---	---	---	Aves
3	1	3	Fibula (x1), ulna (x2) & radius (x1)	---	1	---	---	0	4	Bovid. Aves.
4	0	0	---	---	---	---	---	0	0	---
5	0	0	---	---	---	---	---	0	0	---

Total count of faunal remains from Unit 3: 5.

Table 14: Unit 4

Level	Count of diagnostic parts	Count of non diagnostic parts	Name of body part	Gnaw marks	burnt	charred	Butchering marks	whole	fragments	Genus / species
1	0	0	---	---	---	---	---	---	---	---
2	0	9	---	---	---	---	---	---	---	---
3	1	6	Skull fragment	---	---	---	---	---	1	Bovid
4	1	15	Femur (proximal)	---	---	---	---	---	1	Rodentia
5	9	13	Vertebra (x2), fibula (x1), lowers jaw (x1), metatarsals (x2), tibiotarsus (x1), calcaneus (x1) & opercula (x1).	---	1	---	---	---	9	Bovid Pisces.
6	2	14	Rib (x1), scapular (x1) & teeth (x1).	---	---	---	---	---	3	Bovid
7	4	6	clavicle	---	---	1	---	---	1	Aves
8	0	0	---	---	---	---	---	---	---	---

Total count of faunal remains from Unit 4: 80

Table 15: Unit 5

Level	Count of diagnostic parts	Count of non diagnostic parts	Name of body part	Gnaw marks	burnt	charred	Butchering marks	whole	fragments	Genus / species
1	0	6	---	---	---	---	---	---	---	---
2	2	9		---	(x1)	---	---	---	11	Bovid
3	9	90	Ulna (x2), boneshaft (x1), premolar tooth (x1), metacarpal (x1), rib (x2), skull (x1) & humerus (x1).					8	91	Bovid. Rodentia
4	5	70	Tibia (x1), teeth (x2), scapular (x1), phalange (x1).	---	---	1	---	---	9	Bovid Rodentia
5	13	36	Teeth (x2), Vertebra (x1), ulna (x1), neural spine (x1), calcaneum (x1), tibia (x2), tarsometotarius (x1), fibula (x1), phalange (x2) & femur (x1).	---	---	---	---	---	49	Bovid. Reptilia
6	21	97	Calcaneum (x1**),** radius (x1), teeth (x2), ulna (x1), neural spine (x1), phalange (x3), scapular (x1), lower jaw (x1), rib (x2), ceratohyal (x1), fin spine (x1), humerus (x1), fibular (x3) & vertebra (x2).	---	---	---	(2)	3	115	Bovid, Pisces. Rodentia.

7	7	132	Bone shaft (x1), ribs (x1), skull fragment (x1), coracoid (x1), radius (x1), vertebra (x1) & fibular (x1).	---	---	---	---	---	39	Bos. Bovid. Pisces.
8	12	60	Vertebra (x2), ribs (x3), metacarpal (x1), fibular (x2), teeth (x2), tibia (x1) & cleithium (x1).	---	---	1	---	2	70	Pisces. Bovid . Rodentia.
9	0	39	---	---	---	---	---	---	2	---
10	0	0	---	---	---	---	---	---	---	---
11	1	2	Astragulus (x1)	---	---	---	---	---	3	Bovid

Total count of faunal remains from Unit 5: 611.

Table 16: Unit 6.

Level	Count of diagnostic parts	Count of non diagnostic parts	Name of body part	Gnaw marks	burnt	charred	Butchering marks	whole	fragments	Genus/ species
1	8	112	Fibula (x1), skull fragment (x1), incisor teeth (x2), coracoid (x1), ribs (x2) & ilium (x1).	---	1	---	---	---	120	Rodentia. Bovid. Reptilia.
2	3	32	Clavicle (x1),scapular (x1) & tarsometatarsus (x1).	---	---	1	---	1	34	Aves. Bos.
3	4	24	Skull fragment (x1), femur (x1), humerus (x1) & metacarpal (x1).	---	---	---	---	---	28	Bovid
4	0	3	---	---	---	---	---	---	3	---
5	0	0	---	---	---	---	---	---	---	---

Total count of faunal remains from Unit 6: 186.

Table 17: Unit 9.

Level	Count of diagnostic parts	Count of non diagnostic parts	Name of body parts	Gnaw marks	Burnt	charred	Butchering marks	whole	fragments	Genus/ species
1	2	11	Lower jaw (x1) & ilium (x1).	---	---	---	---	---	13	Rodentia
2	7	14	Bone shaft (x1), femur (x1), scapular (x1), vertebra (x2), clavicle (x1 & dentary (x1).	---	---	1	---	---	21	Bovid
3	11	30	Femur (proximal) (x1), ulna (x2), rib (x3), scapular (x1), radius (x2), humerus (x1) & phalange (x1).	---	---	---	---	---	---	Pisces. Rodentia. Bovid**.**
4	5	14	Ulna (distal)(x1), opercular (x2), neural spine (x1) & rib (x1).	---	---	---	---	1	18	Pisces, Bovid.
5	3	10	Humerus(x1), premolar tooth(x1) & tibia (x1).	---	---	---	---	2	11	Bovid
6	0	2	---	---	---	---	---	---	2	---
7	0	0	---	---	---	---	---	---	---	---

Total count of faunal remains from Unit 9: 109.

Table 18: Unit 10

level	Total count of diagnostic parts	Total count of non diagnostic parts	Name of body part	Gnaw marks	burnt	charred	Butchering marks	Whole	fragments	Genus/ species
1	8	180	Metacarpal (x1), rib (x1), skull fragment (x1), clavicle (x1), teeth (x2), tibia (x1) & vertebra (x1).	---	---	---	---	1	87	Bos, bovid, rodentia.
2	3	238	Tibiotarsus (x1), rib (x1) & humerus (x1).	---	---	---	---	0	11	Bovid
3	2	115	Vertebra (x1) & operculum (x1)	---	---	---	---	0	17	Bovid
4	0	45	---	---	---	---	---	---	5	---
5	1	8	Bone shaft (x1)	---	---	---	---	---	9	---
6	0	6	---	---	---	---	---	---	3	---
7	0	0	---	---	---	---	---	---	0	---
8	0	0	---	---	---	---	---	---	0	---

Total count of faunal remains from Unit 10: 605.

Analysis of finds indirectly related to dietetics.

Lithic artifacts have been used by mankind more extensively than any other cultural material, and constitute some of the most preserved in the archaeological record. Its hardy nature makes them resistant to fire, water, vagaries of tropical weather conditions and natural disasters. A total of 16 were recovered, of which 5 were discovered during the surface survey at *Ntwarkro*, 9 from Unit 2 and 2 from Unit 5. Except for three which were whole, the remainder consisted of halves of which the other halves were not found. All were well-worn and appeared to have experienced extensive usage, evidenced by their very smooth middle grinding

areas which were generally 2 – 3cm lower than the outer less smooth surrounding ends which were irregularly shaped. Examination of the grinding surface with a hand magnifying glass also revealed that the bedrock from which they were hacked was composed of homogenous fine-grained crystalline structures with no internal fractures.

All five grinders discovered during the surface survey were stationary grinders firmly jointed to the underlying rock bases and were probably community grinders available to all in the community. Their robustness, sturdiness and relatively larger sizes also appear to suggest they may have been used to pulverize hardy cereals, seeds and nuts compared to those retrieved from Units 1 and 2, which were smaller in size. All 16 recovered grinders did not conform to any particular shape or standardized size, and appeared to have been hacked from surrounding granite / gneiss rock outcrops which are unique to the area. This is because they were of same dark-grey colours and joint formations.

The number of imported culinary items utilized in food preparation / consumption totalled 1,657 and comprised mainly of fragmented late nineteenth and early twentieth century ceramic wares with an average size of less than 7 cm squared. Cream-wares and delftwares dominated the assemblage, with a small minority comprising porcelains, white-wares and stone-wares. Reconstruction was generally difficult because of their very fragmented sizes and absence of trademarks and company logos, which could have shed light on the manufacturers and country of origin.

The few larger parts which could be reconstructed, however, indicated the majority comprised a gamut of shallow eating plates and bowls of which 230 pieces (13.8%) were identified. The breakdown according to form is as follows: flat plates – 975 (58.8%), condiments holding vessels – 16 (0.96%), teacups – 19 (1.14%) and mugs 149 (8.99%).

A total of 278 (16.77%) could not be identified and were designated non-diagnostic. Only 11 (0.72%) had manufacturers' marks embossed on them, of which 5 were identified as originating from England; precisely 1 each from Swadlincote near Burton-on-Trent, Burslem, Cobridge, Bristol and Chelsea. The

first comprised of part of a delft plate with beautiful sponged blue flowered patterns displayed around the edges superimposed on a white background. It had, imprinted at its base, the inscription "*AULT*". According to Godden (1968: 40), "*AULT*" is the trade mark of William Ault and Company (c. 1887 - 1923).

The second fragment was part base / lower body of a cream coloured bowl with the inscriptions "*BOOTE*" and "*England*" imprinted at the base. This piece lacked any decoration and was most likely to have been manufactured by T. & R. BOOTE, manufacturers of different types of earthenware's. According to Godden (1968: 43), this company located at Burslem has been operating since 1842. He further noted that the inclusion of the word "*England*" on English ceramic wares denotes a post 1891 production date while "*Made in England*" denotes a twentieth century production date (Godden 1968: 10).

The third fragment had the inscription "*W.B*." embossed at its base. It was most probably manufactured by William Brownfield (& sons), manufacturers of different types of earthenware's and porcelain. According to Godden (1968: 48), this company operated from circa 1850 – 1891. After 1871, it added *"& S*" or *"& Sons*" to its original "*W. B*." trade mark initials. This presupposes the fragment recovered pre-dated 1871.

The fourth fragment was most likely the base of a plate and had the trademark of a globe with the inscription "*MINTONS*" imprinted in the middle and a crown located atop it. It also had red, blue and green flowery patterns along its middle portions. According to Godden (1968: 94), this trade mark belongs to *MINTONS & SONS*, a Bristol porcelain manufacturer incorporated since 1851 to present.

The fifth fragment comprised of the base / lower body of a mug and had two inscriptions. The first was a "*C.V*." imprint and the second "*Made in England*" inscribed below it. "*C.V*." was the company logo of *CHARLSE VYSE*, a Chelsea based producer / modeler of earthenware's and porcelain which operated from 1919 - 1963 (Godden 1968: 128).

Four fragments of delftwares were also identified in the assemblage, of which 2 originated from companies in Rotterdam. The first comprised of part of the lower body of a white and blue tin glazed tulip bulb patterned plate with the

inscription "*De Drie Klokken*" (translated "The Three Bells") imprinted at its base. According to Morley-Fletcher and MclLroy (1984: 200 - 201), products of this company spanned the late eighteenth to early twentieth century.

The second fragment appeared to be part of a pancake plate with *famille verte* designs in the middle. Morley-Fletcher and MclLroy (1984: 209) suggest this design was unique to the *Ary Rijsselberg in De 3 Vergulde Astonnekens* factory, and was probably manufactured by them.

The third fragment was a small thin-lined circular patterned polychrome dish with the word "*De*" inscribed on it and was likely to have been manufactured by the *De Roos* factory, located at Friesland. The fourth delft fragment was very small and only part of a "*Bijl*" imprint was readable. It was thus difficult to assign a date and manufacturer. The word "*Bijl*" however, is Dutch, indicating it probably originated from The Netherlands.

The remaining two fragments comprised of porcelains and appeared to be the bases of jugs. Both were ascribed with the word "*VDuyn"* and were profusely decorated; the first with several small blue coloured leaf motifs on a white background, while the second was hand-decorated with brightly coloured red, blue, green, grey and yellow floral patterned sponge designs.

The quantum of potsherds of local manufacture recovered was 5,595 and comprised 17.9% of total artifacts recovered. The majority measured 7 – 12 cm across their longest axis. Optical inspection was undertaken with the aid of a magnifying glass and a petrographic microscope. Their generally dull lusterless colourations and well-worn edges clearly indicated they had undergone extensive abrasion and spallation over time. A few had also become friable, with gritty exterior surfaces, probably the result of poor firing or open firing at low temperatures.

The body fabrics of the *Ntwarkro* assemblage were generally thicker with average diameter ranges of 6 – 8 mm from the rim to neck of the vessels, and 11 – 14 mm from the shoulder to the base of the vessels. Their exterior surfaces were also unpolished and felt rough to touch. Examination of the body fabric under a petrographic microscope revealed a mix of two tempering materials and several

tiny lattices, evenly spread within at approximately 2 per 10 millimeter section area. The first consisted of smooth, well-rounded fragments, coloured reddish-brown which appeared to be grounded potsherds. The second consisted of large coarse grained, angularly-shaped granitic fragments of no definite shape and size, coloured dark-grey. They appeared to be natural inclusions from the parent rock from which the clay was derived. Compared to the latter, the former were relatively smaller, approximately 2 – 3 mm in diameter. Their even distribution suggests long hours of kneading constituted an integral aspect of the clay handling process. The simultaneous use of the two tempering materials was probably done to improve malleability or handling during modelling, and prevent shrinking and cracking during firing.

All three traditional surface treatment types associated with locally manufactured vessels in Ghana were identified in the assemblage, namely: red slipped – 345, smudged – 617 and surface smoothing (plain) – 1702. A total of 326 potsherds were decorated, while 2,338 were undecorated. Five principal decorative patterns were identified, namely: short vertical punctuate motifs - 112, single horizontal circumferential grooves - 86, multiple horizontal circumferential grooves - 56, dot patterns - 42 and short oblique / diagonal patterns - 30. Majority of the decorative fields were confined exclusively to the shoulder and upper neck regions of the vessels.

Reconstruction of the sherds made possible vessel categorization into two broad groups namely jars and bowls. For *Ntwarkro*, three jar types were identified and were designated Jar Types 1 – 3 (refer figures 6.1 – 6.3) while 8 bowl forms were also identified and designated Bowl Types 1 - 8 (refer figures 6.4 – 6.11). For *Daazikessie*, 2 jar types and five bowl types were identified (refer figures 6.12 – 6.18). It was not possible to fully reconstruct Jar Type 1 from *Daazikessie* (figure 6.12) because only a small fragment of the mouth and upper shoulder area was retrieved. Guesstimating its vertical dimension and shape of the base was thus difficult.

Ten potsherds, five each from *Ntwarkro* and *Daazikessie* were randomly selected for mineralogical analysis at the Department of Earth Sciences laboratory, University of Ghana, Legon. The analysis revealed that the principal minerals

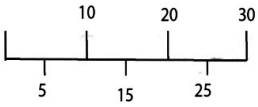
present in the samples were Hornblende (2%), quartz (40%) and plagioclase feldspars (20%). A few also contained micas, albeit in very small quantity. The bulk of the quartz grains were elongated and angular-shaped and appeared to be strained and undulated, indicating they had undergone some degree of metamorphism and deformation.

Generally, the vessels appeared to be well-fired with equally shaped side-flowing profiles. Other unique attributes included uniformity of the body fabric (from apex to base) and their smooth well-burnished surfaces, some of which reflected a dull luster shine when exposed to direct sunlight. The width and depth of decorative lines adorning the vessels were also equally spaced and paralleled to each other. They clearly attested to the artistic proficiency, distinctive eminence and mastership of the potters. It would not be out of place to suggest that the fabricators had achieved a high degree of standardization in their craft.

Illustrations of some reconstructed locally manufactured vesels from Upper Dixcove

Fig. 6.1

Jar Type 1



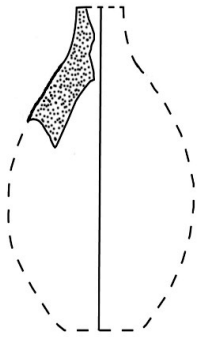
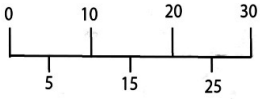


Fig. 6.2

Jar Type 2



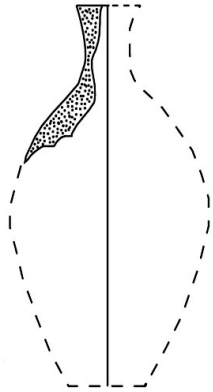
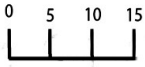


Fig. 6.3

Jar Type 3



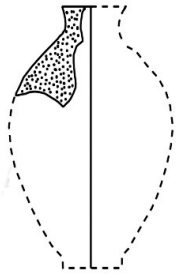


Fig. 6.4
Bowl Type 1

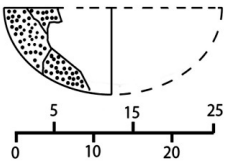


Fig. 6.5
Bowl Type 2

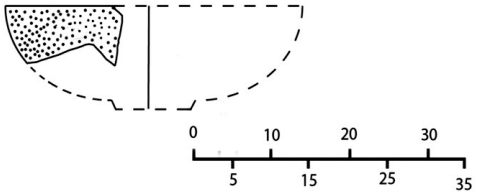


Fig. 6.6
Bowl Type 3

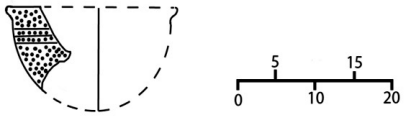
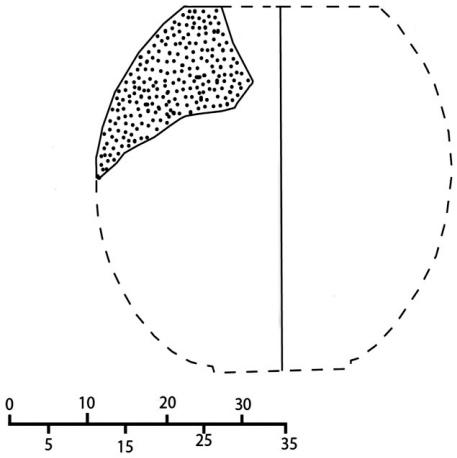
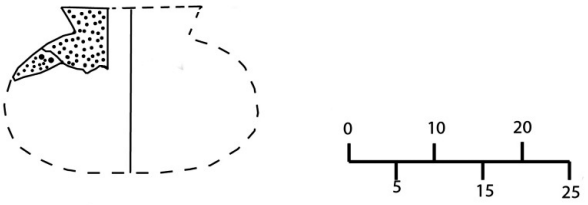


Fig. 6.7
Bowl Type 4



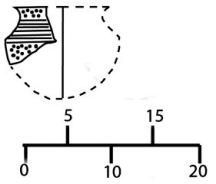
Bowl Type 5

Fig. 6.8



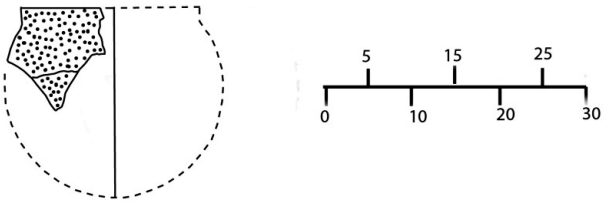
Bowl Type 6

Fig. 6.9



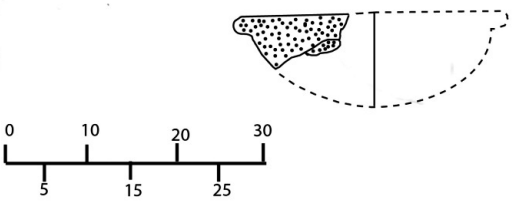
Bowl type 7

Fig. 6.10



Bowl Type 8

Fig. 6.11



Illustrations of reconstructed vessels of local origin from Lower Dixcove

Fi.g 6.12

Jar Type 1

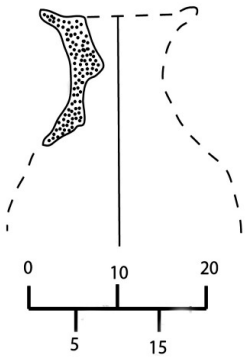


Fig. 6.13

Jar Type 2

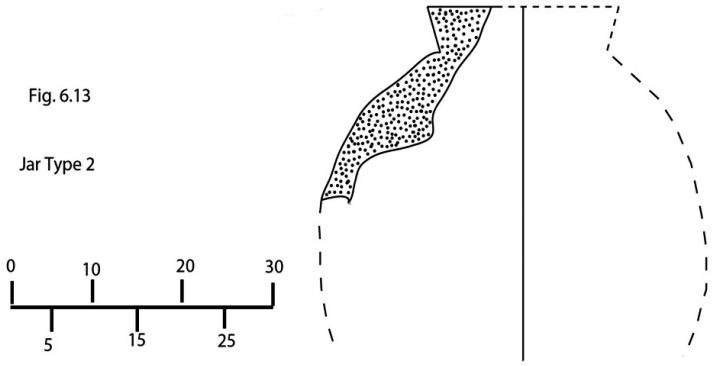
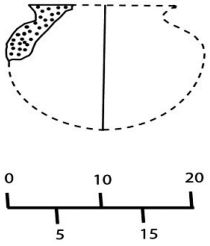


Fig. 6.14

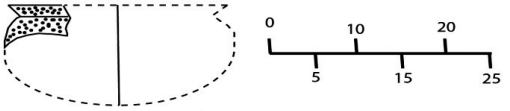
Bowl Type 1

Fig. 6.15



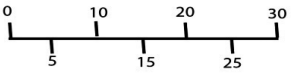
Bowl Type 2

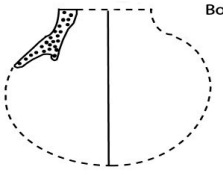
Fig. 6.16



Bowl Type 3

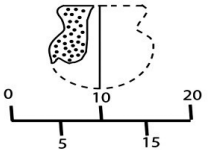
Fig. 6.17





Bowl Type 4

Fig. 6.18



Bowl Type 5

Two heavily corroded silver spoons, 5 blades (believed to be part of knives) and 98 fragments of glassware constituted the only household items recovered. This count compared to liquor bottles was relatively low. The bulk comprised of parts of tumblers, carafes and bowls and was retrieved from upper stratigraphy levels (Levels 1 – 3) at Units 2 and 5 which corresponded to the late nineteenth to early twentieth century period. The remainder of the glassware fragments totalling 2,137 (83.57%) could not be identified and probably constituted multi-purpose storage containers for other products.

Alcoholic beverage bottles dominated the bottle assemblage. Like ceramics, the bulk of the glass bottle assemblages totalling 2,133 were retrieved from *Ntwarkro,*

with only 393 being retrieved from *Daazikessie*. A total of 61 (representing 2.38%) were identified as liquor and spirit containers of which 15 were identified as originating from distilleries in The Netherlands. Identification of the former was based on 3 embossments of the '*Star and Stork with a Worm'* distinctive trade mark of the *J. H. Henkes Company*. Also recovered were 3 bottles with the *AVDE* monogram, representing *A. van den Elaarf* distillery, located at Schiedam in Holland. Other recoveries associated with European imported liquor included 3 glass pewter caps and 9 bottle spigots. Positive identification of the remainder was difficult because only 11 complete bottles were recovered. The rest comprising of fragments with an average square area of less than 10 cm and with no established reference marks. Only six pieces were lettered with some form of identification marks and seals, all of which were embossed around the shoulder or base areas of the bottles.

White and light-green constituted the predominant colours. Comparatively, light-green fragments (722) dominated at lower levels of the stratigraphy while white fragments (1789) dominated at the upper levels of the stratigraphy. At middle strata levels, the quantum was balanced. There were also 16 olive-coloured (yellowish-green) and dark-brown fragments in the assemblage.

Three bottle shapes dominated the assemblage. The first comprised short-necked torpedo-shaped bottles, with push-up bases. The second comprised of rectangular-shaped bodies, also with short necks, while the third comprised of elongated round-shaped bottles with long necks, some of which had kick-up bases. A sizable number had developed small patches of patina, of no identifiable shapes, along several portions of their exterior and interior surfaces.

While it was not possible to positively identify the functional uses of the remaining 2,496 glass fragments, it will not be out of place to suggest that the bulk were alcoholic beverage holders, because there are multiple references in historical records indicating liquor constituted a major European import to the research area. Panes of mirrors (which had lost their reflective mercury coating), toilet water containers, medicinal / syrup vials, pomade holding vessels and cooking oil containers also constituted major imports to the area.

Five of the bottles identified as liquor holding bottles had caked, dark-brown talc-like substances embedded at their bottoms, which easily disintegrated between my fingers after applying little pressure. While these impregnations could not be identified, it does suggest that liquor bottles were re-used by the locals for other purposes aside liquor storage. According to DeCorse (2001: 159), the use of bottles to store and transport liquor and other condiments from Europe came into general use only in the eighteenth century. Prior to this period, liquor was shipped in casks, large jugs, and barrels. Chronologically, this places the bulk of the liquor bottles recovered at Dixcove to the post eighteenth century period.

Discussion

The combined evidence (archaeological, historical and ethno-historical) clearly indicated the exploitation of off-shore fisheries constituted an integral aspect of traditional diet at Dixcove in the past. It was probably the mainstay of the local economy, because a significant proportion of the ecofacts retrieved comprised *Pisces* remains, which bear testimony to this assertion. Some off-shore species identified from the recovered remains included *Prionoce glauca, Alecti alexandrines, Istiophorus albicans, Caranx crysos,* and *Decapterus rhonchus.* According to DeCorse (2001: 103), marine fishing has an extensive history on the Gold Coast, which long predated the advent of Europeans. Attesting to its importance in the late seventeenth century, Barbot (1992: 518 - 519) asserted: "After that of merchant, the trade of fisherman is the most esteemed and commonest. Fathers bring their children up to it from the age of nine or ten. Every morning, a very large number of fishermen come out from the land for up to two leagues. There are many of them from Axim, Anta, Commendo, Mina, Corso, Mouree and Cormentin, but more at Commendo and Mina than elsewhere". He also noted that populations occupying the eastern coastal belt (Axim, Anta, Commenda, Mina, Corso, Moure and Cormentin*)* were exceptionally skilled fishermen (Barbot 1732: 519). Cruickshank (1966: 3 - 4) also noted that the principal tool kits of indigenous fisher-folks of the Gold Coast during the period under study comprised of small wooden skiffs, metal and wooden traps and grass matting sails.

Ethno-historical narratives and early European records also intimated the importance of on-shore fishing. Barbot (1732: 186), for example, noted that

"they have a peculiar way of catching fish in the night time along the strand, by means of round wicker baskets, fastened to long poles, holding the pole in one hand and in the other a lighted torch made of a sort of fierce burning wood. The fish generally make towards the light, and so are taken in the baskets". *Arius heudeloti*, *Clarias gariepinus,* and *Clarias gariepinus* constituted on-shore species identified among *Pisces* remains retrieved at Dixcove.

Early European commentaries on indigenous shellfish exploitation consisted of general descriptive ethnographies, which emphasized its importance as a food resource, and accounts relating to collection technologies and processing were only noted superficially (Bosman 1705; de Marees 1987; Barbot 1732. Meredith 1812). The large quantum recovered from the earliest occupation level to surface level attests to its continuous exploitation and popularity as an integral constituent of traditional diet in the past. Those recovered in veritable quantities included *Aca senelis, Arca afra, Thais haemastoma, Tagelus angulatus, Semifusus morio* and *Donax rugosa*. *Pitari atumens, Patella safiana* and *Terebra sp*. constituted species which were also recovered but not in veritable numbers.

During the surface survey, 19 very large shell middens were noted along the town's extensive beachfront of which the largest measured 2.524 x 3.048 x 1.23m. At different locations further inland, were also several smaller ones composed mainly of *Arca afra a*nd *Arca senelis*. The Dixcove middens were probably food related wastes, because respondents intimated that all of the above named species were exploited for food in the past. The greater proportion of the *bivalves* measured 120 – 155mm across their longest axis and had their natural creamy to pale yellow exteriors discoloured to light-grey colour. According to Edmunds (1978: 23), *Arca afra* and *Arca senelis* when fully-grown, measure 150mm averagely, which suggests the bulk exploited in the past comprised of the large fully matured ones. This presupposes their plentiful supply in the remote past, because had they been scarce, the middens would have contained greater proportions of the smaller immature ones.

Palm kernel shells constituted another ecofact recovered in veritable numbers from occupation to sub-surface levels, which attests to its antiquity and intensive cultivation in the study area. The European introduction of South American and

Asian cultigens like maize (*Zea mays*), tomatoes (*Lycopersicon lycopersicum*), pineapple (*Ananas comosus*), guava (*Psidium guajava*), avocado (*Persea americana*), sweet potato (*Ipomoea batatas*) and cassava (*Manihot esculenta),* most likely transformed local cultivation strategies and food types exploited on the coast, because according to Dickson (1969: 8 & 79), Dixcove and its neighbourhoods "yielded the largest corn harvest" on the Gold Coast. He named rice, cocoyam and sweet potato as additional staples which contributed significantly to the agricultural economy of Ahanta-land during the period under study.

According to DeCorse (2001: 111 - 112), the introduction of foreign cultigens impacted not only local consumption patterns and crop varieties cultivated, but also facilitated the development of new technological innovations and production of new vessel forms required to process them. He cites for example, bread and *kenkey,* both made from corn which became the common preferred choice of coastal populations during the seventeenth century. The proliferation of novel European metal tools, urbanization and expanding coastal markets; all direct consequences of the Trans-Atlantic Trade, also probably stimulated production of these new cultigens in terms of total acreage cultivated.

Crop cultivation at Dixcove was likely undertaken using simple but hardy hand held tools attested by the retrieval of 14 heavily corroded metal implements believed to be parts of billhooks, cutlass blades and the tang of a hoe (Plate 2). According to Barbot (1992: 392), de Marees (1987: 28 & 52) and Jones (1983: 220 - 221), these constituted the principal crop cultivation tools of coastal populations occupying the Gold Coast.

Plate 2. Remains of some imported metal implements from the study area.

Pottery was probably an integral household item at ancient Dixcove, because it was one of the most abundantly recovered. Like palm kernel shells, it was found at all levels of the stratigraphy. Reconstruction of the larger sherds revealed the bulk comprised of bowls of which two types were clearly identified. The first consisted of deep seated bowls 7 – 18 cm deep with wide necks, ideal for food storage and cooking variety of soups (refer figures 6.6, 6.7, 6.8, 6.9, 6.10, 6.15, 6.17 and 6.18).

The second comprised of bowls only 3 - 6 cm deep with extensive mouths and without necks, which would have been ideal for serving foods, pulverizing vegetables and hardy nuts (refer figures 6.4, 6.5, 6.11, 6.14 and 6.16). Soups were probably an essential component of traditional diet, and may have been consumed alongside staples like millet and yams.

There was no archaeological evidence attesting to salt production in the research area. Early European sources, however, posit that salt production constituted an integral aspect of the local economy of the area. A 1602 report by Peiter de Marees (1987: 75), for example, intimated that "the best salt ponds on the Guinea Coast were located in Ahanta-land.

The discovery of stone grinders is germane because it supports the assertion that pulverization constituted an integral method of processing foods in the past. Stone grinders are still in extensive use at Dixcove, primarily to pulverize vegetables and a variety of medicinal herbs. There was a glaring paucity of imported glassware's in the Dixcove assemblage. This was probably because ceramic bowls and jugs were more popular as eating and drinking accoutrements than glass bowls and jugs. Similar low count recoveries have been noted at other Afro-European contact places on the Gold Coast like Elmina, Axim and Anomabo (DeCorse 2001: 163; Gyam 2008: 57; Freeman 2009: 77).

Conclusion

The study revealed that people in the study area exploited and subsisted on a wide variety of local cultigens, primarily millet, African rice and a variety of yams, prior to the advent of Europeans. These were supplemented with wild seeds, fruits, roots and grasses. The introduction of new foreign cultigens from

South America and Asia transformed the agricultural economy of the study area by increasing crop varieties available. The most notable of these crops- maize, cassava and ground-nuts to a large extent, increasingly displaced millet, yams and Bambara ground-nuts with time, and became the major staples of the people. It also necessitated the facilitation of new techniques required to process them. The new introductions appear to have positively impacted local dietary patterns by increasing food types available to the Ahanta. Clearly, the full picture of how the new introductions impacted early dietetics of the Ahanta will be better understood with additional historical archaeological investigations, accompanied with flotation analysis as undertaken in the research area.

Novel European trade goods, notably liquor, which found their way to the study area via the Trans-Atlantic Trade also impacted traditional dietary patterns. The veritable quantity of fragmented alcoholic beverage bottles recovered is ample attestation that the locals embraced it, additional to palm wine, which early European sources assert was popular among people of the study area. Other items not recovered in the archaeological record but which ethno-historical narratives and European records posit were important, included flour, sugar and molasses.

Off-shore and on-shore fisheries constituted the primary fauna exploited by the indigenes of Dixcove. Several species of domesticated and undomesticated mammals, aves, reptilia and shellfish were also exploited alongside, and together, constituted the major protein constituents of the people's diet. The quantum of shellfish recovered is germane, because it suggests it was an integral aspect of traditional diet and not a minor dietary supplement, or an alternative to starvation as is the case with some coastal populations.

Acknowledgements

I am indebted to Mr. Bosman Murrey, retired Chief Technician at the Department of Archaeology and Heritage Studies, University of Ghana, Legon, for identifying and analyzing all the molluscs and faunal remains recovered from excavation of ten units at Dixcove. I also wish to thank the *Akyimpinhene* and caretaker chief of Upper Dixcove, Nana Acheampong; and Nana Amoako Agyebu, acting paramount chief of Lower Dixcove, and his elders, for recounting their oral traditions. I am

also grateful to the entire populace of Dixcove for their general cooperation and help during the study, and all 400 students of the Department of Archaeology and Heritage Studies, who graduated in 2010/2011 academic year, for their assistance during the archaeological investigation.

Notes

[1]*Efiema* was the original name of Dixcove, during the period of early contact with Europeans.

[2] The Gold Coast became Ghana after gaining independence from Britain in 1957.

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