THE SOCIO-ECONOMIC ROLE OF SALT IN NORTHERN HIGHLAND ETHIOPIA

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Abstract

Salt is a known cross-cultural item of early trade with documented socio-political consequences. Written records on the Ethiopian salt industry go back at least 2,000 years. This dissertation is an ethnoarchaeological investigation of the socio-economic role of the salt trade in northern Ethiopia. Ethnoarchaeological methods are used to explore all aspects of the salt trade in an attempt to provide a basis to understand the role of salt as an economic item, in socio-cultural developments as well as aid the interpretation of the archaeological record. Conducted in the Tigrai and Afar regions of northern Ethiopia, this study identifies groups involved in the salt industry and confirms that the salt trade is vibrant. Aspects of the technology used to extract, transport, and process salt, remain unchanged from what was described by earlier visitors to Ethiopia. While some archaeological correlates of the salt trade such as ropes, skins and plant material may not preserve, stones used to sharpen axes, and metal axes used to extract and shape salt would likely preserve. The remains of pack animals used to transport salt may also preserve. Overall, the salt trade would leave a thin footprint in the archaeological record. Socially, the results of this study suggest that participation in the salt trade confers wealth, which may be used to gain and maintain social status today, a benefit that could have been the same in the past.
Dedication

This dissertation is dedicated to my daughters Kinla A. Apaak, and Kankisi A. Apaak for the happiness, and hope they have brought to me, in spite of the many challenges I have faced. They have inspired me to complete my studies so that I can provide them with the proper context as a father. I also salute my parents, Agnes and John Azundem, for always believing in me when others did not. Although I caused my mother many sleepless nights, she never gave up on me and as an educator, put me on the right track to make my contribution to humanity.
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My informants in the Tigrai and Afar regions of Ethiopia were very understanding. They were patient, and accommodated my disruption of their daily activities. I must also extend my gratitude to Dr. Melaku Tesfera, formerly of the University of Mekelle, for taking me around, and helping me to obtain needed permits. Dr. Melaku also took me, in the company of Dr. Catherine D’Andrea, to Aba Ala, the political centre of Afar Zone Two to obtain permit letters to Berehale from Hussein Nur Umar, the zone leader. He introduced me to Mohammed Salih, an Afar student in his university, and Michaele Atsbeha, a consultant and interpreter. Dr. Melaku helped me to arrange for transportation during my fieldwork. He and Michaele played key roles in
assisting me to establish the needed contacts, and arranged for me to meet with the leaders of Enderta woreda.

Mohammed Salih introduced Dr. Melaku, Dr. D’Andrea, and me to Berehale woreda authorities, and allowed me to stay with his family in Berehale. He helped us present letters to leaders of Berehale; Mohammed Ibrahim, Ali Osman Bori, and Mohammed Osam. With his help, we negotiated the conditions of my stay and trip to the Assal salt plains in the Danakil Depression. Salih also introduced Yahaya Amadu, my Afar interpreter, Haji Osman, and Osam Gamel to me. These men provided camels and security during my walk from Berehale to the salt plains. Mariam Salih, Mohammed’s wife, fed me and helped me to buy supplies for my trip to the salt plains. I am thankful to Mohammed and Mariam Salih for their help and support.

In the Enderta area, I was fortunate to get the help of Abomba Desta Gidey and Gebremadin, the leaders of Adi Ainawalid and Adi Baekel respectively. They assisted me in arranging meetings, and accompanied me personally or assigned others to assist me in locating informants in Adi Baekel, Adi Ainawalid, and Chin Feras. In addition, they arranged for me to meet the leaders of Chin Feras, Shum Bahri Gebretitus, the only surviving Shum in Enderta, as well as Ato Gebremeskel Debesay of Adi Ainawalid. I sincerely thank Shum Bahri Gebretitus, and Ato Gebremeskel Debesay, respected elders, and known experts on the traditional history of Enderta. Certainly, I am grateful to all my informants as they allowed me to take their time, disrupt their work, and entere their homes. Rather than protest my constant harassment with questions and disruptions, they fed me.
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CHAPTER 1: INTRODUCTION AND BACKGROUND

1.1 Introduction

This study examines the socio-economic role of salt in northern Ethiopia. It is aimed at exploring how trade in salt may have contributed to the development of early complex societies in northern Ethiopia. The present study also identifies cultural markers of the salt trade intended to provide insights into the archaeology of salt production and trade. To ensure that the salt industry of northern Ethiopia is properly understood, the study focuses on the technological and socio-economic aspects of the salt trade.

Fieldwork for this study, conducted in 2004, identified groups involved in the salt industry and confirmed that the salt trade is as vibrant as reported by earlier visitors, circa 525 A.D. Aspects of the technology used to extract, pack, transport, and process salt show continuity from what was described by visitors to Ethiopia centuries ago. Some archaeological correlates of the salt trade such as ropes, skins, and plant material may not preserve. However, others such as stones used to sharpen axes, metal axes used to extract and shape salt, grinding stones used to process salt, the remains of pack animals used to transport salt, and plant remains used to bind salt, may enter the archaeological record.

Results of this study suggest that participation in the salt trade generates wealth, which confers status today, and may have done so in the past. This complements Bauer’s (1977) assertions of a connection between increased wealth and status. Bauer reported in his study of economic and social analysis of Tigrayan households that, “prizes at the village level beyond that of mere economic survival are mostly related to prestige or
status honour (*kibri*). He noted further that we must examine the options open to living actors, know their goals, the resources available to them and their institutions, which either provide avenues for them or impinge upon them. Bauer adds that one gains *kibri* by increased wealth, spirituality, age, or office holding (Bauer 1977:3).

### 1.2 Natural and Cultural Background

Ethiopia is located between latitude 3°N and 18°, and longitude 33°E and 48°E (Buxton 1970:17; Wolde-Mariam 1972:1). It is bounded by Sudan to the west and Eritrea to the north. In the south it is bordered by Kenya, in the south east by Somalia, and Djibouti in the east (Figure 1). Ethiopia covers an area of 1.12 million km² and has a population of 65 million people (Mengistu and Fentaw 2003:2). Topographic variations of Ethiopia are reflected in the fact that it has the Semien Mountains rising over 4,600 m above sea level and the Danakil Depression 100 m below sea level (Pankhurst 1998; Buxton 1970; Mengistu and Fentaw 2003). Variations in elevations have produced corresponding differences in temperature, climate, and vegetation in Ethiopia (May 1970, Pankhurst 1998). The present climate is characterised by alternating wet and dry seasons following the movement of the Inter-tropical Convergence Zone (Mohammed 2005). Mean annual rainfall ranges from 500 mm in the Rift Valley floor, 1,200 mm in the northern highlands, and as much as 2,500 to 3,000 mm in the central highlands and southern Ethiopia (Mohammed 2005).
Figure 1. Ethiopia, northeast Africa

Ethiopians have traditionally classified their environmental zones into: dega (cold zone) above 2,400 m above sea level (asl) with an annual average temperature of about 16°C; woina dega (temperate zone) at elevations of 1,500 to 2,400 m asl with an annual temperature of about 22 °C; and kwolla (hot zone), below 1,500 m asl with an annual average temperature of about 27°C. However, daily temperatures of the Danakil Depression, part of the hot zone, reach 50°C (Buxton 1970; Shack 1974). Associated natural vegetation of acacia woodland is present in the Rift Valley floor, changing to dry...
montane forest with *Podocarpus* and *Juniperus* in areas above 2,000 m asl. Regions above 3,200 to 3,500 m asl have Ericaceous and Afro-alpine moorland forest cover (Mohammed 2005). It is agreed that the natural vegetation has been obliterated mostly due to human activity (Wolde-Mariam 1972; Mohammed 2005).

According to the 1994 population and household census results report, Ethiopia has a federal system of government, divided into nine regions including one provincial administration, Dire Dawa, and the capital, Addis Ababa (Figure 2). Within each region are administrative zones, each composed of *woredas* or districts. These are further divided into *tabias* or village associations below which are *kebeles* or villages.

![Figure 2. Tigrai and Afar regions, Ethiopia](image)

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1 Modified from UN Emergency Unit for Ethiopia Map, 2000
Ethiopia has four main linguistic groups; Semitic, Cushitic, Omotic, and Nilo-Saharan (May 1970; Shack 1974; Pankhurst 1998; Ehret 2002). However, the Cushitic and Omotic language groups are thought to be the most ancient (Ehret 2002). The present religions of Ethiopia are Christianity, Islam, Judaism, and African Traditional Religion (May 1970; Pankhurst 1998).

The dominant economic activity in Ethiopia is agriculture. In highland areas grain cultivation and animal husbandry dominate, while in lowland areas farming and pastoralism are common. Ethiopians grow tef, wheat, barley, and enset (false banana), and raise cattle, sheep, goats, mules, donkeys, and camels (Bequele and Chole 1969; Getachew 2001). Ethiopia is said to have more than 70 million livestock. Trade in livestock and secondary products such as leather, are integral parts of Ethiopia's economy (Getachew 2001).

1.2.1 Natural and Cultural Context of the Afar Region

The Afar region covers a total area of 278,000 km\(^2\) and is bordered by Tigrai, Oromia, Amhara, and Somali regions domestically (Figure 2), and Djibouti and Eritrea internationally. The present capital of the Afar region is Asayita. The region has tertiary volcanic rocks associated with the development of the East African Rift Valley system (Wolde-Mariam 1972; Mengistu and Fentaw 2003). The Danakil Depression, which dips 110 m below sea level in some sections, is a part of the great Rift system, which runs from Syria, through Ethiopia to Mozambique (Wolde-Mariam 1972). The Depression extends into the Afar Region, Eritrea, and Djibouti. The main rock types in this formation include basalts, trachytes, dyke swarms, andesites, rhyolites, ignimbrites, and
pumiceous rocks. The economic importance of these later sediments and volcanic rocks are reflected in the presence of potash, rock salt, gypsum, bentonite, diatomite, and pumice (Mengistu and Fentaw 2003).

The Awash River, which flows north-eastward through southern Afar, is an important river as it provides a narrow green belt essential to human, animal and plant life in the area. At the end of the Awash River in the north is a chain of salt lakes, where water evaporates as fast as it is supplied (Lipsky 1960; Wolde-Mariam 1972). One such lake is Assal, a salt lake in the Danakil Depression (Lipsky 1960; Wolde-Mariam 1972; Buxton 1970; May 1974). Salt mining has been and is still a major source of income for many people in northern Ethiopia, including the Afar people. The Afar region falls in the kwolla (hot) zone and experiences temperatures from 25°C during the rainy season to 50°C in the dry season. It is dry, with yearly rainfall averages from 100 to 200 mm and has a vegetation of drought-resistant plants including small trees, shrubs, and grasses (Wolde-Mariam 1972; Buxton 1970; May 1974; Mohammed 2005).

The Afar people are one of 25 ethnic groups of lowland Ethiopia, making up 12% of Ethiopia’s population (Getachew 2001). According to the 1994 population and household census report of Ethiopia, Afar region has five administrative zones, and twenty-nine woredas. The Afar people are believed to have settled in the area they now occupy around the 9th century A.D. (Selassie and Dena 1969:76). They played an important role in the rise of Islam and the subsequent rise of Ahmed Garan in the 16th century. According to one legend popular in Ethiopia, Garan was the son of a Muslim woman and an Abyssinian Christian priest. With his own forces, as well as the support of his father-in-law, he rose to become the ruler of the Muslim state of Adel, which included
the Afar people. Angered by the mercenary activities of the Christian King of Ethiopia, Lebna Dengel, Garan started a jihad, and raided the Christian kingdom of Ethiopia in 1527. By 1535, he succeeded in over-running considerable portions of the Ethiopian empire, leaving a trail of destruction (Lipsky 1960; Selassie and Dena 1969; Pankhurst 1998; Getachew 2001). In 1975, the Afar Liberation Front (ALF) began after an unsuccessful rebellion led by a former Afar sultan. The Socialist Derg government of Ethiopia (1972 to 1991) created the autonomous region of Assab, formerly part of Tigrai region, which laid the basis for the current independent region of Afar established after the fall of the Derg in the early 1990s (Pankhurst 1998; Getachew 2001).

The Afar people are Muslim and speak Afarigna, which is a Cushitic language related to Oromo, Sidamo, Somali, Agaw, and Beja (Lipsky 1960; Pankhurst 1998). An Afar home is known as *ari* (Figure 3), and a *burra* (camp), consists of two or more *ari*, usually maintained by women (Getachew 2001).

![Afar traditional home, Berehale](image)
The Afar people have a patrilineal society organised into clans and classes. The *asaimara* ('reds') are the dominant class politically, and the *adoimara* ('whites') constitute the working class (Abir 1968; Getachew 2001). Camels are very important to all Afar people as a source of income, milk, meat, and a means of transport (Buxton 1970; Getachew 2001). The Afar people and other pastoral groups hold 40% of all cattle, 75% of goats, 25% of sheep, 20% of equine (horses, mules and donkeys), and about 99% of the camels present in Ethiopia (Getachew 2001).

Southern Afar people practice mixed farming or agro-pastoralism in the Awash Valley (Buxton 1970; Pankhurst 1998; Getachew 2001). Various Shoan rulers ruled them in the past (Lipsky 1970). Northern Afar people are the least studied due to their reckoned warlike and fierce nature (Lipsky 1960). Conflicts between them and their neighbours are well-documented (Pankhurst 1961, 1968; Abir 1966; Getachew 2001). They used to be under the control of Tigrayan rulers at various times (Lipsky 1960). Because they live in a difficult environment, they remain pastoralists, relying on camel and goat husbandry (Buxton 1970; Getachew 2001). The men supplement their income by shaping and selling salt at Lake Assal to caravan merchants. Most women make fibre ropes and weave mats for sale, while a few process and rent out goatskins to highland caravans for salt payments and gifts. In addition, they trade milk and animal hides at markets and towns, including Mekelle (Getachew 2001).

### 1.2.2 Natural and Cultural Context of the Tigrai Region

The Tigrai region covers an area of 50,078.64 km² and borders Eritrea to the north, Sudan to the west, as well as the Afar and Amhara regions of Ethiopia to the east and south respectively (Shack 1974; Lipsky 1960). Geologically, Tigrai is composed of
Precambrian basement, late Paleozoic-Mesozoic sedimentary succession, and Tertiary volcanic sediments. Tertiary volcanic sediments associated with the development of the East African Rift caused the Ethiopian highlands to form including the Semien range, which reaches 3,000 m asl at the peak (Wolde-Mariam 1972; Mengistu and Fentaw 2003). Tigrai has an annual average temperature range of between 5°C-40°C and falls mostly in the woina dega (temperate zone), with a temperate-subtropical type climate (Buxton 1970). The region receives 800-1,200 mm of rain and its vegetation is described as Ericaceous and Afro-alpine moorland cover (Wolde-Mariam 1972; Butler and D’Andrea 2000; Mohammed 2005).

According to the 1994 population and household census report of Ethiopia, Tigrai region has four administrative zones, and thirty-five woreda. It has a population of 4,233,004, constituting 6.2% of the total population of Ethiopia. Tigrayans trace their origins to the mixture of African groups and Arabian immigrants dating back to the 8th century B.C. (Selassie 1972). Their language is Tigrinya, a Semitic language related to Ge'ez (Munro-Hay 1991, Pankhurst 1998). The church plays a vital role in the lives of Tigrayan people, as the majority are members of the Ethiopian Orthodox Christian church (May 1970; Bauer 1977; Pankhurst 1998). Christianity was adopted in the 4th century A.D. during the reign of King Ezana, the earliest known king of Aksum (Bauer 1977; Munro-Hay 1991; Pankhurst 1998). There are many Muslims in the Tigrai province, although they generally belong to other ethnic groups (Lipsky 1960; Pankhurst 1998). Tigrai’s capital is Mekelle, which became prominent in 1898 when the Ras of Tigrai, later Emperor Johannes IV, made it the centre of his rule.
Historically, Tigrai is made up of hereditary lordships, including Semien, Tembien, Agame, and Enderta. In the past, these lordships had their princes alternating with others from Begemder, as warlords to rulers of the Ethiopian monarchy (Abir 1966, 1968; Pankhurst 1961, 1968, 1998). For most of its history, Tigrai has played a leadership role in Ethiopia. In recent times, it was in Tigrai that the Tigrayan Peoples Liberation Front (TPLF) formed to oppose the Derg, which was overthrown by the TPLF combined with other groups in 1991 (Pankhurst 1998).

Tigrayan houses are mostly built from rock, earth, and timber. The home is called adi (Figure 4), made up of a kitchen, a sleeping room, and a yard, enclosed by a wall. In the homes, women use dried cow dung for cooking (Bauer 1977; D’Andrea et. al. 1999; Butler and D’Andrea 2000). Unlike their lowland Afar neighbours, the people of Tigrai are sedentary agriculturalists who grow cereals including wheat, barley, tef; and several types of legumes. Using methods that are thousands of years old, farmers plough their fields with oxen, sow seeds, and harvest by hand (D’Andrea et. al. 1999; Butler and D’Andrea 2000).

Figure 4. Tigrai home, Adi Ainawalid
The people of Tigrai raise stock, mostly cattle, which they use for farming, as well as for milk and meat (Buxton 1970; Shack 1974; Lipsky 1960; Bauer 1977). In addition, they own other beasts of burden including mules, donkeys, and in some cases camels, which they buy from their Afar neighbours (Bauer 1977). The Central Statistics Agency of Ethiopia estimated in 2005 that Tigrai had 2,713,750 cattle (7% of Ethiopia’s cattle), 208,970 goats (1.61%), 9,190 mules (6.24%), 386,600 donkeys (15.43%), and 32,650 camels (7.15%).

1.3 Early History of Northern Ethiopia

To provide the proper context for this study, we must first survey the available evidence for socio-cultural developments in the Ethiopian region. This will help us understand the need for the present study as well as the role that an important economic item in the history of Ethiopia, salt, could have played in the developments of social complexity in northern Ethiopia.

The prehistory of Ethiopia goes back millions of years as indicated by the findings of some of the oldest fossils of hominines in the world. The Ethiopian section of the East African Rift valley has yielded remains of Australopithecines. It was in the Hardar section of the Afar region that Donald Johanson and his team found the remains of “Lucy” or *Australopithecus afarensis* in 1974, dated to 3.2 million years ago (Johanson and Edey 1982). In 1992, Timothy White and his team found remains of what they term *Australopithecus ramidus* in the Aramis area of the Afar region dated to 4.4 million years ago (White et. al. 1994). While the connection between our earliest ancestors and subsequent inhabitants of the Ethiopian region are not clear, there is
evidence that prehistoric Stone Age peoples inhabited the Ethiopian highlands and the Aksum area from about 10,000 B.C. onwards (Phillipson 1977, 2003; Finneran 2000 b).

Generally, there is an acceptance of the idea that the Ethiopian highlands were an important centre of agricultural innovation and plant domestication in Africa as noted by the presence of domesticated livestock and crops in the Holocene (Fattovich 1994; Fattovich et. al. 2000; Bard 1997, Barnett 1996; Schmidt and Curtis 2001; Ehret 2002). Prehistoric agriculture of highland Ethiopia was a combination of indigenous crops such as tef, finger millet, and Near Eastern species such as wheat and barley (D'Andrea et. al. 1999; Phillipson 2000; Fattovich et. al. 2000; Ehret 2002; Lyons and D’Andrea 2003).

Archaeological data on the exact time and circumstances precipitating agriculture in the highland Ethiopia is limited (Brandt and Fattovich 1990; Fattovich 1988). Nonetheless, Ehret (1979, 2002) emphatically notes that food production may have started in the 7th millennium B.C. based on linguistic evidence. He proposes that one group with an agricultural way of life believed to have expanded into the Ethiopian highlands were the ancestors of the Agaw, a Cushitic language speaking people said to have migrated from South-eastern Eritrea around 3,000 to 2,000 B.C. According to him, the link between the Agaw and agriculture is hinted by the fact that words for finger millet and tef are derived from the Cushitic language (Ehret 2002). As well, terms for agricultural related equipment, like the plough, are said to be Agaw in origin (Munro-Hay 1991).

1.3.1 Origins of Social Complexity in Ethiopia

Most scholars agree that there is evidence pointing to the migration of various groups into the Ethiopian highlands during the mid-1st millennium B.C. However, the sources of these immigrants, the motivations for their movement as well as their
contributions to socio-cultural developments and complexity have been interpreted differently over the years (Wolde-Mariam 1973; Ullendorff 1973; Fattovich et. al. 2000; Finneran 2000 b; Schmidt and Curtis 2001; Curtis 2004, 2008; Michels 2005; Phillipson 1977, 2003).

According to traditional accounts, over 6,400 years ago Ethiopia was occupied by Israelites (Neghede Orit) (Wolde-Mariam 1973). Hamites (Neghede Kam) followed them from across the Bab-el-Mandeb to the Ethiopian region around 2,700 B.C. At the peak of Hamitic occupation, four more groups entered Ethiopia. It is suggested that these groups were from Egypt (Neghede Weyto), Sudan (Neghede Shenash), other parts of Africa (Neghede Shanqilla), and Asia (Neghede Qimant). It is believed that members of the group from Egypt were hunters, while those from the other parts of Africa were pastoralists. The last group of immigrants arrived between 1,500 and 2,000 B.C. and were Semites (Neghede Yoqtan). The composition of this group was diverse and included sub-tribes such as the Sabaeans and possibly the Ag’azian (Wolde-Mariam 1973:13).

Earlier writers attributed major socio-cultural developments in Ethiopia to South Arabian colonizers mainly from the Kingdom of Saba (Bent 1893; Conti Rossini 1928; Jones and Monroe 1935). These people presumably settled in the Ethiopian highlands during the 1st millennium B.C., and intermarried with the local inhabitants (Jones and Monroe 1935). Ullendorff (1973) notes that the motivation to settle on the Ethiopian plateau was to expand trading activities, to avoid the inhospitable climate on the coast, and to search further west for gum, spice, and ivory. His interpretation was based on the assumption that the Sabaean immigrants were merchants who previously established
commercial and military posts along the Sambar Plains (Ullendorff 1973). The Sabaeans apparently conquered the native inhabitants, introducing a civilization of stone architecture, an agricultural system of terracing and irrigation, as well as the Sabean language (Brent 1896; Jones and Monroe 1935; S. Pankhurst 1955; Budge 1966; Ullendorff 1973).

Archaeological evidence challenges these earlier claims that significant socio-cultural developments were attributable to Sabean immigrants (Munro-Hay 1991; Munro-Hay and Trangali 1993; Fattovich et. al. 2000; Schmidt and Curtis 2001; Curtis 2004, 2008). It is now known that the Horn of Africa and Arabia witnessed a longer period of interaction from about the 7th to 4th millennium B.C. (Fattovich 1997; Finneran 2000 b; Schmidt and Curtis 2001; Michels 2005; Phillipson 1977, 2003). It is believed that the movement of people from Arabia to the Horn of Africa may have occurred in the 2nd to 3rd millennium B.C. (Fattovich 1997). Archaeologists debating developments towards social complexity in northern Ethiopia have focused on levels of South Arabian influences versus indigenous elements. In addition, the question of the presence or absence of South Arabian colonizers has attracted serious discussions (Bent 1893; Anfray 1968; Ricci 1984; Fattovich 1988; 1990, 1994, 1997, 2004; Fattovich et. al. 2000; Ehret 2002; Schmidt and Curtis 2001; Curtis 2004, 2008; DiBlasi 2005; Michels 2005; Zarins 1990, 1996).

Over the years, Fattovich has cast doubt on the idea that substantial migration of Sabaeans (Conti Rossini 1928; Bent 1893; Ricci 1984) took place during the Pre-Aksumite period. Rather, South Arabian elements might have been derived from cultural influences, which did not significantly impact the original African component of Pre-
Aksumite cultures. According to him, epigraphic and archaeological evidence demonstrate the presence of agro-pastoralist groups, possibly, with chiefdoms ruled by Tigrayan chiefs during the Pre-Aksumite period in Tigrai and eastern Eritrea. The Gash Delta area on the Ethiopia-Sudanese border has provided evidence pointing to the presence of an earlier complex society between the late 3rd millennium and early 2nd millennium B.C. He sees a larger network in which Pre-Aksumite obsidian flakes, blades, and scrapers are likely connected to the microlithic complexes of northeastern and sub-Saharan Africa. Pre-Aksumite material culture suggests a link between it and the two Sudanese C-Groups: Kerma, and Meroitic/Aloa cultural traditions. Fattovich used Clark's (1976) suggestions to support his claims of similarities in material culture from parts of Sudan to northern Eritrea. Clark proposed that people migrated from Sudan and the Ethiopian lowlands into the plateau region to escape worsening ecological conditions of the savannah/sahel belt in the 2nd half of the 2nd millennium B.C. (Clark 1976; Fattovich 1977, 1978, 1984, 1988, 1989, 1990, 1994).

Based on a survey of Pre-Aksumite cultures, Fattovich concluded that Pre-Aksumite cultures were the product of a long period of acculturation, the result of interaction between northern Ethiopia and South Arabia. Consequently, he rejects the hypothesis that South Arabians directly colonized Ethiopia as proposed by some, including Ullendorff (1973). Fattovich's interpretations of developments in northern Ethiopia seem to suggest that socially complex systems did not initially develop within the Ethiopian highlands (Fattovich 1977, 1978, 1988, 1989, 1990). Rather, social complexity may have been introduced through the movement of people who had already developed complex social systems from the surrounding regions. To some extent, this
view agrees with the ‘Internal African Frontier’ model for the development of social complexity proposed by Kopytoff and supported by Ehret (Kopytoff 1987, 1999; Ehret 2002). According to Kopytoff (1987, 1999), the ‘Internal African Frontier’ refers to large areas of land in Africa surrounding established societies. The frontier is where breakaway groups occupied because such areas were not under any institutional control (Kopytoff 1987). He argues that most African polities did not evolve from simpler forms, but were products of complex polities growing out of settlements of immigrants who moved to the edges of fully formed polities.

Findings by Schmidt and Curtis (2001) in the Asmara area of Eritrea to some extent complement the claims of emerging social complexity suggested by Fattovich (Fattovich 1977, 1978, 1989; Fattovich et al. 2000). However, their results challenge his claims of a broad cultural area encompassing the area between the Nile Valley and South Arabia (Fattovich 1977, 1978, 1989; Schmidt and Curtis 2001). Data by Schmidt and Curtis in the Asmara area confirm Fattovich’s claim that the influence of Southern Arabian culture upon highland urban development is not as dominant as previously thought. They argue that earlier suggestions that cultural beginnings and urban development in the Ethiopian and Eritrean highlands were traceable to interactions with the South Arabian Peninsula cannot be validated. Their evidence shows a contemporary mixed farming Ancient Ona culture with little or no affinity with cultures of the Arabian Peninsula. Ancient Ona peoples produced artefacts such as stone bulls’ heads, one of which dates to the Daamat period (circa 600/700 B.C. to circa 400/300 B.C.) and is thought to depict a humped cattle species (Schmidt and Curtis 2001).
Ceramic evidence suggest that the Ancient Ona cultures of the Asmara area were endogenous, thus, casting doubts that Ancient Ona communities were influenced by Sabaean elements to the south and were part of the Ethio-Sabaean cultural complex. Ona cultures show trends towards urbanism around the early 1st millennium B.C. in the area extending from southern Eritrea at Matara and Kaskase. When compared to the mid 2nd millennium timing suggested for developments of early Pre-Aksumite settlements (Fattovich 1977, 1978, 1989; Fattovich et al. 2000), it seems that such developments started in the Asmara area by the 9th to the 4th centuries B.C. (Schmidt and Curtis 2001). Essentially, the evidence indicates that Ancient Ona peoples were sedentary and practised mixed farming, combining grain agriculture and pastoralism. They lived in villages and small towns built of stone and left evidence connecting them to cattle raising dating to the mid 1st millennium B.C., 700 years earlier than previously thought. It is the view of Schmidt and Curtis (2001) that the location of Asmara in a fertile area with access to water as well as in the cross roads of a regional trade network contributed to the growth of social complexity in the early 1st millennium B.C. This interpretation has cast some doubts on diffusionist interpretations offered to explain the development of social complexity in the Ethiopian highlands (Schmidt and Curtis 2001).

Michels (2005) supports the case for South Arabian immigration as contributing to Pre-Aksumite social complexity. He proposes that Pre-Aksumite settlements in northern Ethiopia were organized into ‘indigenous’ patterns with no civic or elite structures nor nucleated population centres. Remains of a few South Arabian temples support the notion that small groups of elite traders became established at various locales. To Michels (1994, 2005), South Arabian cultural elements are reflected in the emergence
of towns and a reduction in the number of villages. The collapse of Daamat (circa 600/700 B.C. to circa 400/300 B.C.), he notes, is evidenced by the decline of large towns and monumental inscriptions, and the return to ‘indigenous’ settlement patterns. He supports the idea that South Arabian immigrants were traders, consisting of a ‘trade-diaspora’ where colonists of traders formed a network to monitor the flow of goods. The motivation for these migrations was likely the result of Arabian attempts to gain access to the Red Sea and trade routes into the interior of Africa (DiBlasi 2005). Subsequently, the colonists became part of the political system of Daamat (de Contenson 1981), used South Arabian royal titles, and introduced more South Arabian cultural elements to the region (Schneider 1973).

Curtis (2004, 2008) has boldly challenged acculturation models that credit the immigration of South Arabian groups for the developments of social complexity in the Ethiopia region (Anfray 1990; DiBlasi 2005; Fattovich 1990, 1996, 2004, Fattovich et al. 2000; Munro-Hay 1993). After examining the possible impact of climactic aridity and landscape change, the expansion of cultural exchange and interaction patterns, the development of agro-pastoralism, permanent villages, and the appropriation and maintenance of ritual power, Curtis (2008) offers a new framework for understanding social complexity in the Horn of Africa. He points out that developments of Ancient Ona and other Pre-Aksumite communities of the 1st millennium B.C. resulted from the coming together of processes developed by Later Stone Age groups of the mid-Holocene. These processes included new technologies and economic adaptations, such as the intensification of food production based on African and Near Eastern crops, and the development of metal technology.
To Curtis, the appearance of new forms of iconography and material culture indicates the long established contacts between the Horn of Africa and other Red Sea regions. He suggests that the manifestation of inter-regional culture contact appears in places like Yeha, Matara, and Hawelti-Melazo during the 1st millennium B.C., a time of expanded political and commercial activity in Africa and the Indian Ocean world. In challenging earlier interpretations that credited South Arabian immigrants with the development of social complexity in the Ethiopian region, he suggests that Ancient Ona elites appropriated iconography and religious architecture, as well as other South Arabian cultural elements as symbols of power used to enhance their status and to legitimise their claims to power. He highlights the vagueness of inscriptions, which make no clear mention of colonists, and argues that the use of a Sabaean script does not necessarily imply language adoption or the presence of colonists. Curtis’s proposition appears to be supported by archaeological evidence. While most scholars agree that Ona agro-pastoralists were instrumental in the regional exchange network of the Red Sea, there is no evidence of Sabaean material culture at Ona sites (Schmidt and Curtis 2001). Similar conclusions have been noted for the Aksum area as well in eastern Tigrai, where Pre-Aksumite domestic contexts have no evidence of South Arabian cultural impact (Phillipson 2000; Phillips 2004; D’Andrea et al. 2008).

Regardless of the movement of people or ideas into highland Ethiopia, there is evidence suggesting that some people or groups in northern Ethiopia became successful politically. As is clear from recent discussions, the contested issues centre around the specific role migrations and interactions between various groups played in the developments of social complexity in the Ethiopian highlands. Therefore, to examine
rising complexity, it is important to look at the economic basis for gaining and keeping power by individuals or groups over others. However, at present the role of rural subsistence economies in the emergence of Pre-Aksumite chiefdoms, the Aksumite empire, and how rural and urban economies interacted are still not clear (Phillipson 2000; Connah 2001), but are currently under study in eastern Tigrai (D’Andrea et. al. 2008).

In his assessment of the Aksum archaeological area, Fattovich identified the introduction of domesticated plants and animals as major steps in the process of state formation in Ethiopia (Fattovich et. al. 2000). Similarly, McCann (1995) suggested that the growth of indigenous highland rural agricultural subsistence methods such as the use of the ox and plough resulted in an “ox-plough revolution”, which changed the organisation of property, gender division of labour, land use, and household resources. He contended that the need for “labour efficiency and productivity of the system” resulted in the need for large organisational hierarchies leading to the formation of a state. Other studies focusing on indigenous plant domestication and early food production in the Ethiopian highlands (Finneran 1998; D’Andrea et. al. 1999) have supported the idea that agricultural practices suited to the local environment played a large role in both the subsistence and growth of highland culture and life.

Besides agriculture, most scholars recognise trade as having contributed to complex social developments (Fattovich 1988; 1990, 2004; Fattovich et. al. 2000; Finneran 1998; Phillipson 2000; Schmidt and Curtis 2001; DiBlasi 2005; Michels 2005; D’Andrea et. al. 2008). Thus, in the quest to understand the factors contributing to social complexity, it should be possible to explore how other economic activities besides agriculture, and trade in items such as obsidian and pottery may have played a role. Salt
is such a trade item, and is needed for humans and livestock. Given suggestions of early agro-pastoralism and trade in northern Ethiopia (Fattovich 1988, 1990, 2004; Fattovich et al. 2000; Schmidt and Curtis 2001), the possibility that the salt trade may have furthered the move towards social complexity must form part of the discussion. Such a role of salt is suggested by examples connecting salt industries to socio-political developments in Ethiopia from the 6th century A.D., other parts of Africa, and in several regions of the world (Pankhurst 1961; Good 1972; Alexander 1975, 1985; Lovejoy 1978; Connah et al. 1990; Nenquin 1961; Bloch 1963; Rathje 1971, 1972; Almquist 1973; Andrews 1983; Adshead 1992). Although salt does not preserve well, studies in Africa show that ethnoarchaeology can be used to shed light on the role of salt in socio-political systems now and in the past.

1.4 African Salt Studies

African salt studies have used ethnoarchaeological and historical methods to shed light on aspects of salt production and trade. These investigations have been valuable to the current study in revealing the natural and cultural factors associated with salt production, trade, and its role in the development and sustenance of some socio-political systems in Africa. Such studies point to the role of salt as an important internal trade item with socio-political consequences related to social complexity (Alexander 1975, 1985; Lovejoy 1978; Connah et al. 1990; Nenquin 1961; Bloch 1963).

Fagan and Yellen (1968) investigated the saltpans of Ivuna in southern Tanzania (Figure 5) from an archaeological perspective. They point out that salt was a valuable commodity in the Iron Age of Tanzania because there were few sources of salt, thereby making it an important item in regional trade. The goal of their study was to establish an
Iron Age sequence for the Ivuna area as well as examine relationships between the Early Iron Age pottery of the Kalambo Falls. Although unable to link pottery from the archaeological record directly to salt production in the past, they suggest that Ivuna salt was traded over a wide range of southern Tanzania. They postulate that salt would have been obtained directly by individuals visiting the salt pans in the past, but were unsure whether such visitors paid tribute to an owner. More importantly, they concluded that salt was likely traded over long distances during the Late Iron Age (Fagan and Yellen 1968:32).

Figure 5. Showing some African nations where salt trade has been studied

Sutton and Roberts (1968) explored the Uvinza salt industry of western Tanzania. Their aim was to understand methods used in salt production before the 19th century as
well as verify historical records by visitors to Uvinza. The ethnographic study they initiated revealed that salt extraction was conducted in the dry season, involving people from as far away as Burundi. While their ethnographic work showed that Uvinza salt workers were independent, these workers paid local chiefs 10% of profits. They noted that oral traditions pointed to an external source of the chieftaincy of Uvinza, believed to have encouraged salt production by extending potential markets. Accordingly, the chiefly clan would have had political and socio-economic reasons to promote salt production because tribute from salt workers would have increased their ability to distribute wealth among subjects as well as increase their power and prestige. Further political implications of the salt trade were suggested by the fact that multiple chiefdoms had joint custody of the salt springs. Sutton and Roberts (1968) contend that long distance trade gave Uvinza salt value in the East African interior.

While it was impossible to estimate the scale of the salt industry, and how far salt may have been traded in the Iron Age (500 to 600 A.D.), Sutton and Roberts propose that the salt industry probably caused an increase in agricultural population because salt is an important physiological need and product to farmers. The subsequent modernization and mechanization of the salt industry, such as the installation of boreholes in place of springs, did not diminish the traditional fame of Uvinza salt. Their work confirmed written records and oral traditions which suggested that Uvinza was synonymous with salt, and that its history, socio-economic and political developments were linked to salt production and trade (Sutton and Roberts 1968).

Gouletquer’s (1975) ethnographic study of the different methods of obtaining salt in the Niger (Figure 5) is informative. His study revealed that methods used were
adapted to the geographic, geo-hydrographical, and climatic conditions of Niger. Methods employed fell into one of three categories, salt earth gathering, natural sun evaporation, and artificial evaporation of various brines. In observing the different kinds of salts, he noted that Niger did not have rock salt. In particular, salt was gained at Guelele, near Tegidda-n-tesent from salt earth. As well, during the rainy season cattle were taken to graze on salt grasses in the area. Salt from Guelele was traded to cattle breeders to the south of Guelele. Gouletquer’s work exposed the multiple sources and ways in which salt is obtained, in addition to how natural settings affect the methods of salt production. Because most of the salt in Niger was produced from brine, involving artificial evaporation, the archaeological implications are that it should be easy to identify salt industries in most parts of the Niger based on the material and equipment used in the processes (Gouletquer 1975).

Lovejoy’s (1978, 1986) work on the role of the salt trade in the history of the central Sudan (Figure 5) incorporated ethnographic data, although his primary information was based on historical documents. Using a regional approach, Lovejoy compared differences in production techniques, and marketing strategies as well as how they changed through time. He argued that market situations in which potential demand of salt exceeded supply could have created a monopoly in which a state or group of merchants could have established their economic ascendency. Furthermore, he identified ethnicity as a major organising principle of the salt industry because salt workers, proprietors, and merchants belonged to different ethnic groups. Ethnicity played a role in who had access to sources of salt and the means of production. He concluded that control of salt sources and trade routes influenced political decisions. As examples, he points out
that political hegemony extended to the salt trade, which was monopolized by Tuareg caravans, while the fortunes of the Bornu state were tied to the salt industry. Consequently, changes in the salt industry reflected transformations in the economy of the central Sudan. His work reveals that the study of salt production and trade is an important subject in understanding the influence of ecology on the history of the region (Lovejoy 1978:14).

Perhaps the most comprehensive study of an African salt industry was Connah’s study of the salt industry of Kibiro in Uganda (Figure 5) (Connah et. al. 1990; Connah 1991, 1996). Based on his belief that African political systems could have developed independent of external influences, Connah set out to explore how the salt trade could shed light on the subject of developing social complexity within Africa. On the basis of his ethnographic observations, Connah (1991, 1996) inferred that parts of a hearth and lumps of daub from one of his excavated units were probably components of a salt boiling house in the past. While analysing ceramics from his excavations at Kibiro, he noted post-firing modification in the form of holes through some sherd s. Connah suggested that such pots might have been used to leach salted soils in earlier times (Connah 1996:131).

On the basis of the archaeological data from his excavation at Kibiro and his ethnographic observations, Connah concluded that the techniques of salt production and its socio-economic organisation had not changed significantly from the past (Connah 1996:53). However, he noted that changes occurred with the replacement of pottery by metal containers for leaching, boiling, and transporting salt (Connah 1996:53-54). According to him, archaeological remains from salt working in Kibiro; pottery, stones,
hearths, house posts, and bones, suggest that more salt was made than was needed for local use, a condition that had economic and socio-political implications. Connah concluded that his dated archaeological remains suggest that people lived and worked salt in the Kibiro area since the early part of the 1st millennium A.D., adding that salt from Kibiro could have played an important role in the history of Bunyoro (Connah 1991, 1996). He pointed out that the lack of evidence indicating external contact further suggests that Bunyoro developed locally within East Africa with little external stimulus (Connah 1996).

Connah (1996) clearly noted that the very existence of the Kibiro salt industry implied the presence of a trading network, which in turn would have required the presence of a socio-political entity to control and protect the salt trade (Connah 1996:216). He rightly points out that a major problem around discussions of social complexity in Africa has centred on the extent to which the development of African states have resulted from external stimuli, in particular the growth of long distance trade with the outside world. It is Connah’s contention that local and long distance trade in Africa, contributed to socio-political changes. He argues that trade in key commodities, such as salt and iron, were important for the maintenance of centralized authority, and that salt played an important role in the internal trade of Africa societies (Connah 1996).

The studies reviewed here are valuable to the present study, but they are not representative of all the types of salt found in Africa. The examples cited are based on salt obtained from one or another form of brine and not rock salt (Gouletquer 1975; Lovejoy 1986; Adshead 1992; Alexander 1993). Ethiopia, Mali, and Angola are known to be African sources of rock salt (Figure 5) (Pankhurst 1968; Alexander 1975; Lovejoy
1986). Nonetheless, previous studies and reports suggest political implications for salt production and trade. Although salt rarely survives in the archaeological record, the studies indicate that it is possible to recognise the production and trading of salt in Africa, from the equipment used, features related to production, and the distribution of salt. The studies discussed (Fagan and Yellen 1968; Sutton and Roberts 1968; Connah 1991, 1996) used ethnographic observations in illuminating archaeological and historical contexts as well as provide clues on how to identify salt production and trade in the past. The East African studies played major roles in the interpretation of features and finds from archaeological excavation conducted at Ivuna, Uvinza, and Kibiro (Fagan and Yellen 1968; Sutton and Roberts 1968; Connah 1996). Some researchers went on to infer possible connections between trade in salt and socio-political entities in Africa (Sutton and Roberts 1968; Lovejoy 1978; Connah 1996).

1.4.1 Nature of African Salt Industries

The ethnographic data on African salt industries suggest that there are local variations in methods of obtaining salt, the nature of the geology of salt sources, as well as different kinds of salts. African salt industries have three separate but related components: production; distribution; and consumption; each of which is constrained by natural and cultural factors. Natural factors such as geology, geo-hydrology, and climate determine the availability of salt sources as well as methods, techniques, and seasons of extraction (Gouletquer 1975; Lovejoy 1986; Connah 1991, 1996). Cultural factors such as ethnicity and belief systems determine ownership of sources, technology of extraction, and those who participate in the salt industry (Sutton and Roberts 1968; Lovejoy 1986; Connah 1991, 1996). While types of salts are strong determinants of the methods of
extraction, methods have been noted to vary for the same types of salt such as in East Africa (Fagan and Yellen 1968; Sutton and Roberts 1968; Connah 1996).

Salt distribution and trade occurs within local areas, regions, or across different regions (Alexander 1985). Where salt is produced for local consumption or distributed in the immediate region of its production, the mode of transportation may be by head-portage (Connah 1996). Trade and distribution at this level does not involve complex arrangements (Alexander 1975). However, distributing salt to regions distant from its source may involve transport by animals, requiring complex trade relations, networks, and established routes (Alexander 1975; 1993; Lovejoy 1986). Because the distribution of salt over long distances is influenced by location of sources, climate, cost of transportation, rights to sources, tribute, and taxes, the further salt moves from its sources, the more valuable it becomes (Abir 1966; Pankhurst 1968; Alexander 1975; Lovejoy 1986).

At present, no dates have been established for the antiquity of salt production and trade in Africa. Yet, it is reasonable to assume that salt production and trade may have intensified with the shift to an agricultural way of life, as groups became increasingly sedentary, and populations increased during the Later Stone Age (5,000 B.C.). Most researchers agree that the control of sources and the distribution of salt was an important factor in the economic, social, and political lives of many African societies in historical times (Abir 1968; Fagan and Yellen 1968; Sutton and Robert 1968; Alagoa 1970; Good 1972; Lovejoy 1986; Connah 1996). Specifically, salt was a very significant item of trade in the inland Niger Delta, where it was exchanged for agricultural products of the hinterland as recorded by European visitors (Alagoa 1970:325). The prosperity of the
West African states of Ghana (400 to 1,100 A.D.), and Mali (1,240 to 1,475 A.D.) has been linked to salt. These empires regulated the importation and distribution of rock salt obtained from Tagaza, Taodeni, and Bilma in the Sahara, and exchanged it for gold from the West African forest fringe (Good 1972:544).

1.5 The Present Study

The specific objectives of the present study are: a) to document technological and socio-economic aspects of salt production, trade, and consumption; b) to identify material correlates of the salt industry; c) to explore how trade in salt may have contributed to the development of complex societies. This study collected information on the present socio-economic role of the salt trade in the Afar and Tigrai regions of northern Ethiopia. It is part of the project “Ethiopian Farmers Yesterday and Today: Archaeological and Ethnoarchaeological Investigations at Gulo-Makeda, northern Ethiopia”, initiated and run by Dr. Catherine D’Andrea. The main goals of the project are: 1) to examine the nature and role of rural economies in the developments of ancient Ethiopian complex societies; and 2) to develop a regional picture of modern day Tigrayan material culture, providing a basis from which to explore new interpretations of past cultures. This study collected data needed to help achieve the above stated goals.

The topic and study area were primarily suggested by Dr. D’Andrea based on her previous and ongoing work in northern Ethiopia. Her work in the region and her interest in using present socio-cultural data to help explore its past provided a basis to examine various rural industries including the salt trade. The interest in the role of salt trade is predicated on suggestions that salt trade could have played a role in the development of social complexity as evident from examples in other parts of Africa and the world. Salt is
needed for the survival of agricultural populations and their livestock, and there are suggestions that it was traded for many centuries before the earliest documented record in 525 A.D. (Pankhurst 1961).

As stated earlier, agriculture and trade are seen as a foundation for developments in northern Ethiopia (D’Andrea et. al. 1999; Phillipson 2000; Fattovich 1994; Fattovich et. al. 2000; Ehret 2002; Schmidt and Curtis 2001; Lyons and D’Andrea 2003; D’Andrea et. al. 2008). In addition, there is archaeological, historical, and ethnographic evidence showing continuities in the traditions of northern Ethiopia, including the salt trade (Beckingham and Huntingford 1954; Beckingham and Huntingford 1961; Pankhurst 1961, 1968, 1998; Wolska-Conus 1968; Vantini 1975; Donald 1984; O’Mahoney 1970; Englebert 1970; Gerster 1974; D’Andrea et. al. 1999; Phillipson 2000; Lyons and D’Andrea 2003; D’Andrea et. al. 2008). Indeed, the factors noted above played a role in the selection of the study topic and area.

1.5.1 Presentation of the Present Study

The present study is presented in seven chapters. Chapter one presents a general background to the current study. Theoretical issues related to social complexity and the role of trade in the development of societies from simple to complex forms are the focus of chapter two. Current approaches adopted by archaeologists to explain the emergence and development of social complexity in general and alternative suggestions for such developments from an African context are presented. Propositions offered to explain rising complexity from African case studies have guided discussions on the role of salt trade in social complexity in the Ethiopian highlands. Trade is a complex cultural phenomenon to study in the archaeological record, and, the connections between trade
and social complexity are not clear. Yet, proponents of environmental stress/risk management and political evolution models of social complexity recognize the importance of trade, and build on aspects of the ideas proposed by Karl Polanyi on trade and social complexity (e.g., Halstead and O'Shea 1982; Earle 1987, 1997; Kelly 1991; Arnold 1993, 1995; Hayden 1995).

The history of salt production and trade in Ethiopia is presented in chapter three. The chapter provides a basis for understanding continuities and changes in the salt trade as well as a foundation to explore how salt may have contributed to the development of social complexity in northern Ethiopia. Major sources of salt in Ethiopia are located in the Danakil Depression in the Afar region, where salt has been collected and traded since at least the 6th century A.D. The historical context of salt in Ethiopia, based on the reports of visitors to Ethiopia from 525 A.D. to 1977, is presented in the second part. The historical data shows that despite political changes over the years, the salt trade has remained steady (Pankhurst 1961, 1968, 1998; Wolska-Conus 1968; Donald 1984; Munzinger 1869 a, b; O'Mahoney 1970; Gerster 1974; Bauer 1977).

Chapter four presents the methodology used in this study as well as the study sites. Primary and secondary data were employed to achieve the objectives of this study. Secondary data was obtained from literature on the ethno-history, and ethnography of salt trade in Ethiopia, other parts of Africa and cross culturally. Primary data was collected during fieldwork in the Afar and Tigrai regions of northern Ethiopia from December 2004 to March 2005. The study sites were selected to enable an understanding of the operational chain of the salt industry and because of their involvement in the salt industry today and in the past. Field data collecting techniques included observations,
participation, interviews, as well as the mapping and measuring of compounds and rooms. These techniques were combined at varying levels to explore the specific objectives of the present study.

Chapter five describes and presents the results of fieldwork conducted between the source of salt in the Lake Assal section of the Danakil Depression, in the Afar region, and Mekelle, the major hub of the salt trade in the Tigrai region. The purpose was to provide data related to the technological and socio-economic characteristics of the salt industry. In so doing, the chapter provides information on the different classes of specialists engaged in the salt industry in the source and market areas. To understand the operational chain of the salt trade today, the chapter describes caravan merchants, their activities, and their interactions with other participants in the salt industry. The focus is on caravan merchants because they are central to the trade, as they interact with the other groups involved in the salt trade.

Chapter six presents the results of household data collected in the Enderta villages of Adi Ainawalid, Adi Baekel, and Chin Fares. This aspect aimed at exploring the socio-economic role of the salt trade at the local level. The results from this component of the fieldwork are included in the overall analysis of the socio-economic role of the salt trade as well as the material correlates of the salt industry.

Chapter seven is the summary and conclusion of this study. Continuities and changes in the salt industry are presented in this chapter. The chapter also explores the role of salt trade in the development of complex societies, and outlines the contributions of this study.
1.6 Chapter Summary

This chapter introduced the present study. Debates and discussions around Ethiopia’s early history were presented from traditional, historical, and dated archaeological perspectives. Based on present evidence, it is suggested that previous views of socio-cultural development in the Ethiopian region can no longer be solely credited to South Arabian immigrants (Fattovich 1994; Fattovich et. al. 2000; Schmidt and Curtis 2001; Curtis 2008). The new consensus is that while there was contact and influences from South Arabia, developments in the region had local foundations (Schmidt and Curtis 2001; Fattovich 1994; Fattovich et. al. 2000; Curtis 2004, 2008). Agriculture is seen as the foundation of developments in highland Ethiopia (D’Andrea et. al. 1999; Phillipson 2000; Fattovich et. al. 2000; Ehret 2002; Lyons and D’Andrea 2003).

In addition to agriculture, trade is considered an important factor in developments towards complexity in the region (Fattovich 1994; Fattovich et. al. 2000; Schmidt and Curtis 2001). If we accept the idea that the Ethiopian highlands were an important centre of agricultural innovation and plant domestication (Barnett 1996; Bard 1997; Schmidt and Curtis 2001; Fattovich et. al. 2000; Ehret 2002), then, we must also consider trade in salt as a possible contributor to emerging complexity. Salt is needed for the survival of an agricultural population and their livestock, and there are suggestions that it was traded for many centuries before the earliest documented record in 525 A.D. (Pankhurst 1968). The chapter also summarized important salt studies in Africa. Salt industries in Africa point to the role of salt in many local economies and a stimulus for economic prosperity in different parts of Africa (Abir 1966; Lovejoy 1986; Connah 1996). Previous studies of salt industries in Africa suggest political implications for salt production and trade.
African salt studies have used ethnographic data to shed light on archaeological contexts, and provide a basis for the use of ethnoarchaeology to understand the possible role of the salt trade in northern Ethiopia today and in the past.
CHAPTER 2: THEORETICAL CONSIDERATIONS

2.1 Introduction

This chapter presents theoretical issues related to social complexity and the role played by trade in the development of human societies from simple to forms that are more complex. Most theories of social complexity connect agricultural intensification, population density, and land tenure to political centralization and hierarchies of wealth and power (McIntosh 1999 a). Such propositions have been mainly based on data outside Africa. Within the African context, attention has tended to focus on external influences, particularly the role of trade (Connah 1990). Alternative suggestions based on African contexts (McIntosh 1999 a) challenge notions using circumscription, economic stratification, or control to account for the development of social complexity.

Wealth accumulation and manipulation of surpluses by elites to further their personal political ambitions is variable in Africa (McIntosh 1999 a). However, discussions of which factors lead to social complexity in general and in highland Ethiopia in particular agree that trade plays an important role. Yet, trade is a complex cultural phenomenon to study in the archaeological record, and the connections between trade and social complexity are not clear. This difficulty is even greater with trade in items like salt, which is important but does not preserve well in the archaeological record. This chapter provides a summary of theoretical discussions of social complexity, a necessary background to understanding the factors that may have contributed to social complexity in northern Ethiopia. The chapter also reveals the importance of salt as a trade item and
its possible role in the development of early social complexity in other parts of the world, relevant to exploring its role in northern Ethiopia.

2.2 Approaches to the Development of Social Complexity

Discussions of what leads to the emergence of social complexity are generally detailed in their explanations of how certain factors promote the emergence of such societies. However, there is no clear and concise definition of the term “social complexity” (Hayden 2001). A simple definition based on the presence of any form of hierarchical relations in a society is problematic because all societies, including those termed “egalitarian,” have some form of inequality based on age and sex (Flanagan 1989). This situation is exacerbated by the fact that different researchers use the term to refer to different things. For instance, Paynter (1989) views complex societies as involving many different social entities, whose members affect each other along intricate pathways, and suggests that complexity be regarded as the degree of internal differentiation and the intricacy of relations within a system (Paynter 1989:369). Arnold (1993) on the other hand uses the term “complex” to denote chiefdom-like systems and emphasizes features associated with a simple chiefdom. According to Arnold, chiefly complexity includes three recognisable organisational characteristics: hereditary inequality, hierarchical organisation, including some political authority on a multi-community scale, and elite ability to exercise some partial control of domestic labour (Arnold 1993:77). Other scholars have described the socio-economic characteristics of complex societies rather than define it. Keeley (1988) suggests an intensified subsistence base, increased sedentism, beginning of territoriality, wealth, and status inequalities as characterising complex societies (Keeley 1988:373-374).
A number of approaches have been adopted to address the emergence of inequality and its eventual consolidation into systems of hierarchical organisation, hereditary positions, and control of elites over institutions that extend beyond the local group (Wiessner 2002). Approaches have focused on the origins of social complexity as well as the cultural and environmental factors that contribute to such developments (Brumfiel and Earle 1987; Arnold 1993). These approaches have been broadly classified based on proposed stimuli, whether through political evolution (agency), or environmental stress/risk management (adaptation) (Brumfiel and Earle 1987; Arnold 1993). Arnold (1993) further classified archaeological approaches to social complexity based on whether or not individuals are regarded as agents of socio-political change (Arnold 1993:80).

2.2.1 Environmental Stress/Risk Management Models

Various versions of environmental stress/risk management models have been proposed to account for the development of human society from simple to complex forms. Environmental stress/risk management models generally highlight problem solving and advocate the role of cultural responses to subsistence stress and other provisioning difficulties (e.g., Harris 1979; Ames 1981, 1985; Cohen 1981, 1985; Keeley 1988, Kelly 1991). Change is initiated by conditions that affect an entire cultural system, and not by individual human agents (Arnold 1993:80). Conditions for change may come from within or outside the cultural system such as the need for redistribution of resources between or within societies, or due to population pressure, resource stress, drought, or warfare (Arnold 1993). In the contexts of environmental stress/risk management models, inequalities arise due to the need to resolve problems within a cultural system. The basic
assumption for the emergence of social complexity is that the foundation of inequality can take shape only when a population stands to gain from strong leadership (Brumfiel and Earle 1987; Wiessner 2002).

Ames (1981, 1985) proposed that hierarchies are strategies for dealing with systemic problems in information processing, and as societies become more logistically organized, more elaborate information processing strategies become necessary. The basic principle of Ames's model is that ideological, social, and technological strategies solve adaptive problems, which arise in social and natural environments. Such problems may occur both in and outside a cultural system. Vertical ranking develops in societies to improve the coordination of complex activities out of organisational demands related to food storage, or sedentism and intensification. Citing hunter-gatherer groups of the Northwest Coast of North America, Ames argued that the complexity of social organisation varied according to the problems in food procurement that had to be solved. Sedentism, intensification, and food storage required high-level decision-making, and fostered differential status and leadership. He noted that this pattern could be seen at the Prince Rupert Harbour site in British Columbia between 500 B.C. and 1 A.D., where evidence for intensified resource utilization and logistical organisation is followed by the appearance of large permanent houses and social ranking (Ames 1981, 1985).

Along similar lines, Kelly (1991) argued that socio-political complexity was an adaptive strategy employed by sedentary hunter-gatherers to deal with fluctuations in the availability of resources. In this model, the origins of social inequalities are not derived from the production of surplus but from situations where sedentary group members pursue contradictory goals resulting from differential individual adaptations to resource
fluctuations. Without the option of moving to other areas, as would presumably be the case for mobile hunter-gatherers, sedentary hunter-gatherers had to deal with fluctuations in resource availability through storage, and links to neighbouring groups, maintained through a few select individuals. These individuals assumed higher ranks by their access to other groups and the other groups' resources through trade. In order to maintain these links, such individuals had to a certain degree, govern the resources of their own community to ensure their availability to other groups. For the system to work, high-ranking persons pursuing this strategy had to confer certain benefits to members of their own group as well as encourage them to participate in impressive feasts aimed at demonstrating the leader’s power to other groups. Kelly suggests that such a pattern is observed in the ethnographic groups of the Northwest Coast of North America (1991:146).

Other environmental stress/risk management models see population pressure as the leading cause for social inequalities, and the foundation for social complexity. Cohen (1981, 1985) argued that large population aggregates, sedentism, and a broadening spectrum of utilised resources are a consequence of necessity usually associated with new problems, rather than choice or new opportunities. Cohen postulates that social differentiation, which includes differential rank, was a way in which previously egalitarian societies dealt with the stress of population pressure. He argues that social complexity was not a product of abundant food resources in the environment, but resulted from the need to deal with problems created by increasing populations in areas susceptible to fluctuations in food supply. The need for organisation to circumvent crisis led to the emergence of managers to store resources, and convert food surpluses to
durable goods. These managers became the emerging elite. He views reduced mobility as important in the process, noting that inability of growing hunter-gatherer populations to utilise neighbouring territories caused stress. Thus, new forms of organisations arose to handle the stress resulting from interpersonal conflict and logistical problems associated with managing resources with an increased population (Cohen 1981, 1985).

Keeley (1988) refined the discussion of population pressure by proposing that the ratio between population density and the density of available resources was a necessary precondition and cause for the emergence of social complexity among hunter-gatherers. In an analysis of ethnographic data from hunter-gatherer groups, Keeley found strong correlation between population pressure and socio-economic complexity. The data also showed that population pressure occurred among groups living in the more productive and reliable environments (Keeley 1988: 404).

Critics of population growth models see a need for advocates to identify the factors stimulating or controlling population growth, quantify population growth rates, and to pinpoint the role played by the environmental constraints (Arnold 1993:95). Generally, environmental or population stress models have been unable to account for internally generated change and the impact of pre-existing cultural orientations (Brumfiel 1992, Wiessner 2002). As well, others point out that evidence suggests that inequalities first appeared under conditions of resources abundance and not stress (Hayden 1995).

2.2.2 Political Evolution Models

Internal processes of political change, including the motivations and actions of groups or individuals in taking control of resources, production, distribution of goods, or ideology are the focus of political evolution models (e.g., Earle 1987; Arnold 1993, 1995;
Aspiring elites or persons with ambitions or qualities to manipulate others through economic, political, or religious means could set in motion processes of cultural change. While there are various strands of political evolution perspectives, they are unified on the notion that every society has ambitious individuals (aggrandisers) who compete for wealth and prestige, and their actions provide a basis for change.

Environmental and demographic factors play a secondary role by constraining or facilitating the plans of actors (Arnold 1995; Hayden 1995).

Arnold (1993, 1995) views the ability of emerging elites to control labour from other households as central to the rise of socio-economic inequalities. In this context, the use of such labour could be for craft production, ritual activity, or exploitation of resources. In her model, labour control emerges in situations of resource stress or external social changes, such as changes in external political activities. Circumscription, social or geographical, augments the process by inhibiting the relocation of groups during stress. Population reduction through emigration, population dispersal through increased mobility, resource importation, labour intensification focused on extractive activities, technological innovation, manufacture of surplus products to be exchanged for needed resources or some combination of these factors may be employed to deal with stresses. Yet aspiring elites would most likely pursue strategies of labour control for options, except for those that involve movement to different locales, which would be difficult in a situation of geographic or social circumscription (Arnold 1993, 1995). Arnold (1993) uses her model of emerging complexity to explain the archaeological record of the Channel Islands Region of California in North America. Based on archaeological and paleoenvironmental evidence she suggests that a period of poor marine productivity was
followed by a period of increased socio-economic integration in the region. She notes that there was elite control over critical resources and technologies from 1,150 A.D. – 1,300 A.D. Indications of elite control over labour in the production of manufactured goods, including microblades, and possibly craft production were also present (Arnold 1993: 103-107).

Hayden (1995) considers resource competition to be the basis for the emergence of social complexity. Contrary to Arnold (1993, 1995), he asserts that inequalities do not emerge in situations of resource stress because resource exploitation by individuals is not tolerated by the community at large under such circumstances. Instead, economic competition occurs when surpluses are available on a regular basis. Emerging elites who produce surpluses use them in competitive feasts at which they establish debt relationships that require others to produce and relinquish more resources. Additionally, aggrandisers attract labour at these feasts through promotional displays of food and prestige items, thereby increasing their ability to produce more surpluses. He suggests that as the potential for surplus production increases, inequalities also progressively increase (Hayden 1995).

Citing many ethnographic examples, Hayden (1995) explained how his model works at different scales of socio-political complexity in transegalitarian societies. In his model, the degree of competitiveness that occurs increases with increased population density and resource exploitation. At the stage of infrequent and unreliable food surpluses, the feasts tend to focus more on community-wide themes, displays are limited and competitive feasts are essentially non-existent. Emerging aggrandisers can gain wealth and power by appealing to community interests, such as community defence
caused by a climate of danger between communities intentionally promulgated by aggrandisers or raids to acquire resources. Such methods are used to force others to produce and relinquish more surpluses. In addition, the initiation of war payments (payment for killing of a community member) is another means used by aggrandisers to gain resources from other communities. Aggrandisers may also convince others within their own communities to relinquish surpluses by initiating conflicts. In cases of more abundant resources, feasts and the associated displays are more frequent and there are other associated strategies used by aggrandisers, such as bride wealth payments, to acquire such things as wives and the associated labour and alliance relationships (Hayden 1995).

Political evolution (agency) approaches have been indicted for not considering the recursive interaction between structure and agency (Wiessner 2002:234). Wiessner's (2002) complaint is well founded, for if we are to accept humans as agents or promoters of change, then we must consider the link between the human actors and the structures or ideas that guide their actions as circular in nature. Human agents are influenced by the structure, and their actions in turn influence the structure (Hodder 1999:89; Barrett 2000). Moreover, McIntosh (1999) has noted that African case studies do not fully support approaches that rely on circumscription, economic stratification, or control to account for the development of social complexity (McIntosh 1999).

2.3 The African Challenge and Alternative Suggestions

The most recent African challenge to theoretical claims regarding the origin and development of social complexity was contained in a 1999 publication titled “Beyond Chiefdoms: Pathways to Complexity in Africa” edited by Susan McIntosh. Most of the
contributors to the volume agree that the central role of human agency in the
development of social complexity advocated by political evolution models is supported
by many African case studies. However, contributors present case studies that challenge
the deeply embedded evolutionary notions of complexity as differentiation by political
‘hierarchization’. They provide instructive counterpoints to formulations that locate
power centrally in individuals and focus analysis primarily on the economic strategies
used by these individuals to maintain and expand operational power (McIntosh 1999 a).

Generally, wealth accumulation and manipulation of surpluses by elites to further
their personal political ambitions is highly variable in Africa. For instance, while the
Lozi of Zambezi had a system of redistributing resources, the Ashanti of Ghana pursued
wealth accumulation (McIntosh 1999 a:4-7). Functionalist claims about the relationship
of agricultural intensification, population density, and land tenure to political
centralization and hierarchies of wealth, power, and status have also been challenged in
Africa. As McIntosh (1999 a) points out, the Lozi illustrate the possibility that
hierarchical state-like forms of political organisations are likely to occur in the context of
extensive agricultural systems and easy rural mobility, with population densities fewer
than four persons per km. Furthermore, the African examples do not support antagonism
between knowledge and wealth based political economies. Rather, the concept of wealth
in people and the associated concept of composition by which leaders align themselves
with needed specialist and ritual knowledge to enable effective action, applies widely in
Africa. Such knowledge base strategies operate concomitantly with prestige goods
systems in many African societies (McIntosh 1999 a:19).
The African data and approach to discussions on social complexity is reflected in the following examples. Susan McIntosh’s work in the Jenne-Jeno area of the Niger Delta indicated that it was inhabited by a rapidly growing population around the 1st millennium A.D., yet she found no evidence pointing to the emergence of a hierarchical political organisation (McIntosh 1999a, b). The area exhibited some of the known indicators of emergent complexity, such as nucleation, population growth, and increasing scale, but lacked others, like subsistence intensification, visible stratification, and public monuments. McIntosh (1999b) proposed that while the Jenne-Jeno settlement was complex, it was not one with centralised control but rather ‘heterarchically’ organised.

McIntosh (1999a, b) resisted the temptation to link nucleation with agricultural intensification and the organisation of labour for large cooperative agricultural projects. Instead, she suggests that the nature of the agricultural system reduced the need for dispersal to an extent that it was counterbalanced by other factors promoting nucleation. Among these, she proposed economic factors related to the early emergence of subsistence specialisation, local exchange and the eventual development of craft specialisation. McIntosh further suggests that social and religious factors linked to controlling the spirits of both land and water by the founding families of Jenne-Jeno may have played a role. She argued by analogy that the Jenne-Jeno polity might have been organised as a loose federation as was the case in the neighbouring towns and villages in the Jenne-Jeno area in historical times. According to McIntosh, such federations were a common form of supralocal organisation in West Africa, and in a case where a central leader was recognised, it was most probable that such a leader had more ritual authority.
but little political power because power was vested among the heads of the founding settlements (McIntosh 1999:76).

Kopytoff (1987, 1999) provides a model for the developments of social complexity in Africa as part of his disagreement with the general view that political forms moved from simple to complex. Particularly, unacceptable to him are assumptions that “chiefdoms” emerged from acephalous structures like “bands” because of trade, and proposals that chiefdoms eventually move towards “states” (Kopytoff 1999:88). As an alternative, Kopytoff offers the “Internal African Frontier” model to explain the development of social complexity in Africa. He argues that most African polities did not evolve from simpler forms, but were rather products of complex polities, growing out of settlements of immigrants who moved into the “internal frontiers” at the edge of fully formed polities. The “Internal African frontier” refers to large areas of land surrounding established societies, which breakaway groups can occupy because such areas are not under any institutional control. The frontier provides the potential for those who leave their original societies to start their own social order (Kopytoff 1987, 1999).

Based on language studies, culture historical data, and archaeological evidence, Kopytoff claims that most of the populations ancestral to current sub-Saharan African populations were concentrated in the then fertile Saharan-Sahelian zone at the start of the Later Stone Age (5,000 B.C.-2,500 B.C.). It was in this region that an ancestral pan-African cultural pattern occurred under frontier conditions in contact with similar patterns in the pre-Islamic Near East. From the ancestral home, populations spread southward around 2,500 B.C. with the onset of desiccation. However, these immi
remained uninfluenced by original Pygmy, San, and Cushitic language populations inhabiting some of the new areas they moved into (Kopytoff 1987:10).

Kopytoff asserts further that after the first spread of population from the core region, large areas of Africa remained uninhabited, permitting breakaway groups to move and establish their own societies. However, the frontier only provided a stage because the model of the new polity being constructed by the frontiersmen was based on a political culture they brought with them from the mature local communities. The notion of a proper polity, the principles of its organisation and growth, the idea of legitimacy, the accepted way of attracting and dominating followers, and the image of political success were not invented on the spot (Kopytoff 1999:88). Kopytoff claims his model considers the effects of common origins, diffusion, similarities through convergence, and a functional relationship among cultural features as having been equally powerful in the historical shaping of African societies (Kopytoff 1987:15). In Kopytoff’s model, sub-Saharan Africa exhibits fundamental cultural uniformity because of the fact that most of the populations share a common origin and spread under frontier conditions.

Kopytoff (1999) applied his model to account for the origins, development, and variations of the Aghem chiefdoms of Western Cameroon. He contends that ambitious individuals who conferred their achievements to their successors did not create the chieftaincy institutions. Instead, each village leadership existed from the start of the settlement vested in the corporate kin-group of settlers. In their drive for power, the Aghem chiefs adapted certain elements of the regional culture such as secret societies. The main source of growth of the chiefdoms was the acquisition and control of more people. Thus, the people simultaneously served as the origin, the substance, the goal, and
the currency of chiefly authority. Adherents were not gained through wealth, but by the ability of the chief to grant permission to immigrants to settle. In addition, the position of the chief was maintained by the power to eject, confirming that the authority of the chief existed at the start of the polity. Furthermore, the emergence of chieftaincies was not confined to control of trade or the redistribution of goods, but also to more subtle resources such as provision of shelter, safety, or sociability, which lent themselves to political needs (Kopytoff 1999).

A major source of variation among the Wum chiefdom of Cameroon was the result of the different approaches applied to attract followers. Different population policies pursued by different chiefdoms accounted for the variation in the size of the chiefdoms. Kopytoff (1999) suggests that the principles of reorganisation that operated in the Cameroon Grassfields were also pan-African. He adds that:

"in the long-term historical, proto-historical, and prehistorical perspective on Africa, we must consider the possibility that some of these principles long embedded in a shared and continuous political culture already existed in the early and simple prehistoric societies, waiting appropriate conditions to generate more complex forms but specifically African forms" (Kopytoff 1999:93-95).

Kopytoff’s model focuses impressively on the process by which new polities emerged, polities out of which eventually grew new societies and ethnicities. However, it still does not explain the conditions under which inequality and its eventual consolidation into systems of hierarchical organisation, hereditary positions, and the control of elites over institutions that extend beyond the local group emerged in the suggested ancestral homeland. Presumably, the first wave of immigrants would have had to introduce what was developed in their ancestral core area into the new locations they colonized. Yet, Kopytoff (1987, 1999) has not explained the process by which social complexity
developed in the core home area in prehistoric times. For example, what factors or stimuli triggered hierarchical organisation, hereditary positions, and the emergence of elites? In addition, while it is possible that the frontier processes as described by Kopytoff may have occurred in prehistoric times (5,000 B.C. – 2,500 B.C.), we presently have no confirmation of this in the archaeological record.

It is clear from McIntosh (1999 a, b) and Kopytoff (1987, 1999) that traditional wealth based political economies with their attendant wealth in opposition to staple finances advocated by some agency models (e.g., Brumfiel and Earle 1987; Earle 1987, 1997), may only apply in some cases in Africa. As McIntosh (1999 a) has pointed out, the low incidence of economic stratification in African societies based on agriculture weakens theoretical perspectives, which advocate the central role of rent extraction to the emergence of social complexity. She has further argued that instead of taking centralization as a given in discussions of complexity and concentrating on how leaders maintain control through economic means and coercion, it would be fruitful to ask what constitutes complexity and consider how social and ritual resources are mobilized and collective action facilitated in the absence of meaningful economic control (McIntosh 1999 a:4). McIntosh (1999 a, b) is correct in her assertion that the African case studies introduce important factors in the organisation and variation of complex societies not yet considered in detail in archaeological theory. She proposes that social wealth (wealth in people), the mobilization of knowledge, and ritual power, are important elements in supralocal organisation.

Some of the models proposed to account for the development of social complexity in other parts of the world may apply to some regions of Africa, according to McIntosh
Evidence for the development of social complexity in the Aksum region of northern Ethiopia shows indications of wealth accumulation, an example of a context in which some of the general models may apply. The region has evidence of monuments, rich burials, an elite class, and long distance trade in northern Ethiopia (Bent 1893; Anfray 1968; Fattovich 1988; 1990, 1994, 1997, 2004; Fattovich et. al. 2000; Schmidt and Curtis 2001; Curtis 2004, 2008; Michels 2005; Zarins 1990, 1996; D’Andrea 2008) dating to pre-Aksumite times. The current study is in agreement with McIntosh (1999a) in acknowledging the importance of trade as a means of wealth accumulation and status building, a factor widely recognised as having a role in different cultures, including the Ethiopian region. Based on this, it is important to explore trade, its nature, and dynamics, to enhance our understanding of how it plays a role in socio-cultural change. In addition, it is helpful to provide the right context for the role of salt trade in socio-cultural developments in northern Ethiopia by reviewing trade, connections between trade and social complexity, as well as, how trade has been discussed and explained in archaeology and anthropology.

2.4 The Archaeology of Trade

Trade, its nature and role at various levels of human institutions, as well as, the motivations for trade, are relevant to understanding the role of the salt trade in northern Ethiopia now and in the past. From the literature consulted on trade, there is unanimity that trade is a social phenomenon influenced by an array of factors, natural and cultural, and occurs at different levels of society. Yet, researchers have struggled to explain trade. Polanyi (1957) defined trade as “a relatively peaceful method of acquiring goods which are not available on the spot” (Polanyi 1957:257). Other scholars have used trade to
denote “the act or business of exchanging commodities by barter or sale” (Adams 1974:239). Earle (1982) defined exchange (trade) as the spatial distribution of material from hand-to-hand, and from social group to social group (Earle 1982:2). Some have refrained from using the term ‘trade’ in archaeology because it implies a market economy with profits as the objective, or because it implies certain specific mechanisms of exchange (Muller 1987: 19). For the purposes of this dissertation, trade and exchange are not differentiated. Following Earle (1982) however, trade and exchange will refer to the spatial movement of goods or materials from hand-to-hand, and from social group to social group (Earle 1982:2).

As Renfrew and Bahn (2004) have noted, the study of exchange and trade in early society is one of the areas of growth in archaeology. Archaeologists have looked to economic anthropology, including the work of Polanyi, for theories of trade and exchange as reflected in discussions of trade (Pydyn 1999; Earle and Johnson 2000). Formalist and substantivist schools of thought (Pydyn 1999) have debated the search for the motivations for trade. Formalists argue that economic behaviour is the result of rational decision-making in which people have criteria by which they decide what to do at any given moment. They draw attention to the importance of choice in economic behaviour but do not explain the rationale behind such behaviour. Substantivists reject material needs as the basis of economic motivation; rather they see economic behaviour as structured by social rules (Earle and Johnson 2000:17-18).

Polanyi’s (1957) ideas solidified the substantivists’ position on the nature and role of the human economy, as well as, trade practices at different stages of socio-political development (Pydyn 1999, Earle and Johnson 2000). He saw the economy as
humankind's interchange with the natural and social environments for the supply of material satisfaction. The economy acquires unity and stability through the integrative patterns of reciprocity, redistribution, and exchange. Reciprocity is the movement of goods between correlative points of symmetrical groupings. It characterises the economic relationships of households, lineages, kinships, neighbourhoods, villages, and small social groups. Redistribution denotes the movement of goods into and out of a centre. Redistribution is typical of feast, and gift exchanges, in large communities like chiefdoms. It occurs within a group, where allocated goods are collected under the auspices of existing custom or law. Exchange is the flow of goods and services dictated by the forces of demand and supply. According to Polanyi, while tribal societies practiced reciprocity and redistribution, archaic societies were principally redistributive, but allowed some opportunity for exchange (Polanyi 1957:256).

Archaeologists and anthropologists agree that trade is a major agent of social, cultural, and economic change because it implies human contact (Posnansky 1973). As a cultural feature, trade has many dimensions. It moves raw materials, craft items, and foodstuffs between groups of people, and it serves as a means of transmitting knowledge, ideas, techniques, and other cultural features between regions (Wright 1974; David and Kramer 2001; Glascock 2002). Trade involves contact between different groups, and such interactions may be on equal terms or not (Posnansky 1973; Kelly 1997). Because trade is a socio-cultural activity mediated by natural factors, it can be studied in a universal, regional, and local context (Pydyn 1999).

It could be argued that scholars accept trade as having a role in socio-economic complexity because as an activity, it occurs in every level of society today and in the past.
It is proposed that a measure of increasing sedentism in prehistory would have been increasing trade (Browman 1975), because it is a comparatively peaceful way to obtain goods not locally available (Polanyi 1957:257-58). Browman (1975) has argued that because sedentary agricultural groups would not have had direct access to certain resources they utilised under previous nomadic hunting-gathering subsistence, they would have had to resort to trade. In Browman’s view, economic dependence on trade, and the redistribution of food, would have encouraged a more complex political system, which could then have provided stability for economic growth and the mobilization of populations for successful exploitation of resources within the trade complex (Browman 1975:322).

Recent proponents of both the environmental stress/risk management and political evolution models of the development of social complexity recognise the importance of trade (Halstead and O'Shea 1982; Earle 1987, 1997; Kelly 1991; Hayden 1995; Arnold 1993, 1995). Environmental stress/risk management models suggest that specialisation and exchange develops as part of an economy based on redistribution. In areas of resource diversity, redistributive exchange confers benefits and enhances productivity, diversifies subsistence, and provides security against food failures (Halstead and O'Shea 1982). Goods accumulated under leaders can be used to sponsor public works and production, and prestige gained by leaders through effective management of specialisation and exchange supports their leadership (Brumfiel and Earle 1987). Political evolution models also see local rulers as playing crucial roles in organising specialisation and exchange for their own benefit (Earle 1987). Such political elites intentionally use specialisation and exchange to create and maintain social inequality,
strengthen alliances, and to fund new institutions of control. The transfer of goods from producers to elites, is reflected in changes in local production and exchange, and is further manifested in changing patterns of specialisation and interregional exchange financed by political elites (Earle 1987; Brumfiel and Earle 1987).

2.4.1 Archaeological Challenges of Trade Studies

Dealing with trade in the archaeological record poses various challenges after a determination has been made that trade occurred. Archaeologists must determine whether trade is internal, external, local, long distance, and whether trade deals with raw materials, finished goods, or both (Wright 1974). The question of how trade items moved from source to destination is not necessarily clear-cut. Individuals could go to distant sources to obtain materials directly, obtain trade items through reciprocal relationships, or from a central market place among many other options (Mitchell 1996). In addition, inferences must be made about the particular role of trade items in local cultural systems; are long distance, or foreign trade items satisfying utilitarian needs or status interests; and are such goods evenly distributed among members of a group or do they only benefit a few individuals (Wright 1974; Kelly 1997).

Traditionally, archaeologists identify trade in the archaeological record based on two main indicators. The first is the presence of raw materials, not locally available in a given area (Wright 1974). For instance, trace chemical analysis has been employed to reveal the sources of obsidian in the Great Basin area of the United States (Lambert 1997). The second is when craft items are believed to have been manufactured elsewhere based on stylistic, technological, and other grounds (Wright 1974). For example, the discovery of glass and carnelian beads similar in colour, and manufacturing technique, in
both Igbo Ukwu in Nigeria, and Gao in Mali, indicated trade between the two areas in the 2nd millennium A.D. (Insoll and Shaw 1997).

From an African context, it was only in the past decade that the role of internal trade in discussions of social complexity gained prominence (Sinclair et. al. 1993 b; McIntosh and McIntosh 1993; McIntosh 1999 a; Ehret 2002; Connah 2004). Before that, such discussions tended to place more weight on external or foreign trade as a stimulus for socio-cultural developments (Sinclair et. al. 1993 a). Thankfully, evidence now points to internal trade as having played a role in the development of societies in several regions of Africa (Connah 1997; Ehret 2002). The work of Roderick and Susan McIntosh (1980, 1993) has challenged discussions that placed more weight on foreign trade as a stimulus for socio-cultural developments. Archaeological evidence shows that developments in Jenne-Jeno started in the 3rd century B.C. and by the 1st millennium A.D., it was inhabited by a rapidly growing population. The area exhibited some of the known indicators of emergent complexity, such as nucleation, population growth, and increasing scale. Besides an agricultural system that reduced the need for dispersal, other economic factors related to the early emergence of subsistence specialisation, local exchange, and the eventual development of craft specialisation were present from the evidence.

The location of Jenne-Jeno in the Niger Delta, a fertile agricultural locale at the edge of the desert, was complemented by its access to the Niger River system. This allowed it to become an important centre of local, regional, and later, inter-regional as well as long distance trade. Saharan commodities such as copper and salt could have been traded for local products like dried fish, fish oil, and rice, produced in the inland
delta. Savannah products, including iron may have been exchanged for salt, copper, rice, fish and other staples (McIntosh and McIntosh 1993). Based on their findings, and the absence of evidence suggesting external trade in the earlier phases of Jenne-Jeno, Roderick and Susan McIntosh have argued that its early development was not a product of external stimulus. Based on a regional survey, the researchers proposed that a network of trade routes existed in West Africa before the advent of Arab trans-Saharan trade. It now seems that Arab traders took advantage of an already established local trade system in the Western Sudan (McIntosh and McIntosh 1980, 1993).

In East Africa, Connah’s study of the salt industry of Kibiro in Uganda (Connah et. al. 1990, Connah 1991, 1996) set out to explore the role of local trade in the development of social complexity. Connah notes that archaeological remains suggest that more salt was made than was needed for local use, a condition that had economic and socio-political implications (Connah 1996). The existence of the Kibiro salt industry implied the presence of a trading network, which in turn would have required the presence of a socio-political entity to control and protect the salt trade. Dates obtained from archaeological remains suggested that people lived and worked salt in the Kibiro area since the early part of the 1st millennium A.D. Consequently, salt from Kibiro could have played an important role in the history of the Bunyoro Kingdom. Connah points out that the lack of evidence indicating external contact further suggests that Bunyoro developed locally within East Africa with little external stimulus (Connah 1996:216).

Ethnographic data shows that most trade items will not preserve in the archaeological record because they are made from organic materials (David and Kramer 2001). This is perhaps the greatest obstacle in finding out the extent of the role of local
trade in developing complexity in Africa, as most items traded locally are organic. It is possible that the challenges involved in finding local trade items, and determining their sources in the archaeological record in Africa, contributed to the unjustified minimising of the role of internal trade in the development of social complexity. Trade items that would preserve are those made from stone, glass, metal, and fired clay (Zarins 1990, 1996; Insoll and Shaw 1997; Connah 2001). As Connah (2001) points out, the archaeological record in West Africa does not provide a picture of the nature of the Saharan trade in terms of the trade items documented by historians. It gives no evidence of the salt distributed south, from the desert to the savannah, nor the cloth, slaves, ivory, ostrich feathers, and leather carried from the south to the north. He adds that most of the manufactured, and often inorganic items traded to the south of West Africa had a better chance of surviving in the archaeological record, compared to the organic trade items that went north. Thus, the archaeological record will tend to yield imports (Connah 1997, 2001:141).

In spite of the poor preservation quality of local trade items in the archaeological record, there is evidence pointing to internal trade as having played a primary role in the development of societies in Africa (Connah 2001). Connah contends that in Africa, trading systems, both local and long distance contributed to socio-political changes (Connah 1996). Some researchers now consider external or foreign trade as an intensifier and not a prime mover of change in African social systems (Alagoa 1970; Terray 1974; R.J. and S. McIntosh 1980, 1993; Connah 1987, 1997, 2001; Sinclair et. al. 1993 a; Holl 1993; Ehret 2002). As such, attention is shifting to the role of trade, the control of local exchange networks, and the injection of luxury goods derived from external trade in the
generation of elites (Connah 1987; Sinclair et al. 1993a; Ehret 2002). This new trend has been bolstered by ethnoarchaeological studies on exchange and distribution, but such studies are relatively few (David and Kramer 2001). Yet, ethnographic investigations providing information about the nature and role of internal trade in Africa have mostly dealt with the production and trade of iron, and ceramics products (Haaland 1985; Mensah 1996; MacEachern 1993; Apentiik 1997) to the exclusion of other important trade items like salt.

It is of interest to note that recent discussions on the role of local trade in developments leading to social complexity mention salt as a key commodity in the internal trade networks of Africa (R.J and S. McIntosh 1980, 1993; Connah et al. 1990, Connah 1991, 1996; 1997, 2001). Salt does not preserve directly in the archaeological record, but is a known trade item in Africa. The recognition of salt as an early item of trade (Good 1972), and the recognition of internal trade as playing a role towards social complexity in Africa have implications for highland Ethiopia. However, because most trade items, including salt, do not preserve well other methods must be used to shed light on such trade items. It is partly for the above reason that this study uses ethnoarchaeology as a means of understanding how salt trade may have contributed to the development of social complexity in northern Ethiopia, a region where salt has been traded for over 2,000 years (Pankhurst 1961, 1968; Wolska-Conus 1968). The study of modern activities with deep historical roots, like the salt trade in northern Ethiopia, could serve as a basis for analogical inferences and would help model the identification of salt trade in the archaeological record, in addition to its possible contribution to the rise of social complexity.
2.5 Role of Ethnoarchaeology in Salt Trade Studies

An ethnoarchaeological study of the socio-economic role of the salt trade in northern Ethiopia is worthwhile as demonstrated by the contribution of such studies in other parts of Africa (Fagan and Yellen 1968; Sutton and Robert 1968; Gouletquer 1975; Lovejoy 1981, 1986; Connah 1991, 1996). Northern Ethiopia is one of the few places in the world with documented evidence of rock salt exploitation, and distribution by traditional methods, from at least the 6th century A.D. to the present (Pankhurst 1961, 1968; Wolska-Conus 1968; O’Mahoney 1970; Gerster 1974; Bauer 1977). The importance of this area as a study locale is further justified because it was in northern Ethiopia that the oldest evidence for the shift to, and eventual emergence of socially complex systems occurred (Fattovich et. al. 2000; Schmidt and Curtis 2001). In addition, the rock salt of Ethiopia was used as a medium of exchange in the past (Pankhurst 1961, 1968; Abir 1966; O’Mahoney 1970). Therefore, understanding the present salt industry of northern Ethiopia may reveal how important resources like salt could have contributed to the development of social complexity. Continentally, this study is inspired by the fact that salt trade is a common and strong example of internal trade in Africa (Lovejoy 1981, 1986; Connah 1991, 1996).

Earlier works (Fagan and Yellen 1968; Sutton and Roberts 1968; Connah 1996) suggest that studies of salt industries in Africa should adopt approaches that connect the past to the present, in ways that recognise continuities and changes. An ethnoarchaeological study of the salt trade of northern Ethiopian is also warranted because sources of salt affect production technology, distribution, and patterns of consumption. Therefore, the study of the salt industry of northern Ethiopia in its own
socio-cultural and natural context is needed for a better understanding of the origin and development of this complex trade system. Ethnoarchaeology allows the identification of cultural markers, as well as, associated archaeological correlates of the salt industry.

The impetus for ethnoarchaeology is predicated on the fact that the archaeological record is incomplete because of decay and destruction. This is even more significant in the case of salt, as it does not preserve well, and its trade is difficult to isolate in the archaeological record. Generally, the archaeological context lacks many nonmaterial features of the socio-cultural systems we seek to study (Binford 1972; Gould 1974; O’Connell 1995). As a result, archaeological interpretations have relied upon analogy (David and Kramer 2001). Historically, it was in the mid 1950s that archaeologists became dissatisfied with using existing ethnological literature as interpretational sources, because it contained either ideal descriptions of technologies, detailed descriptions without behavioural correlates, or no descriptions of technologies. This prompted a call for archaeologists to conduct their own ethnographic studies (Kleindeinst and Watson 1956; Ascher 1961). Ethnoarchaeology arose to provide better ethnographic analogies to assist in the interpretation of archaeological data (David and Kramer 2001).

According to David and Kramer, “ethnoarchaeology is neither a theory nor a method, but a research strategy embodying a range of approaches to understanding the relationship of material culture to culture as a whole, both in a living context and as it enters the archaeological record” (David and Kramer 2001:2). Furthermore, they stress that ethnoarchaeology informs archaeological concepts and can improve interpretations. The early focus of ethnoarchaeological research was directed at developing analogies for archaeological applications and site formation processes (David 1971; McIntosh 1974;
Binford 1978). In the use of ethnoarchaeological information as analogy, similarities noted between the material phenomena observed in the ethnographic and archaeological spheres, are used to infer that behaviour responsible for the former also produced the latter (O’Connell 1995).

There are different kinds of analogies, direct historical analogy, new analogy, and relational analogy (Ascher 1961; Wylie 1982, 1985). The direct historical approach involves the search for hypothetical analogues to archaeological situations in geographical areas characterised by long-term cultural continuity (Ascher 1961). With the new analogy, one may seek appropriate analogues in time and space. Inferences consist of the selective transposition of information from source to subject, based on comparison, where specification is provided for how the attributes compared are similar or dissimilar (Wylie 1985:93). In this regard, ethnoarchaeologists no longer assume direct relationships between modern and archaeological cultures, as was the case in earlier studies. Previous studies portrayed ethnography as the documentation of unchanging remnants of prehistoric societies (Stahl 1993).

Wylie (1985) has argued that analogical arguments must be subjected to specific criteria of strength, including: a) weighing positive and negative points of comparison to determine the extent of similarities; b) examining several possible sources to support or refute interpretations; and c) expansive conclusions relative to premises. By subjecting an analogue to source-side criticism and subject-side testing, the principles of connection are established, the criteria of strength are satisfied, and a good comparative analogy is developed. Today, ethnoarchaeology uses the comparative method of inductive inference in which specific aspects of current societies are positively linked to those of
archaeological societies based on common characteristics, and weighed against negative points of comparison (Wylie 1985; Stahl 1993). One way to do this is by adopting a relational approach, which is founded upon the causal mechanisms that determine the presence or absence of attributes (David and Kramer 2001). However, the application of a relational approach to the present study is constrained by the lack of data on potential subject cultures. Although there is some archaeological data from northern Ethiopia, they are not presently sufficient to allow subject and source comparison in a relational analogy. Due to this, the direct historical approach has been adopted, with the hope that data from this study will provide a basis for the use of a relational approach when more archaeological data are available for comparison.

Ascher (1961) defined the direct historical approach as applicable “in those areas of the world where history grades into archaeology or where, in the absence of written documents, analysis of current or recent practices and archaeological data indicate continuity” (Ascher 1961:318). It is the direct mapping of current or historical cultural behaviour and artefacts on to the past or the mapping of the past on to the present (Ascher 1961). Clark in 1951 (cf Wylie 1985) suggested that historical continuity of a cultural group can be used to make safer analogies between that particular group in the present and their ancestors in the past, thereby using the real genetic connection rather than evolutionary capacity. This assumption is based on the idea that known material similarities between source and subject would not be accidental, but an adaptive behaviour in a particular environment.

In spite of its limitations, the direct historical approach is applicable to northern Ethiopia because of archaeological, historical, and ethnographic evidence suggesting
continuity in population and some aspects of culture from pre-Aksumite to present time (Fattovich 1977, 1978, 1989; Fattovich *et. al.* 2000; Phillipson 1993, 2003; Lyons and D’Andrea 2003; Webber 2006; Curtis 2008; D’Andrea *et. al.* 2008). Factors contributing to continuities in Ethiopia include the failure of Ethiopian colonisation by Europeans, its difficult terrain, and periodic civil unrest over the centuries (Lipsky 1960; Wolde-Mariam 1972; Pankhurst 1998). These conditions have contributed to its relative isolation, and hampered its integration into the world economy. As Pankhurst rightly suggests, the natural setting of Ethiopia influenced cultural developments in the region, both in prehistoric times, and even today (Pankhurst 1998). Historical and cultural evidence shows that salt trade has a long history in northern Ethiopia and has remained important for over 2,000 years (Pankhurst 1961, 1968; Wolska-Conus 1968).

### 2.6 Importance of Salt and Salt as a Trade Item

Exploring the salt trade as a means to understand the role of trade in the development of social complexity in Africa is helpful because of the cross-cultural importance of salt, and its historical reputation as the most universally handled item of trade (Gilmore 1955; Nenquin 1961; Bloch 1963; Connah 1996). Salt is the chemical term for a substance produced by the reaction of an acid with a base; the two ions of sodium and chloride bond to produce the compound known as salt or sodium chloride (Almquist 1973:1). In this dissertation ‘salt’ will refer to a substance, which is usually not pure sodium chloride (NaCl), but an aggregate of minerals, found naturally as rock salt, or left in solid form after the evaporation of brine or seawater (Almquist 1973).

The period of the emergence of a salt appetite in the neuro-physiological system of humans remains unknown (Denton 1982:8). Yet, it is known that salt is a
physiological need essential to blood, nerve impulses, reproduction, and is present in blood, cells, bones, enteric fluids, saliva, sweat, tears, urine, faeces, and cerebrospinal fluids (Neumann 1977; Denton 1982; Adshead 1992; Michell 1995). Salt is also the dominant ion of extracellular fluid, both quantitatively and functionally (Mannar 1982; Michell 1995). There are disagreements regarding the amount of salt the human body requires to function properly, but it is estimated that humans need 2 to 3 g of salt per day, or 1.36 kg per year (Adshead 1982:7; Alexander 1985:565). Salt is a condiment because it gives flavour to food, but it is different from other condiments because it is a critical element of the human body, and its deficiency leads to harmful physiological consequences (Denton 1982; Michell 1995; Kurlansky 2002).

It is agreed that diets dominated by meat, milk, fish, and insects have enough salt, as opposed to cereal, and vegetable foods, which lack natural salts (Bloch 1963; Multhauf 1978; Adshead 1992; Eaton et. al. 2002). Hunting-gathering and nomadic groups who eat animal products require less added salt, because they derive enough sodium from their diets (Eaton et. al. 2002:11-13). Conversely, sedentary agricultural groups whose diets are mainly cereals, or vegetables, tend to use more salt due to the low natural salt content of vegetables and cereals (Denton 1982; Lovejoy 1986; Eaton et. al. 2002). These observations, have led to suggestions that the habit of adding salt to food largely emerged with the emergence of an agricultural way of life (Nenquin 1961; Bloch 1963; Carter et. al. 1974; Multhauf 1978; Denton 1982; Eaton et. al. 2002). People living in hot climates and those who engage in physical labour require more salt to replenish the salt they lose through sweat (Mannar 1982:2). People who do not sweat excessively or do not engage in physical labour require less salt (Andrews 1983; Kurlansky 2002). Yet, the
consumption of salt is dependent on its availability, and cultural behaviour. Salt consumption varies among individuals and across cultures (Kroeber 1941; Neumann 1977; Almquist 1973).

Apart from the human dietary importance of salt, it is also fed to animals, used in preservation, industrial activities, as medicine, an item in ritual activities, and in rare cases, as a medium of exchange (Abir 1966; Mannar 1982; Alexander 1985, 1993; Lovejoy 1986; Adshead 1992; Kurlansky 2002). Studies about salt and its trade have been undertaken in several parts of the world (Morris 1928; Kroeber 1941; Gilmore 1955; Nenquin 1961; Bloch 1963; Fagan and Yellen 1968; Sutton and Robert 1968; Gouletquer 1975; Neumann 1977; Multhauf 1978; Choudhury 1979; Denton 1982; Andrews 1983; Lovejoy 1986; Connah 1991; Adshead 1992; McKillop 2002). These studies indicate that humans have explored various ways of obtaining salt from different sources. Salt has been obtained in two major ways: mined, or quarried from various formations, including ancient lakes or seabeds; and by evaporating brine from seawater, salt springs, leached salty earth, and leached plants (Mannar 1982; Vogel 1993). Brine can be evaporated either by natural solar activity, or by boiling in various receptacles, including ceramics (Choudhury 1979; Mannar 1982; Andrew 1983; King 1987; Connah 1991; Alexander 1993). It is suggested that rock salt would have been exploited first in prehistory because it is easy to identify, and does not require complex technological skills to extract, or process, compared to sea salt (Multhauf 1978; Denton 1982; Alexander 1985).
2.6.1 Links between Salt and Social Complexity

If trade is an indicator of increasing complexity and salt is an early item of trade as some authors have suggested (Polanyi 1957; Nenquin 1961; Bloch 1963; Browman 1975), then it is reasonable to propose that salt trade should be given attention in discussions of socio-economic developments in the past. Historically, salt has been the most universally handled item of trade (Gilmore 1955). Most salt trade in the past probably took place within the context of inter-tribal and caravan trade (Almquist 1973).

The distribution of or trade in salt may have been within a local area, a region or across different regions (Andrews 1983; Alexander 1985; Lovejoy 1986; McKillop 2002). At the local level, salt distribution would not have involved complex arrangements, and would have involved simple transportation, such as by head-portage (Alexander 1975; Connah 1996). However, the distribution of salt to regions distant from its source involves transporting by animals, and requires complex trade relations, networks, and routes (Alexander 1975, 1993; Lovejoy 1986). Distributing salt over long distances is influenced by a combination of natural and socio-political factors. As a result, the further salt moves from its source, the more valuable it becomes (Bloch 1963, Abir 1966; Pankhurst 1968; Alexander 1975; Lovejoy 1986). Because salt was a commodity of universal demand in the past among certain groups, its supply was controlled (Multhauf 1978:11). Bloch (1963) and Connah (1996) suggest that in the past caravans transporting salt, and depots where salt was stored, or delivered, needed protection, requiring the services of powerful protectors (Bloch 1963:95; Connah 1996:216). Due to the role of salt as money, a source of revenue, as well as a base for taxation because of the direct relationship between salt consumption, and human populations (Multhauf 1978:6-11; Adshead 1992:3-4; Kurlansky 2002), some scholars

For centuries, salt was a major factor in the Chinese political economy (Almquist 1973:19). Early salt works in China date to 6,000 B.C. at Lake Yucheng in Shanxi province, where salt crystallised naturally. Chinese historians believe that the Lake area was the scene of constant warfare, all of which were attempts to control the salt (Kurlansky 2002:19). Historical evidence also suggests that salt taxation and monopoly occurred early in China as attested in the 'Cannon of History', a historical document covering the years 2,400 to 619 B.C. During this period, the principal source of salt seems to have been the coast of Shantung, where salt was produced by evaporation (Almquist 1973:21). Revenue from salt was used to build armies, and to build defensive structures, such as the Great Wall of China by 221 B.C. (Kurlansky 2002).

Archaeological evidence, including baked clay moulds, point to an increase in the exploitation of salt in Neolithic Europe by 6,000 B.C. Nenquin (1961) has suggested that salt extraction methods employed included mining and boiling. He identified over 350 sites of salt production, and considered them the best proof of the importance of salt in prehistoric Europe. Of these, 33 sites were located in Germany and Austria, 100 in France, 200 in Great Britain, and 11 in Poland and the Lower countries (Nenquin 1961:157-158). He suggested that salt played a very important role in the trade of Neolithic Europe, as exemplified by the numerous fragments of salt cake moulds made of baked clay. This was an indication that the salt industry served a much larger area than the local market, and the salt may have been used for curing fish and foodstuffs in coastal
regions (Nenquin 1961:157-159). Nenquin further notes that prehistoric settlements were founded and located in inhospitable areas such as mountain sides, where Hallstatt is located, or, in swampy river valleys in the case of Fontaines Salees, to enable the working of natural salt deposits (Nenquin 1961:137). On this basis, he suggests that the salt trade in Neolithic Europe may have influenced the founding and growth of towns. In addition, his data shows that the number of salt-related sites in Europe increased through the Roman Period, compared to Mesolithic or Upper Palaeolithic times (Nenquin 1961). Historical documentation also indicates that Rome instituted a salt monopoly in 508 B.C., and the Roman government took over private salt works at Ostia around 506 B.C. because prices were too high (Almquist 1973:17; Kurlansky 2002:62).

In Mesoamerica salt production dates to at least 1,000 B.C., where salt remained an important trade item for over 2,000 years among the Maya (Andrews 1983). Trade in salt played a dominant role in the rise and fall of the Classic Mayan (100 B.C. to 100 A.D.) civilization. Based on his work on salt, Andrews (1983) has suggested that Mayan communities before 300 B.C. likely satisfied their salt need from meat and palm ashes. Later population growth, deforestation, and declines in game may have created a greater demand for mineral salt. There is evidence suggesting that settlements were established near sources of salt in the Yucatan, in the Late Formative Period (50 B.C. to 300 A.D.). Coastal sites appear in the salt bed zones between the Celestun Peninsula and El Cuyo. The presence of obsidian blades suggests that there was salt trade between the Yucatan coast, and inland areas, because obsidian is rare on the coast, and was likely exchanged for salt (Andrews 1983).
The growth of the Classic Mayan Civilization (100 A.D.) witnessed a rise in the demand for salt. This increased demand was satisfied by an increase in salt production at Salinas, a pattern that had implications for the development of Maya culture (Rathje 1971; Andrews 1983). Rathje (1971) notes that the need to import salt and other raw materials from distant sources was a seminal factor in the emergence of the Classic Mayan Civilization, and was one of the factors that led to its collapse. He states that trade was an important way to redistribute items from the highlands, such as obsidian, and salt, to the lowlands. Long distance exchange allowed elites to become managers of trade in these trade items, giving them control over the population. Consequently, a loss of trade routes by which these items were moved would have caused a decline of the civilization as wealth declined and the influence of leaders diminished (Rathje 1971, 1972). Later developments of states, during the Postclassic Period (1,000-1,200 A.D.), have also been linked to salt. Although Early Post Classic settlements had a different pattern in northern Yucatan, including the abandonment of Classic Period sites, the location of later sites showed a preference for strategic locations including salt sources (Andrews 1983).

Salt remained important even as populations changed. Ceramic evidence points to the presence of foreign groups in the region in Classic times. These groups established key positions for trade and military purposes, and eventually took over coastal trade networks as well as the rich salt beds of the northern coast. By 1,000 A.D., a group called the Itza became dominant politically because their control of salt and trade networks provided an economic base for wealth and power. When the Spanish arrived in the 16th century, they witnessed a large-scale salt industry in Yucatan. The trade
involved thousands of people, and was coordinated by groups of powerful merchants, who ensured that the salt reached retailers in villages. The importance of salt is also reflected in wars fought over the control of its sources, and the routes of its trade. In northern Yucatan, Guatemala, and Chiapas, competition over salt led to wars, which changed political destinies (Andrews 1983:3).

Bloch (1963) proposed a cross-cultural link between salt, and the development of socially complex institutions. The basis for his argument for the social influences of salt was his conviction that salt was a necessity of life. To him, the need for extra salt, coupled with its limited sources, shaped history in curious ways. Bloch saw an unambiguous connection between the availability of mineral salt, and the rise of the major civilizations of the world. He hypothesized that the availability of salt enabled dense populations to grow, and thrive, in the Nile Valley, the Jordan and Tigris-Euphrates Valleys, the Yellow River Valley, and the Salt River area of Arizona. Bloch pointed out that salt mining made Hallstatt an important centre of ancient Europe, because it was a settlement founded to enable the working of natural salt deposits. He claimed further that the salt mine at Camp Verde in Arizona, made the Salt River valley civilization of pre-Columbian times in North America possible. As further justification, he notes that early farming in Egypt depended on boats moving salt up the Nile from the salt swamps, and on caravans bringing salt from salt lakes in the desert (Bloch 1963).

According to Bloch, salt trade over land had social, political, and military consequences. Caravans, and depots where salt was stored, or delivered, had to be protected against bandits. As the most important trade item, salt required the services of powerful protectors. Bloch concluded that in places where salt was obtained from small,
or isolated sources, such societies seemed more autocratic, and had histories of frequent conflicts, monopoly, and powerful rulers (Bloch 1963:95). Yet, his claims of a direct link between salt and control suggest that people did not have alternative ways of satisfying their salt needs, besides salt under the control of some rulers. Evidence shows that people obtained salt from several sources, including extracting it from plants in Niger (Gouletquer 1975). While Bloch is correct in asserting that subsistence systems that relied on grains had a need for increased intake of mineral salt, there is no conclusive evidence to suggest that the need for salt caused immediate, and widespread cultural changes in prehistory.

2.6.2 Trade, Salt, and Social Complexity

As is clear from the information presented in this chapter, the role of trade in the development of social complexity and the particular importance of salt as an early trade item suggest links between salt trade and social complexity in various parts of the world. Increased demand for salt seems to have coincided with the adoption of agriculture because populations needed salt for their own survival, for their animals, and for other uses, such as for preservation. Population increases and increased sedentism would have caused salt to become highly demanded, and its trade would have conferred wealth and status to those who traded it and/or controlled its sources. The cross cultural importance of salt and its historical reputation as the most universally handled item of trade in the past (Gilmore 1955, Nenquin 1961, Bloch 1963, Connah 1996) offer a unique opportunity to understand the development of social complexity in northern Ethiopia, where historical documents show that salt has been traded for 2,000 years and possibly longer. If trade is a cause of socio-cultural change and salt is an early item of trade, then
a case for salt trade as a key contributor to social complexity can be made based on the following four issues. First, trade is a method of acquiring products, which are not available on the spot. This is a reason why trade occurs at all levels of society. People became traders because they want personal material gain (profit motive) or to fulfil a sense of duty or public services (status motive). Status motives are reinforced by material benefits (Polanyi 1957). Secondly, salt is a physiological need critical to the human body and its deficiency leads to harmful physiological consequences (Denton 1982:89, Michell 1995:1, Kurlansky 2002:9). The importance of salt to humans made it an early item of trade. Thirdly, agricultural populations tend to use extra salt because of the low natural salt content of vegetables and cereals (Denton 1982:89, Lovejoy 1986:1, Kurlansky 2002:9, Eaton et al. 2002:10). Salt is also fed to animals, used in preservation, and industrial activities by agricultural populations. Finally, the Ethiopian highlands are an important centre of agricultural innovation and plant domestication in Africa as suggested by the presence of domesticated livestock and crops in the Holocene (Fattovich 1994; Fattovich et. al. 2000; Bard 1997, Barnett 1996; Schmidt and Curtis 2001; Ehert 2002). This region also has evidence of trade, which may have included trade in salt because agricultural populations need regular supplies of salt to feed to livestock, and for their own use.

Within the context of the above framework, a case will be made for the possible role of salt and its trade in the rise of social complexity, including the rise of elites and the location of settlements (Pankhurst 1998). The case for a role of salt will be described in chapter seven by applying aspects of the model of emerging complexity proposed by
Arnold (1993) to the Ethiopian highlands. This model recognises the importance of natural and social factors in the emergence and development of social complexity.

2.7 Chapter Summary

Chapter two presented theoretical issues related to social complexity and the role played by trade in the development of human societies from simple to complex forms. Archaeological approaches to the emergence and development of social complexity as indicated by environmental stress/risk management models and political evolution models both accept the role of trade in the process. However, problems associated with the two schools are apparent as reflected in the challenge identified by African examples and alternative interpretations of the development of social complexity in Africa. The role of trade in the development of social complexity, and the particular importance of salt are suggested in the links between salt and social complexity indicated by examples from different parts of the world.

The importance of salt made it an early item of trade and its study offers an avenue to explore how internal trade may have contributed to the development of social complexity in northern Ethiopia. In spite of the various definitions of trade, and how trade developed in the prehistoric context, most researchers agree that trade is a major source of change, and is a product of the interactions between nature, and culture. Salt is known to have been an early item of trade, and has been connected to social complexity in more than one region of the world. In Africa, salt is an important item of internal trade, and is linked to socio-political developments. However, salt does not preserve directly, a condition that warrants the use of ethnoarchaeology to understand the role of the salt trade in northern Ethiopia. The rest of this study will demonstrate the possible
role of salt trade in early complexity in northern Ethiopia based on archaeological information, historical information on salt trade, and ethnographic data. As noted earlier, the overwhelming evidence of continuity in the Ethiopian region makes it possible to apply the direct historical approach of analogy to this study.
CHAPTER 3: HISTORY OF THE SALT TRADE IN ETHIOPIA

3.1 Introduction

This chapter focuses on the history of salt production and trade in Ethiopia. Information on the main sources of salt in Ethiopia is summarized and the history of salt production and trade from 525 A.D. to the 1970s presented. This information provided the basis to isolate the role of the salt trade in historical times, and to compare that to the present day. The information was vital in exploring how the salt trade could have played a role in the development of social complexity. The content in this chapter is based on observations and reports by visitors to Ethiopia, government commissioned studies, and existing studies on aspects of the salt industry. The first segment looks at the sources and types of salt in Ethiopia based on the reports of various visitors to Ethiopia from 525 A.D. to 1979. The second section outlines the historical context of salt in Ethiopia, tracing the history of salt production and trade in Ethiopia. The last section is a summary of the history presented, which served as a basis for further study. The main objective was to reveal the role that salt production and trade played in historical times as a basis to explore how salt trade may have contributed to the development of socio-economic complexity in the past.

3.2 Sources and Types of Salt in Ethiopia

Ethiopia has multiple sources of salt in the form of rock salt (solid) or brine (liquid) (Figure 6). Commissioned studies and reports compiled under the auspices of the
Federal Ministry of Mines of Ethiopia identified at least 16 sites with salt occurrences in Ethiopia (Mamo et. al. 1993; Mengistu and Fentaw 2003).

The main sources of salt in Ethiopia were contained in the 1993 study of the major saline occurrences in Ethiopia that was undertaken by the Mineral Exploration Division of the Ethiopian Institute of Geological Survey. The objective of the study, led by Wondafarsh Mamo, was to evaluate edible salt sources in Ethiopia and to select those sources suitable for future development. The study concluded that edible salt existed in

Figure 6. Main sources of salt in Ethiopia noted by Mamo et. al.1993
the Somali (formerly Ogaden), Afar, and the Southern Nations, Nationalities, and People's (formerly Sidamo) regions of Ethiopia (Figure 6). The determination of which sources of salt were edible in Ethiopia was reached by comparing the results of chemical analysis of salt samples to the standard established by the Ethiopian Standard Institute (E.S.I). The results show that Danakil salt contained mostly NaCl, fewer impurities, and could be readily consumed (Table 1). Afkere salt also measured up to the acceptable standard, while Elsod salt had an acceptable level of NaCl, but needed further purification. On the other hand, salt from Megado contained more Soda ash, and salt from Dol contained more Sulphate, and less NaCl, making these two sources inedible (Mamo et al. 1993).

<table>
<thead>
<tr>
<th></th>
<th>Standard % weight by the Ethiopian Standard Institute</th>
<th>Afar</th>
<th>Ogaden</th>
<th>Sidamo</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Afkere</td>
<td>Elsod</td>
<td>Megado</td>
<td>Dol</td>
</tr>
<tr>
<td>Chloride (NaCl)</td>
<td>96</td>
<td>97.7</td>
<td>95.4</td>
<td>95</td>
</tr>
<tr>
<td>Sulphate</td>
<td>1.4</td>
<td>-</td>
<td>0.42</td>
<td>4.51</td>
</tr>
<tr>
<td>Insoluble matter</td>
<td>0.3</td>
<td>0.36</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Calcium</td>
<td>0.5</td>
<td>0.26</td>
<td>0.49</td>
<td>0.2</td>
</tr>
<tr>
<td>Magnesium</td>
<td>0.5</td>
<td>0.03</td>
<td>0.04</td>
<td>0.03</td>
</tr>
<tr>
<td>Total Alkaline</td>
<td>0.3</td>
<td>-</td>
<td>0.01</td>
<td>.9</td>
</tr>
</tbody>
</table>

3.2.1 Salt Deposits in the Afar Region

All sources of salt in the Afar region are located in the vast Danakil Depression. The depression (Figure 6) is a belt of lowlands extending from the eastern part of the Ethiopian plateau to the Red Sea coast, forming a rough rectangle of about 563 km long.

\[2\] Created from Mamo et al. 1993
and 161 km wide (Nesbitt 1934:69). Once an arm of the Red Sea, the depression is about 110 m below sea level in some sections, which was a product of tectonic movements of the Arabian and African continents (Nesbitt 1934; Wolde-Mariam 1972). Volcanic eruptions along the coast caused a separation from the Red Sea, resulting in the formation of inland lakes, which dried out, leaving salt flats (Nesbitt 1934). Potash is another important source of wealth in the Danakil Depression (Wolde-Mariam 1972:49). The salt and rock salt formations occur 15 km east of gypsum outcrops (Mamo et. al. 1993). The salt plains occur at the bottom of the Danakil Depression, approximately 100-120 m below sea level (Mamo et. al. 1993:8; Mengistu and Fentaw 2003).

The areas within the depression where salt has been exploited are Gebro (14° 08’ 00” N and 40° 23’ 00” E), Afedera (13° 17’ 24” N and 40° 56’ 00” E), and AssaI (14° 00’ 00” N and 40° 23’ 00” E). All saline deposits are formed from white mud made up of clay and gypsum covered by a thin layer of salt, after it dries and crystallizes. Depending on the location within the salt plain, the thickness of Danakil salt ranges between 10 m and 50 cm (Mamo et. al. 1993; Mengistu and Fentaw 2003). The amount of salt present in the depression and the methods of extracting salt are both of interest. It is estimated that about 1,200 km² of salt deposits are in this area of 8,000 km² of the salt plains. Estimates based on 50 cm thickness of salt deposits suggest that about 1 billion tonnes of salt is contained in the Danakil Depression. Annual production and distribution of salt in 1945 was estimated at about 28,000 metric tonnes. Salt is extracted manually by using axes to demarcate slabs, which are levered by sticks, and cut into blocks. Pack animals are used to transport the salt blocks to Mekelle and other major centres in northern
Ethiopia. The finished product (*amole*) reaches markets in Ethiopia as a 25 x 5 x 5 cm (625 cubic cm), and 1.4 kg bar of pure salt (Mamo *et. al.* 1993).

### 3.2.2 Salt Deposits in the Somali Region

The Somali region, formerly Ogaden region, has three salt deposits (Figure 6) including Afkere (05° 15' 00" N and 42° 20' 00" E), Dol (05° 40’ 00” N and 41° 40’ 00” N), and El-Dere (04° 58’ 00” N and 41° 18’ 00” E) (Mengistu and Fentaw 2003). The Afkere salt deposit is located 32 km east of Hargalle in an area that contains sandstones, siltstone, and shale. Beds of gypsum are intercalated with salt, which is dissolved by ground water, then flows as hot springs into depressions (Mamo *et. al.* 1993). Afkere salt is obtained in the form of rock salt directly and by the evaporation of brine. Unlike the Danakil Depression, the bulk of Afkere salt is obtained through natural solar evaporation of brine in a series of ponds. In the crystallizing process, brine is first let into rectangular ponds dug near edges of the depression and allowed to concentrate (Mamo *et. al.* 1993). Concentrated brine is channelled into a second series of ponds at a lower level and later into a third pond for crystallization. The first grade of salt is whitish, and edible, while the second type is brownish and consumed by animals. The reported yield of salt per pond was 12 truckloads or 120 tonnes (1,200 quintals). An estimate of the total quantity of salt in Afkere is not given, but reports noted that the reserve was not sufficient for large-scale production (Mamo *et. al.* 1993).

The second source of salt in the Ogaden region is located in Shakisso, near the Boji River, known as Dol (Mamo *et. al.* 1993, Mengistu and Fentaw 2003). Salt production occurs in the dry season (January to March) at a site surrounded by limestone, which leaches out into a saline aquifer (Mamo *et. al.* 1993). The process of extraction
involves digging holes of 10 m deep to collect saline from the aquifer. Brine is then collected by buckets and poured into an earthen channel that is connected to evaporating pans. The brine partly crystallises by evaporation and is removed by hand and piled to drain and dry. It is estimated that in 1990 there were 28 brine holes at Boji Dol, yielding a total of 60 tonnes (600 quintals) of salt over a 90-day working season per annum. Results from brine and rock salt samples (Table 1) tested from this site indicated a NaCl content of 99.8% to 97% (Mamo et al. 1993).

The third site with salt in Ogaden is the El-Dere salt deposit (Mengistu and Fentaw 2003). The area is described as monotonous gypsum beds consisting of low hills, which are cut by steep-dry streams (Mamo et al. 1993). The salt deposit is about 1.5 m deep overlaying marl, which is in turn under alternating layers of gypsum and green marl. There are two principal salt springs at this site, where salt is obtained through natural evaporation. Brine is collected into 40 x 120 m ponds, which dries to a crust of 1 to 2 cm thick. The salt was then collected and sold to contractors at Neghelle. Nevertheless, it is acknowledged that the quantity and quality of salt in El-Dere is small and not economically viable. The location of this source of salt was not indicated on the map produced by the authors of the report, neither did they provide information on the chemical composition of El-Dere salt (Mamo et al. 1993).

3.2.3 Salt Deposits in the Southern Nations, Nationalities, and People’s Region

The Southern Nations, Nationalities, and People’s region, formerly Sidamo, has two salt lakes located in the rift system (Figure 6). The first is the Megado Saline Lake (04° 03’ 00” N and 30° 15’ 00” E), and the second is the Elsod Saline Lake (04° 05’ 00” N and 38° 25’ 00” E) (Mengistu and Fentaw 2003). Megado Saline Lake is about 30 km
west of Mega on the road to the Nuri hills in Kenya, in an area of volcanic rocks in the rift valley. The salt at this site is said to be a mixture of carbonate and NaCl. It is harvested by scooping and drying the salt concentrate from the edge of the lake exposed to the sun. Salt yield is estimated at 1,400 to 3,000 kg per day, depending on demand. Estimates based on the composition of the brine in the lake, suggest a possible reserve of about 40,000 tonnes of salt. Chemical analyses (Table 1) indicate that salt from Megado Lake consists of 54.1% NaCl and 13.2% sulphate (Mamo et. al. 1993).

Elsod Saline Lake is located 25.4 km northeast of Megado, but unlike Megado, the salt occurs in a crater lake. No detailed information on the method of harvesting salt at this site was found. However, like Megado, the level of salt production varies depending on demand. The level of salt production was estimated at 600 kg per day, but reached about 12 tonnes at the height of demand. Brine from Elsod has 95% NaCl, 4.51% sulphate, 0.2% calcium, and 0.03% magnesium (Table 1). The Ethiopian Ministry of Mines concluded that these two lakes in the Sidamo region are not major sources of salt in Ethiopia (Mamo et. al. 1993).

3.2.4 Minor Deposits and Standards of Salt in Ethiopia

Minor sources of salt have also been reported in different parts of Ethiopia. Some of these deposits are described as salty incrustations, which were left by receding floods across areas with salt crystals, associated with gypsum or percolating ground water, which passed though saline concentrations. Such occurrences are present near Dabanc and Osbola in southern Harrergher and Genir, southeast of Dole, where potassium chloride occurs with the salt. Minor salt occurrences in northern Ethiopia also include salt marshes in the Danakil near Adeli; hot springs near Makata; the rocks of Aden to the
east of Owani; and at Arrobo near Socito, 70 km northeast of Quaran in Tigrai (Mamo et al. 1993).

It is clear from the Ethiopian government records that the three main sources of salt are in the Afar, Somali, and Southern Nations, Nationalities, and People's regions. The Danakil salt in the Afar region is considered the most pure and as a result, it is readily usable. On a continental scale, it is worth noting that most salt production methods identified in Ethiopia have relied on natural evaporation. On the other hand, salt production methods used in Eastern and Western Africa rely on artificial evaporation (Fagan and Yellen 1968; Sutton and Roberts 1968; Gouletquer 1975; Lovejoy 1978; Connah 1996).

3.3 Historical Context of Salt Production and Trade

It is not presently known when salt production and trade began in Ethiopia. Although Ethiopia has several sources of salt, the salt from the Assai section of the Danakil Depression in the Afar region has been the most dominant. It served a multitude of purposes, including use as a medium of exchange (Abir 1966; Pankhurst 1968). This use of salt as a medium of exchange in Ethiopia sets itself apart from others in Africa. By 525 A.D., historical accounts reveal that salt and its trade featured prominently in the socio-economic and political systems of highland Ethiopia. In the 18th to 19th centuries A.D., revenue from the trade in salt benefited the rulers of Tigrai (Abir 1966, 1968:47). The salt trade persisted from times unknown (Pankhurst 1968:240) and survived recent dramatic political events, such as the Italian occupation in the early 1930s, and the oppressive Marxist regime of the Derg from 1974 to 1991.
Even today, the salt trade remains important in the Ethiopian highlands. As such our understanding of the development of complex societies in the Ethiopian highlands will be incomplete without an inclusion of the role of salt. Documentation of the salt industries of Ethiopia and that of the Assal salt plains goes back many years. In reviewing the history of salt production and trade in Ethiopia, attention will focus on the sources and production, networks and distribution, marketing and uses, as well as economic and social benefits of salt during the major historical periods of Ethiopia from Aksumite times to the 1970s.

3.3.1 Aksumite Times To the Zagwe Dynasty (100-1270 A.D.)

Aksum rose at the junction of internal and external trade routes, which seem to have helped its growth as an urban centre and its eventual rise as the centre of the Aksumite Kingdom (Munro-Hay 1993). Other important towns in northern Ethiopia included Adulis, an international port, and centre of trade, in addition to smaller towns such as Yeha and Matara (Figure 7). Some of these settlements were linked to Aksum in an intricate network of trade routes running from Adulis to Aksum (Munro-Hay 1993). It is suggested that the trade undertaken by Aksum was important in the consolidation of its power and position. The Kingdom of Aksum was believed to have lasted from 1st to 12th centuries A.D. (Munro-Hay 1993; Michels 2005). Its centre was in the Tigrayan highlands and its leadership ruled from the ancient city of Aksum. The Aksumite economy was mostly agricultural and pastoral. However, trade served as an important basis for development of its wealth (Munro-Hay 1993, Pankhurst 1998; Manzo 2005).
Aksum had regular trading contacts with the Roman Empire and participated in long distance trade from the Red Sea to the Indian Ocean. Items of export included ivory, rhinoceros horns, obsidian, and tortoise shells. Its main imports included iron, glass, fabrics, wines, and oil, through the Red Sea port of Adulis (Munro-Hay 1993; Pankhurst 1998; Michels 2005; Manzo 2005). The enormous benefit of trade to Aksum

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3 Modified and used with permission from Dr. Stephen Batiuk
has been cited as justification for the policing of its trade routes (Munro-Hay 1993; Phillipson 1993). For example, it is noted that the land route to Egypt, and the defence of the Red Sea coasts on both the African and the Arabian sides, were of particular interest to the Aksumite monarchy (Munro-Hay 1993; Pankhurst 1998). Internal transport within the Kingdom may have depended on state maintained routes for porters or pack animals (Munro-Hay 1993). Important local industries included pottery, stone, and leather, which would have been used to make clothing and beddings (Pankhurst 1998; Phillipson 1993, 2004; Munro-Hay 1993).

3.3.1.1 Sources and Methods of Salt Production

Although the method of salt production and source of the salt traded during Aksumite times are not known, it can be assumed that it was obtained from the Assan salt plains because it is the only known source of rock salt near Aksum, located about 161 km away (Pankhurst 1961, 1968, 1998). Kosmas Indikopleustus, who visited the Aksumite Empire around 525 A.D. during the reign of King Kaleb (514-530 A.D.), provides the earliest known account of the use of salt as a trade item in Ethiopia. King Kaled is credited with expanding the Aksumite Empire within Africa to Southern Arabia, as well as expanding its internal trade, and its influence in the Red Sea region (Sellassie 1972; Munro-Hay 1993). However, Indikopleustus suggested that the salt trade might have flourished for over a millennium and a half before his visit to Ethiopia (Wolska-Conus 1968; O’Mahoney 1970:148). This assertion suggests that the salt trade pre-dates the rise of the Aksumite Kingdom. Indikopleustus revealed the use of salt as an item of exchange and its associated economic benefits (Pankhurst 1961, 1968, 1998; Wolska-Conus 1968; Vantini 1975).
3.3.1.2 Distribution and Uses of Salt

Aksumite rulers sent special trade expeditions composed of government officials and private traders every other year to obtain gold from Sasu with the help of the chieftains of the Agaw (Pankhurst 1961, 1968; Wolska-Conus 1968; Vantini 1975). The specific location of Sasu is not clear, however Kirwan has suggested that the gold may have been obtained from Fazugli in the Blue Nile region and that Sasu may have been located in eastern Sudan (Kirwan 1972:170). The trade missions to Sasu had over 500 members, who took salt, iron, and oxen as items to exchange for gold in Sasu. These missions were armed for fear of attacks during their five-month trek. Traders proceeded slowly on their way because of the cattle they took with them (Wolska-Conus 1968; Pankhurst 2001). Upon arrival, they established camp, slaughtered the oxen, and displayed the meat, salt, and iron on thorns. Because the trade was by barter, the Aksumite traders had to move away from their displays to allow the Sasu traders to inspect the trade items and to display what they believed was of comparative value. To that effect, the Sasu traders placed gold nuggets called “tanchara” by the salt, meat, and iron displayed by the Aksumite traders (Wolska-Conus 1968; Vantini 1975, Pankhurst 1961, 1968; Pankhurst 2001). If the owners of the meat, iron, and salt were satisfied with the gold, they took it; the owners of the gold then came back and took away the salt, iron, and meat.

3.3.1.3 Socio-Economic Benefits of Salt

The trade with Sasu, in which salt was a key item, allowed Aksumite Kings to obtain large quantities of gold, which served as a basis to accumulate great wealth (Pankhurst 1961, 1998; Wolska-Conus 1968; Kirwan 1972; Vantini 1975). Documented
sources show that the gold trade with Sasu during the reign of King Kaleb was largely conducted through the medium of salt (later known as amole). It is not clear whether other items were used as media of measuring relative values, like amole (Pankhurst 1961). However, Munro-Hay (1993) notes that amole, though used as a currency in later times, varied in value as one travelled further from the centres of its production. He added that its transport to Sasu showed that in ancient times it was an important element in the trade of Aksum. The ruler of Adulis was in charge of the port city, and the ruler of Agaw controlled the gold trade of Sasu, and was responsible for protecting the trade missions. These rulers held extremely important posts in the political structure of Aksum because they controlled important links in the trade system (Munro-Hay 1993).

### 3.3.1.4 End of Aksum and the Zagwe Period

The circumstances leading to the fall of the Aksumite Empire are not clear, but a number of factors have been proposed to explain its decline as the centre of Ethiopian power. From an economic perspective, it is suggested that a population increase led to over-cultivation and eventual soil degradation, including deforestation, which may have caused soil erosion. Climate change is another factor that may have caused the decline of Aksum as it may have negatively affected agricultural productivity by causing droughts and famine. Political factors, including a possible war with the Béja, a tribe to the west, and/or a rebellion in South Arabia may have also contributed to the fall of Aksum (Butzer 1981; Munro-Hay 1991). Pankhurst (1998) has suggested that a combination of economic and political factors led to the fall of Aksum. He notes that the rise of a new Islamic religion caused an Arab renaissance, which posed a challenge to Aksum. Soon after, Arabs took control of most of the Red Sea region, cutting off Aksumite economic
wealth from the Red Sea trade. This loss of long distance trade combined with local political instability and environmental degradation caused the decline of Aksum (Pankhurst 1998).

Most scholars agree that the Aksumite period was in decline by 700 A.D. as Aksum was no longer the political capital of the Ethiopian Kingdom. Although information is scant on developments between the end of Aksum and the rise of the Zagwe Dynasty by 1150 A.D. Munro-Hay (1991) suggests that the decline would have been gradual. By the late 10th century A.D., the Ethiopian state was almost overrun by ‘Gudit’, a queen, making it possible for the Agaw Zagwe to establish control over the kingdom (Selassie and Dena 1972; Munro-Hay 1991). The fall of Aksum saw the relocation of the centre of the Ethiopian kingdom further south near southern Tigrai and Angot. New leadership under the Zagwe Dynasty filled the vacuum left after the decline of the Aksumite Kingdom.

The Zagwe Dynasty is believed to have lasted from 1150 to 1270 A.D. with its kings ruling from the vicinity of Lalibela (Selassie and Dena 1972; Pankhurst 1998). The most recognised leader of this kingdom was King Lalibela (1160-1211 A.D.) a devout Christian, credited with building the rock hewn monolithic churches of Lalibela (Pankhurst 1998; Selassie and Dena 1972; Sellassie 1972; Tadesse 1972). The centre of this kingdom was in Lasta, and although its leadership kept the Christian traditions of Ethiopia, they were of Agaw background. As a result, they were seen as usurpers of the Solomonic line because they were not of Semitic origin (Buxton 1970; Selassie and Dena 1972). Not much is known about the Zagwe period in Ethiopian history from contemporary sources, and even less is known about trade (Buxton 1970; Phillipson
As Pankhurst (1961) noted, the Zagwe period was turbulent, and was marked by political fragmentation, which was detrimental to trade (Pankhurst 1961). However, it is reported that the Zagwe Kings kept important trade routes open, and maintained contact with the outside world (Pankhurst 1961; Buxton 1970; Selassie and Dena 1972). While there is no direct evidence of salt trade during the Zagwe period, it is likely that salt trade continued. The Kings likely maintained trade routes to enhance the benefits of the salt trade.

3.3.2 The Medieval Period (1270-1632 A.D.)

The Medieval Period began with the fall of Zagwe rulership and the restoration of the Solomonic line. Yekuno Amlak (1270-1285 A.D.) claimed decent from Aksumite kings although he was a Prince of Wollo. After becoming Emperor, he moved the capital of the Ethiopian Kingdom to Tegulate near Debra Berhane, further south in Shoa, and made Amharic the official language of Ethiopia (Pankhurst 1961; Selassie and Dena 1972). This period saw conflicts within the royal families of Ethiopia as well as between Christian Kings and governors, and against its rising Muslim Kingdoms. Another mark of this time was the ‘moving capital of the Empire’, in which Christian rulers established temporary capitals in various parts of the highlands with no less that 50,000 people. These moving capitals included members of the royal court, army, government and church officials, merchants, traders, servants as well as horses, mules and other animals.

The mobile capitals are believed to have been necessary for the maintenance of large settlements because of thinly spread resources and limited means of transportation. Politically, this was a time of conflict, rebellions, and distrust. This strategy helped the ruler of the day to govern his Kingdom. The moving capital allowed the leader to exert
control in an area where there was no local cooperation by simply moving his capital there, and if that failed his royal army was at hand to solve the problem. Thus, the Emperors moved their capitals because of the difficulty in feeding their courts and because it helped them to control the great lords (Pankhurst 1961, 1998; Selassie and Dena 1972). The growth of trade and the influence of Islam set the stage for the eventual rise of Ahmed Garan, a Muslim, who invaded the Christian parts of Ethiopia (Pankhurst 1961; Buxton 1970; Selassie and Dena 1972). In spite of these pressures, the period was significant in Ethiopian history, during which advances were made in culture and administration (Selassie and Dena 1972).

Portuguese visitors to Ethiopia, including Francisco Alvares, provide information on the salt trade during medieval period. He was the chaplain to the first Portuguese mission to Ethiopia in 1520, and was followed by two Jesuit Priests, Manoel de Almeida in 1624, and Jeronimo Lobo in 1625 (Beckingham and Huntingford 1954; Beckingham and Huntingford 1961; Donald 1984).

3.3.2.1 Sources and Methods of Salt Production

The reports of this period identified the Danakil Depression as the main source of salt in Ethiopia. The methods of salt production involved cutting salt with axes into blocks (Donald 1984:173). Humans and animals transported these blocks to markets within the Ethiopian Kingdom (Beckingham and Huntingford 1954:44). Alvares witnessed approximately 300 to 400 animals carrying salt from the Danakil and about an equal number going the opposite direction (Beckingham and Huntingford 1961). Almeida also noted that the road from Tigrai to Dambea was continually crowded with
caravans made up of a thousand workers and 500 donkeys loaded with blocks of salt (Beckingham and Huntingford 1954).

Lobo was one of the few visitors to travel by caravan through the Danakil from the small port of Bailul on the Red Sea coast to Tigrai. He described the Danakil Depression and salt caravan related activities. Lobo noted that the depression had a large salt mine, extending many miles. According to him, salt was cut into blocks by the people who lived near the depression, and then taken to markets for sale to other merchants. During his journey from the coast, he used the same Berehale salt route used by most highland caravans today as noted in his itinerary, and mentioned that ‘Bailur’ (Berehale) was part of a small broken Kingdom of Danakil (Afar). He described the making of the caravan-made bread cakes called burguta (brukuta) at Saba (Asabolo). Lobo stated that it was made from wheat or barley flour, which was kneaded on a piece of leather. Stone pebbles were then heated and the dough was wrapped around them. Also of interest was Lobo’s observation that caravan merchants used goatskin bags to collect water at Asabolo (Donald 1984).

3.3.2.2 Distribution and Uses of Salt

Natural and socio-cultural difficulties associated with the salt trade caused the value of salt to rise as it moved further away from its source. According to the reports of this period, the dominant use of Danakil salt was as a currency, where it was exchanged for any item in the markets (Beckingham and Huntingford 1954; Beckingham and Huntingford 1961; Donald 1984). The bars of salt used for exchange, locally known as amole, according to Lobo, were a span (22 cm) long and a finger (2 cm) wide on each of its four sides (Donald 1984). Due to the cost of transporting the salt over long distances,
Alvares noted that salt was cheaper at the source but expensive as one moved further away due to the difficulties involved in transport (Beckingham and Huntingford 1961:181). Almeida estimated that about a third of the salt was taken away from merchants at custom posts as dues. Merchants who made it past customs still had to deal with the rugged and narrow nature of the road. Broken blocks lost value and pack animals that died or became too exhausted were left for wolves, adding to the increased cost of salt. Yet, these dangers did not deter the traders from going on trips to collect salt because it served as money and merchandise (Beckingham and Huntingford 1954:44-45).

Alvares gave specific examples of the increasing value of salt. He recorded that at the source of the salt in the Danakil, 120 to 130 blocks of salt exchanged for a drachm (an eighth of an ounce) of gold, but at Corcora, located about one day’s journey from the source, a drachm exchanged for five to six fewer blocks. At the King’s court and on the boarders of Shoa, a drachm obtained six to seven blocks and even less during the rainy season (Beckingham and Huntingford 1961). Almeida and Lobo later confirmed these claims. According to Almeida, at the first markets from the source 80 to 100 blocks of salt cost a drachm, while in other parts of Tigrai, a pataca (old Spanish coin) obtained 50 to 60 blocks. Lobo added that over 100 salt blocks were equal to the value of a pataca near the source area, but as one moved inland, the number dropped to 12 blocks less for the same price (Beckingham and Huntingford 1954; Donald 1984).

3.3.2.3 Socio-Economic Benefits of Salt

The socio-economic benefits of salt are clear during the Medieval Period. It was the dominant and most useful trade item in Ethiopia (Beckingham and Huntingford
Alvares was told that salt caravans belonged to the great Lords of Ethiopia, who sent annual expeditions to the Danakil to collect salt for their expenses at the King’s court (Beckingham and Huntingford 1961). In addition, he saw smaller caravans of 30 to 40 animals, with men carrying salt in different parts of Ethiopia for their own use or for sale in the markets (Pankhurst 1961, 200; Beckingham and Huntingford 1961). A significant connection between the role of salt in Aksumite times and the Medieval Period is reflected in Almeida’s confirmation of what Indikopleustus noted in the 6th century A.D. Almeida noted that gold was obtained during his visit from Cafraria, where the Cafres exchanged it for clothing, cows, salt, and other goods (Beckingham and Huntingford 1954). Another point of interest is the connection between the salt trade and the political leadership. Clearly, like Aksumite leaders, those of the Medieval Period also gained wealth directly and indirectly from the salt trade.

It was also during the Medieval Period that we have the first documented evidence regarding the ritual use of salt. Lobo reported that where salt was expensive, individuals carried pieces in a pouch on their waist. Upon meeting friends or relations on the road, each person took out their piece of salt and gave it to the other to lick. They then took the salt back and proceeded to enquire about one another in more detail (Donald 1984:174).

3.3.2.4 End of the Medieval Period

The Medieval Period ended with the invasion and conquest by Ahmed Garan. He destroyed most of the wealth and cultural gains of the periods before, including burning manuscripts, churches, and buildings. This already bad situation was worsened by Galla
3.3.3 The Gondar Period (1632-1769 A.D.)

The rise of Gondar was significant in Ethiopian history because it represented a return to a permanent capital (Pankhurst 1961; Selassie and Dena 1972). Emperor Fasilidas (1632-1667 A.D.) founded the Gondar Empire as part of his plan to reunite the church and the state. Visitors to Ethiopia including Balthazar Telles, Charles Poncet, Ramedius Prutky, and Yohannes To’umacean (Telles 1710; Foster 1967; Pankhurst 1982; Arrowsmith-Brown 1991) note details of the nature of this period, as well as, the salt trade in different reports and publications.

3.3.3.1 Sources and Methods of Salt Production

The main source of salt in Ethiopia remained the Danakil Depression. Telles (1710), like Lobo, made a trip through the Danakil to the Red Sea coast. He reported that the salt was white and hard in the boundary area between the kingdoms of Danakil and Tigrai. The methods of salt production and distribution seem to have been the same as reported earlier. Salt was cut into pieces like bricks in the salt plains, and then transported by pack animals. Telles saw over 600 animals comprised of camels, mules, and donkeys carrying salt. Camels carried 600 bars, while mules and donkeys carried between 140 and 150 bars of salt each (Telles 1710). Prutky was the first visitor to Ethiopia who linked Enderta people to the salt trade directly. He noted that the salt was quarried in pieces in only one province called Balgada, a place in the Enderta district in Tigrai (Arrowsmith-Brown 1991:213). Poncet later reported that rock salt was mined at
Lafta mountain and carried into the Emperor's capital, where it was formed into bars called *amole* or half a bar called *kurman* (Foster 1967:122).

### 3.3.3.2 Distribution and Uses of Salt

Difficulties associated with the salt trade also remained natural and cultural. The unbearable heat at the salt plains compelled caravan merchants to travel past the red salt hill (*Ashale*) area at night (Telles 1710). These dangers and the difficulties in transporting salt caused salt to be cheaper nearer to the source and expensive as it moved further away; a pattern reported by earlier visitors.

Evidence for the uses of salt also indicates a continuation from earlier times, including serving as currency (Telles 1710; Foster 1967; Pankhurst 1982; Arrowsmith-Brown 1991). According to Telles, the salt plains had different types of salt deposits, and some was used for medicinal purposes. He noted that the salt from a hill of red salt was used as medicine (*phisick*). This is likely a reference to *Ashale* hill from which salt is extracted and used as medicine even today.

Poncet confirmed that the salt bar used as currency was named *amole* (Pankhurst 1961), and both gold and salt were used to conduct trade. He noted a direct economic benefit of salt to the Emperor when he stated that rock salt was transported into the Emperor's magazine where it was formed into *amole* (Foster 1967:122). Prutky also noted that in Gondar, the royal capital and nearby, salt circulated in place of money (Arrowsmith-Brown 1991). Further confirmation on the use of salt as a medium of exchange is provided by To'umacean, Treasurer to Empress Mentewwab during the reign of King Iyoas (1755-1769 A.D.) in Gondar. He exchanged gold for salt bars, which he used to pay wages, and as money for buying smaller items (Pankhurst 1982).
3.3.3.3 Socio-Economic Benefits of Salt

The role and benefits derived from the salt trade by the late 17th century is clear from the records. Prutky noted that the Emperor had a monopoly over the salt trade, and sold it through official channels, making considerable revenue for his treasury. Individuals were prohibited from supplying salt and had to rely on imperial favour to participate in the salt business (Arrowsmith-Brown 1991:213). The socio-economic role of salt is further suggested by changes in the socio-political system of Ethiopia. In 1699, Emperor Iyasu I (1682-1706 A.D.) changed the tax system to protect salt merchants from extortion by tax collectors (Pankhurst 1961; Budge 1966). The Emperor assembled his officials from Enderta to Wagara and asked them to explain their tax systems. This important meeting was in response to complaints that natives along the salt routes stole salt from merchants, and that officials confiscated salt on the pretext of collecting taxes (Pankhurst 1961; Burge 1966).

During consultation with his nobles, Emperor Iyasu I learned that at custom posts, a duty of a salt bar was paid on a donkey load, and two bars per mule load of salt, however, porters carrying salt were not taxed (Pankhurst 1961). After the meeting with his governors, King Iyasu I revised the tax system. Under the new system, each area had one tax post and taxes were reduced to one salt bar on every five mules carrying salt, and one bar on eight donkey loads of salt (Pankhurst 1961; Budge 1966). The King also decreed that men who attempted to smuggle salt or cheat customs, and those who tried to tax persons carrying salt on their shoulders were to be sentenced to death (Pankhurst 1961; Budge 1966).
3.3.3.4 End of the Gondar Period

The Gondar Period ended in 1769 with the death of King Yoas (1755-1769 A.D.). The level of competition and lack of trust even amongst members of the same royal line set the stage for the period that followed. At Gondar itself, there was dissention between its Oromo and Quara peoples. This warranted a call by the King to Ras Michael, one of the most powerful leaders to make peace. Soon after the restoration of peace by force and coercion, Ras Michael survived an attempt on his life in his house in Gondar. In revenge, King Yoas was found strangled in his palace, setting the stage for what is now known as Zemana Masafint (Abir 1961; Pankhurst 1968, 1998; Selassie and Dena 1972).

3.3.4 The Era of the Princes (1769-1855 A.D.)

The Zemana Masafint or Era of the Princes lasted from 1769 to 1855 A.D. A remarkable feature of this period was that the Emperor lost most of his power to provincial and regional leaders (Abir 1961, 1968; Pankhurst 1968, 1998). This period was engulfed by conflicts between warlords, while the Emperor was confined to his capital at Gondar. Religious based conflict within the Church, and with Ethiopian Muslims, served as a justification for battles among leading figures. The end of the Zemana Masafint came with the consolidation of imperial power in the hands of Kassa Hailu, who became Emperor Tewodros II in 1855 A.D. (Abir 1961, 1968; Pankhurst 1968, 1998).

During the Era of the Princes Ethiopia had multiple items that were used as money, including salt bars. One form of currency was the Maria Theresa dollar, which was stamped with the image of Empress Maria Theresa of Austria (Ferret and Galinier 1847:451). Gleichen later noted that King Menelik introduced the Maria Theresa dollar.
with his effigy inscribed on it (Gleichen 1897:168). The unstable nature of this period did not stop the salt trade; in fact, it contributed to the wealth and power of some of the more active provincial leaders (Abir 1961, 1968).

Details of the salt trade during this period were recorded by travelers to Ethiopia, including, James Bruce, Nathaniel Pearce, Henry Salt, Charles Johnston, in addition to Ferret and Galinier (Ferret and Galinier 1847; Harris 1844; Isenberg and Krapf 1843; Gobat 1969; Johnston [1844]1972; Salt 1816; Pearce 1923, 1934 and II; Bruce 1813-VII).

3.3.4.1 Sources and Methods of Salt Production

As was the case with the earlier periods, the major source of salt continued to be the Danakil Depression (Bruce 1813-VII; Pearce 1923; Gobat 1969). Bruce (1813) noted that the Danakil people transported salt blocks quarried from their home region to Abyssinia or highland Ethiopia (Bruce 1813VII). Christians travelled to the lower country of the Taltal (Danakil or Afar) to cut and bring the salt to the highlands themselves (Pearce 1923). Isenberg and Krapf give further confirmation of the major source of salt. They saw caravans collecting salt from Lake Assai for onward transportation to Tigrai (Isenberg and Krapf 1843). Harris on his part, described Lake Assal as an elliptical basin, which had the purest salt in its northeastern section (Harris 1844). Methods of salt production and distribution did not change from what was reported before. Salt (1816) noted that Abyssinians (highlanders) cut salt with small axes (Salt 1816). Pearce added that salt was cut into pieces measuring about 25 cm long and 8 cm wide (Pearce 1923). According to Harris, the salt was transported in long narrow mat bags made of date palm leaves and exchanged for slaves and grain (Harris 1844:116).
3.3.4.2 Distribution and Uses of Salt

While the dangers associated with the salt trade remained natural and cultural, they were exacerbated by the ongoing conflicts. Some of the dangers were caused by competition between multiple groups, and leaders for control of the salt plains and salt trade routes. By this time, the Danakil (Afar) people claimed a monopoly over the salt and its trade on the basis that it was their right to extract the salt (Isenberg and Krapf 1843; Harris 1844). Johnston points out that the asaimara, and the adoimara Afar tribes both laid claim to equal portions of the salt lake (Assal), exploiting it on their respective shores. They constantly fought amongst themselves and with their neighbours, the Issa Somalis (Johnston [1844]1972:129).

Bruce (1813) noted that in the Gondar area the root of a plant called moc-moc was ground and added to butter as a preservative it instead of salt, preventing an increase in the price of salt (Bruce 1813VII; Beckingham 1964:171). Salt was not just used as a food item, but had a specific value, serving as the medium of exchange in all regions of Ethiopia (Bruce 1813IV; Pearce 1923, 1934I and II; Johnston [1844]1972II; Isenberg and Krapf 1843). For example, servants were paid five amole a month in the Ankobar area. In the Aliu Amba market, traders paid taxes on all goods for sale in kind or in the equivalent in salt bars. Entire sections of the Aliu Amba market was devoted to selling and buying salt (Johnston [1844]1972II). Profits from salt trading motivated traders to use mules and donkeys to load salt bars en-route to the Woldaia market, and other merchants at Sokota engaged in transporting salt to the south, where it was a profitable business (Isenberg and Krapf 1843).

In spite of other forms of money, such as the Maria Theresa dollar, the role of salt as a medium of exchange continued. The associated fluctuations in the value of salt
based on place and season, also persisted. For example, Ferret and Galinier observed that
during the rainy season, a Maria Theresa dollar exchanged for eight bars of salt in the
Atsbi area, but for the rest of the year it was valued at 100 to 120 bars (Ferret and
Galinier 1847II:413). Ruppell noted that salt from the Danakil was among the important
items traded in Gondar. Seasonal fluctuations occurred in the value of amole because of
high river levels, which made it impossible to obtain salt. This was compounded by high
demand for salt in the rainy season because herdsmen around the Lake Tana area
exchanged butter and other supplies for salt in Gondar. Decreases in salt supply at a time
of increases in demand caused its value to rise. In addition, disturbances on the routes to
the source of salt in the Danakil created shortages, causing the price of salt to rise
(Pankhurst 1968). These natural and cultural factors helped maintain a long-standing
attribute of the salt trade, where its value increased as it moved further from its sources
(Johnston [1844]1972II). For instance, in Enderta, which is closer to the source of salt,
30 to 45 bars of salt exchanged for a Maria Theresa dollar, in Lasta 20 bars exchanged for
a Maria Theresa dollar, and in Gondar, the rate was 10 to 20 bars to the Maria Theresa
dollar (Pearce 1923:57).

The shape of amole also seems to have survived from earlier times. Johnston
([1844]1972II) described amole as thin bricks of salt with slight variation in size and
shape. Amole was about 20 cm long, with a breadth across the centre slightly over 5 cm,
and about 3 cm at its extremities (20 x 5 x 3 cm). Its height and thickness was generally
uniform, measuring about 3 cm. Johnston further recorded the changes that occurred in
the nature of amole over time and the methods adopted to preserve it. He noted that
amole became thinner due to use, resulting in differences between the weights of new
specimens and those that had circulated for a few months. *Amole* was buried in the wood ashes of large hearths or suspended in roofs of rooms, and exposed to smoke in attempts to preserve it from the effects of moisture (Johnston [1844]1972II:233).

3.3.4.3 Socio-Economic Benefits of Salt

The benefits of salt and its trade are clear during this period as reflected in the use of salt as money and the involvement of leaders in aspects of the salt trade. It is no surprise that Bruce likened the Danakil salt plains to a mint from which great benefits accrued (Bruce 1813IV: 439). Isenberg and Krapf, who met government officials, including the secretary for the salt trade at the Abyssinian frontier town of Dinomali (Isenberg and Krapf 1843), suggest the direct involvement of leaders in the salt trade. Johnston noted that salt merchants and other traders paid for the convenience of exchanging their goods in the Aliu Amba market. As a result, large quantities of *amole* piled around the feet of the governor of Aliu Amba, who also resolved disputes in the market (Johnston [1844]1972II:231).

Claims that salt and its trade were deeply embedded in the political fabric of Ethiopia are well attested to by Pearce's observations during the period under review. He recorded that the dominance over the salt trade was passed from one generation of leaders to the next (Pearce 1923). Around 1814 Ras Walda Sellasse of Tigrai controlled the salt trade. Twenty-eight years earlier, it was controlled by Waldi Gabriel, son of Ras Michael, who himself controlled the trade forty years before his son Waldi. Ras Walda Sellasse gave the people of Taltal (Danakil) cloths and other presents yearly in exchange for protecting Christian salt caravans composed of 10,000 to 20,000 mules, camels and
donkeys, which departed from Enderta and returned ten days later with salt. Half of the salt these caravans collected belonged to Ras Walda Sellasse (Pearce 1923).

The salt trade was of such benefit to Ras Walda Sellasse that he took measures to ensure that it was uninterrupted. In the event that a salt caravan was attacked and the Gallas or other groups killed a member, the Ras held the Taltals (Afar people) accountable. The Taltals were required to replace each member of the caravan killed or lost (Pearce 1923), and if they refused to comply, an army was sent to their territory to destroy towns and villages, and to plunder their cattle. According to Pearce who witnessed punitive retaliation for an attack on caravans first hand when he joined an enforcing expedition, the Ras’s army took 1,400 camels, 3,200 cattle, and over 10,000 sheep and goats to Enderta after killing a number of Taltals. Ras Walda Sellasse became the strongest Prince in Ethiopia in the early 19th century because of his control of the salt trade. The Ras had 8,500 matchlocks (guns), in addition to a great quantity owned by his subsidiary chiefs. Ras Walda Sellasse also possessed about 2,000 horses and 20,000 shields-men (Pearce 1923:61).

Harris (1844) provides further indication of a direct connection between the salt trade and leadership. During his visit, salt was an important tribute item and was accepted by an officer of state, who was a member of the King’s court (Harris 1844:388). Abir (1966) has noted that the fear of not having salt caused the Kings of Shoa to stockpile salt in specially constructed storage facilities, although the King of Shoa in 1842 claimed that the Afar region, the source of salt, was an old dependency of his ancestors (Abir 1966:8). The need to ensure a regular supply of salt to Shoa was an important reason for the preferential treatment the Danakil people received from the
monarch of Shoa (Harris 1844). The value of salt in Shoa was such that trade caravans from Tajura and Assua to Aliu Amba, sold their foreign imported goods and slaves, and invested the proceeds in amole.

Religious leaders also benefited from the salt trade. According to Pearce (1831), people travelled from Shoa, Coffa, and other parts of Ethiopia to Adua to seek blessing from the Abuna (head of the Ethiopia Church) and confirmation in the Christian faith. A large number of un-baptised males and many other people sought the blessing of the Abuna because of the absence of an Abuna for 15 years due to the conflicts that were a part of this period. However, the Abuna did not provide such services without payments of salt. Pearce estimated that the total value of the salt to the Abuna would have been about 24,330 Maria Theresa dollars in two years (Pearce 1831:200). In addition to its economic benefits, there is an example of the use of salt in a social context in the form of conflict resolution. Plowden (1868) noted that during his stay in Gojam, a man came to complain that a member of his team caused harm to his property. As compensation, the complainer asked for a cooking plate, bars of salt, and a gourd of water (Plowden 1868:230).

3.3.4.4 End of the Zemana Masafint Period

By the end of this period, not only did the power of the great lords increase, but war and conflict also intensified. Although there was an Emperor by the end of this period in Gondar called Gigar, he was at the mercy of provincial leaders. Gigar lived in a ruined royal palace, with an income of just 300 Maria Theresa dollars (Selassie and Dena 1972). Most of the power was concentrated in the hands of three top and sometimes competing lords including Ras Ali of Begemder, Ras Webe of Tigrai, and Negus Sahle
Selassie of Shoa. Eventually, the end of this period came with the consolidation of imperial power in the hands of Ras Kassa Hailu, who became King in 1855 A.D. (Abir 1961, 1968; Pankhurst 1968, 1998; Selassie and Dena 1972).

3.3.5 The Modern Era (1855-1991 A.D.)

The modern Era of Ethiopian history started with Kassa Hailu, crowned Emperor Tewodros II in 1855, to 1991, with the overthrow of the Derg regime (Pankhurst 1968, 1998). In 1869, Britain sent troops to subdue Emperor Tewodros II, but he committed suicide in Maqdala, when he was besieged. His death was followed by a war of succession involving Gobeze of Lasta, Kasa Mercha of Tigrai, and Menelik of Shoa. The ruler of Tigrai, Kasa Mercha, later crowned King Yohannes IV in 1872, defeated Gobeze, who crowned himself in 1871 as Emperor Takla Giorgis. King Yohannes had his capital in Mekelle, but faced challenges from multiple fronts by Egyptians, Italians, Mahadists, and Menelik of Shoa (Pankhurst 1968). He was killed in a battle against Mahadists in 1889, and was succeeded by King Menelik.

Born as Sahle Miriam, Menelik II is considered the founder of the Ethiopian nation, as it exists today, by successfully uniting previously disparate regions and peoples. He moved his capital to Addis Ababa, the present capital of Ethiopia. In October 1889, Italy unilaterally declared Ethiopia a protectorate based on the Treaty of Wechale. The Italians added a clause into the treaty that was not in the original Amharic version of the document. Emperor Menelik denounced it and demanded that the Italian version be changed. Negotiations failed and Menelik renounced the treaty. This led Italy to declare war, and to invade Ethiopia from Eritrea. After defeating the Italians at Amba Alagi and Mekelle, King Menelik again defeated them at the Battle of Adua in 1896.
Another treaty was signed, recognising the independence of Ethiopia (Pankhurst 1968). King Menelik’s Garandson, Iyasu, who was overthrown with the support of the Crown Council in 1916, succeeded him. His daughter, Zawditu, was crowned Empress in 1917 with Tafari Makonnen as regent and heir apparent.

Tafari Makonnen ascended the throne as Haile Sellassie I following the death of Empress Zawditu in 1930. King Haile Sellassie was a reformer and moderniser, who revised the constitution, introduced social welfare programs, and attempted greater unification of Ethiopia’s diverse peoples (Pankhurst 1968). Following political unrest, a coup d’état took place in 1974 replacing the monarchy with a Marxist council called the Derg. The leader of the Derg was Mengistu Haile Mariam who ruled Ethiopia until his overthrow in 1991. Meles Zenawi, current leader of Ethiopia, was a leader of the revolution, and afterwards headed the transitional government of 1991 under difficult circumstances. In April 1993, the Eritrean region of Ethiopia became a sovereign nation (Pankhurst 1968, 1998).

Trade flourished regardless of the instability that characterised parts of this period. Caravan traders moved goods and trade items to and from different parts of Ethiopia. Pankhurst (1968) identified the most important centre of trade in the north as Adua, which linked Gondar to Massawa, even though conflict with Egypt in the 1870s affected Adua’s trade negatively. From Massawa to Adua traders branched off from Digsa, with some going back to Adua and Gondar, while others went to Begemder, and Gondar. Other traders went to Agame, and Enderta (see Figure 7). Several trade routes went from Massawa to the markets of Atsbi in Agame, Antalo, and Awesba in Enderta, Abi Adi in Tembien, and Sokota in Wag (Pankhurst 1968).
Gondar remained the main political centre of Ethiopia at the start of this period, and most of Ethiopia’s important trade route moved both local and imported items through Adua to Massawa, linking Begemder, Gojam, Amhara, and parts of Sudan to Tigrai. Gojam and Amhara supplied animals and animal products, and coffee to Tigrai, and in return obtained salt and imported goods. Details on the salt industry are provided by several visitors to Ethiopia, including W. Munzinger, Consular General for Massawa in the late 1800s; M. Nesbitt in the 1930s; and ending with Gorge Gerster in the 1970s (Munzinger 1869 a, b; Nesbitt 1934; Gerster 1974).

3.3.5.1 Sources and Methods of Salt Production

The vast majority of salt in Ethiopia was obtained from the Danakil Depression for food purposes and to serve as a medium of exchange (Pankhurst 1968; Buxton 1967; Thesiger 1987). However, it is important to note that Lake Assal in the Danakil Depression was not the only source of salt during this period. Salt was also obtained from other sections of the depression including Lakes Afedera (Franchetti 1936; Henze 1977). Munzinger reported that all the salt of Ethiopia came from the Danakil salt basin, and proceeded to identify the specific sections from which different parts of Ethiopia procured salt (Munzinger 1869 b:233). Sapeto (1890) provided further confirmation when he noted that the people of Danakil and Adal, who lived between Assab and Zeila, transported their salt to the markets of Etgju, Angot, and the Uare-Sciallo regions (Sapeto 1890:426). Nesbitt (1934) added that the salt sold at the Erifible market was mined from the deposits in French Somaliland, and was carried in long cylinders of woven palm leaves that measured about 91 cm long and 15 cm wide.
Franchetti’s (1936) description of the Danakil salt plains was consistent with those before and after him. He described the salt plain as the largest section of the depression, reaching 150 m in depth near the shores of Lake Assal (Franchetti 1936). The Lake Assal section of the Danakil Depression remained the principal source of salt for most highland groups. Documented sources show a continuation in major aspects of salt production and trade from earlier times to this period. However, it was during this period that a clear indication of the participation of the Afar people in the salt trade becomes known from multiple sources. In the period under review, the major groups of people involved in the salt trade in the Lake Assal section were Afar and Tigrai natives. Munzinger (1869 b) and Gerster (1974) noted that only Afar natives quarried the salt at the plains. However, Englebert (1970), O’Mahoney (1970), and Henze (1977) noted that both Christian Endertas and Muslim Danakils quarried salt. Nesbitt (1934) saw a group of Enderta people at Lake Assal, and another group shaping salt near Ashale hill. There is evidence suggesting that salt workers lived in structures built from salt slabs near where they extracted the salt in the Assal area (Munzinger 1869 b; Nesbitt 1934; Pankhurst 1968; Englebert 1970; Gerster 1974).

Available information indicates that the nature of salt production had not changed much compared to earlier descriptions. The Italian mission to Ethiopian in 1908 reported that salt was extracted from Tuesdays to Thursdays, and that the salt season lasted from September to April. Salt workers hacked out the shape of a slab, and then used sticks to lever and detach slabs of salt. These large slabs were further chopped into standardized blocks (Pankhurst 1968; O’Mahoney 1970; Englebert 1970; Gerster 1974). Gerster (1974) provided specific information on the tasks performed by various groups as part of
the chain of salt production. He reported that three groups of people were involved in the process in the 1970s, including workers, pickers, and merchants. The pickers were intermediaries between the salt workers and merchants, who solicited clients from chief merchants of caravans.

In the Assal salt plains, salt workers cut 200-300 blocks per day and were paid weekly, according to the Italian mission to Ethiopia in 1908 (Pankhurst 1968). According to O’Mahoney (1970), when he observed the salt trade in 1968, workers were paid 1 Maria Theresa dollar, in addition to a loaf of bread, and a goat skin full of water for a camel load, two mule loads, or three donkey loads of salt (O’Mahoney 1970). Englebert (1970), who visited the salt plains two years after, states that daily pay was 1.5 Maria Theresa dollars, a loaf of bread, and a goat skin full of water (Englebert 1970). The salt blocks were sold at the plains in batches of 60 blocks to caravan merchants (O’Mahoney 1970; Gerster 1974). The Italian mission noted that some workers worked on prearranged contracts while others worked independently (Pankhurst 1968:241). O’Mahoney saw about 600 men working on the salt plains, and Gerster estimated that approximately 5,000 men extracted and transported salt bars to consumers in the highlands per season (O’Mahoney 1970; Gerster 1974).

3.3.5.2 Distribution and Uses of Salt

Lake Assal salt maintained its role as a medium of exchange in 1930, and as a food item to the present. In the 1970s, the transportation of salt was mostly by animal caravan; however, there is also evidence of the use of vehicular and rail transport from secondary distribution points such as Bati and Mekelle (Buxton 1967; O’Mahoney 1970; Henze 1977). According to Munzinger, salt was transported not only by camels, mules,
and donkeys, but also by porters. He provides the most detail on the method by which
the salt was loaded on camels for transportation. In the process, two wood frames in the
shape of triangles were placed on each side of the camel, in a way that allowed one side
of each triangle to be attached to the corresponding side fastened by ropes, which passed
under the belly of the camel. The salt blocks were then hung on the triangular frame by
ropes (Munzinger 1869 b). In addition, mats and skins were used to cover the salt during
transportation (Nesbitt 1934; Buxton 1967; O’Mahoney 1970; Englebert 1970:187;
Gerster 1974).

According to Munzinger, a camel carried 500 pieces of salt, a mule carried 250, a
donkey carried 200, and male porters carried between 60-100 pieces of salt (Munzinger
1869 b). However, Munzinger was not specific about the size of the salt the pack animals
carried. The Italian geographical mission in 1908 later provided some idea about the size
and nature of the salt distributed. Camels carried about 33 bundles of salt containing 297
amole, weighing about 389 kg based on the weight of amole obtained during this study,
one abroita, one gunfir, and a fourth type of piece (unnamed) used to pay tax. On this
mission, oxen and donkeys carried 25 bundles containing 150-200 amole, which would
have weighed 196-262 kg (Pankhurst 1968). By the 1970s, camels and mules carried
only 15 blocks, weighing at least 67 kg in total, and donkeys even less (O’Mahoney

To protect the salt runs, caravans had leaders. These leaders resolved conflict
within their groups, and also collected and paid taxes on behalf of their groups to ensure
access to the salt plains (Munzinger 1869 b; Nesbitt 1934; Buxton 1967; O’Mahoney
1970; Englebert 1970:187; Gerster 1974). In the 1970s, they paid taxes at Berehale
consisting of 3 Maria Theresa dollars per camel load, 1 Maria Theresa dollar per mule load, and less per donkey load (O'Mahoney 1970; Englebert 1970; Gerster 1974). The size of salt caravans varied between groups. The Italian geographical mission noted that the salt caravans were large, where the Muslim (Afar) caravans were about 5,000 animals, while in contrast the Christian (Tigray) caravans had over 15,000 animals. O'Mahoney noted that in the 1970s, there were about 3,000 camels, and 6,000 mules on the Assal salt plains to Mekele salt trail (O'Mahoney 1970). A few years later, Gerster estimated that 20,000 animals travelled the same salt route (Gerster 1974). Major stops from Mekelle to the salt plains described by O'Mahoney (1970) included Berehale, and Saba (Asabolo) (see Figure 7).

Dangers and difficulties associated with the salt trade ranged widely from natural to cultural. To escape the excessive heat, caravans marched across a large part of the salt plains at night. On return trips from the salt plains to Mekelle, attention was devoted to salt blocks due to fear of the salt breaking (O'Mahoney 1970). This was partly because the animals had little food and their fodder was replaced by salt. Tired pack animals collapsed, due to insufficient food, heavy loads of salt, and the difficult ascent from below sea level to an elevation of 9,000 feet (O'Mahoney 1970:152). Most visitors reported that the salt trails were strewn with carcasses of animals (Nesbitt 1934; Buxton 1967; O'Mahoney 1970; Gerster 1974).

In preparation for the difficult part of the journey, at Saba (Asabolo) caravan merchants made brukuta (bread) and filled goatskins with water as reported earlier by Lobo (Nesbitt 1934; O'Mahoney 1970; Englebert 1970; Donald 1984). Caravans made the trip from Mekelle to the salt plains and returned within eight days covering about 117
km, whereas others took twenty days because they had to travel greater distances (O'Mahoney 1970; Henze 1977). While most accounts mention only men, Munzinger and Nesbitt reported that women were part of salt caravans (Munzinger 1869 b; Nesbitt 1934). Generally, salt related activity declined during the rainy season (July-August) due to flash floods and the slippery nature of the salt trail (Gerster 1974).

Conflict and competition over the Danakil salt was not unexpected according to Nesbitt (1934). He asserted that to avoid constant conflict among the different groups that extracted the salt, an agreement was reached which allowed the Afar people to collect the salt for 27 days in a month and the Enderta people the remaining three days. Nesbitt claims to have met a group of Enderta men at Saba (Asabolo), waiting to commence the first of their three-day window to collect salt (Nesbitt 1934:439). The manner in which Munzinger and his associates acted upon noticing salt workers at the salt plains confirm cultural dangers involved in procuring salt. For example, one of Munzinger’s employees, Ali, moved forward to speak to the men harvesting the salt while the rest of his team prepared for a potential fight. Munzinger was later informed in Aba Ala, a territory of Chief Hodeli, that bandits attacked the chief’s caravan, taking 200 camels, and killing 12 men. It was his observation that the salt caravans travelled without much preparation to deal with eminent dangers of attacks and plundering by bandits (Munzinger 1869 b:222). Rohlf also observed some difficulties related to transportation of salt, including custom control stations (Rohlf 1883).

In 1908, the Italian geographical mission to Ethiopia provided further details on the types and uses of salt blocks and amole bars. Salt was fashioned into three sizes including amole; which served as a medium of exchange (25 cm long, 5 cm wide and 5
cm thick or 625 cubic cm); *abroita*, an *amole* cut into two (312.5 cubic cm); and *gunfir*, three times as big as an *amole* (1,875 cubic cm), used only for consumption (Pankhurst 1968:240). Norden (1930) was told that the salt used as a currency was in the form of *amole*, confirming that salt was used as money into the 1930s (Norden 1930). Nesbitt (1934) also provided specific information on the size and use of *amole* when he noted that the salt was cut into rectangular bars measuring 30.5 cm long and 3.8 cm thick (442.45 cubic cm) called *molle* (*amole*), used as currency on the Abyssinian plateau (Nesbitt 1934). Franchetti added that in the 1930s, salt was initially cut into larger slabs of 50 cm long and 10 cm thick (5,000 cubic cm), these were further subdivided into eight *amole* (Franchetti 1936). By the 1970s there is clear information indicating the blocks of salt were mostly fashioned into *amole* in the highland settlement of Mekelle (O’Mahoney 1970; Englebert 1970; Gerster 1974; Henze 1977; Bauer 1977). Wholesalers in Mekelle bought and sawed salt blocks into *amole*, each measuring 30 cm long and 5 cm square (750 cubic cm) (Henze 1977:69). Thus, an *amole* is generally reported as ranging from 25-30 cm long and 3-5 cm thick, and would have weighed about 1.31-2 kg.

The distribution and marketing of salt during the modern era reached vast parts of Ethiopia. According to Munzinger, Abyssinians (highlanders) who had their own pack animals mostly purchased salt sold in Afar markets. He further noted that the Afar people were willing to let Abyssinians rent and use their camels, and mules to carry salt as far as Enderta, if they did not have their own (Munzinger 1869 b). Munzinger identified three main markets in the Afar region: Hadar Kussra in Ala (500 men); Au in Ayaba (700 men); and Efisso in Efisso (700 men). On a weekly basis, he estimated that: 700 pieces of salt were sold at the Hadar Kussra market; 1,500 pieces were sold in the Au
and Efisso markets; and 800 pieces were sold in the Kablagubbi market. Based on the Afar markets he visited, he proposed that 750,000 pieces of salt were sold weekly, and in 40 weeks this amounted 30,000,000 pieces. According to Munzinger, 20 pieces of salt was worth a Maria Theresa dollar, approximately 1.5 million Maria Theresa dollars annually (Munzinger 1869 b: 223).

Theodore Bent reported in 1893 that items sold at the Adua market included salt, which was sold in long thin blocks used as money. Salt bars were bought and used when one did not want to use Maria Theresa dollars, thus offering a more negotiable item (Bent 1896: 122). In 1908, the Italian geographical mission noted that Ethiopians likened the nature of salt caravans to a swarm of locusts with its head at the salt mines in the Danakil and its tail at Mekelle market on the plateau. It estimated that about 11,500,000 bars of salt and 880,000 Maria Theresa dollars worth of salt passed through Mekelle market in the early 20th century (Pankhurst 1968). Mekelle was still an important hub of the salt trade in the 1970s. Henze (1977) noted in the late 1970s that camel caravans crossed the main eastern highway at Quiha on their way to Mekelle, the major transfer point of the salt trade. Caravans using old routes, some of which may have been in use since Aksumite times, carried large quantities of salt further, although Henze did not identify the ancient routes in question. He added that hundreds of camels assembled at the western part of the Mekelle market, at the warehouses that stored salt. Some caravan leaders bargained with buyers, while others contracted buyers in advance (Henze 1977). Like most other observers of the salt trade, Englebert also concluded that from Mekelle the salt was not only sold throughout Ethiopia, but also in nearby countries (Englebert 1970:194).
3.3.5.3 Socio-Economic Benefits of Salt

In spite of the dangers associated with the salt trade, it endured because profits made from collecting and selling salt have always been attractive, giving its participants both economic and social benefits. Soleillet may have had this in mind when he noted that the Danakil salt was the source of wealth for the Ethiopian Empire (Soleillet 1886:96). Munzinger estimated that the salt traders in the markets of the Afar region earned the equivalent of 1.5 million Theresa dollars per annum (Munzinger 1869 b:223).

The connection between leadership and the salt trade was also clear during the modern era in Ethiopia’s history, as reflected in Munzinger’s documentation. Customs houses were established in each Afar salt market, “in favour of the chief of the market,” who shared the gains with his parents (Munzinger 1869 b:223). The Efisso market had an Abyssinian customs house owned by the chief of Wonberta. The three markets to the south were under the control of Wonberta and Enderta, while two others were under the chief of Agame. At all these markets, salt merchants paid tribute, and sometimes merchants paid tributes to two different chiefs. To illustrate this, Munzinger stated that when he arrived at Holdeli’s place, Kassai (Ras of Tigray) asked Holdeli for 500 Maria Theresa dollars. Holdeli is also reported to have raised the tax on salt to 1 Maria Theresa dollar (Munzinger 1869 b:223).

Franchetti noted by the 1930s that the salt from Lake Assal was sold mostly in Mekelle. He stated that Abyssinians travelled by caravans from surrounding provinces to obtain their salt supplies. Franchetti was of the view that the salt mines of Danakil could increase in value if salt was exported overseas. He calculated the domestic consumption of the salt produced in Assal, based on the customs income tax obtained by the chief of Mekelle. Franchetti estimated that the chief’s income was 100,000 Maria Theresa dollars.
per annum. Because the salt tax was proportional to a 10\textsuperscript{th} of the amount of the product, it was possible to calculate the value of the salt as about 1 million Maria Theresa dollars per annum (8 million Italian liras) (Franchetti 1936:242). It was Gerster’s contention that in spite of competition from other types of salt from Massawa and Assab by the 1970s, Assal salt maintained its traditional position in Ethiopia. It was still highly appreciated as it had been in the past. He estimated annually that 70,000 tonnes of salt was transported from Danakil to Tigrai by 8,000 camels, 10,000 mules, and 5,000 donkeys (23,000 pack animals) annually (Gerster 1974:198).

Assal salt was distributed beyond northern Ethiopia as reflected in Rohlfs’s (1883) comments when he visited Ethiopia in 1880-1881. He noted that the salt trade was more significant in Sokota, southwest of the Danakil Depression compared to other places in Abyssinia (Ethiopia). According to him, salt was transported to the Sokota market by pack animals that were weighed down by layers of amole. Powell-Cotton (1902) provided further confirmation, when he noted that in the 1900s, the money-changers quarter in the Addis Ababa market was striking because instead of piles of copper coins and cowry shell (currency from India); there were stacks of amole. He goes on to note that the punishment for thieves caught stealing salt in the market reflected the value attached to salt. Powell-Cotton stated that:

...pushing our way through the crowd, we beheld a thief, caught red-handed, taken before the Negadi Ras [chief of the Addis Ababa market], who sentenced him to a dozen lashes on the bare back and to be thrashed through the market. The culprit, with his hands tied in front of him, holding the salt he had stolen, was held by a rope around his neck, while his jailer flicked him with a long lash, the thief shouting out meanwhile, ‘See, I have stolen this salt and am being punished for it’. After he had made the circuit of the entire market-place, the salt was taken from him, and he was set at liberty” (Powell-Cotton 1902:117).
Salt also played a role as part of ration for military personnel. Michel (1900) noted that under King Menelik, the *Shum* (a regional chief) mobilized the men living in his area of jurisdiction to wage war. Each month, the *Shum* fed soldiers in time of peace, giving them and their families enough seeds, salt, and peppers, for their subsistence (Michel 1900). Bauer (1977) hinted at the social and economic role of the salt trade at the local level with his analysis of the households of Tigrai. According to him, only the wealthiest households had their own camels to collect salt (Bauer 1977:87). He noted that an activity that contributed to the household income was the money earned by males in the transportation of salt, which complemented agriculture. The salt trade was so important that most caravan merchants preferred to hire people to help them with farm work so that they could use their own animals to collect salt for the last two trips, before the end of the salt season, rather than leave the animals idle (Bauer 1977).

A social benefit of salt is reflected in its association with ritual behaviour. Gleichen (1897) noted a salt licking ritual similar to one described by Lobo during his visit in 1625 (Donald 1984). He observed the ritual use of salt in Addis Ababa as follows:

"It is a token of affection...when friends meet to give each other a lick of their respective *amole*..., in this way the material value of the bar is...decreased" (Gleichen 1897:169).

Powell-Cotton (1902) also observed the ritual use of salt in conflict resolution at a settlement called Dungoler. A man called Argaferri Tobedgee attacked two of Powell-Cotton's employees. The court, made up of older men, found Tobedgee guilty, and sanctioned him to provide his victims with gifts, and money for food, until they recovered. After hearing the sentence, Tobedgee admitted to wrongdoing, apologized, and offered to perform the ceremony of reconciliation (Powell-Cotton 1902). When performing the ritual, all present stood up and formed a circle around the aggressor, with
an elder on each side. The injured men were then led forward, and an unused piece of *amole* was provided for the reconciliation process. Tobedgee held one end of the salt, while one of the wounded men held the other end, and then, with a smart blow using a stick, the elder broke the salt in two. The aggressor then took both pieces, threw them on the ground, and exclaimed, “If I ever strike this man again, may God break me and cast me to the ground, as I do this salt” (Powell-Cotton 1902:242). Tobedgee then picked up one of the pieces of salt and bit it off, chewed it, and spit it at the injured man and said, “may this quickly heal your wound.” This ceremony was repeated with the second injured man, after which the aggressor embraced both wounded men in turn, took their right hand and kissed them with the words: “as we were friends before let us be friends again…”(Powell-Cotton 1902). The victims were given 12 bars of salt as compensation as part of the ritual. Powell-Cotton states that the reconciliation ritual was executed with the greatest solemnity and the oath was considered sacred (Powell-Cotton 1902:242).

The Danakil salt even attracted the interest of external powers that included Egypt as attested by Munzinger (1869 a, b). The Egyptians viewed the salt from the Danakil to be of great value. Munzinger knew this because he was received at Arafali by the chief of the Egyptian post (Munzinger 1869 b:216). To quote Munzinger:

“The Egyptians have their eye also on the Salt Plain; but I think that, not withstanding its great importance, they would find the sacrifice of men and money too great, and perhaps the prize, when taken, would have much of the appearance of an invasion of Abyssinia, that Europe generally would disapprove of it.”

### 3.3.5.4 The Modern Period and Thereafter

The review of the salt trade during the modern era of Ethiopia’s history shows that there was scant documentation of the salt trade from 1977 (Bauer 1977, Henze 1977) to 2004, when the fieldwork for this dissertation was initiated. Conflicts in Ethiopia and
the associated rise of ethnic freedom fighters in most regions, that included the Tigrai and Afar regions, not only affected the salt trade but also made research impossible. While the people of Afar formed the Afar Liberation Front (ALF) in 1975 to fight for Afar autonomy, their neighbours, the people of Tigrai, formed the Tigrai Peoples Liberation Front (TPLF) to oppose the Derg government of Ethiopia.

The focus of the TPLF was the defeat of the Derg; however, to complicate matters, the ALF were fighting on the side of the Derg, to gain Afar autonomy from Tigrai. These conflicts directly affected the salt trade because most highland caravans were Tigrayan. They were suspected to be supporters of the TPLF as they were accused of contributing funds, and using their pack animals to move weapons for the TPLF. The intensity of the civil war caused most highland caravans to stop participating in the salt trade. Full-scale salt trade by highland caravan merchants resumed after the overthrow of the Derg government in 1991, and the establishment of the Afar region. As part of the political arrangements to restore peace, the new government let the Afar people claim ownership of the Danakil salt plains.

3.4 Chapter Summary

We have no dates on when salt and its trade first became important in Ethiopia. However, it could be supposed that salt would have become important in the Ethiopian highlands with the adoption of cereal farming and stock raising in the 1st millennium B.C. (Ehret 1979, 2002; Munro-Hay 1991; Bard 1997; Fattovich et al. 2000; Schmidt and Curtis 2001; Lyons and D’Andrea 2003). Salt production and trade would have either started around that time or intensified if it already existed. As Abir (1966) stated, “salt,
having been essential for Ethiopia’s economy since the Aksumite period and probably before it, retained its importance in the 19th century” (Abir 1966:1).

The historical review of salt production and trade reveals that salt and its trade featured prominently in the socio-economic and political systems of highland Ethiopia at least by 525 A.D. Since then, there is ample evidence from historical sources to show that the Assal salt trade remained important to many Ethiopians, and had a direct benefit to various leaders, national and regional, over the centuries. It could be argued that the socio-economic benefits of the salt trade may have helped the salt industry persist (Pankhurst 1968:240). The salt trade survived through recent dramatic political events such as the Italian occupation of the early 1930s, and the oppressive Marxist regime of the Derg from 1974 to 1991. The separation of Eritrea from Ethiopia in 1993 and the designation of Afar as an autonomous region of Ethiopia also did not cause major changes in the salt industry of northern Ethiopia.

It is clear from the historical data that there have been significant continuities over time in salt production and trade. The manner of procuring, transporting, and selling the salt has not changed significantly. Similarly, the role of salt from a socio-economic perspective has remained important. In spite of the evidence of continuities, there is indication of some discontinuity in some aspects of the salt trade. Some of these changes included: the introduction of other means of transporting salt; changes in the groups that worked at the salt plains and tasks performed; the methods of rewards; items used in payment for services to the salt workers; and, the control of the salt plains and trade routes. The consequences of some changes created an improvement in the relationships
between the lowland (Afar) people and the highland (Tigrai) salt caravans as will become clear in the ethnographic data collected as part of this study.
CHAPTER 4 : METHODOLOGY AND STUDY SITES

4.1 Introduction

Primary and secondary data were employed to achieve the objectives of this study. Primary data was collected during fieldwork in Ethiopia. Secondary data was obtained from Ethiopian government commissioned reports on the salt industry, literature on the ethnohistory, and ethnography of the salt trade in Ethiopia and other parts of the world. Ethnoarchaeological fieldwork on the present socio-economic role of the salt trade was conducted from December 2004 to March 2005. Field data collecting techniques included direct observations, and interviews. In addition, photographs were taken, compounds were mapped, rooms were measured and sketched, and salt blocks and bars were measured and weighed.

4.2 Methodology

Reports on salt production and trade in Ethiopia from about the 6th century A.D. to the late 1970s served as important reference points for this study. However, they were not intended to serve archaeology, and did not clearly identify the types and origin of tools used in the salt industry. Thus, this study was designed to understand how items employed in the salt industry are obtained, used, and discarded. The objectives, methods, and type of data collected for this study are presented in Table 2.
Table 2. Objectives, Methods, And Types Of Data Collected

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<th>OBJECTIVES</th>
<th>METHOD AND TYPE OF DATA</th>
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| Technological and socio-economic aspects of salt production, trade, and consumption. | Observation and informant interviews at production site, and caravan stops in Afar region.  
Data on salt production:  
- Ownership of source;  
- Transactions at production sites;  
- Nature of labour and labour arrangements at salt works;  
- Methods and techniques of production;  
- Production of tools and tools used;  
- Storage and processing for transport;  
- Socio-economic status and ethnicity of workers and merchants; and;  
- Rituals and symbolism associated with salt production.  
Observations and informant interviews at stops on salt route, at markets and in households in the Afar and Tigrai regions.  
Data on salt distribution networks and trade:  
- Methods of packaging and transporting;  
- Animals used and ownership of animals;  
- Nature of labour and labour arrangement;  
- Routes, trade networks, and trade posts;  
- Exchange, gift and taxes;  
- Units of salt for sale, and mode of sale;  
- Methods of storage and preservation;  
- Wealth, and household size of salt traders;  
- Socio-economic status of traders and ethnicity of traders; and;  
- Rituals and symbolism associated with salt trade.  
Observations and informant interviews in Enderta woreda.  
Data on salt consumption at the household level:  
- Human dietary consumption of salt;  
- Salt fed to animals;  
- Industrial uses of salt;  
- Ritual and medical uses of salt;  
- Methods of storage and preservation;  
Cultural markers and archaeological correlates of the salt industry | Observations, informant interviews, and oral traditions in the Afar and Tigrai regions, and documented sources.  
Data on tools used and features resulting from all aspects of salt production, distribution/trade, and consumption:  
- Tools used in production and processing;  
- Features resulting from production and processing;  
- Equipment used in transportation and storage; and;  
- Features resulting from transportation and storage.  
How trade in salt may have contributed to the development of complex societies | Observations, informant interviews, oral traditions, ethnohistory, history and literature research.  
Data on the Socio-economic and political role of salt trade:  
- Status, and wealth of people involved in the salt industry;  
- Status, and wealth of those not involved in the salt industry;  
- Relationship between salt trade and other economic activities;  
- Connection between various economic activities, wealth and status; and;  
- Relationship between various economic activities and political power. |
4.2.1 Archival and Documentary Sources

Documentary and secondary sources from the Ethiopian Ministry of Mines library in Addis Ababa provided valuable information on sources of salt in Ethiopia. With the help of their staff, I was able to access various government commissioned reports and studies on the major minerals of Ethiopia. Some of these documents provided details on the sources, types, and estimated quantities of salt, as well as, methods of production. Recent demographic information for Ethiopia was obtained from the 1994 Population and Housing Census of Ethiopia, and for the Afar, and Tigrai regions. The Statistical Abstract of Ethiopia, 2004, was used to supplement this information. Other documentary sources included books and journal articles. These books and journals were the basis for information on Ethiopia, its history, and the salt trade from 525 A.D. up to the late 1970s. The documented sources were valuable in my preparation for the fieldwork, and served as reference points for identifying aspects of the salt trade that have changed and those that have continued over time.

Primary data was required to verify the secondary information on the salt trade in general, and the salt trade in northern Ethiopia. As stated before, even though salt is an important commodity in human history, it is difficult to identify in the archaeological record, and its trade can be difficult to disentangle from trade in other commodities. In addition, fieldwork to collect primary data in northern Ethiopia was inspired by earlier studies (Morris 1928; Nenquin 1961; Andrews 1983; Connah 1996; McKillop 2002). These studies indicated that the recognition of salt production and trade could be based on equipment used in salt extraction, processing, storage, and transportation.
4.2.2 Sampling Strategy

Eight study sites were selected to enable an understanding of the operational chain of the salt industry because of their involvement in the salt industry today and in the past. Four sites in the Afar region, including Berehale, Asabolo, Hami-dela and the salt plains (Lake Assal), and four in the Tigrai region including Adi Ainawalid, Adi Baekel, Chin Feras and Mekelle town were visited (Figure 8).

Figure 8. Afar and Tigrai Study Sites
The first week of the fieldwork focused on logistical preparations. It was necessary to obtain permits and permission from the Authority for Research and Conservation of Cultural Heritages (ARCCH) in Addis Ababa, Tigrai Tourism Commission, and the Enderta woreda office in Mekelle. In addition, an initial visit was made to the Enderta village of Adi Ainawalid, where Dr. D’Andrea introduced me to elders of the settlement. Dr. Melaku Tefera of Mekelle University, a collaborator with Dr. D’Andrea, helped arrange transportation and accompanied us to Aba Ala, the capital of Afar Zone 2. At Aba Ala, we obtained permission and permits for fieldwork in the Berehale and Dalol woreda.

An initial trip was also made by Dr. D’Andrea, Dr. Melaku, and the author of this study to Berehale to present the letters of permission from Aba Ala to the local leaders. During this visit, arrangements were made for the services of an Afar interpreter and guides for a trek to the salt plains with the caravan merchants. Arrangements for accommodation were made with Mr. Mohammed Salih, a Mekelle University student originally from Berehale. He and his wife agreed to host me in their home in Berehale. This initial trip and conversations with the leaders of Berehale, revealed the need to broaden the scope of my fieldwork, to include groups involved in the salt industry that were not mentioned in secondary sources, such as the fukure, and the middle merchants.

4.2.3 Field Data Collection

Methods used in data collection in the field included: observations; interviewing; photographing; drawing tool kits; mapping compounds; measuring and sketching rooms; and weighing and measuring salt blocks. Both formal and informal interviews were conducted on all aspects of the salt industry. Formal interviews were unstructured but
were guided by a list of questions (Appendix A). Two interpreters helped conduct the interviews in the Afar study sites. Mr. Yahaya Amadu translated from Afarinya to Amharinya, and Mr. Michaele Atsbeha interpreted from Amharinya to English. Questions were designed to collect detailed information on the socio-economic, symbolic, and ideological aspects of the salt trade. In addition, information was collected on how the salt trade affected agriculture in terms of investments of resources into farming and farm labour.

Formal interviews with most active caravan merchants in Berehale were conducted at the caravan camp while they were taking breaks. Consultations with Afar elders, jukure, salt extractors, salt shapers, and their assistants, were held in their homes, while consultation with a middle merchant was held in his storage room in Berehale. On the other hand, the interview with the tax collector was initiated in Berehale, and was later completed at his temporary dwelling in Hami-dela. In the Tigrai region, Michaele Atsbeha also facilitated data collection. Interviews with present and former caravan merchants, and those who had never participated in the salt trade in the settlements of Adi Ainawalid, Adi Baekel, and Chin Feras, were conducted mostly in their compounds. In Mekelle, data from major salt merchants and workers was collected in their shops. Interviews with minor merchants were conducted at the Mekelle salt market, where they buy salt from caravan merchants. It was also at this market place that data was collected from salt brokers. Small traders were interviewed in their places of work in the Mekelle markets.

Informal interviews were opportunistic, and were held in social settings such as at weddings, during funerals, at local meetings, at local drinking houses, and eating-places.
Such informal discussions served as a way to verify information provided in formal settings and provided leads to other valuable informants as well as tips on further questions. The main difference between formal and informal interviews was that the latter were spontaneous and unscripted. Generally, interviews were supplemented by direct observations of salt related activities at the various study sites.

The selection of informants varied from one site to the next. Before the start of the research, Dr. D’Andrea already identified some informants in Adi Ainawalid in the Tigrai region. However, the actual data collection began in Berehale in the Afar region. It is important to point out that the groups of informants identified from the literature on the salt industry were caravan merchants, salt merchants, tax collectors, salt workers, and small traders of salt. During my field research more groups surfaced that were involved in the salt trade that included fukure, salt brokers, and workers at the shops of salt merchants. These revelations necessitated the development of additional questions to cover the groups identified during the fieldwork.

Mr. Yahaya Amadu helped arrange appointments with the Afar informants in Berehale that included; salt extractors; salt shapers and their assistants; fukure; tax collectors; and the Afar elders. I also directly approached highland caravans who had stopped to take breaks on their way to or from the salt plains at Berehale to conduct formal interviews. In some cases, potential informants refused to talk to me and their wishes were respected. On many occasions, Michaele Atsbeha and I helped caravan merchants off-load their animals, and joined them in drinking tea. Over time, I made friends with some caravan merchants who then introduced me to their friends for more interviews.
Identifying informants was much easier in the Enderta villages of Adi Ainawalid, Adi Baekel, and Chin Feras. The local leaders of these settlements offered support and assistance because of previous Simon Fraser University ethnoarchaeological projects completed there (D’Andrea et. al. 1997; 1999; D’Andrea and Mitiku 2002; Butler and D’Andrea 2000; Lyons and D’Andrea 2003; Lyons 2007). Finding caravan merchants, past and present, was not difficult because they were well known by the local leaders. Appointments were made for interviews with the help of the local leaders, and interviews were conducted at home or at local events such as meetings. In Mekelle initial contact and friendship with a major salt merchant, facilitated by Michaele Atsbeha, laid the basis for locating the rest of the salt merchants. This group is small and its members know each other extremely well. Arrangements were made and interviews were conducted at their shops. Major salt merchants were asked permission to interview their workers and to measure their shops. Workers in the merchant shops readily gave information because their employers had agreed that they could do so. The situation was the same with the minor salt merchants, but most were interviewed at the Mekelle salt market. Salt brokers, due to their mobility, were interviewed by appointment at the salt market. Contact with salt merchants helped locate and identify salt brokers because they mostly work for, and with, the merchants. Small traders were located by walking around in the two main markets in Mekelle where they sold their salt. They were interviewed after initial explanations of an interest in their trade.

4.2.4 Photographs, Mapping, Measuring, and Weighing

Photographic documentation of activities and material correlates of the salt industry was made at the salt plains, on the salt trail, at caravan stops, at homes of fukure
and caravan merchants, at salt merchant shops, and at the salt market. Two Nikon digital cameras, Coolpix 990 and 400 were used to take over 1,200 images of salt related activities, features, and tools. At Adi Baekel ten compounds of informants connected to the salt trade and those who were not, were mapped using a compass and a 50 m measuring tape for comparative analyses. In addition, living rooms in compounds visited in Adi Ainawalid, Adi Baekel, and Chin Feras were measured using a Sonin Multi-Measure Combo PRO, an electronic distance-measuring tool, and a measuring tape. Salt blocks and bars were weighed with a spring scale, and measured with a measuring tape.

4.3 Salt Trade Participants in Afar and Tigrai Regions

Caravan merchants are central to the salt trade, linking the three major sections of its operation: the source area, distribution centre, and home area. The source area is the area from which the salt is collected, and includes the Afar region. The distribution centre is the area where the caravan merchants sell their salt, including Mekelle, and the home area is the area where the caravan merchants originate. Seven main groups were identified as direct participants in the operational chain of the salt industry in the Afar and Tigrai regions. These groups have been designated as: caravan merchants; fukure; salt workers at the salt plains; including, extractors, shapers and their assistants; tax collectors; salt merchants; including, minor, middle and major; workers in the shops of salt merchants; including cutters, shapers and binder; and others, including, salt brokers and small traders (Table 3).
Table 3. Participants In Salt Industry Identified In Afar And Tigray Regions

<table>
<thead>
<tr>
<th>Category</th>
<th>Berehale</th>
<th>Asabolo</th>
<th>Hami-dela</th>
<th>Mekelle</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Caravan Merchants:</td>
<td></td>
<td></td>
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<td></td>
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<td>- Afar Caravan Merchants</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>- Tigray Caravan Merchants</td>
<td>27</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2) Fukure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>3) Salt Workers at Salt plains:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Salt Extractors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Salt Shapers</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>- Salt Shapers Assistants</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4) Tax Collectors</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td>1</td>
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<td>5) Salt Merchants:</td>
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<tr>
<td>- Minor Merchants</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Major Merchants</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6) Salt Workers in Amole Processing Shops:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Salt cutters</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Salt Shapers</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Salt Binders</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7) Other Participants in the Salt Industry:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Salt Brokers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>- Small Traders</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>44</td>
<td>1</td>
<td>1</td>
<td>26</td>
<td>72</td>
</tr>
</tbody>
</table>
Caravan merchants are men who travel to the salt plains on foot, with their pack animals made up of camels, mules, and donkeys, to collect salt for sale. *Fukure* are Afar women who have client relations with highland caravan merchants. They offer goatskins (*sar*) to the caravan merchants, store food for them and their animals, in exchange for a salt payment called *merde sar*. Workers at the salt plains include salt extractors, and salt block shapers. These workers, usually men, are classified into three groups based on the specific tasks they perform, extractors (Afarinya-*fokolo*/Tigrayan-*fanawe*), shapers (*hadalil/sarawe*), and shapers’ assistants (Afar-*kodabe*). The tax collectors are also male, and collect taxes from caravan merchants for the Afar regional government.

Others groups involved in the salt industry include salt merchants, mostly men, classified into middle, minor, and major salt merchants based on a number of factors. These factors include, where the merchants are located, whether they work for themselves, and whether they process the salt they buy before selling it. Major salt merchants buy salt from caravan merchants and hire workers to process it into *amole* in their shops. They are based at large settlements such as Mekelle. Minor salt merchants are also based in Mekelle; however, they do not buy a lot of salt, and do not hire workers to process the salt. Middle merchants are merchants stationed in settlements between the Assai salt plains and Mekelle, including Berehale. They buy salt for major salt merchants, acting as their agents or buy and sell salt blocks independently for a profit. Specialists in the salt industry also include the workers in the shops of major merchants. They are males and their role is to cut, shape, and bind *amole* bars for distribution to other parts of Ethiopia. Based on their tasks, they have been identified in this study as cutters, shapers, and binders.
The last group, listed under ‘other participants’ in Table 3, are salt brokers and small traders. Salt brokers are males who arrange trades between caravan merchants and salt merchants for a fee on one side and a reward on the other. Small traders of salt are both male and female. They buy and sell blocks or cut the blocks into smaller pieces of salt for sale in Mekelle. While the brokers are based at the salt market in Mekelle, the small traders are scattered in all the markets in Mekelle.

4.4 Afar Study Sites

Data was collected from December 11 to December 31st, 2004 in the Afar region. All sources of salt within the Danakil Depression are located within Zone 2 of the Afar region, which includes Koneba, Aba Ala, Berehale, Dalol, and Afedera. The population of Zone 2 is 218,721. Berehale and Dalol woreda, where data was collected in the Afar region, have populations of 33,322 and 47,033, respectively. The inhabitants of Berehale and Dalol actively participate in salt production and trade, as did their ancestors. Observations were made at four sites in the Afar region including Berehale, Asabolo (saba), Hami-dela (gara), and the Salt Plains (reged) (see Figure 8). However, no formal interviews were conducted at the Salt Plains.

Interviews were conducted with 48 individuals, including four females. Informants included 29 caravan merchants, five salt extractors, four salt shapers, two salt shapers’ assistants, two elders, four fukure, one middle salt merchant, and one tax officer as shown in Table 4. An aspect of the fieldwork involved walking with highland caravan merchants from Berehale (60 km from Mekelle) to the salt plains in the Danakil Depression, 57 km (234 km round from Mekelle). The two main routes used by highland caravan merchants are the Mekelle-Berehale route, and the Koneba-Asabolo route (see
Figure 8). The majority of Tigrai caravan merchants reported using the Mekelle-Berehale route, while Afar caravan merchants as well as some from Tigrai use the Koneba-Asabolo route. The two routes merge at Asabolo, the last source of water before the salt plains of Assal.

<table>
<thead>
<tr>
<th>Informants Interviewed In Afar Region By Site And Participation</th>
<th>Berehale</th>
<th>Asabolo</th>
<th>Hami-dela</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caravan Merchants</td>
<td>28</td>
<td>1</td>
<td></td>
<td>29</td>
</tr>
<tr>
<td>Fukure</td>
<td>4</td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Shapers</td>
<td>4</td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Shapers Assistants</td>
<td>2</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Extractors</td>
<td>5</td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Elders</td>
<td>2</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Tax Collectors</td>
<td></td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Middle Merchants</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Totals</td>
<td>46</td>
<td>1</td>
<td>1</td>
<td>48</td>
</tr>
</tbody>
</table>

4.4.1 Berehale

Berehale is located about 60 km northeast of Mekelle (see Figure 8). It has a population of 3,016, living in 473 households, according to the 1994 population and household census of Ethiopia. At this site interviews were conducted with 28 caravan merchants, five salt extractors, four salt shapers, two shaper assistants, two elders, four fukure, and one middle salt merchant (Table 4). The caravan camp area in Berehale is in a riverbed (Figure 9). Berehale is home to a military base, and remains an important administrative town (O’Mahoney 1970; Gerster 1974). It has a school, a clinic, and
administrative offices. The homes in the centre of Berehale are mostly built of stone, cement blocks, and roofed with iron sheets. However, as one moves out of the centre, the homes are built of wood and straw in the traditional Afar style.

Figure 9. Caravan camp, Berehale

Berehale’s inhabitants are mostly pastoralists, raising camels, sheep, and goats. Other inhabitants work for the government in different capacities, while some sell goods, and other items at its weekly market. An important economic activity for Berehale inhabitants is their participation in the salt trade. Consequently, it is home to salt extractors, shapers and their assistants, fukure, and traders. Highland caravan merchants take breaks in Berehale, feed their animals, and rent goatskins to collect water at Asabolo. According to informants, Berehale and Asabolo had tax posts in the past. The move of the tax post to Hami-dela, some informants claim, was to resolve the issue of the two tax posts, and to ensure that caravan merchants did not evade paying taxes.

4.4.2 Asabolo (Saba)

Located 31.5 km northeast of Berehale, and 17.5 km southwest of Hami-dela, Asabolo is another stop on the salt trail (see Figure 8). At this site, caravan merchants
spend a night on their way to, and from, the salt plains. Also known as Saba, it has a population of about 3,546, and 470 households. One caravan merchant was interviewed at Asabolo. In addition, the making of brukuta (bread) by caravan merchants was observed and documented. Caravan merchants make brukuta in the early morning, and fill their goatskins with water before embarking on the next leg of the trip. These activities were observed and reported by earlier visitors including Lobo in the 17th century, and O’Mahoney in the 1970s (Donald 1984; O’Mahoney 1970). Informal interviews were conducted to clarify claims made by other informants at Berehale, and during the trek to the salt plains. Unlike Berehale, the caravan stop at this village is not in the middle of the settlement (Figure 10). Like Berehale, the caravan camp is also in a riverbed, with a few traditional Afar homes nearby, and to the right of the route from Berehale. While most caravan merchants spend a night at this stop, they do not have fukure here.

Figure 10. Caravan camp, Asabolo
4.4.3 Hami-Dela (*Gara*)

Hami-dela is located 49 km northeast of Berehale, and 8 km from the salt plains (see Figure 8). It is the last settlement before the salt plains, and has a military base.

This settlement (Figure 11) was not mentioned in the 1994 population census of Ethiopia, and there were no official records of its estimated population. However, it is more concentrated, compared to Asabolo. The homes of Hami-dela are mostly traditional, with a few rectangular wood and thatch buildings. The absence of this site in official records seems to support the assertions of informants that Hami-dela is a new settlement. This is further supported by earlier reports, which noted that salt workers lived at the salt plains, in structures built with slabs of salt (Munzinger 1869). These reports indicate that in the past Asabolo was the closest settlement west of the salt plains (O’Mahoney 1970).

![Figure 11. Afar home at Hami-dela](image)

Hami-dela is now the tax post, and is the busiest of the Afar sites, with all activities centred on the salt trade. The tax post is located at a higher elevation on a riverbank on the outskirts of the settlement towards the salt plains. The post is near the caravan camp situated in a riverbed, where the river system joins the salt plains at 110 m.
below sea level. It is manned by tax officers and animal counters. Hami-dela is a temporary home to salt workers, tax collectors, traders, and prostitutes. The groups involved in the salt trade at this site are salt extractors, shapers and their assistants, tax collectors, and caravan merchants, who camp overnight in preparation to pay taxes the next morning. An interview was conducted with one tax officer (Table 4). Informal interviews with salt workers, tax collectors, and women, were also conducted, and activities related to the salt trade were observed.

4.3.4 Salt Plains (Reged)

The salt plains (Figure 12) are located about 8 km from Hami-dela, 57 km from Berehale, and 117 km from Mekelle (see Figure 8). The plains are now under the control of the Afar Regional Authority. The Afar people consider the salt plains to be the equivalent of farming fields from an economic perspective. The plains are made up of a thick layer of salt (Munzinger 1869 b), and lie at 110 m or deeper, below sea level. There is a film of water of about, 2.5 to 5 cm, in some un-harvested sections of the salt bed.

Figure 12. Salt plains of Lake Assal, Danakil Depression
Salt workers now live in Hami-dela, and there was no evidence of dwellings built of salt, and covered by skins as reported by earlier visitors (Nesbitt 1934; Englebert 1970; Gerster 1974). Because the plains are hot, the peak of work is from about 8 am to 12 noon. As noted before, there is no potable water, hence, the need to transport water in goatskins from Asabolo to the plains by caravan merchants. Workers at the salt plains are from the Afar, Tigrai, and Amhara regions. At least 3,000 animals and about 2,000 people were observed extracting, shaping, and loading salt onto animals.

Both the Afar and Tigrai people have stories about whom, and how the salt plains were discovered. However, the Afar people have no story related to the creation of the salt plains. This may confirm Tigrai traditional claims and accounts suggesting that the plains were part of Tigrai territory in the past. Historians point out that the Afar people expanded into the Afar region around the 9th century A.D. (Selassie and Dena 1969:76), providing further credibility to this claim. Even so, the Afar people claim that an Afar man who found his lost camel licking salt there discovered the salt plain. The Afar people have a dreadful view of the salt plains. They believe it is inhabited by a powerful force, capable of causing harm to people, including causing them 'to go crazy', 'taking them', and killing them. The force is believed to manifest itself in different forms, including as a shiny bright light, and has the ability to also impregnate women. The fear of this evil was one reason given for the absence of women at the salt plains. It was also the reason justifying prayers, and sacrifices before and after venturing into the salt plains.

Tigrayans hold similar views about the salt plains. They claim that an Enderta man who found his lost camel licking there discovered the plain. However, unlike the Afar people, the people of Tigrai recounted a detailed story on how the salt plains
originated. According to the story, the salt plains used to be a city, inhabited by their ancestors. The city dwellers engaged in activities that angered God, including homosexuality. God warned them through Lot, but they did not pay heed. In his anger, God destroyed the city, and instructed Lot to move his family to highland Ethiopia because he was an obedient servant. During the destruction, as told in the biblical story of Sodom and Gomorrah, Lot’s family was not to look back on the way out. However, his wife did and was turned into a salt mountain, called Ashale hill. Lot and his two daughters moved to the Ethiopian highlands, where they eventually populated the highlands through incest. Several Orthodox priests repeated this story.

4.4 Tigrai Study Sites

Data was collected in the Tigrai region from January 5th to March 14th, 2005. Information was collected from three villages in the Enderta woreda, including Adi Ainawalid, Adi Bækel, Chin Feras, and the town of Mekelle (see Figure 8). Enderta woreda has the oldest tradition of salt collecting and trading according to historical accounts (Munzinger 1869 b; Nesbitt 1934; Arrowsmith-Brown 1991:213) and informants. Both Enderta and Mekelle are in Debubawi administrative zone, which has a population of 1,205,072, according to the 1994 population and housing census of Ethiopia. Informants indicated that Mekelle was part of Enderta. This may explain why in the literature constant references are made to Enderta and its inhabitants collecting and selling salt in the highlands without specific mention of Mekelle (Wylde 1901). In all 117 people were interviewed in Tigrai (Table 5). In terms of the groups interviewed: 46 were present and former salt caravan merchants or connected to them; 45 had never participated in the salt trade; 14 were major salt merchants; three were minor salt
merchants; three were small traders; three were salt brokers; and three were workers (shaper, cutter, and binder) in the salt processing shops.

| Table 5. Informants Interviewed In Tigrai Region By Site And Participation |
|-----------------------------------------------|--------|--------|--------|---------|-------|
| Caravan Merchants                            | 25     | 16     | 5      | Mekelle | 46    |
| Non-Caravan Merchants                        | 21     | 19     | 5      |         | 45    |
| Major Salt Merchants                         |        |        |        | 14      | 14    |
| Minor Salt Merchants                         |        |        |        | 3       | 3     |
| Salt Shapers                                 |        |        |        | 1       | 1     |
| Salt Cutters                                 |        |        |        | 1       | 1     |
| Salt Binders                                 |        |        |        | 1       | 1     |
| Salt Brokers                                 |        |        |        | 3       | 3     |
| Small Traders                                |        |        |        | 3       | 3     |
| Totals                                       | 46     | 35     | 10     | 26      | 117   |

### 4.4.1 Mekelle

Located 117 km from the salt plains (see Figure 8), Mekelle has 96,938 people according to the 1994 census, making it the largest city in northern Ethiopia (Figure 13). Mekelle, the capital of Tigrai region, is still the hub of the traditional salt trade in Tigrai (Wylde 1901; Buxton 1967; O’Mahoney 1970). At Mekelle, data on salt processing, distribution, and trade were collected, by way of interviews and observations. In all, 26 individuals were interviewed including: 14 major salt merchants; three minor salt merchants; three workers in salt processing shops; three salt brokers; and three small
traders (see Table 5). The activities of these groups of people involved in the salt trade were observed and documented.
Adi Ainawalid is located about 20 km northwest of Mekelle (see Figure 8), and is made up of about 180 households (D’ Andrea et. al. 1999) (Figure 14). It is one of the four villages forming the Mahbre Genet tabia (section). The inhabitants of Adi Ainawalid, like the inhabitants of the neighbouring settlements of Adi Baekel and Chin Feras, engage in farming, salt trading, stone quarrying, masonry, construction, and military service. They raise cattle, the most valued animal, and some sheep, and goats. Some also have donkeys, mules, and camels.
The people of Adi Ainawalid refer to themselves as farmers. Forty-five compounds were visited of which 25 belonged to caravan merchants, past and present (Table 6). In all 46 interviews were conducted. Only two caravan merchants from this settlement were active during the study. The other 20 compounds belonged to people who never participated in the salt industry.

Table 6. Compounds Visited In Enderta By Participation And Non-Participation In The Salt Trade

<table>
<thead>
<tr>
<th></th>
<th>Adi Ainawalid</th>
<th>Adi Baekel</th>
<th>Chin Feras</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caravan Merchants</td>
<td>25</td>
<td>16</td>
<td>1</td>
<td>42</td>
</tr>
<tr>
<td>Non-Caravan Merchants</td>
<td>20</td>
<td>19</td>
<td>5</td>
<td>44</td>
</tr>
<tr>
<td>Total</td>
<td>45</td>
<td>35</td>
<td>6</td>
<td>86</td>
</tr>
</tbody>
</table>

4.4.3 Adi Baekel

Adi Baekel (Figure 15) shares boundaries with Adi Ainawalid and Chin Feras (see Figure 8), and has an estimated 180 households (D’Andrea et. al. 1999). In Adi Baekel, 35 compounds were visited (Table 6) where 35 interviews were conducted. Of the 35 compounds visited in Adi Baekel, 16 belonged to past and present caravan merchants, while 19 belonged to people who had never participated in the salt industry. Only one compound belonged to an active caravan, who usually joined his two friends from Adi Ainawalid on trips to the salt plains. In all ten compounds were mapped for comparative analysis.
4.4.4 Chin Feras

Chin Feras (Figure 16) is the home of the only surviving *Shum Bahri*, a leader chosen by the people of his community to lead them in salt mining (Giday 1987). It has an estimated 270 households (D’Andrea *et. al.* 1999) and shares a boundary with Adi Baekel (see Figure 8). Six compounds were visited (Table 6) and ten interviews were conducted with five former caravan merchants and five people who had never participated in the salt trade. Chin Feras is home to a military base, and has a school and a clinic serving the *tabia*, which includes Adi Ainawalid and Adi Baekel.
The inhabitants of Adi Ainawalid, Adi Baekel, and Chin Feras, share the same material culture, utilization of salt, architectural features, and manner of housing their animals (D’Andrea et al. 1999). Village inhabitants gave the same reasons for the decline in the participation of people from their villages in the salt trade. The informants noted that drought and conflict adversely affected their participation in the salt trade. Consequently, those involved in the salt trade, past and present, were mostly over 40 years old.

4.5 Chapter Summary

Chapter four presented the methods used to collect data and the study sites where field data was collected. The methods used to collect data aimed at exploring the socio-economic role of salt in northern Ethiopia included: library and archival sources; observations; interviews; photographs; drawing of tool kits; mapping of compounds; measuring and sketch plans of rooms; and weighing of salt blocks and bars. In the Afar study sites, the nature of the salt route, as well as significant features were documented. Interviews with elders focused on the history of settlements; the salt trade; the position of people involved in the salt trade; kinds of salts; uses of salt; and benefits of its trade to the community.

In the Tigrai region, information on the socio-economic role of the salt trade, in addition to the uses of salt was collected at the local level in the Enderta woreda. Data on other indicators of the salt trade, including the nature and size of domestic architecture, and the number of cattle were collected. Interviews in the Tigrai region also focused on: the history of the salt trade; the status of salt traders compared to non-salt traders; kinds and uses of salt; and benefits of its trade to the local community. Data on the processing
of salt for sale, and equipment used were collected in Mekelle. Salt storage locations, features, and artefacts were observed and documented. Activities of salt merchants, and others groups involved in the salt trade were also recorded and documented. The processing and packaging of amole, tools and equipment used, where and who processes amole, how and where amole is sold was recorded.
CHAPTER 5 : OPERATIONAL CHAIN OF THE SALT TRADE

5.1 Introduction

This chapter describes and presents the results of ethnoarchaeological fieldwork conducted between the source of salt in the Lake Assal section of the Danakil Depression in the Afar region, and Mekelle, the major hub of the salt trade in the Tigrai region (see Figure 8). This aspect of the study provides data related to the nature of the salt industry. This chapter also provides information on the different classes of specialists engaged in the salt industry in the source and market areas. In particular, the focus is on the caravan merchants and their interactions with the different participants in the Afar and Tigrai regions, making them central to the salt trade.

As part of the study, the author walked and camped with highland caravans from Berehale to the salt plains 57 km (see Figure 8). The salt trail for the most part, follows the Saba River system (O’Mahoney 1970). The walk allowed a direct observation of caravan-related activities at major stops in the salt trade. To provide a better understanding of the operational chain of the salt trade today, it is necessary to describe the caravan merchants, their activities, and their interactions with other participants in the salt industry. As will become clear, some aspects of the technology used to extract, pack, transport and process salt remain unchanged from the past (Salt 1814, Munzinger 1969, O’Mahoney 1970). Based on direct observations and interviews, the salt trade today remains a source of livelihood for thousands of people (O’Mahoney 1970).
5.2 Caravan Merchants

The majority of the active caravan merchants consulted were from the Enderta and Raya woreda of Tigrai (Figure 17). Highland caravan merchants consulted were clear in asserting that they were not full time salt traders. Rather, they are farmers who undertake salt trading from September-October to May-June, to supplement their primary economic activity, farming.

Figure 17. Source areas (woreda) of Tigrai caravan merchants consulted in Afar region

Highland traditions dictate that only men become caravan merchants. The reasons given by informants for the lack of female participation included claims that women were incapable of surviving the hard trek to and from the salt plains, and that
women are expected to stay home and take care of domestic needs, including child rearing. Tradition indicates that the people of Enderta have a longer history of salt trading. This claim is supported by historical records, which note that highland caravan merchants originated from the Enderta and Agame sections of Tigrai (Abir 1961, 1968; Pankhurst 9161, 1968). Informants were unanimous in their claims that the participation of the people of Raya, a woreda south of Enderta, in the salt trade is recent, compared to that of the Enderta people. In all, 29 caravan merchants from nine woredas (Table 7) were consulted.

Table 7. Individual Caravan Merchants Interviewed, Afar Region

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<tr>
<th>Age</th>
<th>Woreda</th>
<th>Donkeys</th>
<th>Camels</th>
<th>Mules</th>
<th>Animals used</th>
<th>Animals owned</th>
<th>Days per trip</th>
<th>Trips per year</th>
<th>Years as trader</th>
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Information provided by the merchants indicates that on average they had 7.5 donkeys, 6.0 camels, and 2.0 mules each (Table 7). In addition, they use on average, 10.8 pack animals, but owned 6.8 animals each. The difference is the result of borrowing animals from friends, or being paid to use other people’s animals to collect salt. The average time for the completion of trips from the salt plains to their home areas is 10.4 days, and they make an average of 8.0 trips to collect salt per year. On average, the caravan merchants have participated in the salt trade for 14.9 years.

5.1.1 Becoming a Caravan Merchant

Any man could become a caravan merchant if he had the requisite pack animals, the capital needed for equipment, the income to buy supplies, the money to pay taxes, and the mental and physical attributes to endure the arduous trek to and from the salt plains. In spite of this, informants stated that a person was more likely to become a caravan merchant if his father or another relative was a caravan merchant. They noted that it is normal to follow a father’s example and take over as a caravan merchant from a father or brother. People also become involved in salt trading through their in-laws. As part of the traditions of Tigrai, men offer services to their in-laws, which may include collecting salt in addition to farming. If a potential father in-law is a caravan merchant, the aspiring son in-law will be expected to join him in collecting and selling salt.

Informants also stated personal initiative driven by economic gain as a reason to participate in the salt industry independently. In this regard, they noted that men could become caravan merchants even if they did not have the capital. Individuals could use other people’s animals to collect salt for a 50% share of the income, or could offer their services for hire, using other people’s animals to collect salt. The general motivation for
participation was that salt trading provides extra income in addition to agriculture. Past and present caravan merchants pointed out that there were social and economic benefits to being caravan merchants.

5.1.2 The Mahaba

Caravan merchant activity is affected by natural and cultural factors including seasonality, weather conditions, health of merchants, security conditions, prices of pack animals, the market price of salt, and the availability of other sources of income. Caravan merchants trek in groups called mahaba with their animals to collect and sell salt. Mahaba generally refers to associates who bind together in good and bad times, and the term is applicable in other areas of life (Shack 1974). A typical highland caravan has at least four men, forming the mahaba. The number of people in a mahaba on trek is dependent on factors such as how many caravan merchants live in a village or neighbouring villages as well as how many plan to go to the salt plains at a given time.

The individual caravan merchants interviewed were part of 29 mahaba groups (Table 8). Membership in a mahaba allows caravan merchants to help each other during trips to collect salt and in other aspects of their lives. It provides security as the salt trade has been embroiled in conflict involving bandits and thieves, who steal pack animals, and sometimes kill caravan merchants. Like leadership in other areas, the leader of a mahaba is selected based on some qualities and qualifications by its members. Desirable qualities include bravery, ability to mediate conflict and to assign tasks appropriately, leadership by example, knowledge of the salt industry and routes, physical and mental strength, and an ability to function with little sleep. According to informants, the mahaba system is old, but became prominent with the end of the office of the Shum Bahri. The Shum Bahri
as mentioned earlier, was a local leader chosen to lead caravan merchants in his home area to collect salt.

Table 8. *Mahaba* Groups, Afar Region

<table>
<thead>
<tr>
<th>Age</th>
<th>Woreda</th>
<th>Number of animals used by informant</th>
<th>Number of people in group</th>
<th>Number of donkeys</th>
<th>Number of camels</th>
<th>Number of mules</th>
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*Mahaba* members cook and eat together on trips, but feed their animals separately. They may share the same *fukure*, but their leader handles money used to pay taxes, among his other responsibilities. *Mahaba* members may be expelled for bad conduct, including fomenting trouble and not fulfilling assigned responsibilities. Equally, members may leave the group if they are dissatisfied, or have irreconcilable differences with members of their group, to create a new *mahaba* or join another *mahaba*.
Informants also noted that where a group has eight or more members, it might split into two to ensure management and cohesion because it takes more work to lead a larger group.

Some differences are apparent between caravan merchants from various parts of Tigrai. Enderta woreda is closer, allowing caravan merchants to make over ten trips per year to the salt plains. On the other hand, Raya is much farther away from the salt plains and their caravan merchants make about six trips per year. The types of animals used also vary depending on how far caravan merchants trek to the salt plains. It was observed that mahaba groups from Enderta used camels, mules, and donkeys, those from Raya had only camels, while those from Samre had mostly donkeys (Table 8 and Figure 18).

![Comparing Caravan Merchants From Three Woredas](image-url)

Figure 18. Comparing caravan merchants from three districts, Tigrai
Informants added that the types of animals they used to collect salt was influenced by the natural climate and related agricultural activity in their home areas. Caravan merchants from Enderta stated that their home area was hospitable to camels, mules, and donkeys. In addition, they noted that they did not have to travel as far, compared to Raya caravan merchants, hence their use of mules and donkeys in addition to camels. On the other hand, the Raya caravan merchants stated that their home area was far from the salt plains, limiting their use of donkeys and mules, as they do not have the same endurance as camels. This ability of camels to trek longer distances carrying more salt blocks per trip, compared to donkeys, was stated by Raya caravan merchants as the reason why they used only camels, although the natural conditions in Raya are not conducive to camels.

In the case of caravan merchants from Samre and Tembien, they use mostly donkeys because their home area, near the Tekeze River, receives more rain and has a higher humidity, and is unsuitable for camels. Caravan merchants from Tembien further stated that because of the extensive farming in their home area, camels had limited grazing areas.

Differences in places of origin and to a lesser extent, the types of animals also influence the types of salt blocks caravan merchants collect. For example, Enderta caravan merchants collect all three types of salt blocks: *gariwanai*, 22.86 x 20.32 x 5.08 cm and 4.5 kg; *goloor*, 29.21 x 18.54 x 6.35 cm and 5.25 kg; *telfen*, 39.37 x 25.14 x 7.62 and 10 kg. However, they prefer the small *gariwanai*. On the other hand, Raya caravan merchants collect only the large *telfen*, while those from Tembien collect *gariwanai* and *goloor*, but prefer *goloor* (Figure 19).
5.2 Pack Animals, Movement, and Loading

As was clear from observations and confirmed by informants, there was no evidence of the use of oxen in transporting salt as some had reported earlier (Beckingham and Huntingford 1961; Pankhurst 1968). Informants stated that oxen were too valuable because they are used for ploughing in the highlands. They added that oxen do not have the endurance to trek for long distances carrying salt. Information collected from caravan merchants and verified in the Berehale and the Mekelle markets indicated that the cost of pack animals varied based on age and strength. Younger animals, not at their prime, or older animals, past their prime, cost less. Some of the price ranges provided include: camels 600-1000 birr ($69.36-115.60); mules 500-900 birr ($57.80-104.04), and donkeys 400-800 birr ($46.24-92.48). Ideally, caravan merchants will rather use their own pack animals to transport salt because that allows them to derive the full benefits of the salt trade. However, not all of them are able to afford their own pack animals or as many pack animals as they may need. To mitigate the high cost of pack animals, caravan merchants revealed three additional means by which they obtained animals to transport salt. They use animals from fellow caravan merchants on a reciprocal basis (*hiftiti*), on a
half investment and half profit arrangement (*friki friki*), and may be paid to use animals to collect salt (*cry*).

The dominant type of pack animal used to transport salt from Lake Assal to Mekelle is the camel (Figure 20). Culturally, the Tigrai people do not consume camel, mule, or donkey meat, and use them only as pack animals. However, the Afar people, who breed camels, consume camel meat and milk, use them for transportation, and sell them to be used to transport salt by highland caravan merchants. According to informants, camel breeders sell mostly young males or non-productive females to highlanders for use as pack animals. Most camels are sold in the Afar markets of Bati, Awash, and Berehale, but can also be purchased in Mekelle.

![Camels feeding at caravan camp in Berehale](image)

Each pack animal carries its food as well as loading equipment during the trek to the salt plains. The type of animals and the wealth of caravan merchants influences the food fed to pack animals. The straw fed to pack animals is obtained from the farms of caravan merchants, purchased from neighbours at home or on the way to the salt plains. Wealthy caravan merchants buy high quality straw for their animals for the trek, if they
do not have some from their farms. All animals were observed and reportedly fed wheat (sendai), barley (segem), tef (taff) and sorghum (mashela) straw. Camels were given linseed and pea (enguaya), their preferred food.

There is a pattern in the way caravan merchants walk their animals to and from the salt plains. Camels are lined up in single file, one connected to the next by a rope attached to the tail of the one before it, with the other end of the rope attached to the lower jaw of the one behind it. To ensure orderly movement, a member of the mahaba leads the camels in front (Figure 21). This person starts the camel caravan chain by holding a rope connected to the mouth of the lead camel, considered experienced, calmer, and obedient. When a mahaba has many camels, over 50, in addition to mules and donkeys, the caravan chain is broken into smaller units of about 10-15 camels each. In addition, two members of the mahaba are assigned to guide the mules and donkeys along the trial, as they are not walked in a single file. The rest of the members of the mahaba walk along the sides of the trail, offering help as needed.
The cost of loading and packaging equipment for camels is about 260 birr ($30) per animal. Caravan merchants may buy material like ropes and blankets or use old cloths or rags to make some of their equipment. On the other hand, they may pay others to make them some pieces of equipment or buy them. Camel loading involves the use of many pieces of equipment compared to donkeys and mules. The loading apparatus of a camel includes: *luwdo*, a rectangular padding made of cloth or other cushioning material; *dabora*, made of leather or the same material as *luwdo*, with two parallel sticks, one on each side, called *anau*; and *ko-or*, a pair of triangular sticks intricately tied together with local rope (Figure 22), are employed to load camels (Munzinger 1869).

![Figure 22. Camel-loading equipment, Berehale](image)

At least eight pieces of rope (*shimel*) per camel are needed to tie salt blocks for loading on camels. For a camel carrying 16 blocks, it will cost 4.8 birr ($0.55) for the eight pieces of rope. To load salt on camels, blocks are tied in pairs, in a way that allows them to rest on the triangular frames of wood (*ko-or*) placed over them. Only *luwdo* and ropes are used in loading donkeys and mules. The cost of ropes required to load salt onto
one donkey is about 3 birr ($0.34) and 7 birr ($0.81) worth of rope is required for a mule load of salt. The caravan merchants themselves (Figure 23) usually undertake the actual loading of salt blocks onto the backs of pack animals. The number of salt blocks transported depends on the type and age of the animals. Informant interviews and observations showed that camels carry more salt blocks than mules and donkeys. Similarly, animals in their prime carry more salt blocks than older and younger animals.

In addition, the type of blocks procured at the salt plains influences the number of salt blocks loaded onto pack animals. For example, the range of gariwanai blocks carried per animal, reported by informants and observed was as follows; camels 16-38 blocks, mules 14-20, and donkeys 8-12.

![Figure 23. Caravan merchant loading camels, salt plains](image)

All caravan merchants reported that pack animals not used for collecting salt are used to transport grains, firewood, stones, and water among others. They also stated that they house their donkeys and mules in residential compounds all year round when at home. Enderta caravan merchants noted that their camels are housed in their compounds only during the salt season. Mostly, the camels are housed alone because donkeys have
the habit of kicking them, and cattle may hurt them with their long horns. In addition, camels are fed separately from other pack animals and livestock for the same reasons.

Informant interviews confirmed a practice in which camels are housed outside the compounds of caravan merchants in Enderta. As caravan merchants noted to Bauer (1977), and again during the present study, they house camels at various places, far and near the settlements in which they live, after the salt season. The reasons given ranged from the lack of grazing areas for the camels, to health problems they develop because of high levels of moisture in the rainy season (Bauer 1977). For example, some camels owned by caravan merchants from Chin Feras, in Enderta, were sent to Shiga Shugi, part of Geralta, near Enderta. Usually, informants noted, distant family members in those areas look after their camels. The camels are returned to the compounds of caravan merchants in August-September in preparation for the salt season (Figure 24).

![Camels housed outside the compounds of caravan merchants](image)

Figure 24. Camels housed at home in January 2005, Adi Ainawalid

5.3 Treks and Activities

The time for completing a trek, defined as going to the salt plains from home, and returning home after selling the salt, depends on the origin of the caravan merchant,
political climate, weather conditions, and the strength of the pack animals. Caravan merchants from nearer the salt plains, such as Enderta, Agame, and Atsbi districts, make a trek in six days on average. Those caravan merchants from farther districts such as Raya reported making a trek in 15 days on average. The number of treks per year also varies among merchants. For example, Raya caravan merchants make on average six trips to collect salt per year, while those from Enderta make on average, 11 trips. All caravan merchants rest their pack animals for a minimum of two weeks and a maximum of five weeks between treks to enable them to recuperate before they are taken on another trek. Caravan merchants from farther away rest their animals longer as illustrated by the difference between the rest periods of Enderta, an average of two and half weeks, and Raya, an average of four and half weeks.

The preparation undertaken to embark on treks is similar amongst all highland caravan merchants. The process starts with discussions among mahaba members on when to go on a trek. Messengers are sent to find out about potential dates for departure if members are unable to meet face to face. Where group members live in the same village, they may meet at the mahaba leader’s house, local drinking houses, markets, or at social gatherings such as funerals, weddings, celebrations, feasts or at church. After a date is set, each member proceeds to gather needed material, money, and food for the trip.

A caravan merchant using four camels takes two sacks of straw for each animal, which usually carries its food. If each camel was intended to carry four warden (a set of 4 blocks), eight pieces of rope are required for loading. For their own food, caravan merchants require eight loaves of hambasha bread per person. They take 1 kg each of
sugar and coffee, in addition to linseed flour and shiro (grass pea flour), which they use in the preparation of sauce. Money needed to pay taxes for four camels in March 2004 was 19 birr ($2.19) per camel. In addition, caravan merchants pay a minimum of 1 birr ($0.11) for a block of gariwanai to the salt shapers. To the salt extractors, they pay 10 birr ($1.15) per camel load of salt. Caravan merchants need at least 200 birr ($23.12) for taxes and the cost of the salt, not including the cost of food for themselves and their animals.

On the day of departure, after resources are organised, mahaba members may assemble at the home of a member near the route to the salt plains, leave from their homes and meet at a designated stop on the salt trail, or meet at the first stop, where they plan to spend the first night. For instance, caravan merchants from Enderta make their first stop on the route to the salt plains at Kalashamini. There are alternative routes from different parts of the Tigrai region to the Afar region according to informants. However, they stated that caravan merchants from Tigrai to the Afar region use two main routes to collect salt, designated as the Berehale and Koneba routes. Primarily those from Enderta, Tembien, Raya, Wukro, Antalo, Samre, Ganta, Hawzien, and Weler Leke woreda use the Berehale route. Caravan merchants from Atsbi, Agame, Adua, Golu-Makeda, Sarae Tsaeda, Afhram, Afshum, and Erob woreda are said to use the Koneba route (see Figure 8 and 17). However, caravan merchants reported using either route for practical reasons, such as reported attack by bandits on caravan merchants.

Most caravan merchants make at least five stops each way between Mekelle and the Lake Assal salt plains, including at Kalashamini, Berehale, Asabolo, and Hami-dela on their treks to collect salt (see Figure 8). Observations during this study confirmed
these stops, the nature of their activities, and their interactions with other participants in
the salt industry. Caravan merchants who use the Berehale route mostly sell their salt in
Mekelle.

5.3.1 Kalashamini

Kalashamini (see Figure 8) is a part of Enderta woreda, located 15 km from
Mekelle and 102 km from the salt plains. Some caravan merchants spend a night at this
stop on their trek to the salt plains and on their way back. They use the time to talk about
their trip and to decide where to sell their salt. The discussions on their way to the salt
plains include the pace of their trip, as well as where and when to stop. It is also at this
stop that the mahaba leader assigns tasks to members, and collects the money intended to
pay taxes. Two reasons were given for camping at Kalashamini on the return trip: the
need to know the prevailing price of salt before entering Mekelle and to avoid detection
by city authorities.

Caravan merchants find out about prices when they spend the night at
Kalashamini from those going to collect salt. If prices are acceptable, they proceed to
Mekelle to sell their salt. On the other hand, if the prices reported are deemed
unacceptable, they decide whether to take their salt home and store it for sale later, or to
take it to other markets, such as the Agula market. The other reason why caravans camp
at Kalashamini is to avoid detection. A new law by the Tigray Regional Authority
prohibits them from delivering salt to merchant shops in Mekelle. The law requires them
to sell their salt at the designated salt market located in the outskirts of Mekelle, in an
area called the ‘Industry 05’. However, because the processing shops of major salt
merchants are located in different parts of Mekelle, the caravan merchants spend the

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night or stop briefly at Kalashamini before they deliver salt to their preferred major merchants under the cover of darkness. Caravan merchants do not have clients of any kind in Kalashamini, and do not feed their animals here on the return trip. In addition, caravan camps in Kalashamini are spread out because this stop is not concentrated compared to the stops in Berehale and Asabolo. However, mahaba groups from the same settlement or nearby settlements set up camp close to each other.

5.3.2 Berehale

Berehale is the second major stop for most caravan merchants using the Berehale route (see Figure 8). On any given day, they arrive at this stop from 3-9 pm either from or to the salt plains, and engage in a number of activities. The departure of caravan merchants from Berehale is dependent on their time of arrival, but most leave at night or in the early morning of the next day. For example, our team left in the company of many other caravan merchants at 5 am to the salt plains. At the peak of arrivals at Berehale, from 4-6 pm, up to 2,000 animals can be seen in the camp space. Caravan merchants offload pack animals and set up camp near the home of their fukure if there is space. Mahaba members are visited by their fukure, who provide them with tea and coffee, and talk with them about their needs. They noted that most of them inherited or elected to use the services of the fukure who their fathers and other male relatives who were caravan merchants used.

Important activities undertaken by caravan merchants on arrival at Berehale include resting and feeding their animals (Figure 25), storing food for themselves and their pack animals intended for the return journey at the homes of their fukure, cooking food for themselves, and fixing their loading equipment when needed. Each member of
the *mahaba* feeds his pack animals separately, in spite of the fact that members eat and
do many other things together. Camels are given straw together after being forced to lie
down, usually in a circular pattern. They are not tied, but mules and donkeys are tethered
in pairs before feeding. Mules and donkeys are fed together standing up, and separately
from camels because they are aggressive, with a habit of kicking camels. This aggression
was also the reason used to justify the tendency, observed at Berehale, by some caravan
merchants to sometimes camp according to types of pack animals.

![Figure 25. Pack animals feeding separately, Berehale](image_url)

On many occasions, it was observed that caravan merchants with only mules and
donkeys camped near each other, those with only camels camped at the opposite end,
while those with camels, mules, and donkeys camped in the middle. Based on
observations and conversations, a number of factors were identified as influencing why
caravan merchants from the same or nearby settlements camp close to each other. First,
caravan merchants from the same highland area tend to have their *fukure* located in the
same sections of Berehale. Second, there was a predisposition of caravan merchants
from the same highland *woreda* to use the same types of pack animals. For example,
Enderta caravan merchants use all three types of animals, and camp between the Raya
and Tembien caravan merchants. Raya caravan merchants on the other hand use only camels and Tembien caravans use mostly donkeys. Third, the need for security caused caravan merchants from the same highland areas to camp near each other.

After caravan merchants feed their pack animals, they eat and make tea or coffee using wood and stone hearths if they did not receive some from their *fukure*. They proceed to cook food, usually sauce made from linseed and *shiro* flour to eat with *hambasha* bread. If they arrived early, after feeding their animals and eating, they work on their loading equipment or tend to any wounded animals. At night, some tell stories, sing, and dance, while others sleep.

*Mahaba* members take goatskins (*sar*) from their *fukure* before they leave Berehale. On returning to Berehale, two days later, they offload the salt blocks transported by their pack animals, set up camp, and retrieve the stored food and straw from the home of their *fukure*. They then return goatskins and deliver salt payment to their *fukure* (Figure 26). As of 2005, the fee for using a goatskin was two *gariwanai* blocks or one *tefen* salt block.

Figure 26. Returning goatskins and salt payment to *fukure*, Berehale
Two interesting observations were made at Berehale. Some Raya caravan merchants were observed making two trips between Berehale and the salt plains. They sold the salt from the initial trip in Berehale to middle salt merchants stationed there, and then went back to the salt plains to collect salt for the second time for sale in Mekelle. The other observation was that some caravan merchants arrived and returned to Mekelle by vehicular transport. However, they walked with their mahaba to the salt plains from Berehale and back. The reasons given varied from old age, ill health, and the need to attend to pressing family business at home.

Remains noted in the caravan camp area included straw remains left over from feeding animals, stone hearths and associated charcoal and ash from cooking by caravan merchants, pieces of rope used to tie salt, household rubbish dumped by the inhabitants of Berehale, and bones and carcasses of dead pack animals (Figure 27).

![Figure 27. Carcass of a donkey at caravan stop, Berehale](image)

5.3.2.1 *Fukure* (Provider Of Goatskins)

The first group of people caravan merchants interact with at Berehale are the fukure. These Afar women have client relations with highland caravan merchants by renting goatskins (*sar*) to them for water, and providing other services. In return, the
caravan merchants pay them in salt. Most of the women are stationed in Berehale, and although some reports mentioned the use of goatskins to transport water (O’Mahoney 1970; Gerster 1974; Donald 1984), none described details of the role that these women played in the salt trade.

Informants, including the four fukure interviewed, believe that their participation in the salt trade was an old practice. The tradition, they noted, was passed on from one generation to the next, from mother to daughter or mother in-law to daughter-in-law. The fukure stated that they inherited some of their caravan merchant clients from their mothers and other female relatives. The most important item connecting the fukure to the salt industry is the goatskin (Figure 28). Fukure buy fresh or dried goatskins for 20 birr ($2.31) each from the Berehale market, or from neighbours, and process the skins for carrying water. Processing a goatskin starts with removing pieces of flesh using sharp stones or metal objects while the skin is dry. After that, the skin is soaked in water to enable the removal of smaller pieces of flesh. Cleaning is followed by sewing up the openings of the skin, except the neck and the right foreleg, for filling and drinking water, respectively.

Figure 28. Fresh goatskin, ra-ash, and grinding stone, Berehale
In preparing the skin, the leaves of a tree called *ra-ash* and those of another called *tesek* found in the highlands, and the bark of a third tree, *dabarken*, found in the Afar region, are applied. The leaves are purchased in the highland areas for 20 birr ($2.31) a bag and may be ground into a powder or applied directly. *Dabarken* is pounded in mortars (Figure 29) or ground on a stone and applied. *Ra-ash* is applied from the start to help remove smaller pieces of flesh and to prevent the decomposition of the skin. It is put inside the skin, water is added, and then allowed to sit for three or more days. Later on *tesek* is added to the *ra-ash* inside the skin or added after the skin is emptied of the *ra-ash*.

Figure 29. Pounding *dabarken*, Berehale

The next stage is to test the goatskin, usually by offering it at no cost to a caravan merchant, who uses it to collect water at Asabolo. When the skin is returned after the initial and subsequent treks, *dabarken* (Figure 30) and *tesek* are applied separately or together to prevent the skin from losing water or leaking, as well as, to prevent it from
breaking, or tearing when it falls from the back of a camel. These herbs soften and preserve the skins according to informants.

Figure 30. Fukure working on new goatskin, Berehale

The relationship between a fukure and her caravan client is unique. In addition to providing goatskins to caravan merchants, she provides them with tea, coffee and other supplies they need while in the Afar region. This strong connection is reflected in the fact that caravan merchants regard these women as mothers away from home. Fukure take care of sick caravan merchants during treks, help them look for lost animals, provide them with loans for taxes and other expenses related to their trade, take care of their sick animals as well as store food for caravan merchants and their animals for the return trip.

Fukure have clients from different parts of Tigray, and from the same mahaba or woreda. For example, older caravan merchants in the Enderta villages of Adi Ainawalid, Adi Baekel, and Chin Feras mentioned Ina Ashia (mother Ashia) as their fukure when they collected salt in the 1960s and 1970s. Traditions of Berehale dictate that fukure inherit caravan merchant clients from their mothers or female relatives. However, when
women marry into Berehale, they form alliances with women who have clients as a way to get into the business. The apprentice *fukure* helps an established one provide services to her clients. Eventually, she is allowed to give a goatskin to a client belonging to her established *fukure* friend. This arrangement helps the new *fukure* to develop relationships with caravan merchants as well as gain insights on how the system works.

While the relationships between *fukure* and caravan merchants are special, they are subject to some conditions. A *fukure* may gain or lose clients depending on how she treats her existing clients (Figure 31). When clients are satisfied, they promote her to other caravan merchants and may introduce new *mahaba* members to her. On the other hand, if her services are not satisfactory, clients may leave her for another *fukure* with a good reputation.

![Figure 31. Fukure looking for her caravan merchant clients, Berehale](image)

Competition over clients sometimes leads to quarrels between *fukure*. They stated that such disagreements arise when one suspects that another is trying to steal her client. Some of these quarrels were said to end up at the local police station or before local leaders for resolution. According to informants, when a *fukure* tries her best to keep her client with no success, she may ask for payment for all extra services provided,
including paying for every goatskin the caravan merchant lost in the past or returned in a damaged condition. *Fukure* reported that the penalty for a damaged or lost goatskin was 30 birr ($3.46) as of 2005. They stated that they keep count of their goatskins (Figure 32), as well as those torn or lost by caravan merchants with this in mind. In the resolution of a case, if a caravan merchant can pay the cost, he is free to use the services of another *fukure*, if not, he stays, and the *fukure* works to improve her services to him.

![Figure 32. Retuned goatskins at the home of fukure, Berehale](image)

The number of goatskins per *fukure* varies (Table 9). Some *fukure* owned about 60 goatskins and gave out 30 goatskins per day to clients. Presently, they make a living from their trade and use the money to build their own homes, as well as buy necessities. According to them, they sell their salt to the temporary middle merchants stationed in Berehale at a price of 3 birr ($0.34) per block of *gariwanai* and 5 birr ($0.57) per block of *telfen*. In the past, *fukure* were given *hambasha* and flour, in addition to salt payments. They added that their Garandmothers sold salt to middle merchants called *Negadi Ras*, from different highland areas, who travelled with mules and donkeys to buy the salt.
### Table 9. *Fukure* Interviewed in Berehale, Afar Region

<table>
<thead>
<tr>
<th>Name</th>
<th>Age</th>
<th>Cost of herbs</th>
<th>Cost of goatskin</th>
<th>Goatskins owned</th>
<th>Payment per goatskin</th>
<th>Price per block</th>
</tr>
</thead>
<tbody>
<tr>
<td>FU1</td>
<td>60</td>
<td>20 birr</td>
<td>20 birr</td>
<td>30</td>
<td>2 blocks of <em>gariwanai</em></td>
<td>3 birr</td>
</tr>
<tr>
<td>FU2</td>
<td>48</td>
<td>20 birr</td>
<td>20 birr</td>
<td>35</td>
<td>2 blocks of <em>gariwanai</em></td>
<td>3 birr</td>
</tr>
<tr>
<td>FU3</td>
<td>37</td>
<td>20 birr</td>
<td>20 birr</td>
<td>20</td>
<td>2 blocks of <em>gariwanai</em></td>
<td>3 birr</td>
</tr>
<tr>
<td>FU4</td>
<td>34</td>
<td>20 birr</td>
<td>20 birr</td>
<td>60</td>
<td>2 blocks of <em>gariwanai</em></td>
<td>3 birr</td>
</tr>
</tbody>
</table>

#### 5.3.2.2 Middle Salt Merchants

The second group of salt trade participants, caravan merchants, deal with in Berehale are the middle salt merchants. They are men stationed in Berehale who originate from the Afar or Tigrai regions. Middle merchants buy salt from caravan merchants for resale in Mekelle and other highland settlements. At the time of this study, middle merchants bought a block of *gariwanai* for 3.25 birr ([$0.37]), *goloor* for 3.50 birr ($0.40) and *telfen* for 6.25 birr ($0.72). Some of these merchants were independent, but others were agents of major salt merchants stationed in Mekelle.

Purchased salt is stored in space rented at a cost of 100 birr ($1.56) per month, and later transported by truck to destinations including Mekelle and as far as Gondar. Some independent middle merchants sell the salt blocks in Mekelle for 5 birr ($0.57) per block of *gariwanai*, 5.25 ($0.60) for a block of *goloor* and 9 birr ($1.04) per block of *telfen*. The merchants in this group have assistants who identify caravan merchants interested in selling salt and help transport purchased salt by the middle merchants into storage rooms. The assistants also clean blocks that are dirty and number them in the storage room. For their services, they are paid 5 birr ($0.57) for five camel loads of salt, an average of 120 blocks.
The finance bureau of the Afar Regional Authority stationed in Berehale taxes the salt before it is loaded onto trucks. The rate was 40 Ethiopian cents per block of *gariwanai* and *goloor*, and 80 cents for a block of *telfen*. Middle merchants stated that the cost of transportation varied depending on the options of trucks available and ranged from 10 birr ($1.15) to 24 birr ($2.77) per 100 kg of salt. To transport salt by trucks to their buyers or sponsors, middle merchants hire temporary helpers and pay them 10 Ethiopian cents per block of *gariwanai* and 20 cents per block of *telfen* to help their regular assistants (Figure 33). Usually, the vehicle used is weighed and then five blocks of the type to be transported are weighed. The total number of blocks is then multiplied by the average weight of the five blocks. Alternatively, payment for transporting salt is calculated by weighing the loaded trucks on arrival in Mekelle, and then subtracting the weight of the truck before salt was loaded.

![Assistants loading middle merchant salt onto truck, Berehale](image)

In addition to the normal salt, middle merchants also buy *ashale* salt, harvested from *Ashale* hill at the salt plains. This particular type of salt is believed to have medicinal qualities, and fetches more than five times the price of the same size of normal salt.
salt (Gidey 1987). According to middle merchants, *ashale* salt the size of *telfen* sold for 50 birr ($5.78) per block, compared to *telfen*, which is sold for 9 birr ($1.04) in Mekelle. This salt is rare and only a few people such as elders and authorities in the Afar region are allowed to harvest it. The perceived qualities and limited supply make *ashale* salt expensive (Figure 34).

![Ashale salt, Berehale](image)

**Figure 34. Ashale salt, Berehale**

### 5.3.3 Asabolo (*Saba*)

Caravan merchants using the Berehale route (Figure 35) make their third major stop at Asabolo. They are joined by others using the Koneba route; the two routes merge at this stop. Both groups spend a night at this stop on their way to the salt plains and during the return trek. From this stop, caravans originating from the highlands follow the same route to the salt plains (see Figure 8). While caravan merchants spend a night at Asabolo, they do not have *fukure* here, although this is where they fill the goatskins with water and bake the bread called *brukuta*. 
On arrival at Asabolo, usually in the evening, caravan merchants set up camp and undertake some of the same activities they undertake at Berehale. They fix and prepare their packing equipment, make bread and collect water at this stop. Mahaba groups from the same villages or nearby villages still camp near each other. After unloading their animals and feeding them, caravan merchants eat and spend the rest of the night working on their loading equipment near a fire or using flashlights. Between 3 am and 5 am the next morning, the caravan merchants going back home set off, while those on their way to the salt plains make fires near their camps to cook sauce, tea, coffee, and make bread.

Earlier visitors and researchers including Lobo and O'Mahoney (Donald 1984; O'Mahoney 1970) reported the making of *brukuta* at Asabolo. Lobo recorded in the 1600s that a bread cake called *burguta* was made from wheat or barley flour, kneaded on a piece of leather. He stated that stone pebbles were heated and the dough wrapped around them (Donald 1984:147). This study confirms these earlier reports and provides more detail on the process than is present in earlier accounts. The process of making *brukuta* starts with the making of a fire on top of a platform of stones. Pieces of firewood, placed over the stone base, are lit using matches or lighter and stone cobbles
are arranged in a circular pattern to heat in the fire. As the fire burns, wheat or barley flour is placed onto a mat or plastic sheet, and water collected from nearby is sprinkled on the flour. The dough is then kneaded using two hands for about 10-15 minutes, and small pieces of dough are moulded into balls (Figure 36).

Figure 36. Caravan merchant forming balls of bread from kneaded dough, Asabolo

Another member of the mahaba moves the hot stones to the side of the fire using a forked stick. The main bread maker picks up a ball of dough and creates a cavity by rotating and stretching the dough. He then extends his hands to the side of the fire, and a hot stone pebble is lifted and placed in the cavity by the helper, using a pair of sticks. The bread maker proceeds to methodically rotate the dough with the stone inside until it is enveloped by the dough (Figure 37). This is followed by placing the ball of dough on the edge of the fire to cook, and the process is repeated until all the dough is used. The balls of bread are moved and turned around, using a piece of wood or forked sticks, to ensure even cooking. Caravan merchants spend up to 2 hours making all the bread they will require for their journey to the salt plains. Well-cooked balls of bread are moved to
the side of the stone platform (Figure 38). In other instances, the cooked bread is placed on mats or bags or on top of packing equipment to cool.

According to some informants, some caravan merchants now make *brukuta* at home for their trips due to lack of firewood, and laws prohibiting them from collecting firewood in the Afar region. It was observed that some of this bread was eaten by the caravan merchants, but was mostly used as part of the payment to salt extractors at the...
salt plains. The bread is eaten alone or with sauce made from mixing linseed flour and shiro (grass pea flour). While the bread is being made by two members of the mahaba, others work on the packing equipment and ropes. Some caravan merchants cut ropes by placing them over stones and pounding them with stones to cut them, while others used knives. Other members of the groups feed pack animals and allow them to drink water because this is the last place where water suitable for drinking by humans and animals is found free of charge.

The last and most important activity undertaken by caravan merchants at this site is the filling of goatskins with water for the rest of the walk to the salt plains and back. The goatskins rented from fikure at Berehale are used to collect water from pools of water in the riverbed (Figure 39). Filled goatskins are loaded onto pack animals before the commencement of the walk to Hami-dela.

![Figure 39. Caravan merchants filling goatskins with water, Asabolo](image)

The first groups of caravan merchants left for Hami-dela at 10 am, however, our team departed at 2 pm due to a confrontation with an Afar man who wanted to be hired as part of the team. After hours of negotiations, we left and arrived at Hami-dela at 6:30 pm.
where we camped in preparation for the last leg of the trek to the salt plains. The Asabolo caravan camp area is also in a riverbed, but, unlike Berehale, some sections of the riverbed had water. In addition, the camp area had stone platforms on which brukuta bread is made, and it had no household remains.

5.3.4 Hami-dela (Gara)

At this stop, camp space (Figure 40) is also based on a first-come, first-served basis. Hami-dela had more people and the camp area had more animals compared to the previous stops because here, all highland caravan merchants must pay taxes and prepare for the trek to the salt plains. Caravan merchants undertake the same general activities as at the other stops, but there are no fukure at Hami-dela. They set up camp and feed their animals all the remaining straw to make room for the salt. The other reason given was that the animals needed to be strong for the trip to the salt plains and back to Berehale.

Figure 40. Caravan merchant camp, Hami-dela

After the caravan merchants eat, some fix their salt loading equipment, while others locate their salt shapers, or attend a public meeting at which they are assigned salt extractors by officials. In addition to tax collectors and salt workers, Hami-dela is also
the seasonal and temporary home of traders selling food, water, straw, and salt working tools. Besides the tax collectors, the rest of these groups were observed at night speaking to or conducting business with the caravan merchants.

A major activity involving caravan merchants commences around 8 pm, when caravan merchants, tax collectors, and salt extractors gather in a circle at a section of the camp area. Workers who want to extract salt register their names as teams of two or more and are then assigned to caravan merchants at the gathering. With the caravan merchants on one side and the salt extractors on the other, an official with a list of names calls the name of the team leader and assigns him to the leader of a mahaba. Once assigned, the caravan merchants and salt extractors walk aside to discuss plans and payment arrangements for the next day.

By 4 am the next morning, caravan merchants line up to pay the taxes with their animals (Figure 41). The mahaba leader pays the tax on behalf of his group based on the types of animals used by its members. The tax was 19 birr ($2.19) for camels and mules and 9 birr ($1.04) for donkeys. On approaching the tax collectors, the mahaba leader tells them the number and types of animals, and they in turn send an animal counter to go and verify the numbers given. If correctly reported, the counter returns to confirm, and the mahaba is allowed to cross with their animals. There are penalties for trying to evade taxes. On the first offence caravan merchants pay double for the number of pack animals under-reported, and may be banned from collecting salt when an evasion attempt is repeated.
Remains at the Hami-dela campsite are identical to some of the remains in Berehale and Asabolo, and include straw, animal droppings, carcasses of pack animals, as well as pieces of loading equipment. Caravans do not stop at Hami-dela on their way home from salt plains, their first stop is Asabolo, where they take breaks and sometimes spend the night before proceeding to Berehale or to Koneba.

5.3.4.1 Tax Collectors

Taxation on salt has long been a source of revenue for the different authorities controlling the salt plains (O’Mahoney 1970; Gerster 1974). Currently, tax collectors are Afar natives and work for the Afar Regional Authority. Most tax collectors live in Berehale and trek to Hami-dela to work in shifts. Tax supervisors work for two months, and then receive a one-month break. All tax-related staff work from September-October to May-June, because highland caravan merchants stop collecting salt between June and September. The tax post is located on the bank of a dry riverbed overlooking the camp space before a plain that forms part of the salt plains area.
On Thursday 23rd of December 2004, five tax collectors were observed at work, supported by ten animal counters. One tax collector had a paper on which information regarding the number of animals and the names of mahaba members were recorded. A second tax collector wrote and issued receipts, and a third inspected receipts before allowing caravan merchants and their pack animals to cross to the salt plains. On this day, one of the busy days in the week, about 6,000 animals were waiting to cross, composed of about 4,000 camels, 1,500 donkeys and 500 mules. Over 2,000 animals were observed waiting to cross onto the plains to collect salt on December 22nd, 2004, the day before. According to tax collectors, they are busiest from October to November, and least busy from February to May. They further stated that it was normal for 10,000 camels to collect salt in one week during the least busy part of the salt season. Tax supervisors also reported that in November 2004 about 40,000 camels collected salt, but were unwilling to give details on a per season or per month basis. As part of arrangements to develop sports in the Afar region, 1 birr ($0.11) from tax collected per animal, goes directly to the sports development program of the Afar Regional Authority, while the rest of the tax goes to the regional treasury.

Tax collectors (Figure 42) are supervised by a tax supervisor, who is also responsible for taking collected taxes to Berehale for transfer to the Afar Regional Authority based in Aysita. Tax collectors are well known and had benefits including assigning work to extractors for 50% of their earnings, but were reluctant to say how much their salaries were. It was observed, and confirmed by tax collectors that Afar caravan merchants did not pay taxes. As a result, they were allowed to cross onto the salt plains without standing in line. Tax collectors noted that the free passage to the salt
plains was a benefit to all Afar people by virtue of the location of the salt plains in their territory, and the salt being designated the collective property of the Afar people.

Figure 42. Tax collector and caravan merchant at tax post, Hami-dela

5.3.5 The Salt Plains (Reged)

Caravan merchants walk (Figure 43) to the salt plains, after they pay taxes at Hami-dela (see Figure 8). The time of departure to the salt plains depends on when the mahaba stood in line. However, by 9 am most caravan merchants arrive at the salt plains. At 110 m below sea level in some sections, the salt plains experience high temperatures, sometimes in excess of 50°C. In addition, there is no drinkable water. Due to the heat at the salt plains, most work is done from about 8 am-12 noon. At least 1,000 people and over 2,000 animals were observed at the plains on December 22nd, 2004. At this last stop, caravan merchants buy and load purchased salt blocks on their pack animals. In undertaking these activities, they interact with salt extractors, and salt shapers.
On arrival at the salt plains, caravan merchants locate their extractors after finding space near their shapers to rest their animals (Figure 44). During this fieldwork, caravan merchants paid a team of salt extractors 10 birr ($1.15) for one camel or mule load of salt, and 7 birr ($0.80) for a donkey load of salt regardless of how many blocks these animals carried. As part of the payment, salt extractors are given one brukuta bread and a goatskin worth of water.

Caravan merchants have direct client relationships with salt shapers. Similar to their relationships with fukure, the relationship between caravan merchants and salt
shapers is personal. However, this tradition is not as old, because not long ago
highlanders extracted and shaped their own salt (Pankhurst 1968). Now, they must use
only Afar salt shapers as decreed by the Afar Regional Authority. Caravan merchants
purchased salt in sets of 60 blocks from salt shapers. They paid 2.5 birr ($0.28) per block
of telfen, 1.5 birr ($0.17) for goloor, and 1 birr ($0.11) per block of gariwanai. In
addition, they gave the salt shapers a goatskin worth of water and a loaf of hambasha
bread.

After the salt is paid for, the next stage involves the packaging and loading the
salt blocks onto the backs of pack animals. Some caravan merchants pay shaper’s
assistants to tie their blocks for them when they have too many animals or do not know
how to tie the blocks. Caravan merchants start the loading process by placing the loading
equipment over their animals. For camels, salt blocks are tied in pairs of two, in a way
that allows them to hang on the triangular frames (ko-or) placed on them. Loading of salt
is similar for mules and donkeys, and does not involve the use of ko-or, only the main
padding (luwdo) is placed over them. Ropes are used to fasten the blocks loaded on
mules and donkeys. Remains noted at the salt plains include cobblestones from brukuta
bread, animal droppings, pieces of rope, rags, as well as plastic and metal containers.

Although this study focused on highland caravan merchants, Afar lowland
caravan merchants from Berehale, Dalol, and Aba Ala were also present at the salt plains.
They collect a smaller type of goloor called Afar goloor and travel shorter distances to
the salt plains as well as to the points of sale, including Berehale and Aba Ala. Afar
goloor is about the same size as gariwanai but longer by about 2 cm. Afar caravan
merchants do not have *fukure* because they do not need to rent goatskins, which are made by their wives.

In addition, Afar caravan merchants use only camels, which are much healthier than those used by their Tigrai counterparts, because they breed them, and do not overload them with salt. Generally, Afar caravan merchants do not invest as much in salt collection as do their highland counterparts. For example, they do not pay taxes and do not have to stand in line. Furthermore, most do not pay for salt extraction or shaping because some extractors and shapers are family members or friends. In instances where they pay highland salt extractors, their rate, set by law, is much lower at 5 birr ($0.78) per camel load, while their highland counterparts pay 10 birr ($1.15).

5.3.5.1 Salt Extractors

Salt extractors, known as *fokolo*, are mostly natives from the highland regions of Tigrai and Amhara, although natives of Afar were also observed extracting salt. Older caravan merchants indicated that in the past Christian highlanders extracted, shaped, and transported the salt to the highlands themselves. Extractors live in rented spaces in groups of two to seven in Hami-dela. Some of them live with relatives and do not pay rent, but most of them, from the highlands, reported paying 70-200 birr ($8.09-23.12) per month to rent living space depending on the person they are renting from and the quality of the rooms. Because salt extractors come from far and near, their length of stay in Hami-dela varies, and depends on how soon they reach their target income for the season. For example, informants from the Amhara region stated that they stayed and worked for up to three months, took a break for one month to go back home, and then
returned for the rest of the salt season. Others stayed the entire season, noting that it was because there were no guarantees for them to work regularly.

Training to become a salt extractor takes two days, as it does not involve a lot of skill. In addition, it is easier to become an extractor compared to a shaper because extractors work in teams of at least two, which allows for fast learning. Two main groups of salt extractors were identified as independent and contract salt extractors. The regular salt extractors work entirely for themselves and receive jobs at least once a week, while the contract group receives jobs on a more regular basis through arrangements with tax officials. In return, they give 50% of their income to the tax officials who assign the jobs to them. As mentioned earlier, salt extractors work for mahaba groups, earning 10 birr ($1.15) for a camel or mule load, and 7 birr ($0.80) for a donkey load of salt, in addition to one brukuta bread and one goatskin of water. Afar caravan merchants pay them less, 5 birr ($0.57) for a camel load and a goatskin of water.

The tool kit of salt extractors includes an axe, a sharpening stone, and a pair of sticks. The axe and the sticks are purchased from highland areas (Table 10). The sticks are preferably made from olive wood (Olea africana) from Dessa, and the axes are bought or made in Mekelle. Sometimes extractors ask caravan merchants to buy new tools for them in Mekelle as replacements, because they are cheaper there. Alternatively, tools may be purchased in Berehale or Hami-dela. Salt extractors reported paying 60 birr (3.46) for the iron blade of the axe, 18 birr for its wooden handle, and 20-30 birr for the pair of levering sticks (Figure 45). However, a trader at Hami-dela stated that he sold the wooden handle of the axe for 20 birr ($4.62), the blade for 60 birr ($3.46), and the pair of sticks for 50 birr ($5.78).
Salt extractors do not have permanent clients as they are assigned to work for caravan merchants the night before. Salt extractors are the first to arrive at the salt plains, at around 3-4 am. The decision on where to extract salt is made the previous day by a committee of at least two people, including one extractor and one shaper. Informants stated that agreement on where to extract was influenced by what parts of the salt plains were already harvested, as well as the whiteness and thickness of the salt crust (Figure 46). The extractors are guided by the fact that caravan merchants prefer blocks that are white, and the need to extract from sections with thick crusts as that makes the shaping process easy.
The salt extracting process starts when the extractors arrive at the salt plains in the early morning. According to salt extractors, they draw an outline of the section they intend to extract using the sticks or the axe. The axe is used to crack and demarcate smaller sections according to the intended sizes of the slabs (Figure 47). The sticks are inserted into the cracks and pressed downward to detach and lever slabs of salt. The sizes of the resulting salt slabs vary greatly, based on who the extractors are and the specific locations where the slabs are extracted.
Once the slabs are detached and levered, the extractors proceed to chop them into smaller pieces, using their axes, depending on the types of blocks the caravan merchants have requested. While some salt extractors indicated that they discarded broken pieces of the wooden sections of their tools and stones at the salt plains, others said they discarded them outside the plains as they “spoil” the salt. Old sticks and broken axe handles may also be used as fuel for fire. Worn out axe blades are taken home for use or discarded outside the salt plains.

5.3.5.2 Salt Shapers

Salt shapers have client relationships with caravan merchants from different parts of Tigray. Some salt shapers live permanently in Hami-dela, but others come from other Afar settlements, including Berehale, Dalol, and Aba Ala. However, the majority of the salt shapers consulted and observed during this fieldwork were from Berehale.

The tools used by the shapers and their assistants also include an axe and a sharpening stone (Figure 48). The shapers reported paying 60 birr ($6.93) for the axe blade and 50 birr ($5.78) for the wooden handle (Table 11). When in need of new axes, salt shapers may ask their caravan merchant clients to buy tools from highland areas for them because these tools are made in Tigray region, and sold in Mekelle. However, the tools can also be purchased from traders at the weekly market of Berehale or from traders stationed in Hami-dela. Comparatively, the wooden part of the axe used to shape the salt is smaller than that used by the extractors, but the blade is broader. Salt shapers also noted that their worn out axes are taken home and used to chop wood. Old or broken wooden axe handles are discarded or used as fuel for fires.
Figure 48. Salt shaping axe and sharpening stone, salt plains

Table 11. Salt Shapers and Assistants Interviewed, Berehale

<table>
<thead>
<tr>
<th>Name</th>
<th>Age</th>
<th>Cost of axe</th>
<th>Source of Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>HA1</td>
<td>55</td>
<td>110 birr</td>
<td>Highland</td>
</tr>
<tr>
<td>HA2</td>
<td>36</td>
<td>110 birr</td>
<td>Highland</td>
</tr>
<tr>
<td>HA3</td>
<td>35</td>
<td>110 birr</td>
<td>Highland</td>
</tr>
<tr>
<td>HA4</td>
<td>34</td>
<td>110 birr</td>
<td>Highland</td>
</tr>
<tr>
<td>KO1</td>
<td>35</td>
<td>110 birr</td>
<td>Highland</td>
</tr>
<tr>
<td>KO2</td>
<td>25</td>
<td>110 birr</td>
<td>Highland</td>
</tr>
</tbody>
</table>

Once the salt extractors cut the salt slabs into smaller sizes, shaper’s assistants help to move them closer to the shaper client of the mahaba member in question. The assistant cleans protruding edges off and passes them to the shaper, who proceeds to carve one of the six sides of the salt block at a time. It takes about 1-3 minutes to shape a block of salt, depending on experience (Figure 49). Most shapers reported producing about 600 blocks per day of work. As noted earlier, the specific type of blocks (gariwanai, goloor, and telfen) they produce is dictated by their clients.
Salt shapers sell salt blocks in batches of 60 and charge according to the type of blocks: 2.5 birr ($0.28) per block of telfen; 1.25 ($0.11-0.14) for a block of goloor; and 1 birr ($0.11) per block of gariwanai. In addition, they receive one goatskin worth of water and a loaf of hambasha, a type of bread made at home by their spouses (O’Mahoney 1970). For their clients who are from the Afar region, they shape Afar goloor. These Afar caravan merchants pay them less, 40 Ethiopian cents per block. In addition, they shape a fourth type of block called ankarebe, which they give as gifts to caravan merchants and friends.

Shapers and their assistants use the same tools. Shaper’s assistants live with the salt shapers, extended family, friends, or rent rooms in Hami-dela. The primary role of the shaper’s assistant is to carry and clean rough salt blocks before they get to the shaper. These assistants are paid 2 birr per camel load, making up to 100 birr ($11.56) on a good day; perhaps it was this group that Gerster described as pickers in the 1970s (Gerster 1974). Shaper’s assistants go on to become full shapers in four to six months, depending on how fast they master the art of salt shaping, according to informants.
5.3.6 Mekelle

Mekelle is an important stop in the salt trade (see Figure 8) because most caravan merchants sell their salt there directly to resident salt merchants or at a designated salt market. At this stop, caravan merchants also interact with resident salt brokers. The main activities caravan merchants undertake on arrival in Mekelle include setting up camp at the salt market located at ‘Industry 05’, unloading and displaying their salt for sale, and/or taking the salt directly to the processing shops of major salt merchants located in various parts of Mekelle.

On a typical day, caravan merchants who arrived and camped at the salt market the night before, as well as those who camped at Kalashamini overnight and arrive early in the morning, start selling their salt from about 6 am. The salt is unloaded and piled up for sale, with buyers walking around from one caravan merchant to the next inspecting salt blocks and bargaining for lower prices (Figure 50). Buyers observed at the market include major salt merchants, minor salt merchants, merchants from out of town, cattle breeders, small traders, as well as individuals buying salt for home use. Sometimes the competition between buyers causes conflict, which may involve physical altercation.

Figure 50. Caravan merchants and salt buyers interacting at salt market, Mekelle
Caravan merchants confirmed that the prices at which they sold their salt blocks were not fixed and depended on a number of factors. These factors include the quality of the salt block, such as whether it is broken or how white it is, the time of the salt season, as well as the market forces of demand and supply. For example, the price ranges provided by informants for the three standardised salt blocks were *telfen* 7-14 birr ($0.08-1.61); *goloor* 6-9 birr ($0.61-1.04) and *gariwanai* 4-7 ($0.46-0.80). However, during this study, the prices were mostly on the lower end of what was stated by informants.

Another interesting observation made at the salt market, confirmed by both caravan merchants and major merchants, is that only *telfen* and *goloor* are sold at the market. *Gariwanai* is delivered directly to the shops of major salt merchants, who process it into *amole*. Also at the salt market, it was observed that salt brokers walked around helping caravan merchants, as well as buyers from out of town. Salt brokers and hired labourers, some of them boys aged 10-15, were seen carrying purchased blocks to nearby storage shops. In other cases, the salt blocks were transported by horse-drawn carts to shops in other parts of Mekelle.

In and around the salt market, women were observed selling food, tea, and local beverages to caravan merchants. Remains noted at the salt market included pieces of salt loading equipment, straw fed to animals and straw used to pad salt blocks for transportation. Animal droppings were also a regular feature of the salt market, and girls aged 8-11 were observed collecting animal droppings to be used as fuel at home.

### 5.3.6.1 Minor Salt Merchants

Minor salt merchants are one of two groups of men who make a living buying salt from caravan merchants and selling it to buyers in Mekelle or buyers from other parts
of Ethiopia. According to informants capital of about 5,000 birr ($578.03) is enough to start as a minor salt merchant, while about twice as much is needed to commence as a major salt merchant. Another difference between the two groups is that the minor merchants do not have shops with a staff to process salt into amole. As well, most of them rent storage space at a cost ranging from 100-200 birr ($11.56-23.12) per month, while most major merchants own their shops. In spite of these differences, both groups pay the same amount to labourers to move salt to their storerooms in Mekelle. Other similarities between the two groups include the sources of their salt, taxation, cost of transportation, as well as the locations of their clients.

Minor salt merchants confirmed that they buy and sell only goloor and telfen salt blocks. In instances where they need more salt blocks, they make use of the services of salt brokers, who identify and introduce caravan merchants to them at the salt market. In return, they pay the salt brokers 2 birr ($0.23) for every 100 blocks purchased from introduced caravan merchants. Minor salt merchants buy the bulk of their salt from the salt market, and reported purchasing at least 60 blocks and at most 600 blocks from the salt market at one time. This may explain why most of them have their storage rooms near the current salt market, while their major counterparts have their shops located in various parts of Mekelle. Some of the storerooms belonging to minor salt merchants visited had over 2,000 blocks. Minor salt merchants reported buying and selling upwards of 6,000 blocks per salt season.

In addition to buying salt directly from caravan merchants in Mekelle, minor salt merchants also send agents to Berehale to buy salt. They pay agents 35 Ethiopian cents per block of telfen and 25 cents per block of goloor purchased. Sometimes they
buy salt from middle merchants based in Berehale when the price is higher or the supply is low in Mekelle. They reported buying upwards of 2,000 blocks from Berehale per salt season. Purchased blocks are stored in Berehale for them at a cost of 10 Ethiopian cents per block per month. The salt is transported on trucks to Mekelle, as well as to other parts of Ethiopia. Loading salt blocks for transport involves padding them with straw to prevent abrasion, a bale of which costs 30 birr ($3.46). The cost of unloading salt blocks on arrival in Mekelle was reported as 5 cents per block of goloor and 10 cents per block of telfen.

Minor salt merchants sell their salt blocks to clients in Mekelle and other parts of the Tigrai region, the Amhara region, and other parts of Ethiopia; however, few reported having clients in Addis Ababa. In Mekelle, they sell salt to major merchants or other minor merchants, in addition to small traders. According to informants, when salt is transported outside Mekelle to their clients, such clients pay the cost of transportation. They also added that the preferred time to sell salt was from May to August. This period is an active farming season and no highland caravan merchants collect salt. The months of April, May, and June are a prime time to sell salt because most farmers in Ethiopia stock salt for the farming season.

Informants also stated that cultural and natural factors affect the prices of salt as they influenced demand and supply. During festivities and religious celebrations, the price of salt was said to drop sharply as many caravan merchants collect salt to sell in preparation for such events. Additionally, many caravan merchants collect salt in June, the last month of the salt season for most highland caravans, which causes prices to drop. The same situation occurs at the start of the salt season in September. In September,
there is a lot of food for pack animals, and they are stronger, enabling them to carry more salt. However, in July the price of salt rises because caravan merchants stop collecting due to farm work, and rain, which makes the movement of caravans and their animals difficult. For example, during festivities, and in September, the reported price of a block of *telfen* was 7 birr ($0.80), but rose to 12 birr ($1.38) in July according to informants.

Prices of salt from November to January are generally stable. Minor salt merchants reported buying *telfen* salt blocks for between 7.5 to 8.5 birr ($0.86-0.98), and selling them for 8 to 9 birr ($0.92-1.04) during this period. However, they sold the same blocks for 13-15 birr ($1.50-1.73) between May and August. As with the other groups involved in the salt trade, there is information flow regarding prices amongst minor salt merchants. This group of merchants had no merchant organisation, and saw no need for such an organisation. They were fearful that a merchants association would result in domination by the major merchants, who tend to be much wealthier, and more influential.

### 5.3.6.2 Major Salt Merchants

Major salt merchants stated that most of them were previously involved in the salt industry as caravan merchants, workers in salt processing shops, salt brokers, or had relatives who were salt or caravan merchants. This group is designated major merchants because its members invest more money in the salt trade compared to their minor counterparts and rely on the salt trade as a principal source of their livelihood. The minimum capital required to start as a major salt merchants was reported as 10,000 birr ($1,156). Major merchants trade in salt blocks, in addition to processing blocks into *amole* in shops for sale (Figure 51).
The major salt merchants recognised three main types of salt: *reged* salt, collected and sold to them by caravan merchants from the Lake Assal section of the Danakil Depression; *ashale* salt, quarried from *Ashale* hill in the salt plains and used for medicinal purposes; and *ashawo* salt, white salt obtained from Lake Afedera in southern Afar and from neighbouring Eritrea and Djibouti. *Ashawo* salt is in small crystals, and is not formed into salt blocks. It is important to note that only the salt from Lake Assal is regarded as traditional, widely used and from which *amole* is carved. Major salt merchants trade only in *reged* salt.

Similar to their minor counterparts, this group of merchants had no association because they saw no need. In addition, they obtain their salt supplies from multiple sources including Berehale and the Mekelle salt market. Details about the purchase, storage, and transport of salt from Berehale have already been described. Major merchants also use salt brokers to attract sellers who are not their clients. Generally, forces of demand and supply, requests from clients, quantity already purchased, and the
quality of salt blocks influence the quantity of salt purchased. Some of the merchants in this group who purchase goloor and telfen from the Mekelle salt market pay 10-20 birr ($1.15-2.31) per 100 blocks to transport the salt blocks, sometimes on horse-cart, to their shops in various parts of Mekelle (Figure 52).

![Horse drawn cart transporting salt, Mekelle](image)

Figure 52. Horse drawn cart transporting salt, Mekelle

Many caravan merchants were observed delivering gariwanai salt blocks to the shops of major merchants at night. Informants confirmed that new laws required that salt be sold and purchased at the Mekelle salt market only. Both major salt merchants and caravan merchants were unhappy about this rule. On the other hand, the authorities contend that the presence of pack animals obstructed vehicular traffic. They also cited the droppings of pack animals on the streets of Mekelle for the ban, as well as the relocation of the salt market, from the old market located in the town centre, to its current location on the outskirts of the town. As was observed, major merchants and their caravan merchant clients have found ways to circumvent the rule. Caravan merchants
camp at Kalashamini, 20 km away, until dark, and then they sneak to the shops of their merchant clients in different parts of Mekelle (Figure 53).

The cordial relationship between major salt merchants and caravan merchants allows caravan merchants to store salt at the shops of major merchants if they do not wish to sell because the price is low. It also makes it possible for major merchants to buy salt on loan and pay the caravan merchants later. These merchants noted that the majority of caravan merchants who sell gariwanai were from the immediate vicinity of Mekelle, including Enderta, Agula, and Wukro. Major merchants also stated that Enderta people had the oldest tradition of salt trading. They confirmed that the oldest of the three standardised blocks was gariwanai, from which amole is carved. In fact, they reiterated the claims by most informants, including older former Enderta caravan merchants, that amole was originally carved by the Enderta people.

Price fluctuations apply to gariwanai blocks as they do with telfen and goloor described earlier. The price of gariwanai differs between Berehale and Mekelle, a reason why some major merchants have agents in Berehale who buy salt for them at a cheaper
price. For example, between December and January *gariwanai* blocks sold for 2.5 to 3.5 birr ($0.28-0.40) in Berehale and 4 to 6 birr ($0.46-0.69) in Mekelle, depending on quality. In contrast, from April to July the prices reach 4 birr ($0.46) in Berehale and 7.5 birr ($0.86) per block in Mekelle. The major merchants reported buying upwards of 3,000 blocks of *gariwanai* from Berehale, and 500 to 3,000 in Mekelle at one time.

To process *gariwanai* blocks into *amole* bars, major salt merchants hire a staff to cut, shape, and bind *amole* in shops. Of the 14 major merchants consulted during this study, 11 owned their processing shops, and nine had their shops in their homes. These shops measured from 4 x 5 m to 10 x 10 m. The few of them who rented space to serve as processing shops reported paying 250 to 700 birr ($28.90-80.92) per month, depending on size. Most merchants noted that it was beneficial to have shops in their own buildings because they would not pay rent and could supervise workers easily (Figure 54). The major salt merchants confirmed that it was their responsibility to provide some of the tools and materials used by the workers: a saw, sharpening metal objects, ropes, and *aja*, a plant fibre used to bind *amole* bars.

![Salt workers cutting, shaping and binding *amole*, Mekelle](image-url)
The number of workers per shop ranged between four and eight per major salt merchant. Those merchants who had more workers had larger or two processing shops. It was also observed that processing was moved from one room to another, depending on the quantity of salt stored, and how much is processed. Major salt merchants stated that workers were paid weekly, based on the number of amole bars produced. The standard pay as of March 2005 was 6 birr ($0.69) for 100 tied amole bars to the binder and 4 birr ($0.46) to amole cutters and shapers for the same number of bars. Other costs to the merchants include 30 birr ($0.34) for the salt cutting saw, 5 birr ($0.57) for aja intended for 100 bars of amole, and 1.6 birr ($0.18) for ropes needed to parcel amole bars into packages of 100. The quantity of amole produced, according to informants, varies depending on demand and supply and the number of workers hired to produce amole. Some shops produce up to 50,000 amole bars per week, while others produce only 1,500 bars per week.

Major salt merchants pay taxes to the Tigrai Regional Authority based in Mekelle. They reported paying annual taxes of 2,000 to 4,000 birr ($231.21-462.42). Although most of them noted that the present tax rates started in 2001, they refused to disclose the criteria by which their taxes were determined. Many thought the taxes were high compared to the past, when taxes paid were 600 birr ($69.36) per vehicle load of amole leaving Mekelle.

The majority of major merchants stated that they had clients, agents, or both, in other major towns in Tigrai as well as in major towns in other regions including Addis Ababa, Gondar, Gojam, and Dessie. Major merchants who use agents are responsible for the cost of transporting, loading, and unloading amole as well as its storage. On the other
hand, when *amole* is shipped to clients on demand, those clients pay the cost of transportation. Merchants reported that the cost of loading and unloading *amole* transported by trucks from Mekelle to Addis Ababa was 3-5 birr ($0.34-0.57) per 100 bars, while the cost of transporting 100 bars of *amole* from Mekelle to Addis Ababa ranged between 20-30 birr ($2.31-3.46). Some of the salt merchants who noted that they used agents said they paid 5 birr per month to store 100 bars of *amole*.

According to salt merchants, *amole*, used as money in the past, is still cut, banded and packaged the same way as it has been for centuries because the Ethiopian people have a traditional connection with *amole* from when it was used as money. They also stated that *amole* still plays a role in social networks in other parts of Ethiopia. For example, among the Oromo people *amole* is presented as part of the bride wealth, given to newly married couples as gifts, and given as gifts to women who have had babies. *Amole* is also fed to animals and used as salt for cuisine.

As noted earlier under minor merchants, major merchants also sell most of their salt during the farming season, when the price of salt is higher. These merchants sell *amole* only in bulk, in packages of 100 bars or 1 quintal. The selling price per bar of *amole* was stated as 1.8 birr ($0.20) from October to December, 2.4 birr ($0.27) by April, and up to 2.8 birr ($0.32) thereafter. To maximise their profits, most merchants focus on processing salt blocks into *amole* from September to March, and start selling after April, when the price has peaked at 280 birr ($32.36) per 100 bars of *amole*. Regarding the quantities of *amole* bars sold per year by a major salt merchant, the most reported was 180,000 bars. Together, the major salt merchants reported selling 9,650 quintals of salt (965 tonnes) in 2004.
5.3.6.3 Amole Processing

Amole processing may occur in multiple rooms depending on availability of space, quantity of salt processed, different quality in blocks, as well as the amount of accumulated residue from cutting and shaping amole. The oldest processing shop visited was reported to have been in use for the past 50 years. In the major merchant shops visited, three types of workers were employed to cut, shape, and bind amole bars for sale (Table 12). These workers confirmed that they were paid weekly based on the number of amole bars they produced at 4 Ethiopian cents per bar to the cutter (chidali) and shaper (sarafe), and 6 cents per bar to the binder (terafi). According to major merchants, they pay salt binders more because they are few, and their work requires more skill.

<table>
<thead>
<tr>
<th>Name</th>
<th>Origin</th>
<th>Age</th>
<th>Task</th>
<th>Years in trade</th>
<th>Amole per day</th>
<th>Amole per week</th>
<th>Pay per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>CU1</td>
<td>Enderta</td>
<td>76</td>
<td>Cutter</td>
<td>52</td>
<td>900</td>
<td>3600</td>
<td>144 birr</td>
</tr>
<tr>
<td>SH1</td>
<td>Agula</td>
<td>55</td>
<td>Shaper</td>
<td>8</td>
<td>900</td>
<td>3600</td>
<td>144 birr</td>
</tr>
<tr>
<td>TI1</td>
<td>Mekelle</td>
<td>65</td>
<td>Binder</td>
<td>50</td>
<td>250</td>
<td>1000</td>
<td>60 birr</td>
</tr>
</tbody>
</table>

Interviews with both merchants and workers revealed that the working week varied from one shop to the next and from one worker to the other. Christians worked for four days, while Muslims worked up to seven days in a week. Informants also stated that salt cutters, and to a lesser extent, salt shapers, work at other shops. For example, if a Muslim cutter works mostly for a Christian major merchant, that worker could work for another merchant on the days that the Christian merchant does not open his shop for religious reasons. Most of the workers in the shops were drawn from Mekelle and surrounding villages, as well as Agula and Wukro. Those from Mekelle lived in their own homes, built with income from their trade, while those from outside Mekelle rent space or live in the shops where they work.
The manner in which workers operate is the same in all the *amole*-processing shops. The salt cutter sits on a high elevation, on top of blocks of salt, a chair, or stool, and has a platform made of two cement blocks or salt blocks in front of him (Figure 55). The cutting blocks have a gap of 5-10 cm to make room for the front end of the saw during cutting. With the salt blocks to be cut piled to his side, the cutter picks them up, places them over the cutting platform, and proceeds to cut. No measurements are made, but initial points of cutting are indicated with the saw to ensure that the pieces cut are comparable in size. The cutter uses a saw to cut *gariwanai* into three equal pieces, and places them towards the shaper. He cleans and sharpens his saw using a file called *mebred*. The cutting creates residue, most of it a fine and white salt powder. Some informants in this group reported cutting up to 900 bars per day and 3,600 bars per week.

![Salt cutter at work, Mekelle](image)

The next stage in the process is shaping the cut bars (Figure 56). The shaper squats or sits on a low stool, facing the binder, and slightly to the front of the cutter, serving as the link between the cutter and binder. He picks up two rough bars at a time,
placing them on the floor, or on salt residue, and shaves them on each of their six sides to create even surfaces.

![Salt shaper at work, Mekelle](image)

Figure 56. Salt shaper at work, Mekelle

Some shapers reported producing up to 900 bars per day and 3,600 per week. According to shapers, their work enhances the binding of *amole*, which gives it a nice look and makes it easy to package. The shapers in the processing shops employ the same type of axes used by the shapers at the salt plains. They reported purchasing their own axes at cost ranging from 30 to 50 birr ($3.46-5.78) depending on quality. They also use a stone to sharpen their axes.

The final stage of the actual processing is binding the shaped bars with *aja* to make them the traditional *amole*. *Aja* is a plant fibre obtained from the leaf of the plant called *egiara*, a species of *Agave*. The binder picks up a shaped bar and cleans it with a soft broom (*mengefit*) made from *aja*. He then holds the bar on his knee on a rag, and binds it by running two layers of *aja* over its edges. The final strand of *aja* on each edge is knotted using a thin knife (*kara*). Binders bind up to 250 *amole* bars per day and about
1,000 bars per week. Measurements of ten amole blocks taken after shaping provided an average of 24 x 5 x 5 cm, and a weight of 1.31 kg (Figure 57 and 58).

![Figure 57. Salt binder at work, Mekelle](image)

It is interesting to note that the basic nature and form of amole has not changed much over the years. In the 17th century, measurements of amole were noted as 20.32 x 3.30 x 3.30 cm, and in the early 20th century as 25 x 5 x 5 cm and a weight of 2.26 kg (Pankhurst 1961, 1968). While there are differences in the exact measurements of amole from the past to the present, the present measurements are in the range of what was reported in the past. The most important factor that may account for variations in the size and weight of amole may be the layers from which the salt was extracted at the salt plains.
as well as the skills of the workers involved in their production. As a result, no two bars of *amole* are the same on close examination, a situation confirmed by direct observation and the measuring of multiple salt blocks and *amole* bars.

After the bars are bound, they are packaged with tiny fibre ropes or *gemed* into sets of ten each, using a tool called *mefkekit*. The salt binders usually undertake this task. As part of this, bars are further packaged in sets of 100 (Figure 59) for shipment to destinations all over Ethiopia.

![Figure 59. Packaging *amole* into a set of 100, Mekelle](image)

The biggest pile of salt residue measured was 90 cm high in a shop that had been in use for 50 years; 8.82 x 4.62 m. Its owner stated that the residue had accumulated from September 2004 to March 2005 and he estimated that the pile resulted from 160,000 kg of *amole*. The actual residue was estimated at 50,000 kg of salt (Figure 60). The processing residue is shovelled into fertilizer sacks to make room and space for work or salt. It was reportedly sold to buyers from Mekelle or elsewhere who use it in leatherwork, as food for animals and for human consumption. Major salt merchants
reported selling 100 kg of residue in the range of 40-80 birr ($4.62-9.24). Some salt workers noted that 100 bars of \textit{amole} yielded 50 kg of residue.

Figure 60. Salt residue, salt blocks, and \textit{aja} in a shop, Mekelle

Other contents of processing shops include sacks used to store salt residue, processed and unprocessed \textit{amole}, salt blocks, cutting platforms, ladders, ropes, weighing equipment (\textit{mizan}), shovels (\textit{megafya}), the tools used by workers, as well as personal belongings of workers. Old tools used to process \textit{amole} are discarded at home, and broken axe handles are used as firewood, according to the workers. Axes no longer suitable for shaping salt are taken home and used to chop wood. As well, old saws not capable of cutting efficiently are sold to small traders of salt, who use them to cut salt blocks into smaller pieces for sale.

The use of \textit{aja}, from \textit{egiara} (a species of \textit{Agave}), to bind \textit{amole} goes back many generations, and remains an integral part of \textit{amole} processing. It is therefore important to explain how it is prepared for use. According to informants, \textit{egiara} grows only in the lowland region of Afar, including the Aba Ala area. It is dried and packaged for sale directly to major salt merchants in Mekelle. The processing of \textit{aja} and its use to bind
salt, some older informants noted, was the responsibility of women in the past, when *amole* was cut and shaped by caravan merchants at home.

Presently, purchased *aja* is soaked in water contained in a drum (*tisit*) for twenty minutes, taken out, rinsed, and covered for use the next day. The rinsing of *aja* produces white foam (Figure 61). Today, its multiple strands are split using a knife, then it is softened by stretching individual strands over a blunt piece of metal (*meshergege*) before use. Informants stated that in the past *aja* was soaked in a nearby river called *Mai Areb*, and was split by women who used sharp hairdressing tools. Remains of *aja*, water from rinsing *aja* and trash from processing shops are dumped in front of shops or at communal dumping sites in and around the shops.

![Figure 61. Rinsing *aja* in front of major merchant shop, Mekelle](image)

### 5.3.6.4 Salt Brokers

Salt brokers (Figure 62) enhance the salt trade by their work for caravan merchants as well as minor and major salt merchants. Brokers are mostly males, although informants noted that from time to time females are involved. They are from Mekelle and generate income from the salt trade by connecting buyers and sellers of salt for commissions and rewards. They are paid 2 birr ($0.23) for every 100 blocks major
and minor merchants buy from caravan merchants, and caravan merchants give them a block of salt or 3 birr ($0.34) if they help them find buyers for their salt. In addition, salt brokers serve as hired labourers, and are paid 10 Ethiopian cents or 1 birr to carry or transport salt blocks to storage rooms or shops located 50 m and 1 km away respectively. Their other role is to load and unload salt from Berehale or to be transported to Addis Ababa as well as other provinces. The rate for their work in this area is 3 to 5 birr ($0.34-0.57) per quintal (100 bars of amole). To supplement their pay, they buy salt from caravan merchants at cheaper prices and sell small quantities to individuals and small traders.

Figure 62. Salt broker camping with caravan merchants at night, Mekelle

Salt brokers do not have client relations with caravan merchants or salt merchants, but tend to align with those they had previously worked with. Their services are needed most by major merchants when they require more salt. Because of the nature of their work, salt brokers spend most of their time in the Mekelle salt market, and near salt processing shops or storage rooms. On some occasions, they make trips to Kalashamini to meet caravan merchants and to persuade them to use their help to find buyers. Some
brokers assisting major salt merchants even camp with caravan merchants at Kalashamini and walk with them to Mekelle.

5.3.6.5 Small Traders

The last group involved in the salt trade are male and female small traders who buy and sell salt in Mekelle. Small traders buy their salt from major and minor merchants, and directly from caravan merchants at the salt market. According to them, they prefer *telfen* blocks, as they are bigger. As of this study, small traders purchased a block of *telfen* for 10 birr ($1.15) and paid 25 Ethiopian cents to transport a block to their locations. In most cases, small traders sell salt and other items including corn, sugar cane, pepper, beans, canned food, and oil (Figure 63, Table 13 and 14).

![Figure 63. Small trader selling salt, Mekelle](image)

<table>
<thead>
<tr>
<th>Name</th>
<th>Age</th>
<th>Sex</th>
<th>Location of trader</th>
<th>Source of salt</th>
<th>Cost of <em>telfen</em> salt block</th>
<th>Price range of pieces of salt sold</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>50</td>
<td>F</td>
<td>Old Market</td>
<td>Salt Market &amp; Merchant shops</td>
<td>10 birr</td>
<td>25 cents to 2 birr</td>
</tr>
<tr>
<td>P2</td>
<td>77</td>
<td>M</td>
<td>Old Market</td>
<td>Salt Market &amp; Merchant shops</td>
<td>10 birr</td>
<td>25 cents to 2 birr</td>
</tr>
<tr>
<td>P3</td>
<td>40</td>
<td>F</td>
<td>Old Market</td>
<td>Salt Market &amp; Merchant shops</td>
<td>10 birr</td>
<td>25 cents to 2 birr</td>
</tr>
</tbody>
</table>
Table 14. Small Traders Observed, Mekelle

<table>
<thead>
<tr>
<th>Small traders in Old Market</th>
<th>Sex</th>
<th>Salt Block</th>
<th>Salt Pieces</th>
<th>Other Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>F</td>
<td>No</td>
<td>Yes</td>
<td>Corn</td>
</tr>
<tr>
<td>2</td>
<td>F</td>
<td>No</td>
<td>Yes</td>
<td>Sugar Cane</td>
</tr>
<tr>
<td>3</td>
<td>M</td>
<td>Yes</td>
<td>Yes</td>
<td>Non</td>
</tr>
<tr>
<td>4</td>
<td>F</td>
<td>No</td>
<td>Yes</td>
<td>Pepper</td>
</tr>
<tr>
<td>5</td>
<td>F</td>
<td>No</td>
<td>Yes</td>
<td>Non</td>
</tr>
<tr>
<td>6</td>
<td>M</td>
<td>Yes</td>
<td>No</td>
<td>Non</td>
</tr>
<tr>
<td>7</td>
<td>M</td>
<td>Yes</td>
<td>Yes</td>
<td>Non</td>
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<td>8</td>
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<td>Yes</td>
<td>Non</td>
</tr>
<tr>
<td>9</td>
<td>M</td>
<td>Yes</td>
<td>Yes</td>
<td>Non</td>
</tr>
<tr>
<td>10</td>
<td>M</td>
<td>Yes</td>
<td>Yes</td>
<td>Non</td>
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<tr>
<td>11</td>
<td>F</td>
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<td>12</td>
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<tr>
<td>13</td>
<td>F</td>
<td>No</td>
<td>Yes</td>
<td>Non</td>
</tr>
</tbody>
</table>

Small traders in New Market

<table>
<thead>
<tr>
<th>Small traders in New Market</th>
<th>Sex</th>
<th>Salt Block</th>
<th>Salt Pieces</th>
<th>Other Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>F</td>
<td>No</td>
<td>Yes</td>
<td>Beans</td>
</tr>
<tr>
<td>2</td>
<td>F</td>
<td>No</td>
<td>Yes</td>
<td>Non</td>
</tr>
<tr>
<td>3</td>
<td>F</td>
<td>No</td>
<td>Yes</td>
<td>Canned food</td>
</tr>
<tr>
<td>4</td>
<td>F</td>
<td>No</td>
<td>Yes</td>
<td>Canned food</td>
</tr>
<tr>
<td>5</td>
<td>F</td>
<td>No</td>
<td>Yes</td>
<td>Canned food</td>
</tr>
<tr>
<td>6</td>
<td>F</td>
<td>No</td>
<td>Yes</td>
<td>Canned food</td>
</tr>
<tr>
<td>7</td>
<td>M</td>
<td>Yes</td>
<td>No</td>
<td>Pepper</td>
</tr>
<tr>
<td>8</td>
<td>F</td>
<td>No</td>
<td>Yes</td>
<td>Oil</td>
</tr>
<tr>
<td>9</td>
<td>F</td>
<td>No</td>
<td>Yes</td>
<td>Oil</td>
</tr>
<tr>
<td>10</td>
<td>F</td>
<td>No</td>
<td>Yes</td>
<td>Oil</td>
</tr>
</tbody>
</table>

Small traders stated that on a good day they sold five blocks and made a profit of 4 birr ($0.46) per block. Observations and interviews confirmed that some sold whole blocks for 11 birr ($1.27), but most cut the blocks into smaller pieces. Pieces of different sizes were sold for as low as 25 cents, and as high as 2 birr ($0.23). These traders indicated that their trade was old and that they sold salt to both men and women, as it is a vital necessity for all human beings. A week of observations and interviews revealed that male small traders tended to have more supplies than the females, and they tended to sell more whole blocks compared to the females. Some male small traders claimed that it
was because they had more capital and because selling salt in the past was a male vocation, assertions female small traders did not dispute.

5.4 Summary

This chapter presented the results of fieldwork conducted between the source of salt in the Lake Assai section of the Danakil Depression in the Afar region, and Mekelle, the major hub of the salt trade in the Tigrai region. Detailed information on the specialists and their roles in the salt industry was collected and described. In this regard, the participation of fukure and salt brokers were revelations that were not reported in literature related to the salt trade of northern Ethiopia. Equally important were the specialists who cut, shape, and bind amole in processing shops. In addition, this work collected detailed information on aja, an important component of the forming of amole for sale. Specifically, this fieldwork shows that the caravan merchants are central to the salt trade, and are the only group that interacts with all the other groups involved in the salt trade in northern Ethiopia. Second to them are the major salt merchants, who purchase salt and increase its value by hiring staff to process blocks into amole for sale.

The interactions and dynamics of the participants in the salt trade from the source of the salt to the central distribution point were observed and documented, allowing a more complete understanding of this complex trade system. Interviews and observations confirmed that the salt trade is as vibrant as described by earlier visitors to Ethiopia, and continues to be a source of livelihood for thousands of people, from the workers at the salt plains to those who sell the salt in the Addis Ababa market; this cannot be overstated (O'Mahoney 1970). Fieldwork for this study also revealed that some aspects of the technology used to extract, pack, transport and process salt remain unchanged (Salt 1814;
Munzinger 1969; O’Mahoney 1970). The socio-economic benefits of participating in the salt trade, and the continuities and changes in the salt trade will be discussed in the remaining chapters of this study.
CHAPTER 6: SOCIO-ECONOMIC AND MATERIAL CORRELATES

6.1 Introduction

The importance of Danakil salt to the inhabitants of the Ethiopian highlands is evident from historical reports reviewed. According to Abir (1966), amole or salt money facilitated inter-regional trade in Ethiopia and was indispensable in the long distance caravan trade. Pankhurst (1968) points out that amole was used in Tigrai, Amhara, Begemder, Gojam, and Shoa. Today, amole is not used as currency but is still made in the same way, looks the same, and is distributed throughout Ethiopia from Mekelle, the hub of the trade in northern Ethiopia. The socio-economic and political role of Danakil salt was documented as early as in the 6th century A.D. Salt and its trade was a source of wealth to local and regional leaders alike. These leaders taxed salt, worked to enhance its trade, and sometimes directly sent their own caravans to collect salt (Bruce 1813; Wolska-Conus 1968; Beckingham and Huntingford 1961; Pankhurst 1961, 1968; Arrowsmith-Brown 1991; Pearce 1923; Gerster 1974).

This chapter builds on chapter five, which looked at salt production and distribution by focusing on the household and domestic perspectives of the salt trade. It also presents information regarding the past and present socio-economic role of salt, as well as material correlates of the salt trade. Based on components of domestic space, and number of animals, it is suggested that those involved in the salt trade gain wealth, which they use to gain and maintain higher social status.
6.2 Political Dimensions of the Salt Trade

The use of salt as a medium of exchange as well as its role as a necessary part of the diets of highland Ethiopians and their animals, among its many other uses, are perhaps reasons why collecting and trading salt from Lake Assal has not always been peaceful, although recent political changes have created relative peace. Earlier accounts implying that salt caravans have always been organised along military lines (Pankhurst 1968, 1990; Englebert 1970; O'Mahoney 1970; Giday 1987) seem justified. The salt caravans remain well structured and engage in methodical planning and preparation before and during trips, as reported by earlier writers on the salt trade. Insecurity and danger associated with the salt trade were the chief reasons why officers were appointed to oversee the salt trade. In the past, highland caravans had a Baalgada, an official responsible for the administration of the salt industry.

Subordinate to the Baalgada was the Shum Bahri, a person chosen by the people of his community to lead them in salt extraction. Duties of the Shum Bahri included announcing dates for departure to the salt plains, leading caravan merchants to the salt plains and ensuring they acted properly, and collecting taxes (Giday 1987). As was the case in the past, each mahaba has a leader who directs and ensures the smooth movement of the salt caravans (Englebert 1970; O'Mahoney 1970; Giday 1987). Presently, the mahaba leader also collects and pays taxes on behalf of his mahaba, although the offices of the Shum Bahri and Baalgada no longer exist. To provide a better understanding of the political aspects of the salt trade as well as clarify the relationship between the Baalgada and the Shum Bahri, a former Shum Bahri (Figure 64), and a retired caravan
merchant, both in their late 80s, and considered oral historians were consulted in Chin Feras and Adi Ainawalid.

Figure 64. *Shum Bahri*, Chin Feras

According to the elder informants, *mahaba* leadership recently became prominent because the office of the *Shum Bahri* was disbanded after the fall of the imperial government under Emperor Haile Sellassie in 1974. The office of *Shum Bahri* survived longer than that of the *Baalgada* but all three positions, *mahaba* leader, *Shum Bahri* and *Baalgada*, worked together in the past. The elder informants stated that the *mahaba* leadership was at the village level, the *Shum Bahri* had jurisdiction over an entire district, while the *Baalgada* had regional authority. The *Shum Bahri*, they added, was usually a caravan merchant or someone directly connected to the salt trade such as the son of a caravan merchant or a person who sent his animals to collect salt. Such a person had to be a good public speaker, wealthy, respected, trustworthy, and brave.

The two elders further stated that in their lifetime, *mahaba* groups in different *emba* (*tabia* in the present context) selected the candidate for the *Shum Bahri* position, and that person was then confirmed by the imperial government. Each *kushet* (village)
had *mahaba* groups as is the case today, but these groups were under the direction of a *Shum Bahri*. They noted that before 1960 Enderta was divided into four *emba*, composed of eight villages. Each *emba* - Gambela, Didiba, Dergagen, and Buye Mlash had a *Shum Bahri*, and they met to discuss trips. They also consulted each other as well as *mahaba* leaders at major stops on the salt trail to make sure all caravan merchants were accounted for. While the elders did not deny that caravan merchants from other parts of the highlands, such as Raya, collected salt, they pointed out that only Enderta caravan merchants had special privileges, including *Shum Bahri* and designated camping spaces at stops on the salt trail.

The surviving *Shum Bahri* noted that in earlier times some Afar people who lived along the salt trail fled to hide in the bush when they heard the trumpet or horn of the *Shum Bahri*, a warning that Enderta caravan merchants were approaching. He added that the *Shum Bahri* rode with the caravan merchants and stayed with them at the salt plains for two to three days as they extracted, shaped, and loaded their animals with salt. The important part of the trip was during the return, when the caravans were slow, and the animals becoming weak. It was at this time that Afar bandits ventured to attack and rob caravan merchants. When attacked, Christian highlanders responded and killed some Afar people in revenge. Any Christian highlander was allowed to avenge the death of caravan merchants. Those who did so were Garanted status as heroes and were given the title "*hunta*" which means brave. The Garanting of this title was usually after witnesses confirmed the deeds of the *hunta* to local and regional leaders. The recognition and conferring of this title involved festivities.
The former *Shum Bahri*, well respected in Enderta, and still receiving 100 birr per month as a pension from the Ethiopian government, stated that he was appointed to the position by the imperial government of Ethiopia under Haile Sellassie in 1961. However, he noted that by then, the role of the office had been reduced to mostly collecting taxes at Berehale for the government. According to him, the government took over and started appointing people to the position of *Shum Bahri* after Ras Abebe, a commander under Emperor Haile Sellassie, led troops to crush a rebellion in Enderta related to the salt trade. He claimed that before that incident, caravan merchant activity was generally controlled by the people of Enderta. As punishment for the rebellion, Ras Abebe reportedly took the wives and property of Enderta men. *Shum Bahri* Tela from Adi Ainawalid, he added, protested that it was not fair that those who stayed were being punished because they had done no wrong. Based on Tela’s plea, the troops were ordered to return the women and to stop the plunder of Enderta. To prevent such rebellions from occurring again, the government moved to assert control by appointing the *Shum Bahri*.

Regarding the *Baalgada*, the elder informants noted that he was usually from a royal background, although nobility with connections to royalty could be appointed. The informants stated that just as the king appointed regional leaders, he appointed the *Baalgada* as the chief of the salt industry. The *Baalgada* did not regularly go on trips to the salt plains, but was present to make sure salt collecting and trading went well. He went on treks with the caravan merchants when the *Shum Bahri* reported that salt traders were attacked on the salt trail. The *Baalgada* had a militia called *gass* and their role was to clear the way for salt caravans and to provide security as needed. The militia was
composed of a core of active young fighters who cleared the trail for the caravan merchants, defended them against attackers, and sometimes raided the Afar people and took their animals as punishment for attacking highland caravan merchants. When the two officials trekked to the salt plains with caravan merchants, the *Shum Bahri* was at the back and the *Baalgada* was in front.

The claims made by the older informants are in line with historical reports. For example, Alvarez noted in the 1500s when he visited Ethiopia that *gaada* was an expedition sent from the highlands to collect salt and *baal* meant master or chief of salt. According to Alvarez, *Baalgada* was the title given to the chief of those expeditions and was used in Ethiopia like Duke or Count (Beckingham and Huntingford 1954). Alvarez reported that *Baalgada* Robel was the subject of *Tigrimahom* or leader of Tigrai and arrived at *Tigrimahom*’s court accompanied by people on horseback, mules, and horses. *Baalgada* Robel talked about the war with the Muslim Afars, who occupied the lands to the sea. Alvarez added that *Baalgada* Robel was a great warrior and had a territory to the east, which had the best thing in all of Ethiopia, salt (Beckingham and Huntingford 1954:98).

Pearce (1923) later noted that Ras Walda Sellasse of Tigrai took action to ensure that the salt trade was uninterrupted. As Pearce witnessed, in the event that a salt caravan was attacked the Afar people were held accountable. Such accountability required them to replace each member of the caravan killed and when they did not comply, an army was sent to destroy their settlements, and to plunder their cattle. According to Pearce, Ras Walda Sellasse’s army took 1,400 camels, 3,200 cattle and over 10,000 sheep and goats to Enderta after killing a number of Afar people.
According to the two elder Enderta informants, there is a connection between caravan merchants and leadership in Ethiopia. King Yohannes of Ethiopia was a caravan merchant, and the descendant of a line of caravan merchants and *Shum Bahris*. They noted that Debeb married Tekel, daughter of the *Shum Bahri* of Agame, and they had a daughter named Slas who married the *Shum Bahri* of Tembien, the parents of King Yohannes. Yohannes, known earlier as Ras Kassai Mercha, ascended the imperial throne in 1872 under the name Yohannes IV (Abir 1966; Pankhurst 1961, 1968, 1998). The elder informants, themselves retired caravan merchants, stated that King Yohannes built a road to enhance the salt trade because he knew the importance of the trade and the difficulties endured by caravans first hand.

The role of the *Shum Bahri* and the political ramifications of that position in the past can also be placed in the context of the leadership of Tigrai and Ethiopia in general. Traditionally, Tigrai is made up of hereditary noble houses, drawn from Samien, Tembien, Agame, and Enderta *woreda*, the last three are known to have traditionally collected and traded salt. In the past, these houses had their princes alternating with others from Begemder, as warlords to rulers of the Ethiopian monarchy (Abir 1966, 1968; Pankhurst 1961, 1968, 1998). The power base of Ethiopia moved further south with the rise of the Zagwe Dynasty. Since then, successive kings and leaders from most parts of highland Ethiopia have tried to demonstrate their connections to the founding Aksumite kings from Tigrai. However, Tigrai natives consulted during this study recognise King Yohannes as the only king in recent history to be a true son of Tigrai. He is credited with bringing the leadership of Ethiopia back to Tigrai. Before the power base
moved from Tigrai again after the death of King Yohannes in 1889, Tigrai had always been under its own native kings or princes.

The pride and sense of history of the people of Tigrai as real direct descendants of the founders of Ethiopia was and has been a source of concern to Ethiopian kings and leaders from outside Tigrai. Perhaps the need to legitimise and show the power of non-Tigrai leaders, as well as to collect revenue from the salt trade was what led to the practice of appointing and/or endorsing the Shum Bahri as described by the elder Enderta informants. The information provided suggests that the Baalgada was usually from the royalty or nobility fully appointed and employed by the government, while the Shum Bahri was selected locally, but later confirmed by the imperial leadership or their provincial representatives. Appointing the Shum Bahri would have ensured loyalty and trust, conditions needed in a situation that involves the collection of revenue from salt trading. Based on historical references and informant interviews, it seems that the office of the Shum Bahri started locally, but then came under the control of provincial and national leadership.

Although it is not known when the office of the Shum Bahri started, there are suggestions from historical records that it is an old tradition. These historical accounts also directly connect the title, Shum, to leadership in highland Ethiopia in the past. According to Selassie and Dina (1969), in the 13th century A.D. Ethiopia was divided into provinces headed by governors, and each province was further divided into districts under a Shum or administrator (Selassie and Dina 1969:65). They noted further that kings appointed the governors, but the Shum was appointed either by the governor or by
the king. However, in some districts the Shum had to come from specific families (Selassie and Dina 1969:65).

6.3 Ritual Dimensions of the Salt Trade

The Afar and Tigrai people involved in the salt trade exhibit ritual behaviour intended for success, and personal protection in their trades. The fear, danger, and insecurity associated with the salt trade stems from both natural and socio-cultural challenges. There is a belief that an evil force capable of causing harm to people and impregnating women inhabits the salt plain. The fear of this evil is used to explain the absence of women at the plains, and is partly responsible for prayers and the performing of sacrifices by or on behalf of participants. Highland caravan merchants were emphatic about the physical challenges they face, citing cases where humans and animals died from heat stroke and exhaustion during treks. To mitigate the spiritual and physical dangers, highland caravan merchants stated that they consult priests in their home areas periodically and make offerings to seek divine assistance for their trade. During the trek to the salt plains, caravan merchants were observed praying before departing each major stop for the next. The leader of the mahaba said the prayers on behalf of his group, usually asking for protection, guidance, blessings, and better prices for their salt.

A specific ritual behaviour recounted by former and present caravan merchants involves initiations for first time caravan merchants, a tradition handed down from one generation to the next. Although the new caravan merchant ritual at Mugue Anantey, a hill between Berehale and Asabolo, was not directly observed, the site was photographed (Figure 65). According to informants, as part of the process, new caravan merchants run up the side to the top of the Mugue Anantey, accompanied by one or two older caravan
merchants. At the summit, the new caravan merchants dance around a small pile of stones while singing. The songs, informants noted, ask for blessings and protection in the salt trade. After this, they run down the other side of the hill towards the salt plains to join the rest of the group and may kiss a foreleg of the lead camel. According to older informants, in the past guns used as protection against thieves and robbers were fired in the air as part of this ritual. However, informants were unable to provide information regarding who placed the stones on the summit or when this ritual started.

Figure 65. Top of Mugue Anantey, between Berehale and Asabolo

At Hami-dela, the initiations continue, as was observed. All caravan merchants from highland Ethiopia on hearing of or noticing new participants gather in a circle around the camp space of the mahaba groups with the first time caravan merchant. Some clap their hands or pick up stone cobbles and hit them against each other, while some sing for the novice to dance. In the last part of the initiation, an individual from his home area with in-depth knowledge of the salt trade and its history stands up in the middle of the circle and recites incantations or fekera related to the salt trade. The content of the incantations, according to informants, includes warnings to the Afar people of the
consequences of any attacks on Christian caravans, although there is relative peace today.
They added that in the past, those who said the bekera did so while holding guns or other
weapons. The reasons for the content of these incantations are understandable. Socio-
culturally, the salt trade brings together two major groups, the Muslim Afar people and
the Tigrai people, mostly Christian. Although the salt trade is relatively peaceful,
tensions are still high and participants are always on the alert. In the past, conflicts
erupted because of rivalries over the ownership of the salt plains, rights to exploit the salt,
and the collection of taxes. Conflicts even arose among sub-groups within these two
major groups (Ferret and Galinier 1847II; Huntingford 1954; Pankhurst 1961, 1968;
Budge 1966; Abir 1968).

The Afar people also believe that a harmful force inhabits the salt plains. As a
result, they also perform rituals to mitigate associated dangers related to the salt trade.
Afar caravan merchants, salt shapers, and extractors reported praying or paying Imams to
pray on their behalf for safe and successful trips to and from the salt plains. Afar salt
workers perform offerings (sadaka), involving the killing of goats, before and after going
to the salt plains. It is interesting to note that in spite of the fact that the Afar people are
Muslim, and the people of Tigrai are predominately Christian, they both agree on the
physical and spiritual dangers associated with the salt industry.

The use of salt in rituals extends beyond northern Ethiopia and goes back to at
least the 17th century. Caravan merchant and major salt merchants stated that in other
parts of Ethiopia including parts of Tigrai near the Tekeze River, and in the Oromo
region, salt is used as part of bride wealth, presented by a man’s family to the family of
the woman to ask for her hand in marriage. It is also presented as gifts to couples during
weddings and at the birth of a child. As indicated by historical references, the use of salt in rituals related to family ties and conflict resolution is not new. This was noted in chapter three under the historical discussion of salt and its trade in Ethiopia. Lobo (17th century) and Gleichen (19th century) reported salt licking rituals, noting that salt was an item of affection, where relatives or friends licked pieces of salt from one another before greeting each other (Gleichen 1897; Donald 1984). Powell-Cotton (1902) reported that an elder, as part of a conflict resolution process broke a new amole with a stick. In all accounts of the uses of salt in Ethiopia, most of it was in the form of amole, carved from blocks collected from the Assai section of the Danakil Depression. It is therefore important to discuss the different types of salt present in northern Ethiopia, state the other uses of salt in general, and the use of Assai salt today.

6.4 Types and Uses of Salt

The people involved in the salt trade recognise two main types of salt from the salt plains. As noted earlier, the reged (Danakil or traditional) salt is collected from the salt plains and ashale salt is collected from Ashale hill in the same salt plains. Informants consider reged salt as normal salt and use it in cuisine as well as feed it to animals, while ashale salt is used for medicinal purposes to cure ailments ranging from heart disease to malaria. Besides the reged salt harvested traditionally from the salt plains, purified white (ashawo) salt produced commercially by the Afedera Salt Company operating in the Lake Afedera section of the Danakil Depression is sold in Tigrai and other parts of Ethiopia.

Other types of white salt from the sea reach Ethiopia from production sources in Massawa and Asab in Eritrea. White salt is mostly used by educated urban dwellers, in urban restaurants, and by some women in villages to make hambasha bread. The cost of
white salt is considerably higher than the traditional salt, and it is sold in packages. A kilogram of this salt is sold for 12 birr ($1.38) in Mekelle compared to a block of goloor, which weighs over five kilograms and sold for 8 birr ($0.92) in March 2005. The price of traditional salt rises in the rainy season as caravan merchants stop collecting it. On the other hand, the cost of white salt is stable because it is produced all year round and is commercialised. A separate group of merchants sold white salt, among other items, in their shops in Mekelle. No small traders were observed selling white salt in Mekelle; they sold only traditional salt.

Observations and information on the specific uses of salt in the household context were collected as part of the household component of this study at the Enderta settlements of Adi Ainawalid, Adi Baekel, and Chin Feras. All informants agreed that the traditional salt is tastier, and that it is what they are accustomed to historically. In the highland villages and compounds studied, it was reported that the use of white salt was high during the conflict in the mid 1980s, which caused highland caravan merchants to reduce the number of trips to the salt plains for security reasons. Informants explained that due to limited supply, the price of the traditional salt rose, compelling many families to use white salt. During this study, households with no relatives collecting salt reported obtaining traditional salt supplies for themselves and their animals directly from salt caravan merchants, and/or from small traders in Mekelle. Informants stated many uses of salt and were observed, using salt in cuisine, to preserve meat, in working leather, as a disinfectant for wounds, as medicine to cure skin rashes and eye infections, and feeding it to animals.
6.4.1 Salt in Cuisine

Food and eating habits are important aspects of culture, a truism in the case of Ethiopia in general and Tigray in particular. As a Tigrayan saying goes, "all food without salt tastes like water," a confirmation of the role of salt in their food. The people of Enderta use salt in all their foods except in the local alcoholic beverage (sua). The use of salt in cuisine is vividly illustrated by the story regarding its discovery and the experiment by an unknown king who asked that salt be added to all foods. The story states that after an Enderta man found his camel licking salt at the plains, he brought samples home and gave some to the king. The king decreed that all Enderta men were to collect and supply salt to the kingdom or lose their property to their wives. The king reached this decision after tasting many dishes to which salt was added. Since then, informants noted, Enderta people have collected and supplied salt to all of Ethiopia.

Both men and women purchase salt for home use in Enderta, however, informants agreed that it was the woman's responsibility to ensure that there was salt at home. Quantities consumed per family vary according to family size, and wealth. Other factors causing variations in the use of salt are whether families use the same salt for cooking of soups, sauces, and as a condiment for injera (fermented flatbread), in addition to making bread. Some families reported purchasing salt for day-to-day cooking and injera separately from what they used in making sauces and feeding to their animals. Another point worthy of note is that most families purchased salt blocks in the rainy season and smaller pieces during the dry season. They stated that in the rainy season, farm work and sometimes flooding made it difficult during the rainy season for them to go to the Mekelle market regularly. Thus, most families stockpiled blocks of salt during the salt season for the farming season. The other reason they gave was that caravan merchants
stop collecting salt for the same reasons that the Enderta people stop going to the markets regularly, which causes the price to increase.

The use of salt for food can be discussed from various viewpoints. In using salt for preparing soups, and as part of day-to-day foods including injera (Figure 66), pieces are ground on special grinding stones (medkos) used for salt and spices including pepper, dried meat (quanta), and peas for shiro. Ground salt is stored in containers for use, and the remaining pieces are stored for future use. The grinding stones used are smaller than metahan, which are used to mill flour. The main stone used to grind salt is usually a piece of an old or broken metahan. Young couples reported getting their medkos from their mothers or mothers’ in-laws after moving into their own homes. Metahan, according to informants, is created from granite near the three villages studied.

Figure 66. Sprinkling salt on injera, Adi Ainawalid

Berebere or chilli is pepper mixed with salt and other spices, and is used in eating injera directly or in making soups. Shiro is grass peas heated on a griddle, which is then ground and mixed with salt for making sauce. As the saying goes “bechow dende
berebere tewedes” (the berebere becomes tasty because of salt). In the past berebere and shiro were processed at home using metahan, according to informants, however, grinding mills in Mekelle are now used by some Enderta women to grind shiro and berebere. According to female informants, in making berebere, 1 kg of pepper is mixed with about 320 g of salt (1-birr worth of salt) and other spices. As directly observed, this is then milled together in special mills devoted to the preparation of berebere, and to a lesser extent shiro. The process of making shiro involves heating the grass peas on a griddle, then grinding and mixing them with salt at the grinding mills, or grinding the peas, and later mixing the ground peas with ground salt at home. The ratio of peas to salt for shiro was reported at 2 kg of shiro to 320 g of salt. Some female informants noted that the wealth of families dictated how much salt they added to berebere in particular. They suggested that poor families used 80-160 g of salt for 1 kg of pepper in making berebere, while wealthier families used more salt.

The other use of salt for direct food purposes at home is in bread making. Salt was seen added to the bread dough for hambasha bread, made from wheat or barley. However, some female informants stated that they added sugar in place of salt, or combined sugar with salt in making the bread. As noted earlier, white salt (ashawo) is used in making hambasha bread, although most informants agreed that this was recent, and was mostly used by younger couples because they want their bread to look white.

6.4.2 Salt in Meat and Fat Preservation

Salt is used in the preservation of animal products including meat, fat, and hides. As Orthodox Christians, the people of Enderta do not eat donkey, horse, and mule, (Perissodactyla) nor do they eat camel (Artiodactyla). They consume chicken, sheep,
goat, and beef. As observed, when beef is not consumed immediately, it is processed for storage by thinly slicing it into strips of about 30 cm long and 1 cm thick. The strips are salted in a container with powdered salt and hung on ropes or lines in living rooms to dry (Figure 67).

Salt aids the fast drying of the meat and keeps flies from infesting the meat with maggots. The meat is left to dry for three to six weeks before it is removed from the drying line. This method of curing meat was observed both in the Enderta villages as well as in Mekelle, the capital of Tigray region. When dried, the meat is pounded in a mogu, a large, elongated mortar traditionally used for dehusking grain (D’Andrea and Mitiku 2002). The meat is broken into smaller pieces for cooking (quanta). Quanta frifri is a meal made from mixing injera in a sauce made of quanta before serving.

The use of salt to preserve fat was not directly observed. However, according to female informants, they add salt to pieces of fresh animal fat, which is cooked in a pot to preserve the fat for future use. Alternatively, they stated that salt might be added to fat collected from cooked meat. In this method, the fat is skimmed and reheated with salt.
added to it. It is then carefully poured, ensuring that small pieces of meat do not enter the storage container. Female informants noted that the salt preserves the fat by preventing decomposition, making it possible to store and to use the fat in cooking when needed.

### 6.4.3 Salt as Medicine and Disinfectant

The use of salt as medicine and a disinfectant is well known in many cultures. In this context, a distinction is made between the normal *redeg* salt and *ashale*, reported to have medicinal qualities as noted in historical resources (Telles 1710), and by all informants consulted during this study. Informants in Enderta stated that *ashale* was eaten directly, or dissolved in water, coffee, and the local alcoholic beverage (*sua*), and consumed to cure health problems including heart attack, cancer, malaria, stomachache, and diarrhoea. They added that as part of its use to help women conceive, it is dissolved in hot water and placed outside overnight. Barren women or women hoping to conceive wake up early in the morning to drink the dissolved *ashale* because it is believed to help them conceive.

Traditional (*redeg*) salt is used to help cure wounds of humans and animals, sore throat, eye infections (*aini haseka*), toothache, skin infections, and anaemia according to informants. Salt was observed in its use to clean wounds. It is dissolved in hot water and used to clean wounds; it is reported that it kills germs and hastens the healing process. To help cure skin infections, salt is boiled in water, which is then applied to the infected area. This was particularly frequent for children, as they tend to develop more skin infections, causing sores between their toes or fingers, according to informants. In the case of sore throat and toothache, informants reported that salt was dissolved in hot water and drunk or used as mouthwash.
Salt is also used to help cure wounds of animals. This was reported and was witnessed at the settlements visited as well as during the Afar component of this study. On many occasions, ground salt was applied to the wounds of camels, mules, and donkeys transporting salt. In the Enderta settlements, informants indicated that they applied salt to wounds of donkeys caused by hyena attacks, a rather common problem in Enderta. In instances where the wounds of domestic animals become infected, incisions are made, and after that, the wounds are cleaned with salted hot water before the application of a concoction composed of powered salt and soot; dark powdery deposit of unburned fuel residues.

6.4.4 Salt in Hide Preservation and Leather Working

Leather processing and working is another area in which salt is used. As noted in chapter one, Ethiopia is one of the leading producers of cattle products in Africa, leather being one of the main exports. Leather is used in many ways in Enderta, including as carriers for babies, as bedding, to make bags to store grain, to join pieces of the traditional plough for farming, to make ropes, and in making camel loading equipment.

In the leather making process, as observed in Mekelle, fresh skins are first salted to prevent decomposition, then dried and later processed into leather. If salt is not used, according to informants, microbes cause decomposition, or the development of holes if later salvaged with salt. Powdered salt is sprinkled on fresh hides (Figure 68), which are then dried, on the ground or suspended from a line. Hides, dried or fresh, when not intended for use at home are sold to skin merchants in Mekelle. During this study, visits were made to hide merchant shops to observe their use of salt in the process. They noted
that they purchased large quantities of fresh skins during festivities. They then salted and
dried the hides for sale to leather processing plants in Addis Ababa.

Figure 68. Preserve fresh hides with salt for leather production, Mekelle

Traditionally, according to male informants in Adi Ainawalid and Adi Baekel, the
process of making leather requires mixing linseed powder and about 5 g of salt. The
mixture is applied to the skin, and massaged to produce leather. They stated that if only
linseed is used, microbes attacked and caused holes in the leather produced (Figure 69).

Figure 69. Leather made from unsalted skin, Adi Ainawalid
6.4.5  Feeding Salt to Animals

Livestock and livestock products contribute to the livelihood of Ethiopians. The greatest concentration of livestock is in the Tigrayan highlands, which is home to more than 70% of these animals (FAO 2004, Getachew 2001). Besides being fed to animals, salt is used to enhance milking, promote mating, and cure constipation in animals, according to informants. Feeding salt to animals varies per type of animal, season, family, and can be direct or indirect, in which case it is mixed with other substances (Weber 2005). Except for camels, informants stated that animals are fed salt mostly in the rainy season because it is believed that they need it most at that time. In any case, cattle (Figure 70) and camels are fed more salt compared to donkeys, sheep, and goats.

Figure 70. Cattle drinking dissolved salt, Adi Ainawalid

Salt is fed to animals in multiple ways in Enderta. Salt blocks may be given to the animals to lick, crushed and fed to them, or dissolved in water, which is then placed for the animals to drink (Figure 70). In addition, salt is mixed with straw and fed to the animals. When feeding salt to cattle, informants noted that they used any of the methods stated, however, they added that only crushed salt is fed to camels directly. The quantity
and frequency of salt fed to animals is influenced by whether households are involved in the salt trade or how wealthy they are. Salt trading households reported feeding salt to their animals at least twice a week, compared to those not trading who reported once a week or less.

Informants also stated that cattle were fed salt in the rainy season to avoid constipation, which could lead to death. They explained that cattle do not need much salt in the dry season because they do not eat green fodder (lemlem). In the rainy season the risk is that in consuming fresh grass, cattle also eat an unidentified type of caterpillar, which causes constipation. They noted that if the cattle are fed salt before they accidentally consume these caterpillars during grazing, the severity of the constipation is reduced greatly. On the other hand, if an animal is constipated after grazing, they mix salt with pepper, soap, and/or oil, which is then fed to the animal to help resolve the situation. This concoction, informants added, cleansed the animal.

Salt is also fed to sick animals, as well as to animals intended to be fattened for sale. Informants reported that they fed salt to animals to enhance their fertility and to hasten their reproductive cycles. In addition, they stated that salt was used to increase milk production of cows and camels because it stimulates the production of milk. Both Afar and Tigrai inhabitants believe that salt consumption makes cows and camels drink more water, which then increases milk secretion, a situation confirmed by research (Damir 1998). Salt is known to increase the absorption of calcium and propionate, a volatile fatty acid produced in the rumen, a precursor of glucose, and important for milk synthesis in the udder (Chung and Varga 2007). Informants stated that feeding camels and cows salt during milking was a way to cause a diversion from their calves, which
calms them. Thus, besides the animals themselves, salt also plays a role in their secondary products such as milk production and the processing of hides.

6.4.6 Use of Salt in Construction and As a Pesticide

Salt is used in construction to ward off insects, according to informants in Enderta. In this regard, they noted that during the construction of new houses or rooms, salt was added to the foundations. Salt blocks were reportedly buried under beams to prevent termite attacks (Figure 71).

Figure 71. Beam erected on a salt block, Adi Baekel

Informants added that they placed blocks of salt on top of straw to ward off termites, or mixed it with ash and charcoal for the same purpose. More interesting was the reported addition of salt to white paint before applying the paint to their walls. They claimed that this also prevented insect infestations. Informants also mentioned that salt blocks or ground salt placed or sprinkled in internal storage spaces or used in the foundations of such spaces protected grains against insect attacks.
6.5 Economic Role of Salt in Northern Ethiopia

The social and political role of salt is derived from its economic value. While the current study was unable to provide exact figures on the annual production and distribution of salt from Lake Assal, it is logical to assume that it would be more than the approximately 28,000 metric tonnes estimated in 1945 (Mamo et al. 1993). This assumption is reasonable because of the present peaceful nature of the salt trade as well as improvements in transportation. New political arrangements have reduced tensions amongst the groups involved in the salt trade, and improvements in road transport have made it possible for salt to be distributed from Berehale and Mekelle to other parts of Ethiopia trucks.

The evidence shows that the salt trade remains a source of livelihood for many people today. Caravan merchants, fukure, salt extractors, salt shapers and their assistants, tax collectors, middle and minor salt merchants, major salt merchants and workers in their shops, salt brokers, and small traders are but a few of the groups who rely on the salt trade. Other groups earning income from the salt industry are aja providers, rope makers, makers of tools and equipment used in different sections of the operational chain of the salt trade, pack animal breeders, straw sellers, food seller, drivers, hide and leather traders, as well as the labourers who load and unload salt. In addition, regional treasurers as well as the Ethiopian state benefit from the salt trade through the taxes collected. The salt trade also provides employment to many other people. The use of salt in industrial activities, modern and traditional, is another important contribution to the state.
6.5.1 Economic Role of Salt in the Afar Region

The use of salt for human cuisine as well as food for animals has been alluded to already. The Afar people who participate in the salt trade derive economic benefits from it. Some Afar men supplement their diet of milk and meat by shaping and selling salt at Lake Assal to caravan merchants. In addition, some women offer goatskin bags to caravan merchants to collect water, for a fee. These benefits, according to informants, became greater when the ownership of the salt plains was given to the Afar people by the Ethiopian government after 1991. The ownership Garants all Afar natives equal rights and free access to the salt.

Afar men extract or shape salt as a vocation in addition to raising and herding camels. As noted earlier, the pay of a salt extractor in March 2005 was 10 birr ($1.15) for a camel or mule load of salt, and 7 birr ($0.80) for a donkey load. Salt extractors typically work four days per week in groups of two, thus, it is possible to estimate their income. If we use six camels, three donkeys, and one mule per mahaba member as a basis, the estimated number of animals would be 40 animals per mahaba. At a rate of 10 birr per camel and 7 birr per donkey or mule load of salt, salt extractors would make 352 birr (240 birr +84 birr +28 birr) a day, adding up to 1,408 birr ($162.77) per week (four days), and 11,264 birr ($1,302) per season (32 weeks).

Salt shapers make more income compared to salt extractors. They shape salt blocks in batches of 60. Most of them reported serving ten clients per workday, an average of 600 blocks. It is perhaps representative to estimate the income for salt shapers using the popular and traditional block, gariwanai. At a rate of 1 birr per block of gariwanai, salt shapers would make an income of 600 birr ($69.36) per day, 2,400 ($277.45) per week (four days), and 76,800 birr ($8,878.61) in the salt season. Shapers
assistants, mostly young Afar men, would make up to 100 birr ($11.56) per day and 12,800 birr ($1,479.76) in the salt season.

*Fukure* also make an income from the salt trade. Most give out at least two goatskins to each caravan merchant client and up to 30 goatskins per day to fifteen different clients during peak months. With a reward of two blocks of *gariwanai* per goatskin, this means 60 blocks per day, and 240 blocks per week. At 2 birr per block, the value translates to 480 birr ($55.49) per week, and 15,360 birr ($1,775.72) per season.

Tax collectors benefit directly from the salt trade as well. While the tax collectors did not reveal their salaries, they are employed by the Afar Regional Authority and are likely paid at the same rate as government workers in other parts of Ethiopia. During the fieldwork for this study, middle level government workers in Ethiopia were paid 3,000 birr ($346.82) per month and 36,000 birr ($4,161.84) a year. As was noted earlier in chapter five, tax collectors also make extra income by allowing a second group of salt extractors to work regularly for 50% of their income. Based on the previous estimates of the income of salt extractors, we can assume that tax collectors would receive half of 5,632 birr ($651.09) per month from each team of extractors they allow to work on the half-and-half agreement. Although it was not clear how many extractors each tax collector assigns work to, most informants agreed that it could be up to five or more depending on the rank of the tax collector in question. Using four salt extractors per collector, this would add up to an extra income of 11,264 birr ($1,302.19) per month.

Other groups as well as the Afar Regional Authority also benefit greatly from the salt trade. The wage of animal counters, who assist tax collectors, is about 700 birr ($80.92) per month, the starting pay for a university graduate in the rest of Ethiopia.
Generally, the new federal political arrangements of Ethiopia give priority of employment to the natives of specific regions in the regional government. The Afar region is a relatively new jurisdiction with a poorly educated population. The regional government, according to informants, is working on getting Afar natives from a nomadic tradition into the modern economy. As a result, all employees of the regional government are paid as if they were educated.

Middle salt merchants stationed in Berehale make an income from salt trading. They buy upwards of 3,000 blocks, translating to 750 birr ($86.70) in income, if they purchased the salt as agents for major salt merchants. When middle merchants act as agents of major merchants in Mekelle, they are paid commissions of 35 Ethiopian cents per block of *telfen*, and 25 Ethiopian cents per block of *goloor*. Middle merchants in turn pay their assistants 4-5 birr for five camel loads of salt, an average of 120 blocks. These merchants further pay at least 300 birr ($34.68) for the loading of 3,000 blocks onto trucks. Those who offer their services to load the salt blocks onto the trucks receive 10 Ethiopian cents per block of *gariwanai* and 20 cents per block of *telfen*. In addition, middle merchants rent spaces to store purchased salt at a cost of 100 birr ($11.56) per month to homeowners. The women who sell food, tea, and coffee to caravan merchants, middle merchants and their assistants, sellers of straw and ropes also benefit from the salt trade in the Afar region, although detailed information on these other beneficiaries of the salt trade was not collected due to time constraints.

The revenue from the salt trade to the Afar Regional Authority is a benefit of controlling the source of salt. Tax revenue to the regional government is derived from taxes paid on salt by highland caravan merchants, and by middle merchants stationed in
Berehale. To illustrate this, the estimated number of animals observed during my visit to the salt plains can be used as a basis. On Thursday December 23rd, 2004, about 6,000 animals, including 4,000 camels, 1,500 donkeys, and 500 mules were observed at the tax post. At a tax rate of 19 birr per camel ($2.20) and mule, and 9 birr ($1.04) per donkey, 4,000 camels would yield 76,000 birr ($8,786), 1,500 donkeys 13,500 birr ($1,561), and 500 mules 9,500 birr ($1,098), a total of 99,000 birr ($11,445) in taxes that day.

Tax officers reported that in November 2004, a month before the current study was undertaken, over 40,000 camels were used to collect salt, generating about 760,000 birr ($87,861) in taxes. Although tax officials did not provide details about how much they collect in taxes per season or per month, based on the conservative number of 10,000 camels per week, an estimate can be established for the salt season at 40,000 x 9 or 360,000 camels. In monetary terms, the value would be about 6,840,000 birr ($790,000). They added that as part of Afar regional public policy, 1 birr from taxes collected per animal is transferred to the sports development program of the Afar Regional Authority, while the rest of the tax revenue is added to the regional treasury. Thus, it can also be estimated that 360,000 birr ($41,618) would go to the sports development program and the remaining 6,480,000 ($749,133) to the regional government.

The Afar Regional Authority further generates income from taxing middle merchants stationed in Berehale at 40 Ethiopian cents per block of gariwanai and goloor, and 80 Ethiopian cents per block of telfen. At this rate, for 3,000 blocks transported out of Berehale, middle merchants would pay 1,200 birr ($138) to the Afar government. For example, during this study, four trucks were observed from December 21st to 31st 2004.

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loading salt at Berehale. At 3,000 blocks per trip, four trucks would have carried 12,000 blocks, resulting in 4,800 birr ($555) of tax income to the finance bureau. In each of the nine months of the salt season, if eight truckloads of salt leave Berehale, that would be about 27,000 blocks per month, and 243,000 in eight months. At 40 Ethiopian cents per block of *gariwanai*, the income to the finance bureau will be about 855,000 birr ($9,884).

### 6.5.2 Economic Role of Salt in the Tigrai Region

Highland caravan merchants are farmers, but increase their wealth by collecting and selling salt. Caravan merchants who use their own animals reported making an income of about 800-1,200 birr ($92.48-139) after all expenses per trip. Caravan merchants from Enderta, closer to the salt plains, make ten to thirteen trips per season, while those from Raya, further from the salt plains, make five to six trips. Using the largest number of trips per season, and reported income per trip, caravan merchants from Raya would make an income of 7,200 ($832.36), while those from Enderta would make 15,600 birr ($1,803.46) per salt season.

Caravan merchants agreed that the most expensive aspect of the salt trade from their perspective was the cost of pack animals. They reported paying 600-1,000 birr ($69.36-115) for camels, 500-900 birr ($58-$104) for mules, and 400-800 birr ($46-$92) for donkeys, depending on age and strength of the animals. Given the cost of pack animals, it is understandable that some caravan merchants use animals from friends on a reciprocal basis (*lfni*), a half-and-half arrangement (*friki friki*), or use other people’s animals to collect salt for a fee (*cry*) of 20 birr ($2.31) per camel.

If we assume that an Enderta caravan merchant starts salt trading with four animals of his own, we could estimate key cost making up the investments needed based
on the average cost per animal. Using the cost of camels at an average of 800 birr ($92.48), and donkeys at 600 birr (69.36), and assuming that our caravan merchants from Enderta would use at least three camels, and a donkey, the total investment in animals would amount to 3,000 birr ($346.82). Cost of loading equipment for three camels would be about 780 birr ($90), and about 130 birr ($15) for the donkey, adding up to 910 birr ($105). At a tax rate of 19 birr per camel and mule, and 9 birr for a donkey, the money needed for taxes will amount to 66 birr ($7.63). Since camels carry an average of 24 blocks and donkeys 10, the total number of blocks (gariwanai, the most common) would be 82 blocks. The cost of extracting this many blocks would be 37 birr ($4.27); 10 birr for a camel load, and 7 birr for a donkey load to salt extractors. At 1 birr per block of gariwanai to the salt shaper, it will cost 82 birr ($9.47) to shape the salt blocks. Based on interviews, it is estimated that the cost of food for the caravan merchant would be about 100 ($11.56) birr. It would cost 50 birr ($5.78) per bag of straw for each of the camels, adding up to 250 birr ($28) for food. Donkeys are fed some of the camel straw if there are less than three donkeys. Based on this calculation, the initial investment for the caravan merchant will be 3,435 birr ($397.10).

The prices at which caravan merchants sell their salt vary according to season and place. At Mekelle, they sell gariwanai at an average price of 6 birr a block, thus, 82 blocks will earn 492 birr ($56.87). At the above rate of return, the caravan merchant will have to make at least 60 trips (at 13 trips per season this would be about five salt seasons) to recover the cost of the initial investment. On the other hand, if we subtract the cost of pack animals and packing equipment, which are fixed costs, the cost of a trip using three camels and one donkey drops to 435 birr ($50.28). With income from 82 blocks
estimated at 492 birr ($56.87) per trip, the caravan merchant would make a profit of 57 birr. It should however be noted that caravan merchants make greater profits not reflected in the above hypothetical analysis because they typically use 10 animals, including animals from friends. For example, if the caravan merchant used eight more animals from friends (nine camels and three donkeys), the overhead cost would be 198 birr ($22.89) for taxes, 246 birr ($28.42) for shaping, 111 ($12.83) birr for extracting, and 550 birr ($63.58) for food, adding up to 1,105 birr ($127.75). At a selling price of 6 birr, 246 blocks would fetch a gross income of 1,476 birr ($170.63), resulting in a net profit of 371 birr ($42.87).

Middle, minor, and major salt merchants make an income from their participation in salt trading. However, attention would focus on the major salt merchants because they are the principal group that moves the bulk of the salt from Mekelle to other parts of Ethiopia. In addition, they invest substantially more in the salt trade compared to middle and minor salt merchants. Major salt merchants buy salt blocks and pay to process them into amole, pay taxes, and supply workers with space and some tools. This group of merchants pays for the cost of transporting salt blocks and amole to other parts of Ethiopia. Their role in the operational chain of the salt trade requires them to have processing shops with workers to process salt, and to maintain relationships with caravan merchants to ensure regular supplies of salt. Major merchants who do not own shops rent space at a cost of 250-700 birr ($28.90 -80.92) per month. They pay an average of 6 birr per block of gariwanai and the largest number of blocks purchased at one time was reported as 3,000 blocks at an estimated cost of 18,000 birr ($2,081).
Major salt merchants employ an average of four workers, making it possible to estimate the cost of *amole* production. Most *amole* processing shops visited during this study had two salt binders, one salt shaper, and one salt cutter. Where the shops had more than four workers, they usually had more binders. Major merchants pay salt binders 6 birr for 100 *amole* bars, and 4 birr to *amole* cutters and shapers for the same number. Salt cutters and shapers process up to 900 bars each per day and 3,600 per week (four day work week), which translates to a cost of 144 birr per week and 5,616 birr ($649.24) for the salt season. Salt binders bind up to 250 bars of *amole* a day and 1,000 bars in a week. Pay to two salt binders would amount to 60 birr ($6.94) per week, and 2,340 birr ($270.52) each per salt season, giving a total of 4,680 birr ($541.04)

Other production costs include 30 birr ($3.46) for the saw used to cut salt, which was reported to be used for up to three months. In a salt season, three saws will be needed at 90 birr ($10.41). The saw sharpener (*saketo*) is purchased at a cost of 7 birr ($0.80). In addition, items such as the two knives used in the shops, costing 5 birr, each, and the two metal objects used for packaging *amole* bars, costing 3 birr each, add 16 birr ($1.96) for a salt season. Two salt binders will produce 2,000 bars per week, and 78,000 in the salt season from 26,000 *gariwanai* blocks. The cost of the salt blocks, at an average price of 6 birr each, needed to produce 78,000 bars of *amole* would be 156,000 birr ($18,034) for the salt season.

Five-birr worth of *aja* is needed to bind 100 bars of *amole*. The cost of *aja* required to bind 2,000 bars per week is 100 birr, and in the entire salt season 3,900 birr ($450.86) worth of *aja* is needed for 78,000 bars of *amole*. Tiny ropes needed to package 100 bars cost 1.6 birr; totalling 1,248 birr ($144.27) to package 78,000 bars.
Furthermore, major salt merchants incur the cost of loading and unloading 100 bars of *amole* from Mekelle to Addis Ababa at 3 birr ($0.34), and 5 birr ($0.57) respectively, thus, loading and off-loading 78,000 bars will amount to 6,240 birr ($721.38). The reported cost of transporting 100 bars of *amole* from Mekelle to Addis Ababa ranged between 20-30 birr ($2.31-$3.46); on average 25 birr (2.89), and would cost 19,500 birr ($2,254.33) to transport 78,000 bars of *amole*. Those merchants using agents pay an average of 4 birr per month to store 100 bars of *amole* in Addis Ababa, adding up to 3,120 birr ($360.70). In addition, major salt merchants reported paying an average of 3,000 birr in taxes ($346.82) to the Tigrai Regional Authority per year. Based on the above calculation, the basic cost to the major salt merchant would be 156,000 birr ($18,034) for 26,000 blocks, and the cost of processing and shipping the 78,000 bars of *amole* would give a Grand total cost of 197,801 ($22,867).

The profits from selling 78,000 bars of *amole* per season can also be estimated. The basic price of a bar of *amole* was reported at 2.4 birr ($0.27). However, major salt merchants sell most of their salt during the farming season, when the price of salt has gone up. After April, the price of *amole* reaches 2.8 birr ($0.32). Based on a selling price of 280 birr ($32.36) for 100 bars of *amole*, income from 78,000 bars will amount to 218,400 birr ($25,248). However, the total income to the merchant also includes the proceeds from selling the salt residue from processing *amole* bars. Thus, if we use the upper end of the quantity of salt residue per 100 bars of *amole* at 50 kg of residue, the yield from 78,000 bars of *amole* would be about 39,000 kg (390 quintals). At a selling price of 80 birr per 100 kg of residue, income from the residue would add up to 31,200 birr ($3,606). Working with 78,000 bars of *amole*, the merchant would make a gross
income of 249,600 ($28,855), after investing 197,801 ($22,867), and a profit of 51,799 birr ($5,988).

Generally, major salt merchants realise larger profit margins than reflected in the above estimates because they buy their salt when it is cheapest and sell when it is most expensive. In an effort to highlight the economic value of the salt trade, this study collected information from salt merchants for the 2003-2004 salt season. Based on the statements of 14 major salt merchants (Table 15), the largest quantity of amole sold by a single merchant was 180,000 bars, resulting in a gross income of 504,000 birr ($58,265.85). In all, major salt merchants carved and sold 866,000 bars (8,660 quintals) of amole, cut from 288,667 blocks of salt. These blocks would have been purchased at a cost of 1,732,000 birr ($200,231). The total income from selling 866,000 bars of amole at 2.8 birr per bar would have been 2,424,800 birr ($280,323.60), resulting in a gross return of 692,800 birr ($80,092.50). In the 2003-2004 salt season, salt merchants reported purchasing and selling 9,650 quintals or 965 tonnes of salt (Table 7).

Table 15. Amole and Salt Sold in 2003-2004 Reported By Major Salt Merchants$^4$

<table>
<thead>
<tr>
<th>Major Merchant</th>
<th>Number of Staff</th>
<th>Amole Sold in qt</th>
<th>Total Salt Sold in qt</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td>5</td>
<td>70</td>
<td>500</td>
</tr>
<tr>
<td>M2</td>
<td>7</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>M3</td>
<td>4</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>M4</td>
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<td>300</td>
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</tr>
<tr>
<td>M5</td>
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<td>100</td>
</tr>
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</tr>
<tr>
<td>M7</td>
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<td>200</td>
</tr>
<tr>
<td>Total</td>
<td>72</td>
<td>8,660</td>
<td>9,650</td>
</tr>
</tbody>
</table>

$^4$ qt stands for quintal, and 100 qt is equal to 1 tonne
6.5.3 Salt and Non Salt Traders at the Local Level

Salt trading in the Enderta district exists in addition to the main economic activity, farming. The start of the salt season conflicts with farming as it starts in September and ends in May. The Enderta people start ploughing in September, and complete harvesting in January (D'Andrea et al. 1999). To deal with this conflict, some present and former caravan merchant informants stated that they do not start collecting salt in September when the season starts. Others stated that when they did, they waited longer between trips to enable them to do farm work. In some instances, caravan merchants obtained help from family members for farm work or hired other people using income from salt trading. Salt income, as some informants stated, allows them to overcome potential conflicts between farming and salt trading, as suggested by Bauer (Bauer 1977). The economic importance of the salt trade at the local level was amply reflected in a statement made by an elderly informant at Adi Baekel:

"Salt does not spoil; it is the same all the time. Our fathers and ancestors stored it in their hidmo and sold it. Storing salt in the past was like storing money in the bank today. As rich people store their money in the bank today, in the past rich people stored their salt in their hidmo."

To the inhabitants of the Enderta villages, the social role of salt trading is a by-product of its economic value. Bauer (1977) suggested the idea of a connection between wealth and social status in Tigrai. He noted that prizes at the local level beyond economic survival were related to prestige or status honour (kibri). Bauer claimed that individuals gain kibri with increased wealth, spirituality, age, or by holding office (Bauer 1977:3). While the present study did not collect specific information on the concept of kibri, there are indications that wealth and status are connoted by room types, sizes and
decorations (Bauer 1977; Lyons 2007), as well as number and types of animals. These indicators of wealth seem to help individuals gain and maintain prestige.

6.5.3.1 Compound Components

This study agrees with the recent findings of Lyons (2007) based on her work in Tigrai, including Adi Ainawalid. She explored the use of traditional architecture and its symbolism in the construction of political aesthetics in which domestic houses serve as locales for political action. Focusing on wood sources and ceiling decorations in rooms, she concluded that traditional architecture uses the same building practices attributed to monument construction to produce hierarchical power (Lyons 2007: 181).

As described by D’Andrea et. al. (1997), Enderta houses (rooms) are round or rectangular, built of stone, with thatched, earthen, or wooden roofs. A more recent roof type is the metal or corrugated iron sheet roof (Lyons 2007). Most houses have separate kitchens in an area enclosed by a stone wall, in which livestock are kept to protect them from hyenas. Gardens are common in older and bigger compounds, but rare in smaller ones (D’Andrea et. al. 1997). The sleeping room serves multiple purposes including as a place to eat, entertain guests, and store grains (D’Andrea et. al. 1997; Lyons 2007). Depending on the wealth of the household, the compound may have multiple living rooms, including one for guests. The head of household is the husband; he lives with his wife, and/or children depending on their ages. Married sons live in their parents’ compounds but eventually move out after building their own compounds. Garandparents and parents as well as extended family, including son-in-laws may also live in the compound. Enderta inhabitants classify their buildings or rooms into three types as hidmo, korokoro, and sakala (Figure 72, 73 and 74). Grains are mostly stored in clay
vessels or godo, about 1 m tall, sealed with cow dung. Grains may also be stored in skin bags, sacks (Butler and D’Andrea 2000) or rectangular bins inside the lofts of hidmo.

Figure 72. Rectangular hidmo, Adi Baekel

Figure 73. Korokoro, Adi Ainawalid

Figure 74. Sakala, Adi Baekel
*Hidmo* (see Figure 72) is the favoured building type as it connotes status (Bauer 1977; Lyons 2007). Built of stone and wood in a rectangular or round form, *hidmo* may have a loft (*debri*) for storing harvested food crops and other items. Observations during this study corroborate work by Bauer (1977) and Lyons (2007) indicating that *hidmo* is a multipurpose room, serving as a place to eat, sleep, host and entertain guests, store and process food, and in some cases house calves, donkeys, and mules overnight. As Lyons (2007) points out, *hidmo* is better constructed compared to other compound units. It is possible that people invest in the construction of this room type because *hidmo* is a locale of political action, where feasts and celebrations are held and used to maintain household reciprocal rights to extra-household alliances (Bauer 1977; Lyons 2007).

*Korokoro* (see Figure 73) is built of stone and roofed with iron sheets, and is second in terms of prestige. It is mostly rectangular, and does not have built-in storage, but a storage platform maybe added, on which grains in sacks or leather bags are placed. In addition, some *korokoro* have *godo* for storing grains.

The least prestigious building type is the *sakata* (see Figure 74), built of stone, and roofed by thatch. The same kind of storage used in the *korokoro* is used in the *sakata*. *Sakala*, according to informants, is the first type of room built by a married man not from a wealthy family, when he moves from his father’s or in-laws’ home to start his own compound. The goal after this is to work and save towards building the traditional *hidmo*. The *sakala* is later converted into the kitchen when the family builds a *hidmo* or *korokoro*, as reported by informants.

While it was clear from informants that *sakala* was the least prestigious, and cheapest to build, there was debate among informants along generational lines on the
status value of the other building types. Older informants, aged 60 or over, dominated by retired salt traders (caravan merchants), were of the view that hidmo is more expensive to build. Some younger informants agreed with the older informants. However, most of them, who were not salt traders, said korokoro is more or equally expensive to build. The reported cost of building a hidmo was in the range of 960-4,450 birr ($110-514.45), depending on whether family, or hired labour and builders are used, hidmo type and size, and type of timber used. The cost of building a korokoro was reported as 1,440-5,200 birr ($166.47-601.15), depending on size. It is important to state that some compounds visited had both hidmo and korokoro. Yet, even those informants who owned only korokoro stated that they preferred hidmo and had plans to build one in the future if they saved the capital needed. The major challenge to owning a hidmo, they stated, was the cost of timber needed. Hidmo roofing requires a lot of wood, which is difficult to find due to deforestation, making it expensive (Lyons 2007). It therefore seems that the rise in the popularity of korokoro, especially among informants under 40 years old is based on practical realities.

Many younger informants consistently stated that hidmo is not fashionable anymore. To assess the value of the two building types beyond the generational preferences, informants were questioned to determine their value in terms of advantages and disadvantages. For the hidmo, younger informants noted the following advantages compared to korokoro: better storage qualities for grains because they are not easily infested with insects; better regulated temperatures as the timber used in roofs moderates extreme temperatures; better adaptation to weather conditions; and are durable. However, hidmo is tiresome to build and take longer to complete (8 weeks), require lots
of timber and stone, is labour intensive, is out of fashion, and may leak. More importantly, all stated that the greatest obstacle in the building of a new hidmo was scarcity of the traditionally preferred wood, tsihidi (olive), making it expensive.

In terms of korokoro, the advantages are that they are faster and easier to build (4 weeks), require less stone and wood, and are considered fashionable. On the down side, the korokoro is unable to withstand strong winds, is noisy during rains, not well adapted to weather conditions, and thus easily gets hot and cold inside, unable to regulate temperatures, which aids insect infestation and makes it poor for grain storage. Based on informant interviews and observations, hidmo is still the ideal building type even for the younger generation. It retains its place as the most prestigious room type in the Enderta district and other parts of Tigrai (Lyons 2007).

Information was collected from 91 individuals from 84 compounds involved in the salt trade, past and present, and those who did not or had not been participants for comparative analysis. In addition to data on room size and type, household heads gave information on the number of animals (Table 16 and 17). Data on room types and sizes focused on rooms that served as living space. Rectangular hidmo room volumes were calculated based on measurements taken, however, this could not be done for korokoro due to their uneven walls and slanted roofs. Circumferences of round hidmo and sakala were also calculated for both groups. Twenty-nine salt connected compounds had rectangular hidmo, 12 had round hidmo, ten had korokoro, and only five had sakala. On the other hand, 15 compounds in the non-salt trading group had rectangular hidmo, seven compounds had round hidmo, 16 had korokoro, and 11 compounds had sakala serving.
<table>
<thead>
<tr>
<th>Name</th>
<th>Age</th>
<th>Circumference of Sakala</th>
<th>Volume of Rectangular Hidmo</th>
<th>Circumference of Round Hidmo</th>
<th>Area of Korokoro</th>
<th>Number of Cattle</th>
<th>Number of Donkeys</th>
<th>Number of Camels</th>
<th>Number of Mules</th>
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<tr>
<td>CF1</td>
<td>37</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<td>0</td>
</tr>
<tr>
<td>AA15</td>
<td>27</td>
<td>10.52</td>
<td>0</td>
<td>15.2</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>AA16</td>
<td>28</td>
<td>0</td>
<td>0</td>
<td>12</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>AA17</td>
<td>24</td>
<td>0</td>
<td>0</td>
<td>11.6</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>AA18</td>
<td>30</td>
<td>0</td>
<td>0</td>
<td>12</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>AA19</td>
<td>20</td>
<td>9.18</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>AA20</td>
<td>20</td>
<td>0</td>
<td>0</td>
<td>13.6</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td>92.02</td>
<td>1095.04</td>
<td>80.98</td>
<td>189.9</td>
<td>94</td>
<td>24</td>
</tr>
</tbody>
</table>

---

6 Room sizes in metres
6.5.3.2 Type and Number of Animals

Cattle are the most important type of livestock because they are used for meat, dairy, hides, horn extraction, as well as in labour, such as for threshing, transport, tillage, and cultivation (Lipsky 1960; Graziosi 1964; Buxton 1970; Shack 1974; Phillipson, 1993; McCann 1995; Starkey 2000; Webber 2005). In northern Ethiopia, oxen are used in combination with the mahresha plough to facilitate cultivation of soil, a tradition that has existed in the area since at least the 1st millennium B.C. (Finneran 1999; Graziosi 1964; McCann 1995; Phillipson 1993). It is for the above reasons that cattle are an indicator of wealth. Members of both groups agreed on the value and status that comes with their ownership of cattle.

The data on the number of animals also shows that compounds connected to salt trading have more livestock, including cattle, which denote wealth. Owners of 90 compounds provided information on livestock per compound (see Table 16 and 17). Thirty-nine salt trading compounds had cattle, 27 had donkeys, four had camels, and one had a mule. On the other hand, 34 non-salt trading compounds had cattle, 23 had donkeys, and no compound in this group had camels or mules. Donkeys may be used to transport salt, stones, grain, wood, and water, in addition to transporting salt. Overall, few compounds had camels, but most had donkeys. In addition to cattle, camels also indicate wealth among the people of Enderta. The primary use of camels by the inhabitants of Enderta is for transporting salt. Compounds with camels usually had cattle and a donkey, while those with cattle also had at least one donkey.

Younger informants confirmed the continual role of cattle in the livelihoods of the people of Enderta when they noted that they had plans to own cattle. In addition, those who owned the less prestigious sakala room type had desires to own hidmo. Informants
who owned cattle stated that they wanted more, and older informants spoke proudly of their cattle, while some talked about how they used to have many cows and oxen, a sign of their wealth and well-being in the past. This prominence of cattle in the subsistence of the Tigrai people was the basis upon which Bauer (1975) suggested an intimate connection between household economics and land distribution, whereby cattle was viewed as capital.

Weber (2005) confirmed the importance of cattle in Tigrai in a recent study of the distribution and use of cattle products in northern Ethiopia. He points out that livestock in Gulo-Makeda, located 119 km north of Mekelle, served a two-fold purpose: the possession and exchange of animals at the village and regional levels supported a local economy, while the availability of these animals was crucial to social and religious celebrations. Weber adds that in addition to providing farmers with the means of subsistence through ploughing and transport, livestock offer villagers a means of fulfilling their social and religious obligations throughout the year (Weber 2005). Not surprisingly, the present study shows that compounds related to salt trading have more cattle compared to those related to non-salt trading.

6.5.3.3 Festivals and Feasts

Although data was not collected on the specific role of cattle in the fulfilment of social and religious obligations, some observations were made, and informant comments were solicited on the topic. The inhabitants of Enderta celebrate Ethiopian Christian Orthodox festivals and other social events, during which meat is important. As Weber (2005) notes, the religious celebrations occur all year round, including Johannes, Mezkel, Debre Damo, Mariam Tsion, Kulibi, Ledet, Timkit, Good Friday, Fasika, and Hawaryat.
Preparations for festivities and social events were reported as motivation for participation in salt trading. Informants reported the provision of meat as an essential factor in the hosting of successful social events. This use of meat in celebrations was witnessed during two festivals, *Timkit* and *Lekatit*, as well as at two weddings and a funeral. *Timkit* (Figure 75) or the feast of Epiphany is a key religious festival in Ethiopia that is celebrated each year on January 19.

![Inhabitants of Tigrai celebrate Timkit, Mekelle](image)

Figure 75. Inhabitants of Tigrai celebrate Timkit, Mekelle

On the morning of the day of the *Timkit* festival, the baptism of Christ in the Jordan River by John the Baptist is commemorated according to informants, including local priests. The festivities include the consumption of meat, during which livestock, including cattle, are slaughtered by wealthy families. One of the salt related compounds, a wealthy family, slaughtered an ox during *Timkit* in 2005 at Adi Ainawalid. At Adi Baekel, four members of the salt trading group joined to purchase an ox for the same celebration. Earlier on the same day in Mekelle, a colourful procession, part of *Timkit*, ended with a Durbar officiated by priests of the Ethiopian Orthodox Church. The connection between meat and feasts was evident in the many fresh animal hides that were
on display for sale in Mekelle on the day of the festival (Figure 76), and the processing of skins in Enderta villages.

Figure 76. Fresh hides for sale in Mekelle during Timkit, Mekelle

*Lekatit* (Figure 77) was the second celebration witnessed. Unlike *Timkit*, it is a political event celebrated only in Tigrai, and by people of Tigrai origin. Its history is traced to an uprising that led to the formation of the Tigrai Peoples Liberation Front (TPLF). Oppression during the reign of Haile Sellassie caused the people of Tigrai to organize an armed struggle called *Woyane* (revolt). The second *Woyane* started on February 18th 1975 (*Lekatit* 11, 1967 Ethiopian calendar). According to informants, the uprising was a response to atrocities committed against the people of Tigrai by some leaders and regimes of Ethiopia who were not from that region. The goal of *Woyane*, informants added, was to better the conditions of the natives of Tigrai. Under the leadership of the TPLF, the struggles continued against the Derg regime after the fall of the Imperial regime in 1974. After 17 years, the TPLF toppled the Derg government in 1991. *Lekatit* is celebrated to commemorate the fallen heroes, remind the next generation, and transfer the torch of *Woyane*, according to informants.
Figure 77. Dancing in during *Lekatit* in 2005, Mekelle

*Lekatit* has specific connections to the salt trade. Some caravan merchants reported their active participation in the TPLF as fighters as well as by contributing money and/or using their animals to move weapons and needed supplies. Present and former caravan merchants, as well as Afar informants, some of whom fought on the side of the Derg agreed that it was for these reasons that the Derg and their Afar partners severely punished salt traders during the civil war leading to the overthrow of the Derg in 1991. This was also one of the reasons indicated for a decline in the participation of Enderta people in salt trading.

In addition to religious feasts and political celebrations, weddings and funerals are major social events requiring meat consumption. These events also involve the entertainment and participation by large numbers of people. Two oxen each (Figure 78) were slaughtered for the two weddings witnessed in salt trading compounds, during which important guests were greeted and hosted in *hidmo* rooms at Adi Ainawalid. While the status of the compound that hosted the funeral ceremony was non-salt trading, two oxen were also slaughtered, but information regarding who provided the oxen was not confirmed.
Usually, host families slaughter oxen for the meat needed for wedding and funeral feasts. Given that these events can and do occur at any time during the year, they are a way to show the wealth of an individual or a family (Weber 2005). During weddings and funerals, host families reinforce their ties to extended families, neighbours and the church by providing them with large quantities of food and drink. The large volume of people in attendance demands food quantities only oxen or cattle can provide, thus, the feasts hinge upon the availability of these animals for slaughter and consumption. Depending on their economic situation, on each occasion, families consume different types of meat. The main factors affecting the scale of the celebration and the type of meat consumed during these festivities are the economic situation of families and the cost to purchase an animal for its meat (Weber 2005).

As Weber (2005) observed, sheep or goats are killed for feasting because household cattle are too important to sacrifice for meat, and cattle are expensive to purchase from the market for this purpose. His further observation that lack of funds and livestock prevented many families from celebrating in the Gulo-Makeda area is
corroborated by the data from Enderta. The ability to provide meat and *sua* (local beer) for festivities and celebrations were stated by present and former salt traders as motivations for seeking extra income from salt trading. Non-salt traders also noted that income for social and religious obligations were some of the benefits of salt trading and were reasons why they would participate in the trade if they had the capital and/or physical abilities to become salt traders.

This study did not collect data on the specific role of feasting as a means of gaining and maintaining status. However, based on informant comments and observations, suggested roles of feasts (Dietler and Hayden 2001) as well as work by Webber (2005), feasting seems to have a role in highlighting the status of compounds. Dietler (2001) conceptualised feasting as a means to turn economic capital into social capital, with political power as the ultimate goal. Hayden (2001) viewed feasting as an adaptive strategy with the desired result of survival and reproduction. Both theorists agree that feasts involve strategic, self-interested political action, and that they serve to define and reproduce social categories (Dietler and Hayden 2001), although Dietler and Hayden disagree on the drive for this ritual behaviour.

Dietler (2001:65) defined ‘feasting’ as “a form of ritual activity that involves the communal consumption of food and drink.” He went on to note that his definition of competition did not necessarily entail “aggressive domination and relentless accumulation of power” (Dietler 2001:77), but may include continual renegotiation of relative asymmetries in relationships between people. Weber (2005) noted that the creation and maintenance of social ties seemed of paramount importance based on his observations at a Dahane funeral, where three oxen were slaughtered for the event. He
adds that a good indicator that aggressive feasting competition was less important to the
inhabitants of Shewit Lemlem was the ritual by which they prepared for funeral feasts.
The family of the deceased was allowed to hold tezkal (the ritual feast celebrating the
one-year anniversary of the dead) at any time after burial. According to Weber, because
food remains scarce, the large window of time within which families may prepare a feast
ensures that families may accumulate enough food to feed the participants, even if it
takes many years to do so. This, he observes, allows families the opportunity to prepare
and host feasts to maintain their status amongst peers without great economic risk to
themselves (Weber 2005).

6.5.4 Socio-Economic Benefits of Salt at the Local Level

To verify the socio-economic role of the salt trade at the local level (see Table 16
and 17) t-test, chi-squared, and correlation methods were used for data analysis. The
statistics on room type and size confirm that rectangular hidmo rooms show a difference
between the two groups. Hidmo in salt trading compounds have an average volume of
88.14 m³, while those in non-salt trading compounds have 73.00 m³ (Table 18).

<table>
<thead>
<tr>
<th>Table 18. Group Statistics For Room Type and Size, Enderta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compound</td>
</tr>
<tr>
<td>Rectangular</td>
</tr>
<tr>
<td>Hidmo</td>
</tr>
<tr>
<td>Trader</td>
</tr>
<tr>
<td>Non Trader</td>
</tr>
<tr>
<td>Round Hidmo</td>
</tr>
<tr>
<td>Salt Trader</td>
</tr>
<tr>
<td>Non Trader</td>
</tr>
<tr>
<td>Korokoro</td>
</tr>
<tr>
<td>Trader</td>
</tr>
<tr>
<td>Non Trader</td>
</tr>
<tr>
<td>Sakala</td>
</tr>
<tr>
<td>Trader</td>
</tr>
<tr>
<td>Non Trader</td>
</tr>
</tbody>
</table>
The t-test is used to compare the values of the means from two samples and to test whether it is likely that the samples are from populations with different mean values. The independent samples t-test results (Table 19) indicate that when looking at all compounds that have rectangular hidmo, on average, salt traders have larger rectangular hidmo than non-salt traders do, though the t-test indicates that we can only have 90% confidence that this difference actually exists.

Table 19. Independent Samples Test For Room Type and Size, Enderta

<table>
<thead>
<tr>
<th></th>
<th>Levene’s Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig.</td>
<td>T</td>
</tr>
<tr>
<td>Rectangular Hidmo</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>assumed</td>
<td>1.720</td>
<td>.197</td>
<td>1.655</td>
</tr>
<tr>
<td>Equal variances</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>not assumed</td>
<td>1.785</td>
<td>.083</td>
<td>34.877</td>
</tr>
<tr>
<td>Round Hidmo</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances</td>
<td>.081</td>
<td>.780</td>
<td>-1.154</td>
</tr>
<tr>
<td>assumed</td>
<td>Equal variances not assumed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances</td>
<td>-1.203</td>
<td>.249</td>
<td>14.328</td>
</tr>
<tr>
<td>not assumed</td>
<td>Equal variances assumed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances</td>
<td>1.104</td>
<td>.304</td>
<td>4.240</td>
</tr>
<tr>
<td>assumed</td>
<td>Equal variances not assumed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances</td>
<td>4.577</td>
<td>.000</td>
<td>23.404</td>
</tr>
<tr>
<td>not assumed</td>
<td>Equal variances assumed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances</td>
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<td>.558</td>
<td>.346</td>
</tr>
<tr>
<td>assumed</td>
<td>Equal variances not assumed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances</td>
<td>.336</td>
<td>.747</td>
<td>.413</td>
</tr>
</tbody>
</table>
Compound data on rectangular *hidmo* and cattle were also analysed using the chi-squared method. Chi-squared test for nominal (categorical) data can be used to determine whether a difference between two categorical variables in a sample is likely to reflect a real difference between these two variables in the population. In the case of comparing two variables, the test can also be interpreted as determining if there is an association (or relationship) between the two variables. The results indicate that rectangular *hidmo* occur significantly more frequently at salt trading compounds, but the *hidmo* is not necessarily significantly bigger (on average) than that found in non-salt trading compounds (Table 20). However, the chi-squared test for cattle indicates clearly that cattle are significantly more abundant amongst salt trading compounds (Table 21).

Table 20. Chi-Squared Test For The Presence Or Absence of Rectangular *Hidmo* In Salt and Non-Salt Trading Compounds

<table>
<thead>
<tr>
<th>Observed</th>
<th>Traders</th>
<th>Non-traders</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Hidmo</td>
<td>11</td>
<td>28</td>
<td>39</td>
</tr>
<tr>
<td>Hidmo</td>
<td>29</td>
<td>15</td>
<td>44</td>
</tr>
<tr>
<td>Totals</td>
<td>40.00</td>
<td>43.00</td>
<td>83.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Expected</th>
<th>Traders</th>
<th>Non-traders</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Hidmo</td>
<td>18.8</td>
<td>20.2</td>
</tr>
<tr>
<td>Hidmo</td>
<td>21.2</td>
<td>22.8</td>
</tr>
</tbody>
</table>

Chi-squared = 11.8

* p = 0.000601 Significant
Table 21. Chi-Squared Test For Cattle In Salt and Non-Salt Trading Compounds

<table>
<thead>
<tr>
<th></th>
<th>Observed</th>
<th>Traders</th>
<th>Non-traders</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td></td>
<td>47</td>
<td>44</td>
<td>91</td>
</tr>
<tr>
<td>Cattle</td>
<td>159</td>
<td>94</td>
<td></td>
<td>253</td>
</tr>
<tr>
<td>Cattle/person</td>
<td>3.38</td>
<td>2.14</td>
<td></td>
<td>2.78</td>
</tr>
<tr>
<td>Expected</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number</td>
<td></td>
<td>47</td>
<td>44</td>
<td></td>
</tr>
<tr>
<td>Cattle</td>
<td>130.7</td>
<td>122.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chi-squared=</td>
<td></td>
<td>13.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>p</td>
<td></td>
<td>0.000365</td>
<td>Significant</td>
<td></td>
</tr>
</tbody>
</table>

The Pearson Correlation method was also applied to determine relationships amongst the select variables of rectangular *hidmo*, *korokoro*, and cattle, and how they may be related in the 83 compounds for which data was used for this analysis. Pearson Correlation measures the strength of the relationship between two sets of data (two variables), in which the correlation coefficients can range from -1.00 to +1.00. The value of -1.00 represents a perfect negative correlation while a value of +1.00 represents a perfect positive correlation. A value of 0.00 represents a lack of correlation. This method was used because it helps determine the extent to which values of two variables are proportional to each other, and how related they may be. The correlation analysis shows that there is a very weak positive correlation (.217) between the size of rectangular *hidmo* and the number of cattle (Table 22). Data on room type and size, livestock animals, and overall compound size also support the case for a connection between salt trading and wealth. Five salt trading and five non-salt trading compounds at Adi Baekel were mapped and their total areas calculated (Table 23). Although small, the data
highlights some of the basic differences between salt trading and non-salt trading compounds. Salt trading compounds had an average area of 136.2 m², compared to 111.8 m² for non-salt trading compounds. The key variables of cattle and rectangular hidmo also show a trend in which salt traders had larger rooms and more cattle, on average 88.23 m³ and 4.33 respectively, compared to 61.66 m³ and 3.50 for non-salt trading compounds.

Table 22. Correlation Between Selected Variables For Salt And Non-Salt Trading Compounds

<table>
<thead>
<tr>
<th></th>
<th>Cattle</th>
<th>Rectangular Hidmo</th>
<th>Korokoro</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle Pearson Correlation</td>
<td>1.000</td>
<td>.217*</td>
<td>-.055</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.049</td>
<td>.624</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>83.000</td>
<td>83</td>
<td>83</td>
</tr>
<tr>
<td>Rectangular Pearson Correlation</td>
<td>.217*</td>
<td>1.000</td>
<td>-.412**</td>
</tr>
<tr>
<td>Hidmo Sig. (2-tailed)</td>
<td>.049</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>83</td>
<td>83</td>
<td>83</td>
</tr>
<tr>
<td>Korokoro Pearson Correlation</td>
<td>-.055</td>
<td>-.412**</td>
<td>1.000</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.624</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>83</td>
<td>83</td>
<td>83</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Table 23. Mapped Salt And Non-Salt Trading Compounds, Adi Baekel

<table>
<thead>
<tr>
<th>Name</th>
<th>Salt Trade</th>
<th>Trade Age</th>
<th>Compound Size</th>
<th>Circumference of Sakala</th>
<th>Volume of Rectangular Hidmo</th>
<th>Circumference of Round Hidmo</th>
<th>Area of Korokoro</th>
<th>Cattle</th>
<th>Donkeys</th>
<th>Camels/Mule</th>
</tr>
</thead>
<tbody>
<tr>
<td>AB1</td>
<td>y</td>
<td>40</td>
<td>119.3</td>
<td>0</td>
<td>0</td>
<td>4.9</td>
<td>16</td>
<td>6</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>AB6</td>
<td>y</td>
<td>70</td>
<td>106.8</td>
<td>0</td>
<td>100.3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>AB10</td>
<td>y</td>
<td>60</td>
<td>89.9</td>
<td>11.3</td>
<td>89.7</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>AB14</td>
<td>y</td>
<td>45</td>
<td>86.3</td>
<td>0</td>
<td>44.7</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>AB16</td>
<td>y</td>
<td>42</td>
<td>278.4</td>
<td>0</td>
<td>118.2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>AB7n</td>
<td>n</td>
<td>45</td>
<td>172.5</td>
<td>0</td>
<td>85.0</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>AB9n</td>
<td>n</td>
<td>43</td>
<td>149.2</td>
<td>0</td>
<td>62.8</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>AB10n</td>
<td>n</td>
<td>43</td>
<td>67.9</td>
<td>0</td>
<td>0</td>
<td>12</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>AB13n</td>
<td>n</td>
<td>42</td>
<td>127.5</td>
<td>0</td>
<td>38.1</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>AB15n</td>
<td>n</td>
<td>35</td>
<td>42.1</td>
<td>5.2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

7 Compound and room sizes in metres
Based on the statistical analysis conducted, overall, larger compounds with more cattle and bigger *hidmo* rooms are associated with salt trading compounds in Enderta. As noted earlier, wealth in Enderta is invested in rooms and cattle, which are indicators of status. Therefore, the results suggest a connection between salt trading wealth and status. The statistical results agree with observations and confirmed informant statements that past and present caravan merchants have larger compounds (Figure 79, 80 and Appendix B), more and larger rectangular *hidmo*, and more cattle.

Figure 79. Salt trading compound, Adi Baekel
Caravan merchants (salt trader) are generally influential because they give loans to others in their communities. They also provide meat more regularly for family and public celebrations compared to non-salt traders. The status and benefits that come with salt trading are reflected in the social context. Specifically, informants stated that it was easy to gain recognition as salt traders (caravan merchants), which also made it possible for them to marry because potential in-laws see them as responsible, strong, and able to provide for their families. Caravan merchants also use their pack animals in the off-season to help other members of their community, which also enhances their status and influence.

Lyons (2007) reminds us of Bauer’s (1975) conclusion that Enderta households are politically stronger than the kin-unit (membership to a group that shares
characteristics with another group). Findings of this study agree with Bauer’s observation that a key aspect of individualism in Enderta is the building of a hidmo as a material statement of the intention of an individual to become someone of importance in the community. However, neither the work of Lyons (2007) nor the present study revealed the presence of ‘big men’ in Enderta acquiring a following from poorer households using food and oxen, and in return repaying with loyalty and labour.

Nonetheless, the two studies support Bauer’s claims that the hidmo in Enderta is a status symbol with political dimensions. Bauer (1977) called for researchers to look at the options available to the Enderta people, and to examine them within the context of their goals and the resources present. This study suggests that salt is an important resource available to the people of Enderta and its trade offers a means to gaining wealth, which confers status. These benefits of the salt industry help to explain why ownership of the Assa salt plains has been contentious, leading to conflicts in the past (Abir 1968; Pankhurst 1961, 1968).

There is agreement that salt from the Danakil Depression has always been a major source of income to those involved in its trade and to various controlling powers for generations (Munzinger 1869 a, b; Abir 1968; Pankhurst 1961, 1968; Kobishchanov 1979). A key question is how far back this can be projected. The problem of verifying the antiquity of what is perhaps one of the oldest items of trade is that salt itself does not preserve and its trade is difficult to pinpoint in the archaeological record. It is partly for this reason that this study was conducted: to identify the possible archaeological signatures of the salt industry of northern Ethiopia today, with the hope of using them as a basis for further research into its prehistory. A major reason why ethnoarchaeology has
become popular amongst archaeologists is the need to understand the social and 
behavioural contexts within which material remains are created as well as how they 
eventually become part of the archaeological context. Generally, it is difficult to find 
direct evidence of nonmaterial features of the socio-cultural systems we seek to study in 
the archaeological context (Binford 1972; Gould 1974; O’Connell 1995). As a result, 
arkeological interpretations have relied upon analogy (David and Kramer 2001). The 
social aspects of activities that generate archaeological material, including salt trading, do 
not survive in the archaeological record, and therefore cannot be directly accessed from 
it, hence ethnoarchaeology.

6.6 Material Correlates of the Salt Industry

In identifying the material correlates of the salt trade, it will be helpful to discuss 
them within the context of the three major sections of the operational chain of the salt 
trade. Based on the observations made during this study, the salt trade will leave a rather 
slight mark in the archaeological context because most of the materials and equipment 
used are organic, and/or are not unique to the salt trade. In the source area, the salt trail 
itself, for the most part, follows the course of a river system, further reducing the 
preservation of caravan merchant related activity. While the riverbed is without water 
most of the time, rains from highland regions, and periodic rains in the lowland Afar 
region, cause floods, which likely wash some material remains left by caravan activity in 
the riverbed away. For example, the caravan stops at Berehale, Asabolo, and Hami-dela 
are all in riverbeds. Thus, remains from cooking, making bread, and from repairing 
equipment may be washed away when rainwater flows through the riverbed.
Remains in the distribution centre as well as the home area may not easily survive to be identified because of the instability of salt markets and *amole* processing shops, as well as the fact that most materials and equipment used are organic. Yet, some traces of materials and features connected to the salt industry may be identified and may be archaeologically visible, even if minimally. In discussing the material correlates of the salt trade from an archaeological perspective, attention will therefore focus on salt-related activities likely to leave signatures in the form of features and artefacts. In spite of the conditions noted above, a case would be made for contextual identification.

### 6.6.1 Source Area

In walking 117 km each way to and from the salt plains with their pack animals, caravan merchants make stops and engage in activities, some of which may leave archaeological remains. Some remains, including bones of dead pack animals and salt loading equipment, were observed in sections of the riverbed where caravan merchants take breaks, as well as in various sections of the salt trail between the major stops such as at Berahale and Asabolo. Features and remains indicating salt trading in the source region that may preserve are those that occur in sections of the salt trail outside the riverbed.

Most symbolic and ritual aspects of the salt trade will not preserve directly. However, new caravan merchant initiations, conducted along the salt trail on top of *Mugue Anantey*, should leave a recognisable feature. The initiations, which occur every salt season, according to informants, involve running up the hill and dancing around a pile of stones. Many years of this practice has caused a circular depression around the pile of stones.
Caravan merchants and their pack animals have caused depressions and indentations in sections of the salt trail outside the riverbed; in some sections about 2 cm below the ground level (Figure 81). Comparable to Aboriginal trails in North America (Sutton and Arkush 1998), the salt trail has been used for the last 2,000 years. Thus, it should be possible to recognise this feature of the salt trade through aerial photography. In addition, large-scale ground survey (Orton 2000) should also help identify sections of the salt trail as well as remains of dead pack animals along the trail such as were observed during this study.

Figure 81. Section of salt trail outside riverbed, between Berehale and Asabolo

Homes of fukure will also have remains indicating the salt trade. In processing goatskins for collecting water, fukure use stone and metal scrapers to remove pieces of meat from the goatskins. Given that this is a specialised vocation undertaken by women, a concentration of stone or metal scrapers and hide production tools in a household context in the Berehale area of the Afar region could indicate participation in the salt trade.
Tools used in salt working at the salt plains (Figure 82), as well as other remains such as pieces of loading equipment, lost goatskins, animal remains and droppings, may preserve at the salt plains because salt itself has high preservation qualities. Some workers stated that they discarded broken pieces of the wooden sections of tools, and sharpening stones, at the salt plains.

It is also helpful to state that the tools used at the salt plains originate from highland Tigrai, thus, their presence at the salt plains or in the context of a household in the Assal section of the Danakil Depression should indicate salt trade. This is particularly significant because the Afar people of this area are a nomadic people, and use the tools for only salt working to supplement their livelihoods. In that context, the most important indicator would be the specialised salt shaping axe. It has a short handle at an angle of about thirty degrees and a broad blade of about 45 cm by 40 cm. The design of this axe, unlike the bulkier, yet narrow-bladed one used by salt extractors, makes it impossible to use for chopping wood. The presence of this axe or portions of it in household contexts should be a basis to infer salt trading in archaeological contexts.
6.2.2 Distribution Centre

Identifying the salt trade at distribution centres, which today includes Mekelle, would be challenging for many reasons. First, the actual locations of salt markets have not been permanent. As informants stated, the salt market was relocated three times in the last 20 years. As well, the locations of amole processing shops change, and activities within them are not permanent. Workers in these shops were observed moving their work locations around, and on top of salt residue as needed. In addition, informant interviews and historical records suggest that the processing of amole in shops by full-time major salt merchants is a recent development. While the historical record and informant interviews credit Enderta caravan merchants with the oldest traditions of salt trading, including amole processing, there have been disagreements between some historical records and informant statements about where amole was carved in the past.

Nesbitt (1934) claimed to have seen Enderta natives shaping amole at the site of quarrying in the Assal section of the Danakil Depression. However, when older informants in Enderta were asked about this claim, they disputed that their Garandfathers and ancestors processed amole at the salt plains. According to them, amole was initially shaped at the homes of caravan merchants with the help of their wives. Women were responsible for processing aja, and used their traditional hairdressing pins to split it into strips for binding amole bars. Older informants remembered when Enderta people were specialist in shaping salt blocks at the salt plains, and when amole was shaped and bound in Enderta compounds. They noted that as time passed, some caravan merchants established processing shops in their compounds.

Neither the informant's statement nor the assertions of Nesbitt (1934) can be confirmed based on other historical records. However, Nesbitt's claims that amole was...
shaped at the salt plains seems rather unlikely, given the practicalities of processing *amole* as observed during this study. Even so, his report confirms the historical connection of the Enderta people to the salt trade. Their role in extracting salt, shaping it into blocks, and carving it into bars of *amole* for sale is undisputed. This may also explain why the same type of axe is used to shape *amole* bars in processing shops in Mekelle as well as salt blocks at the salt plains by Afar salt shapers (Figure 82 and 83). It may also support the case that the Afar people are recent settlers in northern Ethiopia and new to the salt trade compared to Tigrai natives.

![Amole shaping axe and sharpening stone, Mekelle](image)

*Figure 83. Amole shaping axe and sharpening stone, Mekelle*

Some non-organic remains such as the tools used in *amole* processing shops may preserve. However, some, such as the saw used to cut salt blocks, are not unique to the salt industry. The axe used to shape *amole* (see Figure 83) in the salt processing shops, the same in form and look as the one used to shape the bigger salt blocks at the salt plains, may indicate the presence of the salt trade in highland settlements, such as in Enderta. Informants in the Afar and Tigrai regions involved in the salt trade indicated that this type of axe was only used to shape salt. Throughout the fieldwork for this study,
no observation of the use of this axe was made in any other context besides salt working. Therefore, from the historical context, informant interviews, and observations, it is reasonable to suggest that a material indicator of salt trading at the distribution centre could be the presence of an amole shaping axe or its remains in the context of a home or shop.

An important aspect of the salt trade at the distribution centre is aja, from a plant locally called egiara (Figure 84), which is used to bind amole before it is distributed, a tradition that goes back many centuries. This plant has been identified as belonging to the family Agavaceae. It grows in some parts of the Afar region, including the Aba Ala section. Members of this plant family have narrow, lance-shaped, sometimes fleshy or toothed leaves that are clustered at the base of each plant. Due to its association with the salt trade, its presence in any form, in a household or shop, should indicate salt trading. Aja, as highland informants noted, is used to bind amole only. As observed during this study, it produces foam when rinsed. In light of its specific use and its peculiar attributes, including yielding foam, the preservation of aja in the form of pollen, and/or phytoliths, would indicate salt trading, and the processing of amole in particular. Remains of aja are present in processing shops and in the compounds in which the shops are located. Trash from shops, usually including aja remains, as well as water from rinsing it, are dumped in front of these shops or nearby.
6.6.3 Home Area

Indications of salt trading in the home areas of caravan merchants would include the remains of loading material and those of pack animal, especially camel remains. However, the loading equipment is made of organic material with poor preservation qualities, such as wood, rope, and cloth, which are also not unique to salt trading. The Afar people breed and sell young male and non-breeding or post-breeding female camels to highlanders, including the caravan merchants of Enderta, who use them to transport salt. Whether the people of Tigrai bred camels in the past is not known from oral traditions or historical records.

Nevertheless, it is known that the inhabitants of Enderta and other Orthodox Christian natives of Tigrai do not consume camel, mule, or donkey meat, but use them as pack animals. As a result, Enderta informants reported selling older pack animals unable to work to the Afar people who consume them. Informants stated that when they do not sell them and/or when they die, the animals are buried or discarded in nearby fields. Based on the above, the presence of camel bones in an Enderta settlement may indicate
participation of its inhabitants in the salt trade. Such bones will not have cut marks, as highlanders do not eat camel meat. In addition, skeletons would be buried in a complete state with bones not modified, except perhaps by scavenging carnivores, which can be identified.

Besides camel remains, the presence of *amole* and salt shaping axes in a compound and/or village context will together point to salt trading, as explained earlier. The household studies conducted also suggest that those involved in salt trading have more room units in their compounds, which are comparatively larger than those that are non-salt trading. On this basis, the discovery of larger compounds in a highland area or settlement with camel remains, will suggest salt trading. Such a determination would be bolstered if the vicinity or site area yields remains of salt shaping axes as well as *aja*.

### 6.7 Salt Trade in the Archaeological Record

As stated earlier, it will be very difficult to model the salt industry from an archaeological perspective because most of the equipment and material used are either organic or not unique to salt trading. However, if archaeologists know the material correlates of the salt industry, it may help to provide clues. Table 24 provides a summary of likely archaeological correlates of the salt trade. In the source area of the salt, remains will likely include stones used to sharpen axes, metal axes used to extract and shape salt at the salt plains, in the household context, and remains of dead animals along the salt trail. The stones and metal scrapers used in working goatskins in household context should also be indicators in settlements closer to the source of salt. At the market or distribution centre, remains may include metal axes, sharpening stones, and phytoliths and pollen from *egiara*. The presence of camel bones near settlements with compounds,
containing bigger room units of the *hidmo* type, should indicate salt trading in the home area and/or at the household level.

**Table 24. Likely Archaeological Correlates Of The Salt Trade**

<table>
<thead>
<tr>
<th>Source Area</th>
<th>Correlating Artefacts, Remains And Features</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Salt plains</strong></td>
<td>Salt extracting and shaping axes</td>
</tr>
<tr>
<td><strong>Salt trail</strong></td>
<td>- Donkey, mule and camel bones - complete skeletons with no cut marks</td>
</tr>
<tr>
<td></td>
<td>- Depression in the salt trail</td>
</tr>
<tr>
<td></td>
<td>- Stones in depression on top of hill</td>
</tr>
<tr>
<td>** Fukure homes**</td>
<td>Stone and/or metal scrapers and hides</td>
</tr>
<tr>
<td><strong>Salt shaper and extractor homes</strong></td>
<td>Salt shaping and extracting axes</td>
</tr>
</tbody>
</table>
| **Distribution Centre** | *Amole production shops*  
|                      | *Amole shaping axes*                                                                                        |
|                      | *Aja phytoliths and/or pollen*                                                                           |
| **Caravan merchant settlements** | Camel remains - complete skeletons with no cut marks  
|                      | - Larger compounds                                                                                        |
|                      | - *Aja phytoliths and pollen*                                                                            |
|                      | - Salt shaping axes                                                                                        |
|                      | *Amole shaping axes*                                                                                       |
| **Home Area**        |                                                                                                             |
| **Caravan merchant homes** | Larger and more room units  
|                      | *Aja phytoliths and pollen*                                                                               |
|                      | Salt shaping axes                                                                                          |
|                      | *Amole shaping axes*                                                                                       |

### 6.8 Summary

The importance of salt from the Assal section of the Danakil Depression to the inhabitants of the Ethiopian highlands, including those in Enderta, is evident from the data presented. The reasons given for participation in the salt trade are economic, but with a high social benefit; to have supplementary income, build a house, buy cattle and more animals, pay debt, and prepare for festivities. The data shows that the salt trade is
still as important as before, and that those participating in the salt industry have larger and more prestigious rooms as well as more animals.

It could be speculated that the importance of salt as an economic resource with socio-political undertones may have provided the basis for the formation of the Ethiopian imperial army. This claim is based on the fact that salt caravans have always been well structured and have been organised along military lines (Abir 1966; Pankhurst 1968). As in other parts of the world, Ethiopian highland caravan merchants protected themselves and were protected because salt served as a food item consumed by both humans and livestock, as money, as a source of revenue and income, as well as an item of tribute, among its other uses in the Ethiopian highlands. The militaristic nature of caravan merchants was confirmed by informants and was observed during this study. They move in groups with leadership, are active and strong, and are respected and influential in their home areas. Indeed, the historical information on the salt trade in Ethiopia corroborates suggestions that the importance of salt gave the salt trade social, political, and military consequences. Bloch (1963) and Connah (1996) have suggested that in the past, caravans and depots where salt was stored or delivered needed protection, and salt required the services of powerful protectors (Bloch 1963:95; Connah 1996:216). In addition, some have noted that because salt was a commodity of universal demand among certain groups, its supply was controlled (Multhauf 1978), a claim evident in the history of Ethiopia from the 6th century A.D. to the present time.

The major challenge in studying this important trade from an archaeological perspective is that most of the material correlates of the salt trade may not survive because they are organic, and when they are not, they are not exclusive to the salt trade.
In addition, some of the materials and features that will survive occur in contexts, which make it difficult for them to enter the archaeological record, such as in the Saba riverbed. Thus, the archaeological signature of the salt trade as a whole would be faint. As a result, modelling the salt trade would be difficult, and an archaeological interpretation of salt trading in northern Ethiopia would be contextual at best, based on clues revealed by this study.
CHAPTER 7 : DISCUSSION AND CONCLUSION

7.1 Introduction

Ethiopia has had more than one source of salt, yet historical reports and observations from this study point to salt from the Assal section of the Danakil Depression dominating in importance throughout the recorded history of Ethiopia. Changes in some aspects of the salt industry have occurred but the fundamental nature of the salt trade has remained the same. The importance of discussing aspects of the salt trade that have or have not changed is that it allows us to understand the technology, economic, and socio-political nature of the salt trade over time.

Historical information and data from this study confirm that the salt trade is important economically, with social consequences for the groups involved. An essential revelation of this study is that participation in the salt trade is influenced by the need for extra income, which serves as a basis to gain status. The display of status and wealth by highland caravan merchants is visibly reflected in their compounds, in the form of prestigious and larger room units, and in their cattle. The status that comes with the salt trade places caravan merchants in positions to gain influence and likely power. Caravan merchants are believed to be strong and brave, easily attract marriage partners, and are in a better position to provide meat for feasts, compared to their non-salt trading colleagues.
7.2 Control of Assai Salt Plains

Older caravan merchants confirmed rivalries amongst groups over the control of the Assai salt reported in historical sources (Munzinger 1869b; Pearce 1923; Nesbitt 1934). The historical record stated that no single group had a monopoly over the salt plains, although some tried to lay claims. According to highland traditions, the inhabitants of Enderta dominated and controlled the salt plains under, and on behalf of, successive imperial leaders of Ethiopia. They had to fend off the Afar people, who settled in the territory in which the salt plains are located. Competition between various Afar groups and between them and highland groups were the basis of constant conflict in the past (Munzinger 1868b; Pearce 1923; Nesbitt 1934; Abir 1966, 1968; Pankhurst 1968). Currently, the situation has changed because of a change in ownership. The Afar people now control and own the salt plains as per political arrangements after the fall of the Derg government in the early 1990s. Naturally, Enderta natives resent the new arrangement that requires them to pay taxes to the Afar people. New laws by the Afar people prohibit highland caravan merchants from collecting firewood in the Afar region, and prevent them from shaping salt blocks at the salt plains. The idea of obeying rules set by a people they traditionally considered their enemies, angers older highland caravan merchants.

7.3 Workers and Tasks at the Salt Plains

At the salt plains, workers still use sticks as levers to detach large slabs of salt, although the categories of workers as well as some tasks carried out have changed. According to older caravan merchants, extracting, shaping, and loading salt required them to spend two or more days at the salt plains in the past. They did not dispute earlier
accounts that caravan merchants extracted salt themselves, which required them to live in temporary structures built of salt and covered with animal skins (Munzinger 1869 b; Pearce 1923; O’Mahoney 1970; Englebert 1970; Gerster 1974). Pankhurst (1990) summarised this as follows, “the salt merchants and caravaneers were responsible not only for transporting the precious mineral (salt), but also for mining it in the plains” (Pankhurst 1990:51). From the claims of informants, some groups from villages in the Enderta woreda later specialised in salt extraction, while others specialised in shaping salt.

Tasks at the salt plains have now become specialised with separate groups extracting and shaping salt. Caravan merchants no longer extract and shape salt, and the salt extracting process itself has changed. Older caravan merchants stated that the insertion of fokolo sticks required the use of a hammer stone or gelada to pound the stick into place. The actual levering was done with their backs facing the slabs as opposed to today, where such a stone is not used, and the extractors face the slabs. The many tasks that caravan merchants performed in the past required them to spend more time at the salt plains. In doing so, highland caravan merchants were prone to being attacked by Afar natives. This was stated as the main reason for the militaristic nature of the highland salt caravan merchants. The Shum Bahri and Baalgada, positions that no longer exist, were officials overseeing the salt, collecting taxes, and offering caravan merchants protection.

Accounts from the 1970s also stated that workers and caravan merchants spent at least a night at the salt plains and in some cases indicated that Afar and Tigrai people worked side-by-side (Englebert 1970; O’Mahoney 1970, Gerster 1974). Workers and caravan merchants no longer sleep at the salt plains. In preparation to pay taxes, caravan
merchants spend a night at Hami-dela, which is now the site of the tax post; it was formerly located in Berehale. Most salt workers live at Hami-dela in rented rooms or with relatives if they are Afar natives. A major reason why workers and caravan merchants no longer sleep at the salt plains seems to be the rise of Hami-dela as both the tax post and the last settlement before the salt plains. It is worth noting that until the 1990s, the last stop before the salt plains was Asabolo, located 25.5 km from the salt plains. At the time, the tax post was located in Berehale and was under the control of the natives of Tigrai (Englebert 1970; O’Mahoney 1970, Gerster 1974).

The manner of shaping salt into blocks, using axes, to facilitate loading on waiting animals at the salt plains has not changed significantly (Munzinger 1869 b; Nesbitt 1934; O’ Mahoney 1970; Englebert 1970; Gerster 1974), although the shapers are no longer highlanders. Besides the insertion of the sticks used to lever salt slabs, the basic principle of levering the salt slabs and the shaping process remain consistent from the 1520s to the present. However, some reports from the 1970s point to further changes in the categories of workers and the mode of payment for their services. The identified groups reported as working at the salt plains were workers, pickers, and caravan merchants. According to Gerster (1974), pickers solicited clients for salt workers, although no intermediaries were observed during my visit to the salt plains. Rather, this study identified and observed extractors, shapers and their assistants, and caravan merchants working and interacting at the salt plains. What was clear was that caravan merchants had shaper clients, and were assigned extractors by a committee the night before they entered the salt plains to collect salt. The current manner in which the salt industry is organised in the source area is indication of change towards further
specialisation, a situation not reported until this study. Presently, the extractors extract slabs and chop them into smaller pieces, which are then taken to the shapers, after their assistants clean them.

An obvious sign of change is payment and rewards for services to other groups because the caravan merchants no longer execute all the tasks at the salt plains. Reports from the 19th and 20th centuries noted that salt workers received money in addition to tobacco, bread, and water for a day's work (Munzinger 1869 b; Pankhurst 1968; Gerster 1974; Englebert 1970). During the present study, the workers received money, bread, and water from caravan merchants but not tobacco. As stated under the operational chain of the salt trade today, the reward system varies per task performed and type of animal used by caravan merchants. Salt extractors are paid per type of pack animal used by caravan merchants, while salt shapers are paid per type of salt block shaped.

Observations that the number of people at the salt plains at any one time in the 1970s was about 300 to 5,000 (O'Mahoney 1970; Gerster 1974) are corroborated by this study. About 2,000 people, with over 3,000 animals were observed extracting, shaping, and loading salt on December 22nd, 2004. The number of people and number of pack animals present at a time at the plains seems to depend on many factors. Some of these factors include the days of the week, the time of the visit to the salt plains, the time of the season, the availability of straw for the animals, market forces, the security situation, and festivities based on the Orthodox Christian calendar.

The sizes of caravans and the ownership of caravan animals based on the information gleaned from various authors can be classified as large, medium, and small. Large caravans were suggested to have between 1,000-20,000 animals, medium sizes had
500-1,000, while small caravans had less than 500 animals (Pearce 1923; Pankhurst 1968). The sizes of caravans reported by earlier visitors to Ethiopia seem to have changed compared to the observations made during this study. At best, observations during this study suggest that all the caravans of today can be classified as small. The 29 caravan merchants interviewed, together with their other 103 *mahaba* members from 17 *mahaba* groups reported that they had 565 animals in total.

Ownership of pack animals was not clear from the historical reports. Most reports indicated that the Danakil Afars, Tigrayan Endertas, and other highland groups, owned the animals they used in transporting salt. In addition, records noted that some highlanders rented animals from the Afar people if they did not own any or needed the use of more animals (Munzinger 1869 b; Pankhurst 1968; Gerster 1974). Observations and informant interviews did not reveal any such arrangements. However, caravan merchants stated three other ways by which they obtained animals to carry salt. In addition to their own pack animals, including camels they buy from the Afar people, they use animals from other caravan merchants on a reciprocal basis (*lfuti*), animals from others on a half and half input-reward sharing arrangement (*friki friki*) or they are paid to use other people’s animals to collect salt for the owners of such animals (*cry*).

### 7.4 Packaging and Transporting Salt Blocks

An aspect of salt related activity that seems to have endured is the method of packaging salt blocks for camel transportation. Munzinger (1869 b) described the packing of salt blocks for transport by camel. He noted that two triangular wooden frames were placed on both sides of the camel, allowing a side of each triangle to be attached to the corresponding side, fastened with ropes. Munzinger’s description of
packing of salt blocks by highland caravan merchants is the same as observed during this study. However, other reports noted a different method of packing employed by Afar caravan merchants in other parts of the Danakil Depression. Harris (1844) and Nesbitt (1934) reported seeing Afar natives transporting salt to markets such as Bati and Erifible in long narrow mat bags made of woven date palm leaves. This method was not observed for caravan merchants operating in the Assal section of the Danakil Depression, and the two Afar caravan merchants consulted had no knowledge of it.

The dominant mode of salt transportation, by animal caravan, is another aspect of the salt trade that has not changed, although references to the use of trucks and trains to transport salt appear in the literature from about 1927 onwards (Buxton 1967; O’Mahoney 1970; Henze 1977). A road was built in the 19th century to facilitate easy transportation of salt (Abir 1968; O’Mahoney 1970), and today, middle merchants stationed in Berehale use trucks to transport salt to Mekelle. To some extent, vehicular transport is influencing the nature of caravan treks to and from the salt plains. Older caravan merchants were seen boarding vehicles from Mekelle to Berehale, and they confirmed this when asked. They then joined their mahaba for the rest of the walk to the salt plains. As informants explained, this allows older caravan merchants who would have had to retire in the past to participate in the salt trade. Other reasons were that it made it possible for mahaba members to attend to important business at home and still catch up with their group before it arrived at Hamj-dela.

Another sign of modern times is reflected in the presence of tourists travelling to see the salt plains. The rise of tourism has led to the use of vehicles by private tour operators to transport tourists to about 2 km from where salt is extracted. In spite of the
introduction of vehicular transport, authors reporting on the salt trade concede that the animal caravan was still the dominant mode of transporting salt from Lake Assal to highland Tigrai. Essentially, the construction of roads as well as the resultant use of vehicles has had no meaningful impact on the use of animal caravans in the salt trade between Lake Assal and Mekelle. No vehicle was seen during this fieldwork carrying salt between the salt plains and Asabolo. The use of trucks is more prevalent when middle merchants are moving salt to Mekelle, and when major merchants are distributing salt from Mekelle to other parts of Ethiopia, such as Addis Ababa.

### 7.5 Routes, Stops, and Activities

Caravan merchants from Atsbi, Agame, Adua (Aksum), Golu-Mekada, Sarre Tsaeda, Afhram, Afshum, and Enrob woreda use the Koneba-Asabolo route, while caravan merchants from Enderta, Tembien, Raya, Wukro, Antalo, Samre, Ganta, Hawzien, and Weler Leke woredas use the Mekelle-Berehale route (see Figure 7 and 8). Some caravan merchant routes, stops, and activities have endured over time, as accounts by Alvarez in the 1500s and Lobo in the 1600s reveal. Important stops and transfer points of the salt trade have been in use from the 17th century and possibly earlier, as Kosmas Indikopleustus suggested, when he noted that the salt trade was going on for about a millennium before his visit to Aksum in the 6th century A.D. Lobo used some of these routes in the early 17th century. He noted in the 1600s that ‘Bailur’ (Berehale) was part of a small broken kingdom of Danakil inhabited by the Afar people. He used the Berehale route; hence, his description of the nature of the route, the use of goatskin bags to collect water as well as the making of brukuta at Asabolo (Donald 1984).
Accounts before the 1990s all reported Berehale as the tax post, where caravan merchants paid taxes to Tigrai natives appointed by the Ethiopian Imperial government. The tax post is now at Hami-dela, near the salt plains, and is now controlled by the Afar people. Yet, caravan merchants still make stops at Berehale on their way to and from the salt plains. Obviously, the move of the tax post from Berehale to Hami-dela and the collection of taxes by Afar natives is a significant change. Besides paying taxes, the literature lacked details on other activities caravan merchants undertook at Berehale. The activities performed by caravan merchants observed and described by this study include resting, feeding their animals, renting goatskins from jukure, and storing supplies in the homes of jukure for their trips home.

The activities by caravan merchants at specific stops today are similar to observations made by Lobo in the 1600s. Not only did he mention the use of goatskins to collect water, but he also gave a detailed description of the making of hrukuta bread at Asabolo (Donald 1984:147). In the 1970s, researchers including O’Mahoney (O’Mahoney 1970) also observed the making of this bread. Interestingly, both descriptions were the same as what was observed at Asabolo during this study. As both Lobo and O’Mahoney reported earlier, hrukuta is made from kneaded wheat or barley flour. Stone pebbles are then heated and the dough wrapped around them. Another activity alluded to by these two earlier observers, still true today, is the use of goatskins to collect water at Asabolo by caravan merchants for the rest of their walk to the salt plains and back (Donald 1984; O’Mahoney 1970).

Further indications of continuity revealed by this study are in the areas of the commencement of the salt season, as well as the variation in times for completing treks
based on place of origin. Informants confirmed historical reports indicating that the salt season begins in September. In addition, the time required for the completion of a trek to and from the salt plains seems not to have changed much. Earlier observers of the salt trade noted that it took six days to four weeks to complete the trek from different locations in the Ethiopian highlands to the Danakil Depression and back (Hotten 1868; Henze 1977). Caravans from the closest woreda like Agame and Enderta were reported to make round trips in six to ten days (Hotten 1868; O’Mahoney 1970; Englebert 1970); informants confirmed this time. It is worth adding that the time required for completing a trip and the number of trips by caravan merchants depends on the origin of caravans, health of the animals, availability of straw, as well as natural, social, and political conditions.

7.6 Form in Which Salt Is Distributed

There are some disagreements on the form and the nature of the salt distributed to other parts of Ethiopia from northern Ethiopia over time. Poncet claims that during his visit to Ethiopia from 1678-1701, salt was formed into bars called amole, or half a bar called kurman (Foster 1967:122). At the time of Bruce’s stay from 1768 to 1773, this had not changed from what Poncet noted earlier (Bruce 1813). By Cecchi’s account, in the 19th century, amole was divided like the Maria Theresa dollar; one-half was called ghemash and one-quarter kurman (Cecchi 1886). However, the Italian Geographic Mission reported that salt was shaped into three forms in the early 20th century. First, the standard bar of amole, which served as a medium of exchange. Second, abroita, which was an amole cut into two, and third, gunfir, a piece three times as big as an amole and used only for consumption (Pankhurst 1968). It is helpful to state that gunfir means salt.
block according to informants. Michel on the other hand, noted that in the western part of Galla country, baguette replaced amole. The baguette was a bar of salt of similar shape as amole, but much smaller in size (Michel 1900). As indicated earlier, this study identified three standardised salt blocks produced at the salt plains including telfen, goloor, and gariwanai. In addition, caravan merchants noted that they are given a fourth block called ankaribe. Outside the source area, gariwanai is formed into amole in highland settlements, including Mekelle.

7.7 **Amole Processing and Use**

An undisputed aspect of the salt trade in the past and today is the widespread distribution and use of amole. Most historical accounts mention amole as the form in which salt from northern Ethiopia reached other parts of the country in the past, as is the case today. However, only Nesbitt (1934) provided some indication of where amole was shaped and by whom. He claimed to have seen Enderta people shaping amole at the site of quarrying in the Danakil Depression (Nesbitt 1934). While older informants in Enderta did not dispute the fact that their fathers and Garandfathers carved amole, they disagreed with Nesbitt (1934) that amole was shaped at the salt plains. According to them, amole was initially shaped at the homes of caravan merchants with the help of their wives. They stated that women were responsible for processing aja, which has always been used to bind amole.

Specifically, older informants mentioned that women used their traditional hair dressing pins to split aja into strips for binding the salt bars. As time passed, they noted, shops were established at the homes of caravan merchants in settlements including what is today Mekelle, Agula, and Wukro. Based on other historical reports and the context
within which the salt trade has been reported historically, the claims that amole was shaped at the salt plains seem rather unlikely. By implication, the claims suggest that caravan merchants took aja with them to the salt plains or processed it there for binding amole. Shaping amole at the plains, based on observations of how amole is produced today, would have required caravan merchants to spend more time at the salt plains, exposing them to danger, including excessive heat as well as attacks by bandits. Other reasons why Nesbitt’s (1934) claims are suspect are that there is no drinking water at the salt plains and no food for pack animals, all of which works against spending long periods of time to shape and bind amole at the salt plains.

Clearly, change has occurred regarding where and who processes amole. It is produced neither at the salt plains nor at the homes of caravan merchants. Presently, amole is processed in Mekelle and according to informants, at other settlements such as Agula and Wukro by major salt merchants in shops located at their homes or in rented spaces. These merchants have diverse backgrounds and only one of those consulted in Mekelle was a past caravan merchant. Major salt merchants employ three groups of specialists to cut, shape, and bind salt to produce amole for distribution by vehicular transport to other parts of Ethiopia.

In spite of the changes noted regarding where and who processed amole, its form, and to a lesser extent its size have remained generally the same from the 16th to the 21st century. The description of the form of amole by authors from the 1500s to the present has been the same. Table 25 shows the length and breadth of amole gleaned from information provided by 15 authors from the 1520s to 1970s, including the average of measuring ten bars in 2004-2005 during this study. Overall, the basic
measurement of *amole* per century provides an average of 25.6 cm in length and 6.4 cm in breadth. The data shows that *amole* size has not been exactly the same overtime. However, these minor variations of *amole* sizes could be attributed to a number of factors, including the possibility that not all the authors who reported on *amole* sizes intentionally measured the salt bars. Variations in the size of *amole* could also be attributed to the part of the salt plains from which the salt was obtained, the different individuals who shaped salt blocks and *amole*, the period of *amole* circulation, and the conditions of storage. In spite of the variations noted, assertions of Pankhurst (1968) that, "*amole* were surprisingly uniform in shape and size" is generally confirmed by the historical data as well as data collected during this study.

<table>
<thead>
<tr>
<th>Source</th>
<th>Period</th>
<th>Length (cm)</th>
<th>Breadth (cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alvares</td>
<td>16th Century</td>
<td>22.9</td>
<td>7.6</td>
</tr>
<tr>
<td>Almeida</td>
<td>17th Century</td>
<td>22.9</td>
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<tr>
<td>Lobo</td>
<td>17th Century</td>
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<tr>
<td>Telles</td>
<td>17th Century</td>
<td>22.8</td>
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<tr>
<td>Poncet</td>
<td>18th Century</td>
<td>30.5</td>
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</tr>
<tr>
<td>Prukey</td>
<td>18th Century</td>
<td>33.0</td>
<td>7.6</td>
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<tr>
<td>Pearce</td>
<td>19th Century</td>
<td>25.4</td>
<td>7.6</td>
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<tr>
<td>Johnston</td>
<td>19th Century</td>
<td>20.3</td>
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<tr>
<td>Ferret and Galinier</td>
<td>19th Century</td>
<td>25.0</td>
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<td>Gleichen</td>
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<td>25.4</td>
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<td>Michel</td>
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<td>26.0</td>
<td>4.0</td>
</tr>
<tr>
<td>Powell-Cotton</td>
<td>20th Century</td>
<td>25.4</td>
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<td>Italian mission</td>
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<td>Nesbitt</td>
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<td>Henze</td>
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<td>Apaak</td>
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According to Pankhurst (1961), an unchanging feature of Ethiopian economy since the fall of the Aksumite Empire was the absence of coin money and the use of gold, salt, and iron as mediums of exchange (Pankhurst 1961:260). He adds that for an item to gain the status of money or to be used as a medium of exchange, it must command a widespread demand or be scarce, often taking considerable distances from a far off source of origin. The circulation of amole as currency was governed by the logic of demand and supply (Pankhurst 1968:460). Amole gained such status because obtaining salt from the Danakil Depression involves trekking for at least 234 km. The procurement of salt from the Depression is well documented as one of the most challenging activities in northern Ethiopia due to natural and cultural hazards. In addition, salt from the Danakil was in high demand in Ethiopia for cooking, and was transported to many parts of Ethiopia where there were no other sources of salt supply as is the case today.

Pankhurst has also noted that although amole was an article of consumption, it served extensively as 'primitive' money, often exchanged many times before being consumed. In the modern context, amole may be regarded as an evolution out of a barter economy in the past, and had the advantage of overcoming the inconvenience of double coincidence of wants. Indeed, amole served as a standard medium of exchange, possibly for a millennium and a half before the first written report by Kosmas Indikopleustus in the early part of the 6th century A.D. (Pankhurst 1968, Wolska-Conus 1968). Prior to the 1930s, the literature abounded with information on the use of salt as a medium of exchange alongside gold, iron, cotton cloth, and the Maria Theresa dollar. However, amole was the most consistent and widely accepted medium of exchange in Ethiopia.
According to Abir (1966) *amole* facilitated inter-regional trade in Ethiopia and was indispensable in the long distance caravan trade (Abir 1966:2).

Lobo, who visited Ethiopia in the 17th century, observed that salt was used as money and was a trade item carried from region to region. He noted that 100 bars of salt were equal to the value of one *pataca* (old Spanish coin) near the source area, but as one moved inland the number dropped (Donald 1984:174). According to Telles, salt was the most general commodity, served in place of money, and all other goods were commonly sold and bought in salt (Telles 1710:229). According to Poncet, salt bars were broken into smaller pieces depending on what they were intended to be used in exchange for (Forster 1967:122). To’umacean, who visited Ethiopia in the 18th century, and was appointed as treasurer to Empress Mentewwab during the reign of King Iyoas (1764-1766), later confirmed this. He noted that the people conducted trade with each other with bars of salt, and the bars were broken into small pieces and used for trading or consumed at home (Pankhurst 1982:92). According to Bruce, in Gondar and throughout Ethiopia, salt money (*amole*) was circulated, serving as silver coins and exchanged for gold (Bruce 1813:IV:381, VII:399, Beckingham 1964:171). In Gondar, three bundles of wood were sold for a bar of salt, and a maidservant was paid 15 bars of salts per annum (Bruce 1813:VII: 78-79).

The use of *amole* as money continued into the 19th century. Ferret and Galinier noted that the principle medium of exchange for significant purchases in Ethiopia was the Maria Theresa dollar and salt (Ferret and Galinier 1847II:413). The interior commerce of Ethiopia was limited to the exchanging of salt, arms, and foodstuffs from province to province. Tigrai produced salt, silk, textiles, and imported foreign rifles. The Galla
people engaged in the exchange of musk, gold, ivory, and bullhorns in return for salt, blue fabric, and Venetian glass beads brought by merchants from Massawa. The value of salt was affected by seasonality. For example, during the rainy season in Atsbi, a Maria Theresa dollar was worth eight bars of salt, but for the rest of the year it was worth 100 or 120 bars (Ferret and Galinier 1847II:413).

Johnston also observed in the 19th century that a servant received about five bars of amole per month in the Ankobar area, and 15 gallons of ale could be purchased for one salt bar (Johnston [1844]1972II:220). Salt bars were also used to pay taxes, tolls, and to buy desired items at markets. For example, in the Aliu Amba market taxes were paid on all goods in kind or in the equivalent of salt bars, the only money in Shoa (Johnston [1844]1972II:230). As a result, large quantities of amole piled around the feet of the governor. Regular market attendees paid a market toll of between one and three amole weekly, and a section of the market was devoted to amole brokers. A good-sized goat commanded between 10-12 amole, an ox for ploughing was purchased for 70 amole, while a small oxen intended for meat sold for 30 amole at the market. Johnston paid ten amole for a ten-yard long cloth, while a girdle sold for one amole (Johnston [1844]1972II:240). A drinking horn full of honey exchanged for one amole, and two horns full of butter cost the same amount (Johnston [1844]1972II:243).

Like most reports from Ethiopia in the 19th century, Cecchi noted that the different currencies used in Ethiopia included the Maria Theresa dollar and amole, and for fractions of the Maria Theresa dollar amole was used. The value of amole depended on the distance of the market from the source, and on the quantity available in the town in question (Cecchi 1886). By Cecchi’s account, the Ethiopians used established
equivalences for fractions of the Maria Theresa dollar based on certain kinds of salt bars. For example, *amole* could be divided like the Maria Theresa dollar; half was called *ghemash* and a quarter, *kurman*. In markets more than everywhere else, the most important businesses depended exclusively on the buying of huge amounts of *amole*, which was transported by caravans made up of hundreds of donkeys and mules (Cecchi 1886:307).

By the early 20th century, the Maria Theresa dollar and *amole* still served as the common currency in parts of Ethiopia, and the only dividing unit for the Maria Theresa dollar was *amole* (Michel 1900; Wylde 1901). Wylde bought forty eggs for one salt bar in Adua, and at the Mekelle market small chickens could be purchased at four for a bar of salt, while a small sheep could be obtained for one salt bar (Wylde 1901). Powell-Cotton confirmed the wide reach of *amole* to most of Ethiopia in the early 1900s. According to him, the Addis Ababa market was a daily event, where the ‘money-changers’ quarter was perhaps one of the most striking. Instead of piles of copper coins and cowries, as was the case in India, one saw stacks of *amole*, the Ethiopian currency (Powell-Cotton 1902:113).

Hermann Norden visited Ethiopia in the 1920s, and described activities in the market of Gondar (Norden 1930). Concerning what was used as currency, he noted that salt bars obtained at one stall were used as a medium of exchange at others. According to him, five to seven bars of *amole* were equivalent to one Maria Theresa dollar. Nesbitt, who was in Ethiopia in the early 1930s, provided the last account of the use of *amole* as money. He observed that the salt was cut into rectangular bars measuring called *amole*, and was used as currency on the Abyssinian plateau. The value of *amole*, Nesbitt noted further, increased as one moved from the source of supply (Nesbitt 1934:438).
Johnston’s account provides insights into some of the difficulties encountered in the use of *amole* as money. According to him, a girl from whom he purchased ale entered his house and asked for a bar of *amole* bigger than the one she had received as payment for the ale earlier. Bigger *amole* bars were used to buy sheep and tobacco because for those commodities only the best salt bars were accepted, while the thinner bars used to pay for services (Johnston [1844]1972II:221). Salt money became denuded by use, which resulted in differences between the weight of new specimens and ones that had circulated for a while (Johnston [1844]1972II:233).

During the rainy season a lot of *amole* was wasted, despite the fact that steps were taken to preserve them. For example, *amole* was buried in the wood ashes of large hearths or suspended in the smoke from the roof to preserve the salt bars from the effects of moisture (Johnston [1844]1972II:233). Domestic animals were another source of *amole* reduction as they licked the salt bars at every opportunity. Worn out *amole* were not acceptable as a standard medium of exchange and could only be weighed for their value in the ordinary mode of barter. In such circumstances, *amole* lost its character as currency and was considered an article of exchange only (Johnston [1844]1972II:234).

In some instances, *amole* with holes were stuffed with a paste made from flour and fine salt dust, but such tainted *amole* were rejected outright when offered or commanded a reduced value when used to buy articles (Johnston [1844]1972II:236-237). Broken salt bars were only accepted as common salt, although sometimes they were bound with a piece of tough plant bark called *lit* and circulated at a reduced value. Some visitors to Ethiopia, such as Ferret and Galinier, complained that *amole* was inconvenient money because it was quite heavy and when it was altered no one was compelled to
accept it (Ferret and Galinier 1947). Michel pointed out that *amole* had many
disadvantages; it was awkward, heavy, and broke easily (Michel 1900). Gliechen added
that if it did not ring like metal when flicked with the fingernail, or if it is cracked or
chipped, no one would accept it as money (Gleichen 1897:169).

The intriguing aspect of the apparent end to the use of *amole* as money is that it is
still cut, shaped, and bound in the same way it was when it was used as money.
Informants stated that *amole* is used in cuisine, in meat and fat preservation, as medicine
and a disinfectant, in hide preservation and leather working, as food to animals, in
construction, and as a pesticide. It is also reportedly used in socio-cultural contexts as
part of bride price, and as a gift item in some parts of Ethiopia. However, these uses
should not require the production, packing, and distribution of *amole* as was the case in
the past when it served as money. Yet, major salt merchants pay for *gariwanai* blocks to
be formed into *amole* bars: they rent space and hire a staff to cut, shape, and bind *amole*;
and they provide tools and materials, such as saws, sharpening metal objects, ropes, and
*aja*, a plant fibre used to bind *amole* bars.

From a functional perspective, one would think that since *amole* no longer serves
as currency or money, the salt merchants would stop investing resources to make it look
as it did when it was used as money, but they do. They noted that although cutting,
shaping, and binding salt blocks to form *amole* added to the value of salt, it was not the
main reason. The major merchants explained that they pay to produce and package
*amole* the same way as it has been for centuries because the Ethiopian people have a
traditional connection with *amole* from when it was used as money. *Amole* had other
uses in the past besides as money, in cuisine, and as a preservative that may help explain
this adherence to its form and look from a cultural perspective. This proposal is worth considering given the fact that some of the main historical destinations of *amole* have not changed. Major merchants stated that they have clients, in other major towns in Tigray as well as in major towns in other regions including Addis Ababa, Gondar, Gojam, and Dessie. In fact, these towns are located in some of the same provinces Pankhurst (1968) pointed out were the places where *amole* was mostly used, Tigrai, Amhara, Begemder, Gojam, and Shoa (Pankhurst 1968:461, 1998).

Caravan merchants and major salt merchants stated that as in the past, and presently, in parts of Ethiopia, including parts of Tigray near the Tekeze River, and in the Oromo region, *amole* is used as part of bride wealth, presented by a man’s family to the family of a woman to ask for her hand in marriage. It is also presented as gifts to couples during weddings and at the birth of a child. As noted earlier, there are accounts of the use of *amole* in other socio-cultural contexts that may also still be influencing the continual production of *amole* today. Lobo (17th century) and Gleichen (19th century) reported a salt licking ritual in which relatives or friends licked pieces of salt from one another before greeting each other (Gleichen 1897; Donald 1984). Powell-Cotton (1902) reported that an elder broke a bar of *amole* as part of a conflict resolution process. In performing the ritual, a new bar of salt was obtained and the aggressor held one end, while the victim held the other. With a blow from a stick, the elder broke the salt into two. The aggressor took both pieces, threw them on the ground and exclaimed, “if I ever strike this man again, may God break me and cast me to the ground, as I do this salt” (Powell-Cotton 1902:242). The aggressor then picked up one of the pieces, chewed and
spit it out at the injured man and said, “may this quickly heal your wound” (Powell-Cotton 1902:242).

Change is indicated in the way amole was packaged for transport in the past compared to today. Bound amole was packaged in goatskin bags for transportation to other parts of Ethiopia by pack animal. Commenting on this, Michel (1900) noted that amole was laid down and separated by grass in bags made of tanned skin. Ropes were then used to hold the bags and their contents together (Michel 1900:470). This would have been an appropriate method of packing amole transported by pack animals in the 1900s. Amole is now packaged initially in sets of ten, and later into packages of 100 in a way that holds the bars together in subsets. The salt bars are fastened together firmly by ropes to hold all of the ten together with the help of a piece of metal or mefkekit. Ten sets of ten are further put together using fibre ropes woven into a sort of net. The packaging ensures that the bars survive distribution by vehicular transport to other parts of Ethiopia. Even so, each set of 100 bars is further padded with straw to avoid friction and to reduce breakage when loaded onto trucks.

7.8 Prices, Supply, and Destination of Salt

A long-standing feature of the salt trade is that salt is cheap in the Danakil Depression, but expensive as it is moved to highland areas because of the difficulties involved in its transportation (Beckingham and Huntingford 1961; Henze 1977). Some of the hardships related to the salt trade reported in the past such as excessive heat at the slat plains, the rugged and narrow nature of the salt trail, and the lack of drinking water, remain the same. Others, such as the presence of many customs posts, as well as armed robbers who ambushed and raided salt traders (Ferret and Galinier 1847II; Huntingford
1954; Pankhurst 1961, 1968; Budge 1966) are uncommon today. Pankhurst (1968) noted that the value of salt was affected by a number of factors including conflict, loss of pack animals, the onset of rains which caused rivers to swell, and the general difficulty in transportation, exacerbated by high taxes on routes (Pankhurst 1968). It is interesting to note that except the presence of conflict and custom posts (Johnston [1844]1972; Pankhurst 1961, 1968), the factors influencing the overall supply of the Danakil salt remain largely unchanged. Thus, the salt gains in value as it moves farther away from its source.

During this study the average cost for a block of telfen was 2.50 birr, goolor 1.25 birr, and gariwanai 1 birr at the salt plains. At Berehale, 57 km from the salt plains and 60 from Mekelle, the averages prices were 6 birr, 3.5 birr, and 2.5 birr respectively. Prices were higher at Mekelle, located 117 km from the salt plains at 9 birr, 7 birr, and 6 birr respectively. These prices also change at Berehale and Mekelle in the last months of the salt season, as noted in the prices reported by informants (Figure 85 and 86).
The levels of salt supply from the Danakil Depression have been generally high, pointing to uses beyond just the household. It is estimated that in the 19th century, major markets in northern Ethiopia handled 30,000,000 *amole* bars (Munzinger 1869 a, b), the equivalent of 39,000 tonnes. By the early 20th century, the Italian Geographic Mission estimated that 11,500,000 *amole* bars (14,950 tonnes) passed through Mekelle per year (Pankhurst 1968). In the 1970s, Gerster observed that 17,000 tonnes of salt was collected and transported to the Tigrai region (Gerster 1974). Based on the report by tax collectors that 40,000 camels collected salt in November 2004, it can be estimated that 7,680,000 blocks of *gariwanai*, or the equivalent of 30,720 tonnes of salt was collected in the nine-month salt season by only camels. With such levels of supply, it is no surprise that throughout the history of Ethiopia, no account has been found pointing to the importation
of salt, confirming that the Danakil Depression supplied enough salt for local use as well as for export to other parts of interior Africa (Kobishchanov 1979).

All accounts, past and present, show that the primary destination of Danakil salt remains highland Ethiopia. In the past important markets where salt was sold in Tigray included Adua, Antalo, and Mekelle. This may explain why various leaders took needed action to protect the salt trade. Other highland market centres mentioned included Aliu Amba and Addis Ababa. Today, Mekelle is the most important market centre and the central hub of the salt trade, while Addis Ababa is a major destination, from where the salt reaches other parts of Ethiopia.

7.9 Socio-Political Role of the Salt Trade

The importance of the Danakil (Assai) salt to the inhabitants of the Ethiopian highlands is evident today and from historical reports. As Pankhurst (1968) points out, salt money or *amole* was used in most of Ethiopia in the past. According to Abir (1966), *amole* facilitated inter-regional trade in Ethiopia and was indispensable in the long distance caravan trade. The socio-political and economic role of Danakil salt has continued since the 6th century, and perhaps before that. A glimpse of this importance dates to Aksumite times as documented by Kosmas Indikopleustus. He recorded that Aksumite kings sent trade missions to trade for gold from Sasu using salt as an item for exchange (Wolska-Conus 1968). In the early 16th century, Alvares reported seeing between 300-400 animals from the Danakil Depression carrying salt. He was told that the Lords of Ethiopia sent yearly expeditions to collect salt for their expenses at the kings court (Beckingham and Huntingford 1961), and owned the salt caravans.
Emperor Iyasu I took action in the 17th century because natives along the salt trade routes stole salt from merchants, and officials confiscated salt bars under the pretence of collecting dues (Pankhurst 1961). In the 18th century, Emperor Iyasu II established a monopoly over salt, selling it through official channels to generate considerable revenue for his treasury (Arrowsmith-Brown 1991). Ras Walda Sellase of Tigrai gave presents to groups along the salt routes from the Danakil Depression in return for protecting salt caravans in the early 19th century (Pearce 1923; Pankhurst 1968). He also punished the Afar people drastically if salt merchants were harmed. Ras Walda Sellasse dispatched an army to Afar (Danakil) territory to destroy towns and villages, and to plunder the cattle of the Afar for not protecting a salt caravan (Pearce 1923). King Sahla Sellase on his part later stockpiled salt in the 19th century to reduce the impact of interruptions in its supply (Pankhurst 1968).

The importance of salt as an economic resource with political ramifications is also reflected in the fact that kings received it as tribute and presented it as gifts to allies and friends. Member of the king’s court and officers of state were appointed to accept salt tribute in the 19th century (Harris 1844). In addition, salt benefited religious personnel and played a role in the traditional healthcare system in Ethiopia. As Pearce (1923) noted, the Abuna, head of the Ethiopian Church, did not provide religious services without regular payments of salt, which most of the devoted did not have. The Abuna, stationed in Adua in Tigrai, is said to have received 1,000 bars of salt for two years. Pearce also mentions that after traditional inoculations against smallpox, beneficiaries gave bars of salt to the person who inoculated them as payment (Pearce 1923).
Today, the social and economic role of Danakil salt to the Ethiopian highlands remains evident, although highland leaders no longer control the source of salt. The evidence from this study shows that Danakil salt has remained important to many people. As pointed out, caravan merchants make 800-1,200 birr ($92.48-138) after all expenses per trip. Using the number of trips per season and reported income per trip, caravan merchants make an estimated 7,000-15,000 birr per season ($809.24-1,743.10) depending on their origin. Money saved from salt trading is used to build the prestigious hidmo, buy cattle, and prepare for festivities. The social value of salt trading is in many ways connected to the income that is derived from it. Caravan merchants are able to marry easily because they are seen as responsible, strong, brave, and able to provide for their families. They give out loans to others members of their communities, and use their pack animals to help others in the community, all of which enhances their status and influence.

Major salt merchants pay taxes of 2,000-4,000 birr ($231-462.42) to the Tigrai regional authority. These merchants in turn make profits from salt processing and trading. Major salt merchants carved and sold 866,000 bars, cut from about 288,667 blocks of gariwanai. At a cost of about 1,732,000 birr ($200,231) for these salt blocks, income from selling 866,000 bars of amole at 2.8 birr per bars (280 birr per quintal) would have been 2,424,800 birr ($280,323.60), and a gross income of 692,800 birr ($80,093). In the 2003-2004 salt season, major salt merchants reported selling an estimated 965 tonnes of salt. Given the economic value of the salt trade, it is clear that leaders of Ethiopia over the years took action to protect salt trading. Bruce’s (Bruce 1813) assertion that the salt mines of the Danakil were a mint from which great benefits accrued (Bruce 1813) is still true today, and may explain why salt trading in Ethiopia has
survived major political changes. The salt trade in Ethiopia, like trade in salt in other parts of the world, had socio-political implications. Consequently, the salt trade of northern Ethiopia deserves attention in discussions of factors leading to the rise of early social complexity.

7.10 Salt and Social Complexity in Northern Ethiopia

Insights and questions related to early complex societies in Ethiopia have focused on the rise of the Daamat Kingdom (circa 600/700 B.C. to circa 400/300 B.C.), which arose in the mid-1st millennium B.C. in the Aksum/Yeha region (Fattovich 1988, 1990; Michels 2006). Most scholars now accept the proposal that there were migrations from Saba to the Horn of Africa to gain control over the Red Sea maritime trade, but the immigrants were not colonizers. The idea that external influences in socio-cultural developments in northern Ethiopia were mediated by local culture has gained attention (Fattovich 1990, 1996, 2004, Fattovich et. al. 2000; Munro-Hay 1993).

However, Curtis (2008) strongly disagrees with the idea that there were migrations from Saba to the Horn of Africa (DiBlasi 2005; Fattovich 1990, 1996, 2004, Fattovich et al. 2000; Munro-Hay 1993; Curtis 2004), and the associated acculturation models that credit the immigration of South Arabian groups for the developments of social complexity in the Ethiopia region (Michels 1991; Anfray 1990). Based on archaeological, epigraphic, historical, and environmental data, as well as interpretations of archaeological surveys and test excavations data, Curtis has proposed that developments in the region were the culmination of socio-economic and socio-political patterns and processes, which started in the mid-Holocene. His recent alternative explanation for the development of complex societies in the Ethiopia region in the 1st
millennium B.C. takes into account multi-causal factors and considers geographic,
environmental, socio-political, economic, and ideological factors as equally significant.

By focusing on indigenous and exogenous factors in the developments of social
complexity in the Ethiopian region, Curtis (2004, 2008) is helping to promote a new
framework that is gaining popularity. Connah (2006) pointed to this new trend when he
noted that scholars researching the origins of social complexity (Fattovich 1990, 2004;
Munro-Hay 1993; Fattovich et al. 2000; Phillipson 1996b; 1998; 2000; Bard and
Fattovich 2001) have highlighted internal (control of arable land and mineral resources),
and exogenous (control of trade and exchange) processes as sources of social inequality.

At present, the role of rural economies in the emergence of Pre-Aksumite chiefdoms and
the Aksumite Empire, as well as, how rural and urban economies interacted, is gaining
attention (D’Andrea et. al. 1999, 2008). The current study of the salt trade of northern
Ethiopia is a component of this new way of exploring rising complexity in the Ethiopian
region.

The social and political role of salt is derived from its economic value as an
important food source and a trade item (Bruce 1813; Wolska-Conus 1968; Beckingham
Aksumite rulers of the 6th century A.D. benefited from the salt trade. State trade
expeditions exchanged salt for gold, which was exported across the Red Sea (Pankhurst
1961, 1968; Wolska-Conus 1968). Pankhurst (1998) has suggested that the location of
Aksum, about 100 miles from Lake Assal, was related to the high demand for salt in the
Ethiopian highlands (Pankhurst 1998). Abir (1966) observed that regular and continuous
supply of amole was vital to Ethiopia’s economy and to the administration and
government of the different provinces (Abir 1966:4). In the 18th-19th centuries, revenue from the trade in salt benefited the rulers of Tigrai (Abir 1968).

As the findings of this study demonstrate, the level of continuity in the production and trade of salt in Ethiopia is stunning, despite the elements of change identified. On a basic level, people have been taking camels, mules, and donkeys from the highlands to the Danakil Depression to collect salt for the past 2,000 years. The historical record confirms that salt and its trade remained important socio-economically and politically in Ethiopia from the 6th century A.D. to the present and there is every reason to assume that this connection between salt and socio-cultural complexity predates the earliest records. After all, Indikopleustus surmised that the salt trade flourished for over a millennium and a half before his visit to Ethiopia in 525 A.D. (Wolska-Conus 1968; O'Mahoney 1970:148). Of equal interest is the fact that the use of salt as money ended in the 20th century, yet this does not seem to have had a drastic impact on the overall production and trade in salt. The evidence from oral tradition, the present study, and history all point to the fact that salt and its trade remained important in Ethiopia in spite of the rise and fall of different leaders, and the relocation of the Ethiopian capital at various times.

In exploring the role of salt in the development and intensification of social complexity, this study has focused on all levels of the salt trade and in particular, the role of salt in the generation of wealth at the local level in northern Ethiopia. The results suggest that individuals generate income and increase their social status with wealth from salt trading. The wealth from salt trading is used to increase wealth by investing it in animals aimed at increasing profits in the salt trade, obtaining or increasing stock of cattle, building compounds with prestigious rooms, and hosting feasts, all of which serve
to gain, maintain and reinforce social status. The control of the salt trade, the way the salt trade is organised, the attributes of those who participate as caravan merchants and their motivations, and the benefits from salt trading provide insights into the role of salt trading in the past.

Cross-cultural data, archaeological evidence, historical records, and ethnographic data support the case for a role for salt trade in the development of social complexity in northern Ethiopia. The salt trade, the control of salt trade routes, as well as the control of sources of salt are linked to socio-political developments in other parts of Africa, and in different parts of the world (Good 1972; Alexander 1975, 1985; Lovejoy 1978; Connah et. al. 1990; Nenquin 1961; Bloch 1963; Rathje 1971; Almquist 1973; Andrews 1983; Adshead 1992). Some researchers have proposed that the control of sources and the distribution of salt were important factors in the economic, social, and political lives of many African societies in historical times (Abir 1968; Alagoa 1970; Good 1972; Fagan and Yellen 1968; Sutton and Robert 1968; Lovejoy 1986; Connah 1996). Salt was a very important item of trade in the inland Niger Delta, where it was exchanged for agricultural products as recorded by Europeans (Alagoa 1970). The prosperity of the West African states of Ghana (400-1100 A.D.), and Mali (1240-1475 A.D.) have been linked to salt. These empires regulated the importation and distribution of rock salt obtained from Tagaza, Taodeni, and Bilma in the Sahara, and exchanged the salt for gold from the West African forest fringe (Good 1972:544). That the control of salt gave rise to or sustained socio-political entities is further indicated by the development of the inland state of Bunyoro in Uganda, which originated in the early 1st millennium A.D. (Connah 1996:479). Bunyoro may have benefited from the control of Kibiro salt, and its trade
(Connah 1996: 216). As well, the production and distribution of salt had a special position in the economy of Borno before 1900 (Lovejoy 1978: 629).

Bloch’s (1963) assertion that the connection between salt sources and the rise of civilizations justifies investigations of the history of salt economies and their influences on civilizations (Bloch 1963:89-90) seems reasonable. For example, in China, Mesoamerica, Europe (Bloch 1963; Almquist 1973; Multhauf 1978; Andrews 1983; Adshead 1992; Kurlansky 2002), and in the Ethiopian highlands, salt was a commodity in high demand, and its supply was not left to chance. In Ethiopia, there is documented involvement of political leaders such as emperors, kings, lords, (Pankhurst 1961, 1968, 1998) and other elites including the Baalgada and Shum Bahri in the salt trade. As was the case in the past, distributing salt in Ethiopia is still influenced by natural and socio-political factors. Caravans were protected because salt served as a food item consumed by both humans and livestock, as money, as a source of revenue and as an item of tribute, among its other uses in the Ethiopian highlands.

The link between the salt trade and elites in Ethiopia is apparent from historical records. Salt has been a very important source of revenue for the leaders in Ethiopia over the years, a connection that may predate the earliest records. It seems that the benefits of the salt trade helped to preserve the salt trade routes, some of which are still in use today. As noted earlier, most highland caravan merchants move salt to highland Ethiopia by two major routes, the Koneba-Asabolo route, and the Mekelle-Berehale route. Some of the important stops and transfer points of the salt trade may have been in use from at least the 6th century A.D. and possibly earlier. Some sections of the salt trade routes were also part of the routes used to move trade items between the rest of Ethiopia and the Red Sea.
coast. Based on archaeological, historical, and ethnographic data, it seems that the Red Sea trade system may have taken advantage of an already established internal trade network based on the salt trade (Figure 87).

Figure 87. Archaeological sites, Study sites, and Trade routes, northern Ethiopia

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Ethnographic and historical evidence confirm the complex network of salt trading, and archaeological evidence points to the presence of Pre-Aksumite sites along the salt trade route between Mekelle and the Danakil depression at stops including Agula, and Wukro (Figure 87). Multiple sources of caravan merchants and some of the stops on the salt trade network have evidence of Pre-Aksumite sites, pointing to an old connection between these sites and the salt trade. An idea of how far back this relationship can be projected is suggested by comments made by Kosmas Indikopleustus, who noted that the salt trade was going on for about a millennium before his visit to Aksum in the 6th century A.D. Lobo provides confirmation of the use of the salt trade route by traders to and from the Red Sea in the early 17th century. He used the Mekelle-Berehale route on his way to the Ethiopian highlands from across the Red Sea, and made stops along it, including at Berehale and earlier at Asabolo, where he observed and documented the activities of caravan merchants, including the making of *brukuta* and the use of goatskins to collect water (Donald 1984). Pankhurst (1968) pointed out that the most important centre of trade in northern Ethiopia by the 19th century was Adua, which linked Gondar to Massawa. Ethiopia’s most important trade route at this time moved both local and imported items through Adua to Massawa, linking Begemder, Gojam, Amhara, and parts of Sudan to Tigrai. Gojam and Amhara supplied animals and animal products and coffee to Tigrai, and in return obtained salt and imported goods (Pankhurst 1968).

Settlements on the salt trade network mentioned in historical literature still in use include Abi Adi, Agula, Agame, Adua, Atsbi, Quiha, and Wukro (see Figure 87). Some settlements mentioned by highland caravan merchants as being part of the intricate network of salt trade routes also served as important market towns in northern Ethiopia.
Highland settlements such as Adua, Aksum, Agula, Idaga Hamus, Hawzien, Quiha, and Wukro are still connected to the salt trade today as in the past. Idaga Hamus, Adigrat, Agula, Quiha, and Wukro, are located along the main historical north-south trade route from Kohaito to Mekelle (see Figure 87). Most of these settlements, which are also sources of caravan merchants, market centres, and major stops on the salt trade network, are known to have both Pre-Aksumite and Aksumite remains of elite populations (Anfray 1973; Munro-Hay 1991; D'Andrea et al. 2008) who would have participated or controlled the trade. This revelation supports observations by scholars that sites in eastern Tigrai are dispersed along the main north-south trade route (Anfray 1973; Fattovich 1990; Munro-Hay 1993). Thus, is clear that some of the salt trade routes were part of the routes by which trade in Ethiopia, both internal and external, was conducted.

The proposed connection between the salt trade and socio-political developments in northern Ethiopia is also bolstered by recent findings of the Gulo-Makeda Archaeological Project (G-MAP). This integrated program is a continuation of previous ethnoarchaeological investigations (D'Andrea et al. 1997, 1999, 2008; D’Andrea and Mitiku 2002; D’Andrea 2003; Lyons and D’Andrea 2003; Lyons 2007) examining the nature and role of rural economies in the development of ancient Ethiopian complex societies (700 B.C.-A.D. 1000). The results of G-MAP, including settlement data, ceramic and lithic artifacts, indicate that northeastern Tigrai experienced continuity in site occupation. This suggests a degree of political and economic stability, in contrast to the Aksum/Yeha region, which experienced population shifts resulting in some discontinuity in site occupation between Pre-Aksumite and Aksumite times. Based on a systematic archaeological survey focusing on the settlement history of Pre-Aksumite and Aksumite
kingdoms (800 B.C.-A.D. 700), D’Andrea et. al. (2008) note that sites in the Gulomakeda area are strategically located along historically known trade routes. They add that control of trade and agricultural productivity were factors in the development of elite groups. G-MAP results suggest that in addition to water access, site locations were selected because of their location along the Adulis-Aksum trade routes, a factor that may have helped them survive political and environmental perturbations experienced during Pre-Aksumite and Aksumite times in the Aksum/Yeha region (Michels 2005).

Based on evidence pointing to early agro-pastoralism and trade in the northern Ethiopian region (Fattovich 1988, 1990, 2004; Fattovich et. al. 2000; Schmidt and Curtis 2001), it can be proposed that salt trade may have precipitated or helped the move towards social complexity. The recognition of salt as an early item of trade, and the recognised importance of internal trade as an engine of development in the rise of social complexity is applicable to northern Ethiopia. The particular role of the salt trade in the development of social inequalities and hierarchies within groups and between groups is predicated on the fact that trade is a method of acquiring products not immediately available, and individuals become traders because they want personal material gain (profit motive) or to fulfil a sense of duty or public services (status motive).

As a physiological need, early agricultural populations of highland Ethiopia would have needed extra salt because of the low natural salt content of vegetables and cereals (Denton 1982:89). Since there is evidence for the presence of domesticated animals in the highland region, salt would also have been needed for livestock animals, and could have been used in the preservation of meat, and in industrial activities such as leather working. Thus, those with access to salt would have been in positions to gain wealth and
the social status that comes with the control and/or trade of such a key resource. It is my proposal that salt trading would have offered an opportunity, besides agriculture, to some members of the early agricultural communities of the Ethiopian highlands to gain wealth and to enhance their social standing, setting in motion processes leading to social complexity. The case for a role of salt and its trade in the development of social complexity can be illustrated by adopting aspects of the model of emerging complexity proposed by Arnold (1993).

Arnold (1993) has suggested conditions precipitating the rise of elites, such as through trade and control of labour due to the need to offset provisioning difficulties. Arnold (1993) used the term “complex” to denote chiefdom-like systems and emphasizes features associated with a simple chiefdom including three recognisable organisational characteristics such as hereditary inequality, hierarchical organisation with some political authority on a multi-community scale, and the ability of elites to exercise some control over domestic labour. The ability of emerging elites to control labour from other households is considered central to the rise of socio-economic inequalities by Arnold (1993, 1995). The use of such labour could be for the exploitation of resources; however, labour control emerges in situations of resource stress or external social changes, such as changes in external political activities. Within this model, it is proposed that elites could have manipulated people through economic and political means to set in motion processes that eventually led to the emergence of earlier political systems such as chiefdoms, and later ones like the Kingdom of Daamat 700/600 B.C. – 400/300 B.C.

The role of salt in the development of social complexity may have coincided with the drastic environmental changes that forced groups to move into the Ethiopian
highlands (Clark 1976; Fattovich 1977). Arnold (1993, 1995) points out that aspiring elites will usually pursue most options except moving to new locations. If agricultural groups moved to the Ethiopian highlands as a last resort due to drastic environmental changes in the surrounding lowland regions as Fattovich (1977) has suggested, then we can assume that the new home area would have presented new challenges. It is likely that such challenges would have included a regular supply of salt to early farmers and their livestock. In the Ethiopian context, the socio-economic role of salt could then have intensified around 2,000 B.C. with the introduction or advent of an agricultural way of life.

Archaeological evidence suggests that some of the groups that moved into the highlands had an agricultural way of life (Munro-Hay 1991; Phillipson 1977, 1993, 2000; Fattovich 1977). As explained earlier, salt is more important to people with an agricultural subsistence, especially agricultural groups, whose diets are mainly cereals (Denton 1982), a situation applicable to the highlands of Ethiopia. The Danakil Depression has been the main source of salt in northern Ethiopia (Pankhurst 1968, 1998), which suggests that salt would not have been readily available to the inhabitants of the highlands. A successful round trip to obtain salt requires walking for many kilometres for days through natural and cultural dangers as historical and ethnographic data show. Historical and ethnographic evidence also suggest that some highland groups collect salt directly for themselves and for sale to those who are unable to collect salt. Thus, the procurement of salt from the Danakil Depression could have served as a reason for elites or emerging elites to control labour (Arnold 1993) from other households for the exploitation of salt, a much needed resource and food item.
The mobilization and control of labour related to salt production and trade could have served as a basis for the development of recognisable organisational characteristics of social complexity such as hereditary inequality, and hierarchical organisation (Arnold 1993:77). Historical accounts and data from the current study show that difficulties associated with procuring salt from the Danakil Depression include excessive heat, the rugged salt trail, conflicts between groups, and the presence of armed robbers who attacked and raided salt traders. Some of these dangers are the reasons why salt caravans have traditionally been organised along military lines (Pankhurst 1968, 1990). This suggests that the salt trade may have always been a group activity with key and influential individuals in charge. A motive for pursuing such a dangerous activity would have been the benefits that salt trade confers to those who participate in it.

The role of salt and its trade in the development of social complexity in highland Ethiopia could have been as follows. As agricultural groups moved into the Ethiopian highlands, they would have required a regularly supply of salt. This demand would have been met by aspiring elites who would have mobilized their local groups to go on salt collecting expeditions similar to the role played by the Shum Bahri, a leader selected by the people of his community to lead them on such expeditions in historical times. Most salt trade would have taken place within groups initially. At this local level, salt distribution would not have involved complex arrangements, and would have involved simple transportation, such as by head-portage (Alexander 1975; Connah 1996). Increase in agricultural populations would have increased the demand for salt, causing competition within and between groups. With some groups becoming dominant, some individuals would have emerged as leaders because of their ability to attract others from their own
groups through the exhibition of bravery, wealth, and status, related to salt trading. As their influence grew, they could then have attracted more individuals from other households and clans to offer their services in salt collection and distribution.

Further population growth and the associated increase in demand for salt in highland Ethiopia would have prompted the use of pack animals to ensure that salt is distributed outside the group and inter-group level. The distribution of salt to regions distant from its source involving transporting by animals would have required complex trade relations, networks, and routes (Alexander 1975, 1993; Lovejoy 1986). Competing elites would have seen the use of pack animals as another avenue to keep their influence, as it would have enhanced their positions in and between groups. Increased competition would have led to the formation of alliances among neighbouring groups for salt trade and protection as we see from historical records. As dominant leaders emerged and became even more influential, they would have tried to expand their influence by controlling the salt trade, the salt trade routes, and major distributions points. As Bloch (1963) and Connah (1996) suggest, in the past caravans transporting salt, and depots where salt was stored, or delivered, needed protection, requiring the services of powerful protectors (Bloch 1963:95; Connah 1996:216), a situation supported by historical documentation in northern Ethiopia.

Eventually, a few dominant leaders could have gained control over major sections of the salt trade network, allowing them to institute measures aimed at maximizing the benefits of the trade in salt. Such measures may have included the appointment of clan members, loyal friends, and alliance partners to oversee and ensure that the trade was uninterrupted in their sections of influence. Other measures instituted by these leaders
may have included when trips were made to collect salt, the destination of salt, and the imposition of taxes on salt related activity similar to those reported in historical documents and ethnographic examples. As these leaders became wealthier and more influential, they would have attracted more individuals and groups outside their own clans and groups by offering protection related to salt trading as well as by using feasts, and gift offerings. Such individuals could then have emerged as local chiefs in their places of influence and control. To differentiate themselves from others, local chiefs would have looked for other ways to show their status and influence by investing wealth and resources in more livestock animals, agriculture, architecture, and by exploring other kinds of relationships for items needed to differentiate them from others.

The desire to maintain status and to display wealth could have led to more organised trade with places that were more distant and the adoption of external symbols of power as Curtis (2008) has suggested. Inhabitants of highland Ethiopia have a history of contact with South Arabia, and their elites could have adopted South Arabian cultural elements as a way to legitimise their power. The need for these external cultural elements aimed at continuing socio-economic dominance could have led to the intensification of trade with South Arabia. Salt could have been used to exchange for products such as gold, which could have been sold as part of organised long distance trade in South Arabia similar to the state sponsored trade in the 6th century A.D. reported by Kosmas Indikopleustus (Wolska-Conus 1968; Kirwan 1972). The Red Sea trade system, which seems to have taken advantage of the salt trade, may have developed because of the need of highland elites to differentiate themselves from others in their groups and to increase their wealth and status through trade. Further competition among
competing leaders would have caused conflict, and victories leaders could have established tributary relationships with vanquished groups, a situation very common in Ethiopian history. Victorious leaders could then have passed on their power, wealth, and influence to their sons, giving rise to hereditary inequality, and chieftaincy.

The need to protect and enhance the benefits of the salt trade is evident from the 6th century A.D., and may explain why the salt trade routes, connected to the Red Sea trade network, have survived many political changes in the history of Ethiopia. Indeed, the findings of this study seem to support the idea that the immigration of South Arabian groups may not have been responsible for the developments of early social complexity in the Ethiopia region (Michels 1991; Anfray 1990) as (Curtis 2008) has suggested. The proposal by Curtis (2008) that developments in the northern Ethiopian region were the culmination of socio-economic and socio-political patterns and processes, which started in the mid-Holocene, is plausible based on the conclusions of this current study.

### 7.11 Contributions of this Study

Earlier documentation of the traditional salt industry of northern Ethiopia was not intended to serve archaeology. However, previous observations of salt production and trade by various visitors to Ethiopia from about the 6th century A.D. to the late 1970s served as important reference points. In addition, these earlier works were used as a basis to identify recent changes in the salt industry in the present study. The small-scale anthropological studies by Bauer, O’Mahoney, and Gerster in the 1970s did not consider ideological, ritual, and symbolic aspects of salt, or the socio-economic status of the different groups involved in the salt industry (O’Mahoney 1970; Gerster 1974; Bauer
1975, 1977). The earlier studies also provided no data on the storage and consumption of salt at the household level. Furthermore, sources of tools, and how items employed in the salt industry are produced, used, and discarded were not clear. This study addresses these aspects of the present salt industry and identifies its archaeological correlates.

Organic material used in the salt industry may not preserve, but stones used to sharpen axes, iron tools used to work salt, remains of pack animals that die along the salt trail or at home, stones and metal objects used to clean pieces of meat off skins, phytoliths and pollen from trees used to treat the goatskins, may survive. Salt processing could be identified from phytoliths and maybe pollen from *egiara* (*agave*). At the village and household levels, animal remains and spaces where they are housed will likely preserve. Unfortunately, hearths and associated charcoal and ash from camping activities of caravan merchants may be washed away as camps tend to be in riverbeds. However, ad-hoc caravan camps, which tend not to be in riverbeds, may survive.

By identifying the archaeological correlates of the salt industry of northern Ethiopia, the present study provides a basis for modelling the recognition of the salt industry in the archaeological record in Ethiopia and similar rock salt industries in other parts of the world (Vogel 1993:399). Very few rock salt sources exist in the world and even fewer in Africa (Alexander 1975:82). In addition, this study provides us with a basis to understand the context of a unique traditional salt industry that dates back to unknown times. The salt industry of Ethiopia remained relatively unaffected by modernity until the 1970s, and has strong evidence of continuity of ancient practices today (Gerster 1974). The benefit of this study is that it gives us ideas on the social aspects of the salt trade in the past, as archaeology has no direct access to information

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about past human behaviour (Trigger 1989). Although we cannot ignore modern influences in northern Ethiopia, the strong evidence of socio-cultural continuity in general, and in the salt trade in particular, justifies the current ethnoarchaeological study (O'Mahoney 1970; Gerster 1974; D'Andrea et al. 1997, 1999). Continuity in tradition in Ethiopia, as noted before, is a product of many factors: not being colonized by Europeans, its difficult terrain, and periodic civil unrest.

Historical records indicate that the distribution of salt occurred within local areas, within regions, and across different regions in Ethiopia (Beckingham and Huntingford 1961; Abir 1966, 1968; Pankhurst 1961, 1968; Wolska-Conus 1968; Kirwan 1972). The distribution of salt to regions distant from its source involved transport by animals (camels, mules, and donkeys), and required complex trade relations, trade networks, and the protection of salt traders (Donald 1984:138; Pankhurst 1961, 1968; Abir 1966), factors that may have helped the survival of settlements. The results of this study support the recent suggestions by D’Andrea et al. (2008) that site locations in the Golu-Makeda area of eastern Tigrai were selected because of their location along Adulis-Aksum trade routes. The present study confirms that some settlements along the salt trade network today, including Asabolo, Berehale, Adua, Agula, Idaga Hamus, Hawzien, Quiha, and Wukro, connect to the ancient trade network of northern Ethiopia, and were likely important transfer points in the salt trade in the past. These settlements, known to have been active in the salt trade in the past and today, provide justification for the suggestion that the Red Sea trade may have tapped into the salt trade network. Salt trade routes, which were also used to move other trade items, would have survived because changing rulership of Pre-Aksumite and Aksumite states would have benefited from maintaining a
continuity of settlements along the trade route to ensure the safe movements of goods (D’Andrea et al. 2008).

Recent discussions on the origins of social complexity in Africa point to diverse trajectories in developments, making it difficult to apply universalistic evolutionary models (e.g., McIntosh 1999; Stahl 1999). Many studies tended to overlook the role of internal trade in favour of external trade (Sinclair et al. 1993 a; Connah 1996, 1987, 2001). The place of salt as an early item of trade in human history (Good 1972), and the relationship between salt and socio-economic complexity, deserve attention in the quest to understand the development of social complexity in Africa. The documented socio-economic role of salt in Ethiopia from the 6th century A.D. (Wolska-Conus 1968), and recent suggestions by Pankhurst (1998) that the location of Aksum near Lake Assal was likely because salt was in high demand in the Ethiopian highlands, justify the inclusion of salt as an economic item in discussions leading to social complexity. As the evidence shows, salt trade confers both social and economic benefits to those who participate in it. In this regard, the present study complements suggestions that internal trade likely played a primary role in the development of social complexity in several regions of Africa, and foreign trade may have intensified local processes (Terray 1974; Connah 1987, 2001; Sinclair et al. 1993 a). Suggestions that the control of local trade networks and the addition of luxury goods from external trade generate elites seem plausible in northern Ethiopia. Today, salt is still in high demand in the Ethiopian highlands and its trading still confers benefits. The salt trade still involves political control, and high levels of risks, both natural and cultural.
7.12 Conclusions

The salt trade should be considered as a factor that could have precipitated and enhanced the development of the Pre-Aksumite and the Aksumite Kingdoms of northern Ethiopia. Historical records, results of the G-MAP study (D’Andrea et al. 2008), and data from the present salt trade, suggest that elite groups in Ethiopia over the years protected the salt trade and salt trade routes because of the benefits they derived from it and the movement of other goods in both the internal and external trade systems of Ethiopia. As this study shows, those who participate in the salt trade have opportunities to gain wealth and to build social status, factors known to cause inequality and social complexity. Based on the opportunities the salt trade offers today, it could be suggested that it may have played a vital role in the development or sustenance of social complexity in the northern highlands of Ethiopia in the past, probably predating the rise of the Daamat Kingdom (700/600 B.C. – 400/300 B.C.).

The case for a role of salt trade in the processes leading to social complexity is supported by agreement amongst researchers that salt is required by sedentary agro-pastoralists (Nenquin 1961; Bloch 1963; Carter et al. 1974; Multhauf 1978; Denton 1982; Mannar 1982; Alexander 1985, 1993; Lovejoy 1986; Adshead 1992; Eaton et al. 2002; Kurlansky 2002). Salt is a necessity for cereal cultivators and their livestock (Alexander 1993), both of which characterised Pre-Aksumite and Aksumite economies. Work by Schmidt and Curtis confirms the long suspected presence of a sedentary agro-pastoral Ancient Ona culture peoples who may also have engaged in trade (Schmidt and Curtis 2001) in the northern Ethiopian region. Certainly, the early agro-pastoralists and their livestock would have required a regular supply of salt. Salt may also have been needed
for food preservation, hide working, leather processing, medicinal purposes, and even ritual activities (Abir 1966; Mannar 1982; Alexander 1985, 1993; Lovejoy 1986; Adshead 1992; Kurlansky 2002). Thus, it could be speculated that by the early 1st millennium B.C. salt would have been important.

The present study and related investigations (D’Andrea et al. 1997, 1999, 2008; D’Andrea and Mitiku 2002; D’Andrea 2003; Lyons and D’Andrea 2003; Lyons 2007) provide insights into the role of local and rural economies in the development of complexity. These studies point to trade and agricultural productivity as possible factors in the development of elite groups in northern Ethiopia. This study shows that contemporary, historical, and archaeological information can be used to shed light on the role of internal trade in socio-cultural developments. It also demonstrates the benefits of investigating a traditional industry within its specific socio-cultural and historical context. Drawing on local and regional data as well as cross-cultural examples, this study has suggested how an important resource, salt, could have played a role in the developments of socio-cultural complexity.

Finally, this study has suggested clues by which archaeologists may contextually infer salt trade in the archaeological record. Although salt itself may not survive, and its trade is difficult to disentangle from trade in other items, the material correlates of the salt trade identified by this study would provide insights on the presence of salt trading. Some of the material correlates of the salt trade with chances of survival in the archaeological record include stones used to sharpen metal axes used to extract and shape salt at the salt plains, and in the household context in the source area. In addition, remains of dead animals along the salt trail, and the presence of stones and metal scrapers

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used in working goatskins in the household context should also be indicators in areas closer to the source of salt. At the market or distribution centre, remains may include metal axes, sharpening stones, and phytoliths and pollen from *egiara (agave)*. The presence of camel bones with no cut marks in or near settlements with compounds, containing larger room units of the *hidmo* type, should indicate salt trading in the home area of caravan merchants and/or at the household level.
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APPENDICES

Appendix A. Ethnoarchaeological Questions: Guidelines Only

A) GENERAL QUESTIONS

Name: _________________________________ Age: _______ Gender: _______

Occupation: _____________________ Education: _________ Birthplace: ____________

Town/Village: _______________ Special Status: ________________

What do you do for a living?
Describe your working activities on a month-by-month basis?
How long have people in your settlement participated in the salt industry?
Does any member of your household participate in the salt industry?
Are you a salt trader/merchant/owner?
    Why or why not?
Have you been a salt trader/merchant/owner in the past?
    How did you become one, and for how long?
Who participates in salt industry and why?
Is the salt industry seasonal?
    When is the high and when is the low season?
Who sells salt?
    In what form and at what cost?
Are there different kinds of salt?
    Name them and tell me where you obtain each?
Do you use salt for?
    Cuisine, some or all?
    As food for animals?
    other industrial activities?
    Rituals?
    Medicine to cure illnesses, what are they?
What kind do you use, and why?
Does your family own property?
    What kinds of property?
Do you have a special status?
    Why or why not?
Does your household occupy a special position in your settlement?
    Why or why not?
What is the status of people involved in the salt industry vs. those not, in the socio-political structure?
What is the status of households engaged in the salt industry in the socio-political structure today and in the past?
What has changed about the salt industry in your view?
What has changed in your settlement as a whole?
How does the salt industry benefit your community?

B) Owners of Salts - Danakil
How did you become an owner of salts?
    How long have you been an owner?
Has your family always owned salts?
    How and for how long?
Do you employ other people to work for you?
    Who and why?
Do you work in cooperation with other owners?
How do you sell your salt?
    Do you have specific people or groups that you sell your salt to?
        How, and why?
Do you take your salt to the market yourself?
Do you use the same route all the time to and from where you obtain salt?
    Why and why not?
How do you transport your salt?
    Do you use animals?
        How many animals do you use at a time?
        What kinds of animals do you employ and why?
        Who owns the animals?
        Where are the animals housed?
        What do you do with them in the off-season?
        What happens when the animals are old or cannot carry salt?
        Do you use your animals for other things?
Do you pay tribute, and or taxes during trips?
    Who do you pay to and how often?
Where and how do you store salt before sale?
Is salt processed before sale?
    Who is responsible, how and why?
Do you engage in other activities?
   What, why, or why not?
Do you perform any ritual in relation to your work?

C) Salt Workers/Pickers - Danakil
What techniques do you use to extract the salt and why?
Who owns the salts you work at?
How long have you worked at the salts?
Do members of your family always work in the salts?
   Why and for how long?
How are you rewarded for your work?
What tools do you use for your work?
   Where do you obtain your tools and equipment?
   What happens to your tools/equipment when they are worn out/break?
Do you perform any ritual in relation to your work?
Do Owners of salts have special status?
   Why or why not?
Do households that own salts occupy special positions in your settlement?
   Why or why not?

D) Salt Merchants - Mekelle
How did you become a salt merchant?
   How long have you been one?
Has your family always been involved in the salt industry?
   For how long?
How often do you make trips to the Danakil to obtain salt?
   Do you employ other people, how do you reward them?
   Do you work in cooperation with other merchants?
Do you own salt sources?
Where and how do you obtain salt?
   Do you obtain your salt from the same place or person all the time, and why?
Do you use the same route all the time to and from where you obtain salt?
   Why and why not?
How do you transport your salt?
Do you use animals?
   How many animals do you use at a time?
   What kinds of animals do you employ and why?
   Who owns the animals?
   Where are the animals housed?
What do you do with them in the off-season?
What happens when the animals are old or cannot carry salt?
Do you use your animals for other things?
Do you pay tribute, and or taxes during your trips?
   Who do you pay to and how often?
Where and how do you store salt after you bring it from the Danakil?
Is salt processed before sale?
   Who is responsible, where, how and why?
   What tools or equipment is used?
Do you have specific people or groups that you sell your salt to?
   How, and why?
Is salt trade the only activity you engage in?
   Why, or why not?
Do you take any items with you on trips to be used in easing trading relations?
   What items do you take and why?
Do you perform any ritual in relation to your work?

E) Salt traders – Adi Ainawalid
Why and how did you become a salt trader?
   How long have you been involvement in salt trading?
   How long has your family been involved in the salt trade?
How and where do you obtain your salt supplies?
Do you use the same route all the time to and from where you obtain salt?
   Why and why not?
How do you transport the salt?
   What equipment do you use?
Do you pay tribute, and or taxes during your trips?
   Whom do you pay to and how often?
Do you use animals to transport your salt?
   What kinds of animals do you use?
   Who owns the animals?
   How many are used at a time?
   Where are they housed?
   Are the animals used for other things?
Do you engage in other activities?
   What are they and why?
Are you a fulltime or part-time salt trader?
   What do you do when you are not trading salt?
Is salt trading seasonal?
When is the high and when is the low season?
Where and how do you sell your salt?
   In what form and at what price?
Do you process salt for sale?
   What equipment is used?
   Where do you get the equipment?
   What happens when the equipment is old or worn out?
Where and how do you store or preserve salt?
Do you perform any ritual in relation to your work?

F) Salt Consumers - Adi Ainawalid
Where do you get your salt supplies?
   Who sells salt to you?
   What form and at what cost?
   How often do you get supplies?
   What quantity do you get?
   Who is responsible for making sure there is salt at home?

Adjusted Ethnoarchaeological Question Guide (Tigrai, Ethiopia):
Guidelines Only

A) GENERAL QUESTIONS
Name: ____________________________ Age: _______ Gender: _______

Occupation: ____________________ Education: ____________ Birthplace: _______

Town/Village: _____________________ Special Status: ______________

⇒ Where are you from and where were you born?
⇒ Who participates in salt industry and why?
⇒ Is the salt industry seasonal? When is the high and when is the low season?
⇒ Are there different kinds of salt?, Name them and tell me where you obtain each?
⇒ What are the uses of salt for?; for food, food for animals? Industrial activities, e.g. leather reservation and preparation?, Medicine to cure illnesses, what are they?
⇒ What kind do you use, and why?

E) Salt traders – Adi Ainawalid
Why and how did you become a salt trader?
   How long have you been involvement in salt trading?
   How long has your family been involved in the salt trade?
How and where do you obtain your salt supplies?
Do you use the same route all the time to and from where you obtain salt?
   Why and why not?
How do you transport the salt?
   What equipment do you use?
Do you pay tribute, and or taxes during your trips?
   Whom do you pay to and how often?
Do you use animals to transport your salt?
   What kinds of animals do you use?
   Who owns the animals?
   How many are used at a time?
   Where are they housed?
   Are the animals used for other things?
Do you engage in other activities?
   What are they and why?
Are you a fulltime or part-time salt trader?
   What do you do when you are not trading salt?
Is salt trading seasonal?
   When is the high and when is the low season?
Where and how do you sell your salt?
   In what form and at what price?
Do you process salt for sale?
   What equipment is used?
   Where do you get the equipment?
   What happens when the equipment is old or worn out?
Where and how do you store or preserve salt?
Do you perform any ritual in relation to your work?

F) Salt Consumers - Adi Ainawalid
Where do you get your salt supplies?
   Who sells salt to you?
What form and at what cost?
How often do you get supplies?
What quantity do you get?
Who is responsible for making sure there is salt at home?

1) Main Salt Merchants - Mekelle
⇒ How did you become a salt merchant? And how long have you been one?
⇒ Has your family always been involved in the salt industry? For how long?
⇒ How do you obtain your salt, have you made a trip to the Danakil?
⇒ Do you employ other people to bring you salt from the salt plains, do you provide them with pack animals. How do you reward them or how much do you pay them?
⇒ Do you have client caravans (Enderta, Raya etc) who supply you with salt and what are the arrangements between you and them, do you have contracts and do you pay per block or in bulk by weight?
⇒ How did you or do you establish such clientele with them?
⇒ How much salt do you buy in the peak season and how much do you buy in the lean season.
⇒ When do you get a good price for your salt from your clients and when is the price low, why is this?
⇒ When is the price high from the caravans and when is it low, why is this the case?
⇒ Do you employ brokers who bring you caravans from whom you buy salt, how do you reward them, or what is the arrangement between you and them?
⇒ Do you store salt for caravans who do not sell their salt, on what occasions or under what conditions do you store salt for caravans.
⇒ Do you store only for your clients for any caravans, do you charge fee for this services, why or why not.
⇒ What types of salt or blocks do you buy and from what caravans do you obtain them.
⇒ Does the price of the blocks vary, per type and per season, please explain how and why?
⇒ Do you have sub-merchants who buy from the caravans and supply you or do you buy directly from the caravans? Do you buy in bulk by weigh or per block?
What are the transport arrangements, how often do you get supplies this way and what is the cost.

Do you have agents or employees stationed somewhere on the salt route, e.g., Berehale, who buy salt for you at locations where you get a cheaper price? Are these middle people your employees or independent contractors? What are the transport arrangements?

Do such agents bring the salt to you via vehicular transport or animal caravan?

How many people do you employ and what do they do? Where are they working?

Do you have different shops and warehouses? How many do you have, how old are such shops and warehouses and have they been moved from other place to their current locations?

Are the locations where salt is sold separate from where the salt is processed, why?

How do you process salt for sale, do you cut the block into pieces and how do you do that?

What is the salt processing equipment? What tools or equipment is used? Do you use moulds.

Who is responsible for processing the salt for sale, where, how and why? Are there women involved? Why are women not involved in processing the salt?

In what ways do you process the salt and why?

What is the name of the plant used to wrap the salt?

How many salt merchants are here in Mekelle with warehouses processing salt?

Do you have specific people or groups that you sell your salt to?

Where do you sell your salt and who/where are your customers from?

Do you sell only in bulk or do you sell in singles, what is the cost.

Is the price of salt you sell based on the type of block, e.g. Goloor/gariwanai?

What prices do you sell various blocks for, does the price change according to the season or month of the year, why and why not?

Do some of your customers prefer one type or form of salt block/form to another, why or why not?

Do you work in cooperation with other merchants?

Do you belong to a salt merchants association or group?

Do you pay taxes, how much do you pay and to who?
Do you have customers in and outside of Mekelle, who are they?
Do you have customers from outside Mekelle, and how far does your salt go from here?
Do you sell to other merchants in and outside of Mekelle and other parts of the country or do you have shops there to sell?
What are the transport arrangements and how much does it cost, and who pays and is responsible for such transporting?
What are the arrangements for selling to your clients and do you sell in bulk only. How, and why?
How many tons of salt do you buy and sell in a year, when do you buy most and when do you sell most, why. How much do you earn in a year from you business.
Do you perform any ritual in relation to your work?
Does your family own property? What kinds of property?
Do you own your house and or your shop, why or why not?
How much do you pay as rent for your house of shop?
Does your household occupy a special position in your settlement? Why or why not?
What is the status of people involved in the salt industry vs. those not, in the socio-political structure?
What has changed about the salt industry in your view? How does the salt industry benefit your community?

2) Petty Salt traders – Mekelle
How did you become a salt trader? How long have you been one?
Has your family always been involved in the salt industry? For how long?
How and from whom do you obtain your salt?

Do you have client caravans who supply you with salt, how often, and what are the arrangements between you and them?
Do you buy per block or in bulk by weight?
Do you have contracts with caravans, under which they supply you salt? How did you establish such clientele with them?
Do you buy your salt from merchants, who buy from the caravans or do you buy from both merchants and directly from the caravans? Why?
Where do you store your salt and how much do you pay for storage?
Do you buy salt from outside Mekelle, on the way, or Agula, Dessa or Berehale, or from other merchants in any of these places?

Do such suppliers bring the salt to you via vehicular transport or animal caravan or do you go and collect it yourself.

Do you employ people to transport salt for you or work for you, what do they do?

How old is your shop or warehouse and have you moved from another place to your current location? Why?

How do you process salt for salt, do you cut the block into pieces yourself? If not, how much do you pay for such service, who cuts for you?

Who processes the salt for you, where is this done, how and why?

Are there women involved in processing the salt? Why are women not involved in processing the salt?

What tools or equipment is used?

Do you have specific people or groups that you sell your salt to? Where are your customers from?

Do you sell in blocks or small pieces, why or why not, what are the prices?

Does your selling price change according to the season or month of the year, why and why not? When do you sell more and when do you get the best price for your salt.

When do you sell less and when do you get the lowest price for your salt?

When is the peak season and when is the low season of the salt trade? How much salt to you buy in the peak season and the lean season. What price do you pay for the different blocks in the peak and lean seasons? Why?

Do you work in cooperation with other traders?

Do you belong to a salt traders association or group?

Do you pay taxes, how much do you pay and to who?

Does your family own property? e.g., a house, Why or why not?

Does your household occupy a special position in your settlement?

What is the status of people involved in the salt industry vs. those not, in the socio-political structure?

What has changed about the salt industry in your view?

How does the salt industry benefit your community?
3) Salt brokers - Mekelle
   ⇒ Where are you from?
   ⇒ How did you become a salt broker? How long have you been one?
   ⇒ Has your family always been involved in the salt industry? For how long?
   ⇒ What do you do as a salt broker?
   ⇒ Are there women salt brokers? Why or why not?

   ⇒ Do you have contracts with caravans? Where are they from and how did you establish such clientele with them?
   ⇒ Do you have contracts with salt merchants? Where are they from and how did you establish such clientele with them?
   ⇒ Do you help other besides caravans and merchants buy or sell salt? How did you establish such clientele with them?
   ⇒ How are you rewarded for your work? Who pays you and how much do you make in a day or week?
   ⇒ When do you make the most money and when do you make less, why?
   ⇒ What day or month do you make the most or less money?

   ⇒ When is the peak season and when is the low season of the salt trade?
   ⇒ Do you work in cooperation with other brokers?
   ⇒ Do you belong to a salt brokers association or group?
   ⇒ Do you pay taxes, how much do you pay and to who?

   ⇒ Does your family own property? e.g., a house, Why or why not?
   ⇒ Does your household occupy a special position in your settlement?
   ⇒ What has changed about the salt industry in your view?
   ⇒ How does the salt industry benefit your community?

4) Workers in Processing Warehouses - Mekelle
   ⇒ How did you become a cutter/ shaper/ tier? How long have you been one?
   ⇒ Has your family always been involved in the salt industry? For how long?
   ⇒ How long have you worked here?
⇒ How many pieces can you cut/shape/tie? And what sizes and shapes do you cut, shape or tie?
⇒ Why do you have different shapes and sizes? Do different shapes and sizes go to different customers?
⇒ Are the different sizes and shapes preferred by different customers, who are they?
⇒ Are the customers from Mekelle or from other places and regions?
⇒ Do you get orders for special shapes and sizes from different customers?
⇒ Do you work only here or do you work in other shops for other merchants? Or for other people, e.g. Small traders who sell small pieces of salt?
⇒ Do you work by contract or are you permanent? Do you work all year or sometime in the year?
⇒ Do you work only here in Mekelle or do you work in other towns?
⇒ How old is your workshop or warehouse and have you moved from another place to your current location? Why?
⇒ Are there women involved in processing the salt? Why are women not involved in processing the salt?
⇒ What tools or equipment do you use? Where and how often do you get the equipment?
⇒ Where do you store the equipment and what happens when if your equipment is old or gets broken?
⇒ Where and how do you obtain your working tools?
⇒ Does your shop sell only amoles, small pieces, full blocks, small pieces or all three?
⇒ Does your work change according to the season or month of the year, why and why not?
⇒ When is the peak season and when is the low season of the salt trade? How much salt do you process in the peak season and the lean season?
⇒ How are you rewarded for your work? Are you paid per type of block and or shapes you produce?
⇒ What blocks do you process the most and what shapes do you process the most, why?
⇒ Do you belong to a salt workers association or group?
⇒ Does your family own property? E.g. a house, Why or why not?
⇒ Does your household occupy a special position in your settlement?
⇒ What is the status of people involved in the salt industry vs. those not, in the socio-political structure?
⇒ What has changed about the salt industry in your view?
⇒ How does the salt industry benefit your community?

F) Skin seller/leather Workers - Mekelle
⇒ How did you become a skin seller/leather worker? How long have you been one?
⇒ Has your family always been involved in skin selling/leather working? For how long?
⇒ How and from whom do you obtain salt for your work?
⇒ What type of salt do you use and why? Have you always used this type of salt?
⇒ What other types of salt was used for this work in the past? Are there other things you can or have used in place of salt? What are they?
⇒ What quantity of salt do you need to preserve or cure a goat, sheep or cow skin? What of 10 of each of these skins?
⇒ Do you have client who supply you with salt, how often, and what are the arrangements between you and them?
⇒ What quantity do you buy at a time? When is the price of salt high and when is it low?
⇒ Do you buy salt from Mekelle or outside Mekelle?
⇒ Do your suppliers bring the salt to you via vehicular transport or do you transport it yourself? How and how much do you pay for that?
⇒ Do you have specific people or groups that you buy your skins from?
⇒ Do you have specific people or clients that you sell your skins/leather to? Where are your customers from?
⇒ Do you sell in bulk or in singles or both? why or why not,
⇒ How much do you pay for a goat/sheep/cow skin?
⇒ How much to you sell a goat/sheep/cow skin?
⇒ Does your selling price change according to the season or month of the year, why and why not? When do you sell more and when do you get the best price for your skin/leather?
⇒ When do you sell less and when do you get the lowest price for your skin leather?
⇒ When is the peak season and when is the low season for skin/leather?
⇒ How old is your business and have you moved from another place to your current location? Why?
⇒ What tools or equipment is used for your work and where do you obtain them?
⇒ How often do you buy new tools and what happens to old ones?
⇒ Do you work in cooperation with other traders in your business? how many of such businesses will you say exist in Mekelle?
⇒ Do you belong to a skin/leather traders association or group?
⇒ Do you pay taxes, how much do you pay and to who?
⇒ Does your family own property? e.g., a house, Why or why not?
⇒ What has changed about your business and the salt industry in your view?
Appendix B. Salt And Non-Salt Trading Compounds

Salt Trading Compound, Adi Baekel

1. Main wall
2. Hen coop
3. Cooking stove
4. Kitchen
5. Grain grinding platform
6. Donkey pen
7. Korokoro (Living Space)
8. Cattle pen
9. Cattle feeding trough

Salt Trading Compound, Adi Baekel

1. Main wall
2. Low wall
3. Sakala (Grandma's room)
4. Kitchen
5. Cattle pen
6. Donkey pen
7. Hilimo (Living Space)
8. Stiiaw
Salt Trading Compound, Adi Baekel

1. Main wall
2. Cattle feeding trough
3. Grain grinding platform
4. Kitchen
5. Donkey pen
6. Cattle pen
7. Hamo (living Space)

Non-Salt Trading Compound, Adi Baekel

1. Main wall
2. Clay bench
3. Kitchen
4. Calf pen
5. Donkey pen
6. Cattle pen
7. Sakala (living Space)
8. Cattle feeding trough

Metres