

Plague as a Possible Factor for the Decline and Collapse of the Aksumite Empire: a New Interpretation

by YOHANNES Gebre Selassie¹

Abstract

Epigraphical evidence from South Arabia, contemporary accounts from Syria, Byzantine, Greece and Arab literary traditions attribute the origin of the Bubonic (Justinian) plague, of the 6th century AD to Ethiopia. Although the occurrence of plague was barely recorded in Aksumite epigraphic sources, Adulis port was serving as an entrepôt in the Red Sea trade for the Byzantine-Roman merchants in the first seven centuries AD. Aksum's role as a commercial ally of the Roman and Byzantine Empires is well recorded. Wherever or whatever the origin of the plague, Ethiopia might have been an easy prey to the pestilence thereby impacting upon Aksum's intermediary role between the Red Sea and the Indian Ocean with that of the Mediterranean Sea and the Byzantine world. Previous studies attempted to show how environmental degradation accompanied by failure of agricultural productivity affected the survival of Aksumite Empire. Recent palaeoenvironmental studies from Lake Hashinge also confirm climatic change in northern Ethiopia in 500 AD accelerating the decline of Aksumite Empire. But none of the scholars were able to discuss the relation between environmental degradation, famine, plague, locust infestations, migration and social conflict. This essay does not provide new discoveries; "but it is a discussion of existing sources and suggestions of a new reading".² Here in this short essay, I argue that the reported result of these catastrophes was migration, interethnic conflict and banditry. And the recurrence of these calamities might have accelerated the decline and collapse of one of the ancient world's major powers in the Red Sea region, the Empire of Aksum, an African civilization of antiquity.

Keywords: Aksumite Empire – Byzantine Empire – environmental degradation – Ethiopia – famine – plague – social chaos

Introduction

The 77th chapter of the Coptic *Kephalia* contains a passage, which is believed to be an authentic word about Aksum of the prophet Mani, the founder of the Manichean religion, reportedly recorded on his order in the 3rd century AD. The passage reads as follows: "There are four great kingdoms in the world. The first is the kingdom of Babylon and Persis [Sasanian Empire]. The second is the kingdom of the Romans. The third is the kingdom of the Axumites. The fourth is [the kingdom of Silis,

¹ PhD candidate at the University of Paris Panthéon Sorbonne.

² To quote one of the two anonymous reviewers of this essay. I would like to thank the reviewers for their critical suggestions.

Plague as a Possible Factor for the Decline and Collapse of the Aksumite Empire

i.e., the kingdom of Kušān].³ *There is nothing mightier than these four kingdoms.*⁴ François de Blois argues that Axum is a “mistranslation for Kūšāyē” (i.e. for Kush or Ethiopia) by the Greek translator of the *Kephalia* from Armenian text, and the successive Coptic translator. He further argues that Mani’s perception of Ethiopia must not be understood in its narrower geographical sense, Aksumite Ethiopia, but in the context of the whole region south of Egypt (i.e. „Aithiopia” in Greek).⁵ Although his argument looks strong, it remains hypothetical. It is well known that the only ancient states minting gold coins were Rome, Persia (to a lesser degree), Aksum and the Kushan kingdom in the northern India and Afghanistan.⁶

The Aksumite Empire⁷ emerged in the late first millennium BC and gradually extended to the Red Sea coasts.⁸ At the height of its apogee, this empire represents a vast region. Finneran writes “The Aksumite Empire is not Aksum alone, there are many more parts to the sum of the whole...”⁹. The Aksumite Empire was occupying the Tigrayan and Eritrean plateau, including some peripheral regions to the south and west; at times it stretches its influences to central Ethiopia as far as Lasta and its environs. Archaeological studies show the Aksumite Empire was covering roughly a territory, which was 300km long and 160km wide approximately. This rectangular surface area was lying between 13° and 17° N latitude and 30° and 40° E longitude. It extends from the region north of Keren in the north to the chains of Amba Alage in the south, and from Adulis on the coast to the environs of Tekkeze in the west.¹⁰ It was able to control South Arabia in the 6th century AD.

Aksum, the capital of this ancient Empire, is the only Ethiopian urban center continually inhabited for about 2000 years or more. It served as a royal capital from 150 BC to 700 AD and as a spiritual metropolis of Ethiopia for about 1600 years. Phillipson suggests that it is preferable to adopt the term

³ De Blois, “The Four great kingdoms in the Manichaean Kephalia”, *Bibliotheca Nubica* 3, *Orbis Aethiopicus* I, (ed. Scholz), 1992, p. 222.

⁴ De Blois 1992, p. 221.

⁵ Ibid. p. 221-230.

⁶ Munro-Hay, *Catalogue of the Aksumite Coins in the British Museum*, British Museum Press, London, 1999, p. 9.

⁷ Aksum then gradually lost its territories. According to the *batsani* Daniel inscription, the king of Aksum himself was reduced to a status of a subject. but during its zenith it was ruling over dozens of kingdoms. For reason of convenience, I am applying the term Empire when referring to the Aksumite civilization.

⁸ Fattovich, et al. *The Aksum Archaeological Area: A Preliminary Assessment*, Napoli: Istituto Universitario Orientale, 2000, p. 24. Based on a recent field investigation, the researchers propose ca. 150 BC for the beginning of the Aksumite period.

⁹ Finneran 2007, p. 146.

¹⁰ Anfray, “La civilization d’Axoum du Ier au VIIIe siècle”, *Histoire Générale de l’Afrique, II. Afrique ancienne*, Paris, 1981, p. 387.

“metropolis” for Aksum, as is mentioned in the *Periplus*,¹¹ to using the appellation “city”. Aksum lies in the western part of the Aksumite Empire, which started to flourish in the first century BC or some time before it collapsed in the seventh century AD according to the Short Chronology. The Long Chronology takes Aksum’s collapse to the tenth century. Its size is not precisely known. Phillipson suggests that the city must have occupied “between 70 and 100 hectares, roughly equivalent to one square kilometer, the equivalent of many Roman provincial cities of the same period”.¹² For the period 450 AD – 750 AD (Middle Aksumite, according to Michels), “Metropolitan Aksum can be conceived of as a circle, 10 kilometers in diameter, centered roughly on Amba May Qoho that encloses an area of about 79 square kilometers.”¹³ There is indication that all the area was not fully occupied by buildings.¹⁴ The population of the metropolis in ca. AD 500 is estimated at 10,000-20,000 people.¹⁵ Adulis, Qohayto and Met’era were important trading centers of the kingdom.

Several scholarly hypotheses are proposed on the origin and rise of the Aksumite civilization. But curiously very little attention has been given for the factors that contributed to the decline and collapse of this civilization. Aksum ceased to exist as a metropolis after flourishing for about one millennium. Some reasons are proposed for its decline, two of those are briefly discussed below: The rise and expansion of Islam in Arabia is conventionally accepted as one of the causes for the decline and fall of Aksumite Empire. The rising Muslim caliphates have picked the naval trade routes in the Indian Ocean, the Red Sea and the Mediterranean Sea.¹⁶ These trade routes were controlled by Byzantine, Persian and Aksumite traders. In the case of Aksum, its sovereigns were not able to consolidate a contingent overland trade route such as through the Nile Valley because of conquest of Egypt by the Arabs in 642 AD. The origin and consolidation of political Islam is generally attributed to global climatic fluctuations, volcanic eruptions and apocalyptic mood in the Mediterranean and Near East areas in the mid-6th century.¹⁷ As I shall analyze later in some details, although the Aksumite kings were in friendly relation with the Prophet Muhammed, this was not the case with his successors. Sporadic minor skirmishes were reported in the Red Sea region with the caliphates. But it appears that these conflicts were not transformed into major conflict as it was the case with the Persian and Byzantine empires.

¹¹ *The Periplus Maris Erythraei*, text with introduction, translation, and commentary by Lionel Casson, Princeton University Press, 1989, p. 53. - Phillipson, “Aksumite Urbanism”, in David M. Anderson and Richard Rathbone (eds.), *Africa’s Urban Past*, 2000, p. 61.

¹² Phillipson 2000, p. 57.

¹³ Michels 2005, p. 155.

¹⁴ Phillipson 2000, p. 57.

¹⁵ Bard 1997, p. 23-24.

¹⁶ Phillipson 1998, p. 126-27.

¹⁷ Keys, *Catastrophe: An Investigation into the Origins of the Modern World*, 1999, p. 81-104, 343-98.

Plague as a Possible Factor for the Decline and Collapse of the Aksumite Empire

We know that the conquest by Muslim Arabs completely consumed the Persian Empire, reduced by half the territories of the Roman Empire, and thus radically changed the geopolitical map of the late antique world. Its impact on the Aksumite Empire, however, seems hypothetical and is not based on strong evidence. As Vassilios Christides has shown in his recent study, there is no allusion in the sources about the way the Arabs obtained ships for a naval expedition against the Ethiopians, which had been undertaken as early as 641 AD.¹⁸ As the Ethiopian *najashi* and the Muslims led by Muḥammed were experiencing very good relations, the attack by the Muslims looks inexplicable and enigmatic. The capital of the kingdom accepted early Muslim refugees in about 615 AD, including the Prophet's wife, Umm Salama bint Abī Umayya ibn al-Mughīra.¹⁹ An attack of Muslims against the only friendly nation seems difficult to accept. It is also interesting to note that some writers' accounts of the loss of three out of four ships during an engagement against the Aksumite port of Adulis does not appear in the mentioned source.²⁰ In addition, the source does not say explicitly that Adulis was the target.²¹ Although we do not know the condition of the Aksumite naval fleet in 640 AD, Aksum was constructing its own naval vessels²² in the Aksumite port of Gebeza a century before in the early 520s. As it was observed in king Kaléb's expedition in 525 AD against Himyar, the Aksumites were able to convert commercial vessels into military armada. Therefore, the account of destruction of Adulis by early Muslim forces, not known for their naval fleet, looks like one that is based on speculation. It is important to comment that modern historiography on the "Muslim factor" for the decline and fall of Aksumite Empire was probably partly influenced by the famous remark of Edward Gibbon in the 18th century. In his seminal work, *The Decline and Fall of the Roman Empire*, Gibbon writes: "Encompassed on all sides by the enemies of their religion, the Æthiopians slept near a thousand years, forgetful of the world, by whom they were forgotten."²³ Although very little is known so far about the agricultural system

¹⁸ Christides, "New Light in Navigation and Naval Warfare in the Eastern Mediterranean, the Red Sea and the Indian Ocean (6th-14th centuries AD)," *Nubica*, 111/1, 1989-1993, p. 28.

¹⁹ Raven, "Some Early Islamic Texts on the Negus of Abyssinia," *JSS*, autumn 1988, vol. XXXIII/2, p. 199.

²⁰ For details on the issue, see Christides, 1989-1993, p. 28, note 11.

²¹ *Ibid.* p. 29.

²² *Martyre de Saint Aréthas et de ses Compagnons* (BHG 166), chapter 29.

²³ Quoted in Munro-Hay, *Aksum: An African civilization of Late Antiquity*, Edinburgh University Press, 1991, p. IX. (NB. In fact the Ethiopians did not sleep for a "thousand years" as claimed by Gibbon in the 18th century and as repeatedly quoted by later historians during two centuries. Post Aksumite Ethiopia's history, especially the 7th-13th centuries AD, is generally labelled as the "Dark Age" because of a general lack of sources. But contrary to this "idée reçue", for example most of the architectural wonders of Ethiopia such as the Tigray and the Lalibela rock-hewn churches were created during this period. And most of the (Church) literature was composed and translated – from texts imported from the larger Christian world – during this period. Was Ethiopia really forgotten by the world? Not really. We know for

of the Aksumite Empire, “it has been postulated that agriculture played a fundamental role in the rise of this urban civilization.”²⁴ Equally, its decline and collapse are also believed to be intertwined with the failure of agricultural productivity due to soil erosion and over-cultivation. The environmental factor as a cause for the rise and decline of Aksumite civilizations is suggested. The first attempt at such explanation was made by the American geomorphologist Karl Butzer in the mid 1970s, after intensive field study in Aksum-Yeha areas, in the mid 1970s.²⁵ His explanation is now reinforced by recent palaeoenvironmental studies in northern highlands of Ethiopia in general in the vicinity of Aksum in particular.²⁶ Butzer’s hypothesis is now underpinned by recent palaeoenvironmental studies in the Lake Hashenge. These researches reveal that there appears “a rapid increase in aridity” after 500 AD.²⁷

example that the Europeans fabricated the fabulous story about the “Prester John of the Indies” in the late 12th century, which caused further interest in Ethiopia.)

²⁴ Boardman 1999, “The agricultural foundation of the Aksumite Empire, Ethiopia: An interim Report”, in Van der Veen (ed.), *The Exploitation of Plant Resources in Ancient Africa*, Kluwer Academic - Plenum Publishers, New York, 138.

²⁵ Butzer 1981, vol. 46, p. 471-95.

²⁶ Marshall – Lamb – Davies – Leng – Zelalem Kubsu – Mohammed Umer – Bryant 2009, “Climatic change in northern Ethiopia during the past 17,000 years: A diatom and stable isotope record from Lake Ashenge”, *Palaeogeography, Palaeoclimatology, Palaeoecology*, 2009, vol. 279, p. 114-127; Darbyshire – Lamb – Mohammed Umer 2003, “Forest clearance and regrowth in northern Ethiopia during the last 3000 years”, *The Holocene*, 2003, vol. 13, no. 4, p. 537-546; Ogbaghebriel Beraki – Brancaccio – Caderoni – Coltori – Dramis – Mohammed M. Umer 1998, “The Mai Maikden [sic] sedimentary sequence: a reference point for the environmental evolution of the Highlands of Northern Ethiopia”, *Geomorphology*, 1998, vol. 23, p. 127-138; Ciampalini – Billi – Ferrari – Borselli, 2008, “Plough marks as a tool to assess soil erosion rates: A case study in Axum (Ethiopia)”, *Catena*, 2008, XXX; Nyssen – Moeyersons – Poesen – Deckers – Mitiku Haile, 2002, “The environmental significance of the remobilization of ancient mass movements in the Atbara-Tekeze headwaters, Northern Ethiopia”, *Geomorphology*, 2002, vol. 49, p. 303-322; Dramis – Mohammed Umer – Calderoni – Mitiku Haile 2003, “Holocene climate phases from buried soils in Tigray (northern Ethiopia): comparison with lake level fluctuations in the Main Ethiopian Rift”, *Quaternary Research*, 2003, vol. 60, p. 274-283; Lamb – Bates – Coombes – Marshall – Mohammed Umer – Davies – Eshete Dejen, 2007, “Late Pleistocene desiccation of Lake Tana, source of the Blue Nile”, *Quaternary Science Reviews*, 2007, vol. 26, p. 287-299; Tsige Gebru – Zewdu Eshete – Huang – Taddese Woldemariam – Strong – Mohammed Umer – DiBlasi – Terwilliger 2009, “Holocene palaeovegetation of the Tigray plateau in northern Ethiopia from charcoal and stable organic isotopic analyses of gully sediments”, *Palaeogeography, Palaeoclimatology, Palaeoecology*, 2009, vol. 282, p. 67-80; Sulas – Madella – French, 2009, “State formation and water Resources Management in the Horn of Africa: The Aksumite Kingdom of the Northern Ethiopia Highlands”, *World Archaeology*, Vol. 41, no. 1, p. 2-15; French – Sulas – Madella, “New geoarchaeological investigations of the valley systems in the Aksum area of northern Ethiopia”, Manuscript Draft; D’Andrea – Manzo – Harrower – Hawkins, 2008, “The Pre-Aksumite and Aksumite Settlement of NE Tigray, Ethiopia”, *Journal of Field Archaeology*, vol. 33, 2008, p. 151-176; Nyssen – Poesen – Deckers – Mitiku Haile – Lang 2004, “Human impact on the environment in the Ethiopian and Eritrean highlands-a state of the art”, *Earth-Science Reviews*, vol. 64: p. 273-320.

²⁷ Marshall et al., 2009, p. 125.

Plague as a Possible Factor for the Decline and Collapse of the Aksumite Empire

According to a recent excavation report “there is now archaeological attestation for reduced use of timber for construction and for scarcity of fuel which will have reduced availability and increased the costs of metal and numerous other commodities...”²⁸ Since the days of Karl Butzer, no scholarly propositions have come up discussing the vicious relations of environmental degradation with famine, plague, social chaos and major political change. This was partly because of further research and field study was not possible after the seizure of power by the military junta, the Derg, from 1974-1991. After its downfall in 1991 research resumed and some scholarly publications began to appear.²⁹ Recently, probably because of global climate change and a growing interest in understanding the origin of food production, the study of palaeoenvironment is becoming important. These recent studies in northern Ethiopia are contributing a lot to our understanding of the eco-environment of Aksumite Ethiopia in the past 2000 years.³⁰ An intensive forest clearance in the vicinity of Hardibo and Lake Hayq region, 20 km northeast of the town of Desé, about 350 km south of Aksum, in 900 AD³¹ may suggest a southward shift of the seat of the post Aksumite kings to areas which we are not able to locate precisely at this stage of our knowledge of that period. A recent pioneering study of palaeovegetation history of the Tigray plateau also illuminates our perception of how climate and human activity influenced the trajectories of civilizations, such as the Aksumite Empire.³² An unpublished landscape history study of Aksum based on a geoarchaeological investigation of “the valley system in the Aksum area of northern Ethiopia,” argues that “an increase in land clearance and human activity toward the late Holocene, which ultimately resulted in a socio-ecological collapse of the system and the demise of the Empire of Aksum in the late 1st millennium AD.”³³

It is true that some scholars like Munro-Hay and Fattovich alluded to plague as a possible factor for the decline and collapse of Aksumite Empire.³⁴

²⁸ Phillipson, *Archaeology at Aksum, Ethiopia 1993-7*, vol. II, p. 486.

²⁹ Munro-Hay 1991, in his popular book, *Aksum, an African Civilisation of Late Antiquity*, devoted some paragraphs for his chapter on the decline of Aksum. Bard 1997 published an anthology of research papers devoted to northern Ethiopia; Fattovich 1999, in his article on “The development of urbanism in the northern Horn of Africa in ancient and medieval times” discussed that catastrophes like ‘earthquakes, draughts, famines, epidemics, and invasions of desert locust swarms’ were common in the region. Bard et al. 2000, published their research result on the environmental history of Tigray.

³⁰ Bard, “Environmental History of Early Aksum” in Bard (ed.), 1997; and Machado et al., 1998; Bard et al., 2000, see the footnote above.

³¹ Darbyshire et al. 2003, p. 543.

³² Tsige Gebru et al. 2009, p. 67-80.

³³ French – Sulas – Madella, “New geoarchaeological investigations of the valley systems in the Aksum area of northern Ethiopia”, Manuscript Draft, p. 4 (forthcoming, Catena).

³⁴ Munro-Hay, 1991, p. 260; Fattovich, R., “The development of urbanism in the northern Horn of Africa in ancient and medieval times”, in: Paul Sinclair (ed.), *The development of urbanism in Africa from global perspective*, 1999, www.arkeologi.uu.se.

But even the above-mentioned students of the Aksumite civilization who put plague in the list of factors, did not elaborate on this idea. I therefore discuss here not only the possible role of recurrent plague in the decline and collapse of Aksum but also the concept of the vicious tie of environmental degradation, plague, social chaos and political change as possible factors for the gradual decline and collapse of this civilization.

The present study is based on the sources I came across during research for my PhD dissertation on the image of King Kaléb in post Aksumite and Medieval periods. The sources exploited here are of diverse nature: Archaeological and epigraphic sources, Syriac, Byzantine, Greek, Arab literary sources and linguistic evidence. All these sources indicate that the so-called bubonic (Justinian) plague, which devastated the antique world for a consecutive 200 years reportedly originated in “Ethiopia”. Curiously Ethiopian sources are scarce regarding the subject in discussion.

In this essay, I will discuss plague as an important and even major factor for the decline and collapse of the Aksumite civilizations. In addition, I will argue in some details how the relation between plague, locust infestation, famine, environmental stress and social conflict accelerated the collapse of this Empire. This article will have two parts. In the first part, I will present all available sources alluding to plague and pestilence in relation to ancient Ethiopia. In the second part I will deal with the diverse factors for the collapse of the Aksumite Empire and their vicious correlation, which accelerated its decline and fall. What do we mean when we say decline? What are the signs of decline as far as Aksum is concerned? When we talk about decline, in the case of Aksum, it involves cessation of coinage, cessation – or significant decline – in building activities, both élite and domestic, and complete abandonment of settlement sites and economic activities because of mass migration elsewhere.

I. Presenting the Sources

1. *Epigraphic evidence*

i) CIH 541

This inscription was dedicated by the Ethiopian viceroy of Yemen, Abraha, between dhū-qayān 657 and dhū-ma’ūn 658 of the Himyarite calendar (corresponds to June 547 to March 549 AD). According to this inscription, viceroy Abraha was forced to disperse the Himyarites and Ethiopians who were working on the famous dam of Ma’rib because an epidemic erupted and killed several indigenous people and Ethiopians. The inscription mentions that the plague ravaged Yemen for about eleven months right from its genesis to the month of dhū-di’wan [658] i.e. January 549. Therefore the plague must have erupted at Ma’rib in February 548.³⁵ It is clear from the description in the

³⁵ Robin 1992, p. 232.

Plague as a Possible Factor for the Decline and Collapse of the Aksumite Empire

inscription that sizable numbers of Ethiopians (Aksumites) were living in the Yemen, went to Yemen or went back to Aksum with the plague, which might have caused a significant demographic decline in the Aksumite Empire. As there was movement of armies from Ethiopia to Yemen, this mobilization of armies may have served as a vehicle of plague transmission from Aksum to Yemen or vice versa. As the South Arabian inscriptions do not differentiate epidemic disease from simple illness, the type of plague mentioned in this inscription and its similarity with Justinian plague is not clear.³⁶ Although we don't have indigenous witness for the plague, the oral account mentions myriads of plague affliction in antiquity. Byzantine and Greek sources relate much about the destruction caused by this recurrent pandemic in Byzantium, which was a diplomatic and commercial ally of Aksum.

ii) CIH 539/6

Although this inscription is too damaged for precise dating, on line 6, it evokes "... *et une contagion, un fléau, une sécheresse et ...* [...]".³⁷ It can be dated to the 5th or 6th century AD based on palaeographic analysis and the appearance of the name of Rahmanān, the name of God used by Christians and Jews in South-Arabia in the 5th and 6th centuries.³⁸

What was the relation between the bubonic plague, which is believed to have originated in Ethiopia to hit the ancient world and the pestilence which ravaged South Arabia? As we cannot distinguish the type of plague, what helps us is the date. The date given in the inscription corresponds with the recurrent Justinian or bubonic plague of 541-542 AD. The pestilence, which interrupted the construction of the dam at Ma'arib must be the same Justinian plague ("*peste justiniennne*") which is believed to have originated in Ethiopia to ravage the Nile valley, the Mediterranean world and the Byzantine Empire.³⁹ The Yemenis must have contracted it from the Ethiopian army stationed there if we accept the assumption that the plague originated in Ethiopia.⁴⁰ This plague appears recurrent because Abraha's expeditionary force against Mecca is also believed to have been destroyed by plague sometime in 565-570 AD, apparently before reaching its destination.⁴¹

iii) The *batsani* Daniel inscriptions (RIÉ 193-194)

Discussing the *batsani* Daniel inscriptions here is to show how environmental degradation provoked ethnic conflict, banditry and social chaos. There are three inscriptions reportedly erected by *batsani* Daniel. They were recorded and

³⁶ But Keys claims that the type of pest which devastated the Yemen "probably from 539 or 540 onwards" was the "bubonic plague" (i.e. "Justinian plague"). See Keys, 1999, p. 81.

³⁷ Robin 1992, p. 232.

³⁸ *ibid.*

³⁹ Robin 1992, p. 234.

⁴⁰ Armies were major vectors of plague transmission in antiquity and the medieval world.

⁴¹ Watt 1953, p. 14.

deciphered by Littmann in the early 20th century. At present, they are sheltered near the Aksum Tourist Information Centre, at Aksum.

The inscriptions were authored by a certain *batsani* ('tutor, guardian', later on changing to *ḥaṣé* = ruler, or perhaps at this time merely commander or general, certainly not a king⁴²) Daniel. This offers a firsthand hint to the end of Aksum as a capital. From the first inscription (RIÉ 193), it appears that Daniel was engaged in military campaigns against another *batsani* (named ሐግኒ ከሩራይ, *batsani* Keruray) and against bandits who went to Kassala (ከሰላ) to plunder the Barya people. *Hatsani* Daniel invokes that he “captured 30 tribes (cp. RIÉth 193, p. 280, lines 33-34; the relevant phrase reads ‘*waṣw-k-: 30 : ’an-g-da = ወዲዎኩ : ሷ : አንጋደ :*’ ‘I captured 30 tribes’).”⁴³ The meaning of “tribes” is not clear. It is difficult to understand whether it signifies 30 members of a certain tribal group or 30 tribes. If it does mean ethnic group, it suggests a massive movement of people. This movement of people and tribal banditry and robbery could be in turn suggestive of environmental failure, which triggers tribal conflict. *Hatsani* Daniel also mentions that he punished “those who came to Kassala ...” and “plundered” the Barya (ባርያ).”⁴⁴

It appears that among other military activities mentioned in the inscription (RIÉ 193), Wolqayt people (ሰብአ ወልቃይት, Sāb’a Wālqayt) had attacked the land of HSL (Hasla) and then marched against Aksum. Daniel claims to have fought and expelled them to save Aksum.⁴⁵ We observe here a historical period which we may label as ‘the Era of Princess’ of late antiquity or in the immediate post-Aksumite period, when powerful lords became king makers like those of the *Zemene Mesafint* of 1769-1855.

In one of the inscriptions (RIÉ 193), which is better preserved than the others it appears that Daniel forced the king of Aksum himself into submission, reducing him to a status of a tributary ruler.⁴⁶

⁴² Nosnitsin: “Aṣe”, *Encyclopaedia Aethiopia*, vol. 1, 2003, Harrassowitz Verlag, p. 364-65; Kiflä Giyorgis – Kidanā Wäld Kiflé (1948 E.C. / =1956), *Māṣḥfā Sāwasw Wāḡəs Wāmāzḡābā qalat ḥaddis*, ed. by Dästa Täkle Wäld, Addis Abāba, p. 458.

⁴³ *Recueil des inscriptions de l’Éthiopie des périodes pré-axoumite et axoumite* (RIÉth.); edited by Bernard – Drewes – Schneider, t. 1, *The Documents*, Académie des inscriptions et belles lettres, Paris, de Boccard, 1991; t. 2, *The Planches*, 1991, p. 278-80; Munro-Hay 1991, p. 232.

⁴⁴ Munro-Hay 1991, p. 232.

⁴⁵ Munro-Hay 1991, p. 232; according to the inscription: “When the people of Wolqayt devastated the land of HSL, and came to Aksum, I expelled them and was harsh to them and killed them and captured 102 foals and 802 cattle. And I made the people go...and the equipment, and from here I made them enter the country of Ablas.....whose name is Maya Tsaltsal, and I plundered 10,000 sheep...3000 cattle...and I went while my people were raiding and taking captive.”

⁴⁶ Munro-Hay 1991, p. 232. Here *batsani* Daniel claims that he challenged the legitimacy of the ruling dynasty: “And the king came, and desired to rule over me, while I was in Aksum, in the manner of his father, like a poor man (?). When he had taken booty, he came to Aksum. But I came out, and my enemy was frightened (?), I took the newcomer captive: before blood was shed, I subjected the king of Aksum and dismissed him to administer Aksum as the land of my dominion; and he was released (?). And...I sent into the field...”.

2. *Archaeological evidence*

The archaeological excavations carried out at Met'era by Anfray indicate that the abandonment of the town appears accidental and disorganized. It seems that the citizens of Met'era abandoned their precious objects in their hoard and cooking pots on hearths.⁴⁷ For reasons inexplicable at the present stage of our knowledge of the archaeology of Met'era, there is no evidence of occupation after the seventh century AD⁴⁸.

As far as Adulis is concerned, a trace of fire was observed in archaeological excavations carried out by Sundström, Paribeni and Anfray in different times. According to the excavation carried out by Sundström, "fused copper objects and burnt cypress logs, ash and charcoal" discovered led him to attribute the destruction of Adulis to fire⁴⁹. Paribeni's excavations show also an 'eastern church collapsing in flames, and other evidence of ruin and destruction.'⁵⁰ On the destruction of Adulis Anfray comments as follows: "La disparition d'Adoulis a été brutale. Au niveau supérieur des ruines - là où des fouilles ont été faites, on constate une couche épaisse de cendres et de charbon de bois. Sur un foyer, une marmite était en place avec son contenu, des os d'ovin."⁵¹ The reason of the destruction and fire is not clear. It is reported that Adulis was ravaged and completely destroyed by Muslim forces led by 'Umar ibn al-Khaṭṭab in 640 AD. But Munro-Hay suggests that it is unlikely as most Aksumite gold coins of late Aksumite kings were reported from Adulis.⁵² In a different report, Muslim sources mention that the expedition was a complete fiasco for the attackers, but resulted in the destruction and looting of the port town.⁵³

Whether Adulis was destroyed by Muslim attackers or local pirates or by internal violence appears difficult to ascertain. Even descriptions of Muslim writers do not clearly attribute the destruction of Adulis to the attack of Muslim forces.⁵⁴ Sporadic attack and the temporary occupation of the Dahlak Islands was also reported for the year 702 by Sulayman b. 'Abd al-Malik.⁵⁵ Some later accounts by Muslim writers mention that the Dahlak Islands were under the Nejāshī.⁵⁶

⁴⁷ Anfray 1974, p. 753.

⁴⁸ Negussie 1994, p. 83.

⁴⁹ Munro-Hay 1982, p. 119.

⁵⁰ Ibid.

⁵¹ Anfray 1974, 753.

⁵² Munro-Hay 1982, p. 117.

⁵³ Ibid. 118.

⁵⁴ Ibid.

⁵⁵ Ibid. p. 121.

⁵⁶ Ibid., p. 120.

Plague as a Possible Factor for the Decline and Collapse of the Aksumite Empire writing his *Ecclesiastical History*, in the year 593/4 AD, at the age of 58, the plague struck Antioch for the fourth time.⁶⁸

ii) Chronicle of Zuqnān

The Chronicle of Zuqnān covers the history of the world from its creation up to 775/76 AD, considered to be the time of his writing. The author of the Chronicle is unknown and his identity is a subject of controversy among researchers. This led to an assignment of various titles to the Chronicle such as *Chronicle of Pseudo-Dionysius of Tell-Mabrē*.⁶⁹ The author of the *Chronicle of Zuqnān* depended on John of Ephesus regarding certain parts of his accounts. However, he also included details that could not have come from John.

The chronicler of Zuqnān provides the following information about the plague: “The year eight hundred and fifty-five [543-544 AD] of Alexander: A powerful and severe plague took place across the entire world during the days of Justinian the Emperor.”⁷⁰ After having mentioned the damage caused by the plague, the writer ends the account of the plague as follows: “These events were recorded by the holy John of Asia, since he himself witnessed them.”⁷¹

On the duration of the plague, the Chronicle of Zuqnān states: “The mighty and powerful plague that took place all over the world, lasted from the year [eight hundred and fifty]-five (543/44 AD) to the year eight hundred and fifty-eight [546/47AD], that is, for three years.”⁷² And concerning its recurrence, the Chronicle left us the following information: “The year eight hundred and sixty-nine (557/58): Again, a pestilence arose in the same city of Amida in Mesopotamia, the third blow after those two harsh punishments ... within three months, thirty-five thousand people were counted dead of the pestilence in the smitten and miserable city, until it was bitterly reduced to a fearful waste.”⁷³

iii) Procopius

One of the major Greek sources is the work of Procopius of Caesarea. A native of Caesarea in Palestine, Procopius was appointed as *consiliarius* (i.e., assessor) of Belisarius (527-542 AD), the famous general of Justinian in the Orient (Mesopotamia). At the start of his wars, Procopius claims that, as *consiliarius* of Belisarius, he personally witnessed most of the events described. It was also possible that Procopius was also the personal secretary of Belisarius. When plague broke out in Constantinople in the middle of spring 542, Procopius was in the court of Justinian. He was a witness of many of the events and thus claimed to be especially competent to write the history of his

⁶⁸ Evagarius/Whitby 2000, Book IV, p. 231.

⁶⁹ The Chronicle of Zuqnān/Harrak, Part III, p. 1.

⁷⁰ *ibid.*, p. 94.

⁷¹ *ibid.*, Part III, p. 120.

⁷² *ibid.*, p. 115.

⁷³ *ibid.*, Part III, p. 119.

time.⁷⁴ This great historian of the reigns of Justin and Justinian devotes his first two books entitled *History of the wars* to events in the Red Sea region. Procopius was second in position/rank to Belisarius. The book was written before 550 AD. In his *History of the Wars*, Procopius says the severity of the plague: “During these times [542 AD] there was a pestilence by which the whole human race came near to being annihilated.”⁷⁵ Elaborating in detail on the different speculations by different people, Procopius continues describing where the disease originated as follows: “I shall proceed to tell where this disease originated and the manner in which it destroyed men. It started among the Aegyptians who dwell in Pelusium. Then it divided and moved in one direction towards Alexandria and the rest of Aegypt, and in the other direction it came to Palestine on the borders of Aegypt; and from there it spread over the world, always moving forward and travelling at times favourable to it.”⁷⁶

iv) John of Ephesus

John of Ephesus in his *Lives of the Eastern Saints* says the outbreak of the great plague (*mawtānā h'wa rabbā*) occurred in 853 AG (541/42 AD). But at the beginning of his account of the great plague (*mawtānā rabbā*) in his *Ecclesiastical History*, John has the year 855 A.G. (543/44 AD).⁷⁷

v) Michael the Syrian

According to Michael the Syrian, the plague spread above all in the lands of the south. Michael quotes John of Asia (Ephesus) as saying that “In John of Asia’s book, he speaks amply about the big plague which arose in the year 855 which is the year 16 of Justinian, which since the origin of the world had never happened and there will never be anything similar. Absolutely the whole universe was struck by the cruel plague. It began at first with the internal peoples of the parts of the country of southeastern India that is of Kouš [Sudan], Himyar [Yemen] and others; then it went through the regions of the West, which they call ‘superiors’....”⁷⁸ Michael the Syrian is known to have used the lost manuscripts of John of Ephesus. He mentioned that the plague erupted in 855 AG and equates it with the sixteenth year of Justinian (r. 527 – 565 AD) which was 543/44 AD.⁷⁹

⁷⁴ Martindale J. R., (ed.) *The Prosopography of the Later Roman Empire (PLRE)*, vol., IIIB, AD527-641, Cambridge, University Press, Cambridge, 1992, p. 1060-66.

⁷⁵ Procopius, *History of the Wars*, 2: 22-23, p. 451.

⁷⁶ *ibid.* 22-23, p. 45.3.

⁷⁷ Morony, M. G., 2007, p. 61.

⁷⁸ Translation into English by the author, from the *Chronique de Michel le Syrien*, J. B. Chabot, (éd.) 1901, t. II, p. 235-236. « Dans le livre de Jean d’Asie on parle amplement de la grande peste qui survint en l’an 855 qui est l’an 16 de Justinianus, peste qui depuis l’origine du monde n’avait eu et n’aura jamais sa pareille. L’univers absolument entier fut frappé du cruel fléau. Elle commença d’abord par les peuples intérieurs des contrées du sud-est de l’Inde c’est-à-dire de Kouš, Himyarites et autres ; ensuite par les régions de l’Occident, qu’on appelle ‘supérieur’.... »

⁷⁹ *Chronique de Michel le Syrien*, ed. by Chabot, 1901, tome II, 235; tome IV, 305.

vi) Zachariah (or Zacharius of Mitylene)

The Chronicle of Zachariah, a Syriac Chronicle known as that of Zachariah of Mitylene (supposed author: Zachariah Rhetor, Bishop of Mitylene), as a rubric titled “*Concerning the plague of tumours*” puts the geographical map of the plague’s distribution as follows: “And this plague, which is the rising of a swelling on the groins and in the arm-pits of men, began in Egypt and Ethiopia and Alexandria and Nubia and Palestine and Phoenicia and Arabia and Byzantium (?) and Italy and Africa and Sicily and Gaul, and it penetrated to Galatia and Cappadocia and Armenia and Antioch and Arzanene and Mesopotamia, and gradually to the land of the Persians and to the peoples of the North-East, and it slew.”⁸⁰

vii) Dionysius of Tel Maḥrē

Although some scholars identify Dionysius of Tel Maḥrē with the author of the *Chronicle of Zuqnān*, recent studies show that these are two different persons.⁸¹ Dionysius of Tel Maḥrē put the *mawṭānā rabbā* in 857 AG (545-546 AD) but equated it with the sixteenth year of Justinian (543/44 AD), which is apparently incorrect.⁸²

viii) Jacob of Edessa

In what appears to be an independent and non-contaminated source, Jacob of Edessa who died in AD 708 says that the *mawṭānā rabbā* arose in Kush (‘Ethiopia’ = Nubia) in 853 AG (541/42 AD) and spread throughout the East in 854 AG (542/43 AD).⁸³

ix) *Chronicon miscellaneum*

A Syriac chronicle that ends in 724 AD also dates the “first plague” (*mawṭānā qadmayā*) to 854 AG (542/43 AD), that is the sixteenth year of Justinian.⁸⁴

x) *Chronicle of Séert*

According to the *Chronicle of Séert*, this plague (*al-mawṭān*) lasted for three and one-half years. The *Chronicle of Séert* states merely that the plague (*wabā*) spread throughout Persia, India, and Abyssinia (*al-Habasha*).⁸⁵

⁸⁰ *The Chronicle of Zachariah of Mitylene*, p. 313.

⁸¹ The Chronicle of Zuqnān/Harrak, Part III, p. 1.

⁸² Morony 2007, p. 62.

⁸³ Ibid.

⁸⁴ *Chronicon miscellaneum*, CSCO 3, p. 143 (text), and CSCO 4, p. 111 (translation), cited in Morony 2007, p. 62.

⁸⁵ Cited by Morony 2007, p. 62-63.

5. *Arabic literary sources and traditions*

Arabic sources give hints about plagues, which hit the Red Sea region and Ethiopia. They are particularly indicative of the pestilence and plague in the early Middle Ages, “the Dark Age” of primary sources. They are sources for which we do not have any Ethiopian or European account. The early medical compendium (235 AH / 850 AD), of ‘Alī ibn Rubban aṭ-Ṭabarī, mentions that a plague originated in the Sudan.⁸⁶

In his influential treatise on the symptoms of the plague in the 14th century AD, the Arabic author Ibn Abī Ḥajalah quotes the distinguished 13th century Egyptian physician Ibn an-Nafis, who had identified the buboes with plague infection in his influential commentary on Ibn Sīnā’s famous medical work, *al-Qānūfiṭ-tibb*. Ibn an-Nafis was told by a certain Shams ad-Dīn al-Ma’ruf who lived in Ethiopia⁸⁷ that plagues often occurred in Ethiopia, where they are called *jaghalab*.⁸⁸ According to a medieval Harari Arabic manuscript on the history of the Muslim sultanate of Shewa, “a famine called *hglab*“ erupted in AH 671, i.e. 1272/3, which is said to have been the cause of the death of “the nobles of Walalah and their sultans” in AH 673, i.e. 1274/5. We are not sure of its relation with the *jaghalab* of Ibn Sīnā. As famine was usually followed by plague, it seems difficult to know where the famine stops and the plague begins. It was probably because of this problem that it was reported by medieval writers as one and the same catastrophe.⁸⁹

The Andalusian writer Ibn Khātimah, the author of an important plague treatise on the Black Death remarks that he heard reports that the provenance of the Black Death was Ethiopia and the Crimea. However, there is no concrete and credible evidence for an Ethiopian origin of the Black Death in contemporary and reliable Egyptian sources.⁹⁰

The *Sūrat al-fil* (“Chapter of the Elephant”) of the Qur’an in relation to the expedition of Abraha against Mecca refers to “the Year of the Elephant,” commonly identified with the date of the Prophet’s birth, AD 570. Although the participation of elephants in the expedition is accepted by historians, the interpretation of birds pelting the army with stones of “baked clay” is apparently a subject of controversy⁹¹. Watt quoting Ibin Ishaq, the early

⁸⁶ Michael 1974, p. 372.

⁸⁷ Ibn Abi Ḥajalah states that this account was related to Ibn an-Nafis by Shams ad-Dīn al-Ma’ruf who lived in Ethiopia. Michael, W. D., 1974, p. 373, note 13.

⁸⁸ Michael 1974, p. 373.

⁸⁹ Pankhurst, *The History of Famine and Epidemics in Ethiopia Prior to the Twentieth Century*, RHC, Addis Ababa, 1985, p. 19. See also Pankhurst, “The History of Famine and Pestilence in Ethiopia prior to the Founding of Gondār”, *JES*, 1972, vol. X, no. 2, p. 42-43.

⁹⁰ *Ibid.* note 14.

⁹¹ Quoted in, Michael 1974, p. 375, the *Sūrat* puts the story as follows: “Hast thou not seen how thy Lord did with the fellows of the elephant? / Did He not put their scheme awry? / He

biographer of the Prophet Muhammed, as a source describes that the expeditionary force of Abraha was routed by a plague.⁹² Bruce, in his 18th century travel account corroborates his reading of El Hameesy's *Siege of Mecca*⁹³: "In conclusion, he [El Hameesy] says, that it was at this time that the small-pox and measles first broke out in Arabia, and almost totally destroyed the army of Abreha."⁹⁴ The collapse of the Himyarite kingdom in the first quarter of the six century AD following the punitive expedition of King Kaléb of Aksum, favoured Mecca to become the biggest and powerful trading city in Arabia to the extent of being labelled as "[mercantile] merchandise Republic" by some Arabists.⁹⁵

Dols remarks that such a date and location for a plague outbreak are entirely possible because plague is considered to have originally come from Ethiopia and may have been carried to Arabia by the Ethiopian army.⁹⁶ Later Muslim texts do not identify the annihilation of the Ethiopian army with plague affliction. While some traditional writers may have accepted at face value the story about the destruction of the Ethiopian army, Muslim scholars have also suggested that the expedition was afflicted by smallpox. The early biographer of the Prophet, Ibn Ishāq, reported that this was the first appearance of measles and smallpox among the Arabs.⁹⁷

The possibility of a smallpox epidemic is given additional weight by the fact that the plague epidemics, which struck Europe in the late sixth century AD coincided with violent epidemics of small-pox. It appears that the first serious epidemic of smallpox attacked most of continental Europe about the year 570. Yet we cannot be certain that the pestilence was small-pox, for the historical evidence is obviously ambiguous and the vesicular form of plague may simulate small-pox; the pustules contain plague bacilli and this form of plague is highly fatal.⁹⁸

sent upon them birds in flocks, which pelted them with stones of baked clay, and made them like green blades eaten down."

⁹² Watt, *Muhammad at Mecca*, Oxford 1953, p. 13-14.

⁹³ James Bruce, *Travels to discover the source of the Nile, in the years 1768, 1769, 1770, 1771, 1772, and 1773*, in six volumes, Dublin 1790, Vol. II, "and which is also related by several other historians, and mentioned by Mahomet in the Koran...", p. 154.

⁹⁴ Bruce, p. 154.

⁹⁵ Fahd, "Rapports de la Mekke préislamique avec l'Abyssinie: le cas des Ahâbîs" in Fahd (éd.), *L'Arabie préislamique et son environnement historique et culturel, Actes du Colloque de Strasbourg 24-27 juin, 1987*, 1989, p. 539.

⁹⁶ Michael 1974, p. 375.

⁹⁷ Ibid.

⁹⁸ Ibid.

II. The Correlation between Plague, Environmental Stress and Conflict in Ancient Ethiopian History

“What the famine had left, the plague devoured, what the plague left over, the sword finished off.” John bar Penkayē (cited in Morony 2007:85.)

Through centuries of their recurrences, people suffered from plagues and other diseases in the region. But it was not the sole catastrophe, which created havoc to human life in late antiquity: disasters caused by famine, bad weather, and swarms of locusts, and warfare also took their share.⁹⁹ It seems that one problem triggers another. Outbreaks of famine were often accompanied by plague and plague in turn triggered migrations, social conflict and violence. John bar Penkayē is an eyewitness of the 686/87 bubonic plague in Syria and Mesopotamia. His observation is worth mentioning here. Penkayē refers to this alliance of catastrophes, which complicated the life of his compatriots and himself as an “unholy trinity of sword, famine, and plague”¹⁰⁰.

Interestingly the chronology of their occurrence: famine ⇒ plague ⇒ sword fits into what happened in Ethiopian history as it is recorded in different sources. Rubenson, specialist of modern Ethiopian history, analyzes convincingly the relation between environmental degradation and conflict in medieval and modern Ethiopian history. He notes, that “interaction between environmental stress and degradation on the one hand, and social instability and conflict on the other can be postulated, but the correlations are both evasive and complex”.¹⁰¹ It seems that Rubenson was inspired by the analysis of Walford’s for a similar enigma.¹⁰² Here we are adding plague to the list of factors to the decline and collapse of Aksumite Empire. Although it looks evasive to see the rapport of the three problematic factors, we are adopting the same methodology as Rubenson for our analysis of ancient Ethiopia. Generally, rodents are considered as major vectors of plague in world history. We have no serious reference alluding invasion of rodents and rats in ancient Ethiopian history. The only mention of rats’ infestation is an Ethiopian tradition related by Aman Belay.¹⁰³

⁹⁹ Fattovich 1999, p. 2.

¹⁰⁰ Cited in Morony 2007, p. 85.

¹⁰¹ Rubenson 1999, p. 179.

¹⁰² Ibid.

¹⁰³ According to the oral tradition supposedly collected by Aman Belay, in the mid 3rd century, (253E.C.=260/61 AD), during the first year of the reign of king Hezebā Seged (Geza Şeyon), there occurred an earthquake followed by infestation of rats and severe famine. Another year of rats’ infestation, according to the same traditional source, occurred in the mid-5th century. The reigning king of Aksum in 451 E.C. (= 458/59 AD) was Almirsayos. His father a retired king was called Wazeba. This Wazeba is said to have sent an embassy to Alexandria asking for a new metropolitan as the previous one (named Matewos = Matthew) was killed. A new metropolitan was sent to Aksum by Dioscorus, the Patriarch in the Holy See of Alexandria. Before the coming of the appointed Metropolitan to Ethiopia, it is said that Aksum and its

Plague as a Possible Factor for the Decline and Collapse of the Aksumite Empire

If we accept the above tradition, occurrence of rodents' infestation and locust are common phenomenon in Ethiopian history: presumably, pushing the kingdom to prolonged famine. Often, the reported consequences were famine accompanied by social violence or migration. Bard suggests that in the mid-first millennium AD, the Aksumite Empire went through a period of apparent economic stagnation (ca. late fourth-mid sixth centuries). Apparently, Bard and her colleagues' remark concur with the rat and locust infestation of the region.¹⁰⁴ It is almost certain that the major vehicle of the bubonic plague of 541 AD were rodents.¹⁰⁵

The Aksumite Empire was essentially an agricultural economy. The long period of occupation, for about one millennium, of the city of Aksum had had a profound effect on the immediate countryside from which it drew the materials of subsistence. The need for more energy for the Aksumite local industries, manufacturing and household consumption might have gradually eradicated the surrounding hills' forests, which subsequently might have led to ecological disaster.¹⁰⁶

One of the leading proponents of this idea is the American geoarchaeologist/ geomorphologist Butzer. In an influential article published in 1981, he analysed the impact of deforestation. As a result of the need for more woods, the topsoil was left uncovered which subsequently resulted in the acceleration of erosion. This pattern of soil erosion ultimately led to a decrease in soil fertility and a degradation of the local agricultural economy.¹⁰⁷ Difficulties in maintaining the food supplies might have been a significant factor in moving the capital elsewhere. A recent palaeoenvironmental study seems to concur with Butzer's interpretation.¹⁰⁸

A study by Machado and colleagues reveals that in 1000 – 1500 B.P. (= early 6th – early 11th century), degradation can be observed and recorded. Despite the clear difficulties of identifying the share of the impact of natural and human activities in a region with a long agricultural history, “stratigraphical and proxy paleoclimatic data have indicated climate as the main controlling factor responsible for the environmental changes in the Tigray.”¹⁰⁹ Especially,

environs had been swarmed by rats, that were attacking men and animals. The reigning king Almirsayos and his father Wazeba were among the victims of the rats' onslaught. The tradition related by Aman Belay invokes that Almirsayos and his father Wazeba were devoured by the swarming rats. According to a similar tradition collected by the same author, a locust swarm emerged covering one-fourth of the country stretching from Adulis through Aksum. The swarming locusts covered the sky. The day became dark. The locusts devoured everything including the rats and cattle. A storm is said to have swept the locust swarms, dumping them into the Red Sea.

¹⁰⁴ Bard et al. 2000, p. 71.

¹⁰⁵ Keys 1999, p. 25.

¹⁰⁶ Munro-Hay 1991, p. 258-59.

¹⁰⁷ Butzer, *American Antiquity*, vol. 46 (3), 1981, p. 471-95.

¹⁰⁸ Bard 1997, Bard et al. 2000, Machado et al. 1998.

¹⁰⁹ Machado et al. 1998, p. 312.

in the period, classified as the Late Aksumite Phase (450 AD - 750 AD), the capital Aksum shrank rapidly and was surrounded by dwindling villages and hamlets, most of them scattered in an area less than 1 to 3 ha.¹¹⁰ This decline must have occurred around 750 AD.

Although major building activities, settlement and relative aggradations were observed by Bard and Phillipson for the 6th and 7th centuries and after Aksum's military expansion into South Arabia, the abandonment of the capital, Aksum, seems to have been abrupt.¹¹¹ Even if the immediate cause of king Kaléb's war against Himyar is attributed to religion, there are some signs that economic reasons also played an important role as additional push factor. Procopius, in *History of the Wars*, evokes that after the end of the war, the king's army contingent refused to return to Aksum, "but were left behind and remained there because of their desire for the land of the Homeritae; for it is an extremely goodly land."¹¹² Another defection followed when king Kaléb sent a punitive expeditionary force against Abraha (Abramus according to Procopius). Procopius writes: "This army, once there, was no longer willing to return home, but they wished to remain where they were in a goodly land, and so, without the knowledge of their commander, they opened negotiations with Abramus; then when they came to an engagement with their opponents, just as the fighting began, they killed their commander and joined the ranks of the enemy, and so remained there."¹¹³ Does the defection of Kaléb's army indicate an environmental degradation of Aksum and its environs? Later historians like Edward Gibbon seem to repeat Procopius on the mass desertion of Aksumite soldiers staying in Yemen.¹¹⁴ Were the defecting army members evading drought, plague, locusts or rat infested Aksum and its environs in favor of "an extremely goodly land" of Himyar?

The above-mentioned *batsani* Daniel inscription may be suggestive of social chaos in the late Aksumite period. It is reported that in the immediate post-Aksumite period, the whole region to the west of Aksum was hit by drought. This might have encouraged population movement of the Welqayt people, tribes in the Kassela area and the people from the Gash-Setit region, the "Barya" people. There is no plausible hypothesis for the date of *batsani* Daniel's inscription. But it must have been erected before the 9th century AD. If we accept this dating, the conflicts and population movements mentioned in the inscription concurs with a major famine and plague, which hit the country. Bard suggests that possibly there were "increasingly unreliable rainfall patterns" during the 8th century, which reduced the productivity of the land

¹¹⁰ Bard et al. 2000, p. 80.

¹¹¹ Bard, "Environmental History of Early Aksum", 1997, p. 24; Phillipson, *Ancient Ethiopia*, British Museum Press, London, 1998, p. 125.

¹¹² Procopius/Dewing, *History of the Wars*, 1: 20; 2-8, 1914, p. 191.

¹¹³ Procopius/Dewing, *History of the Wars*, 1: 20; 2-8, 1914, p. 191

¹¹⁴ Gibbon, *Histoire du déclin et de la Chute de l'Empire Romain Byzance de 455 à 1500*, p. 162: "...les avantages du climat séduisirent les troupes d'Afrique ...".

Plague as a Possible Factor for the Decline and Collapse of the Aksumite Empire and favoured demographic decline in Aksum and its environs.¹¹⁵ Historical sources also record a famine and plague in AD 831 – 849, which suggests environmental deterioration in the ninth century.¹¹⁶ According to oral tradition collected by Aman Belay, just after the death of Tirda'e Gobez and her husband, in the late 10th century, an occurrence of famine accompanied by an epidemic hit the country for continuous three years. Several people are said to have been killed by the twin catastrophes: famine followed by plague.¹¹⁷ James Bruce who had read and collected several Ethiopian manuscripts also suggests that “The short reign, sudden and unexpected death of the late king Aizor, and the desolation and contagion which an epidemical disease had spread both in court and capital, the weak state of Del Naad who was to succeed Aizor and was an infant. All these circumstances impressed Judith (she is also called by Victor, Tredda Gabez) with an idea that now was the time to place her family upon the throne, and establish her religion by the extirpation of the race of Solomon.”¹¹⁸ It appears that the end of coinage in the mid-7th century AD signals the beginning of the decline of the Aksumite Empire. But it seems improbable that this polity collapsed abruptly. It probably survived for some decades even centuries and finally collapsed as a result of the combined and recurrent pressure of environmental degradation, locust infestation, famine, plague and social chaos. As the *batsani* Daniel inscription suggests, Aksum became a battleground of the emerging ‘kingdoms’ and chieftains which were formerly tributaries of Aksum. This probably happened in the 9th century AD or a little after.

Conclusion

This essay discusses primary sources and suggests a fresh reading of epigraphic, Syriac, Greek, Byzantium textual sources, Arab oral and written traditional sources and Ethiopian oral and textual traditions. Of all the above sources, those Graeco-Byzantine classical texts are the most abundant. These sources attribute the origin of the plague, among others, to Ethiopia. But the occurrence of plague was barely recorded in Ethiopian epigraphic sources. It must be noted that there are very few inscriptions known attributed to the successors of King Kaléb and after. Even their chronology is obscure. A recent archaeological and ethnographic survey in the Feresmay area (central Tigray) by the author of this essay suggests that local tradition also mentions plague as a reason for the abandonment of some possible Aksumite sites in the region. Similar research in some selected Aksumite sites may also reveal why the

¹¹⁵ Bard, “Environmental History of Early Aksum”, 1997, p. 24.

¹¹⁶ Bard et al. 2000, p. 74; Rubenson 1999, p. 179.

¹¹⁷ Aman Belay, p. 399.

¹¹⁸ Bruce, *Travels to discover the source of the Nile, in the years, 1768, 1769, 1770, 1771, 1772, and 1773*, in six volumes, Dublin 1790, Vol. II, p. 167.

ancient sites were abandoned.¹¹⁹ Ethiopia as an entrepôt in the Red Sea trade in the first seven centuries AD and as a commercial ally of the Roman and Byzantine Empires is well recorded.¹²⁰ Wherever or whatever the origin of the plague is, Ethiopia might have been an easy prey to the plague due to its intermediary role between the Red Sea and the Indian Ocean with that of the Mediterranean Sea and the Byzantine world.

Previous studies attempted to show how environmental degradation accompanied by failure of agricultural productivity affected the survival of the Aksumite Empire. But none of the scholars was able to perceive the correlation between environmental degradation, famines, plague, locust infestations, migration and social conflict and there reported results, i.e., migration, intertribal conflict and banditry, which might have accelerated the demise of this civilization. It must be noted that we are not deconstructing the already conventionally accepted factors for the decline and collapse of Aksum. Rather we argue that they were not the only reasons for its collapse. Here in this short exposé, we suggest a new reading of the existing sources and propose a fresh hypothesis for understanding the decline and subsequent collapse of the Aksumite Empire.

Acknowledgements

The author would like to express his appreciation and gratitude to Professor Shiferaw Bekele, Dr. Marie-Laure Derat, Dr. Hailu Habtu and Dr. Derese Ayenachew for reading the draft of this paper (at its early stage) and for their valuable comments. In addition to the above-mentioned scholars, I would like to thank the anonymous reviewers of this essay and Dr. Wolbert Smidt for his interest in the study and for indicating some materials on the palaeoenvironment of northern Ethiopia.

Abbreviations

AAR=*African Archaeological Review*

CIH= *Corpus Inscriptionum Semiticum*, Pars Quatro, *Inscriptiones Himyariticas et Sabaeas continens*, 3 vol. et planches, Paris, Republicae Typographeo, 1889-1932.

CISE=Atti del IV *Congresso Internazionale di Studi Etiopici*, Rome, Accademia Nazionale dei Lincei. Anno CCCLXXI-1974, Problemi attuali di Scienza e di cultura, Quaderno N. 191), Tomo 1, Sessione Storica, Roma, 1974.

ICES=*International Conference of Ethiopian Studies*

JAOS= *Journal of African and Oriental Studies*

¹¹⁹ This research which took place in June 2011 was financed by CFEE, Centre français des études éthiopiennes (French Centre for Ethiopian Studies). A publication on this field survey is in preparation.

¹²⁰ Phillipson 2009, "Aksum, the entrepot, and highland Ethiopia, 3rd-12th Centuries", *Byzantium Trade, 4th -12th Centuries*, the Society for the Promotion of Byzantine Studies, Ashgate Publishing, London; Mango 1996, "Byzantine maritime trade with the East (4th-7th centuries)", *ARAM*, vol. 8, p. 153.

Plague as a Possible Factor for the Decline and Collapse of the Aksumite Empire

JES=*Journal of Ethiopian Studies* (Institute of Ethiopian Studies, Addis Ababa University)

JSS=*Journal of Semitic Studies*

NTES=*New Trends in Ethiopian Studies*

PUF=Press Universitaire de France

RHC=Relief and Rehabilitation Commission (Ethiopia, Addis Ababa)

RIÉth=*Recueil des Inscriptions de l'Éthiopie (des périodes pré-Axoumite et Axoumite)*. Académie des Inscriptions et Belles-Lettres. Tome I, Les Documents, 1991)

Bibliography

AMAN Belay (2000 E.C/2008), *Mäshēfä Abrihit* (in Amharic).

Francis ANFRAY (1974), « Deux villes Axoumites : Adoulis et Matara », *CISE*, Rome, Accademia Nazionale dei Lincei no. 191, pp.745-765, pl. I-VI.

Francis ANFRAY (1981), “La civilisation d’Axoum du Ier au VIIe siècle”, *Histoire Générale de l’Afrique, II. Afrique ancienne*, directeur de volume: G. MOKHTAR, Paris, 387.

Kathryn A. BARD (1997), “Environmental History of Early Aksum” in Kathryn A. BARD (ed.), *The Environmental History and Human Ecology of Northern Ethiopia in the Late Holocene, Preliminary Results of Multidisciplinary project*, Napoli.

Kathryn A. BARD – Mauro COLTORTI – Michael C. DIBLASI – Francesco DRAMIS – Rodolfo FATTOVICH (2000), “The Environmental History of Tigray (Northern Ethiopia) in the Middle and Late Holocene: A Preliminary Outline”, *AAR*, vol. 17, No. 2.

Sheila BOARDMAN (1999), “The agricultural foundation of the Aksumite Empire, Ethiopia: An interim Report”, in: Marijke VAN DER VEEN (ed.), *The Exploitation of Plant Resources in Ancient Africa*, Kluwer Academic/Plenum Publishers, New York, 137-47.

James BRUCE of Kinnaird (1790), *Travels to discover the source of the Nile, in the years, 1768, 1769, 1770, 1771, 1772, and 1773*, in six volumes, Vol. II, Dublin (second edition Edinburgh 1790).

Karl W. BUTZER (1981), “Rise and fall of Axum, Ethiopia: A Geo-Archaeological Interpretation,” *American Antiquity* 46 (3): 471-95.

Lionel CASSON (ed.) (1989), *The Periplus Maris Erythraei*, text with introduction, translation, and commentary by Lionel CASSON, Princeton University Press.

Jean-Baptist CHABOT (ed.) (1901), *Chronique de Michel le Syrien; patriarche Jacobite d’Antioche (1166-1199)*, étudié pour la première fois et traduit en français, Paris, t. 2, pp. 235-36 (Reprint anastatique culture et civilisation, 1963.)

Vassilios CHRISTIDES (1989-1993), “New Light in Navigation and Naval Warfare in the Eastern Mediterranean, the Red Sea and the Indian Ocean (6th-14th centuries AD),” *Nubica* 111/1.

Rossano CIAMPALINI - Paolo BILLI - Giovanni FERRARI - Lorenzo BORSELLI (2008), “Plough marks as a tool to assess soil erosion rates: A case study in Axum (Ethiopia)”, *Catena* 75, p. 18-27.

- Carlo CONTI ROSSINI (1909), “Les listes des rois d’Aksoum”, *Journal Asiatique*, serie 10: 14/2.
- Catherine A. D’ANDREA – Andrea MANZO – Michael J. HARROWER - Alicia L. HAWKINS (2008), “The Pre-Aksumite and Aksumite Settlement of NE Tigray, Ethiopia”, *Journal of Field Archaeology*, vol. 33, 2008, p. 151-176.
- Iain DARBYSHIRE – Henry LAMB – MOHAMMED Ummar (2003), “Forest clearance and regrowth in northern Ethiopia during the last 3000 years”, *The Holocene*, vol. 13, no. 4, p. 537-546.
- François DE BLOIS (1992), “The Four great kingdoms” in the Manichaean Kephala”, *Bibliotheca Nubica* 3, *Orbis Aethiopicus* I, ed. by Piotr SCHOLZ, p. 221-230.
- Michael W. DOLS (July - Sep., 1974), “Plague in Early Islamic History”, *JAOS*, vol. 94, No 3, 371-83.
- EVAGARIUS (2000), *The Ecclesiastical History of Evagrius Scholasticus*, translated with an introduction by Michael WHITBY, Liverpool University Press.
- Toufic FAHD (1989), “Rapports de la Mekke préislamique avec l’Abyssinie: le cas des Ahâbîs”, in: Toufic FAHD (éd.), *L’Arabie préislamique et son environnement historique et culturel, Actes du Colloque de Strasbourg 24-27 juin, 1987*, p. 539-48.
- Rodolfo FATTOVICH (1999), “The development of urbanism in the northern Horn of Africa in ancient and medieval times”, in: Paul SINCLAIR (ed.), *The development of urbanism in Africa from global perspective*, www.arkeologi.uu.se.
- Rodolfo FATTOVICH – Kathryn A. BARD – Lorenzo PETRASSI – Vincenzo PISANO (2000), *The Aksum Archaeological Area: A Preliminary Assessment*, Istituto Universitario Orientale, Napoli.
- Niall FINNERAN (2007), *The archaeology of Ethiopia*, London: Routledge, 312pp.
- Charles FRENCH – Federica SULAS – Marco MADELLA: “New geoarchaeological investigations of the valley systems in the Aksum area of northern Ethiopia”, manuscript draft (forthcoming, *Catena*).
- Iwona GAJDA (1997), *Himyar gagné par le monothéisme (IVe-VIe s. chrétienne): Ambitions et ruine d’un royaume de l’Arabie méridionale antique*. Thèse de doctorat nouveau régime, vol. II (Annexe), Aix-en-Provence; for a recent publication of her dissertation see Iwona GAJDA, 2009, *Le royaume de Himyar à l’époque monothéiste*, Mémoire de l’Académie des Inscriptions et Belles-Lettres, tome 40, Paris.
- V. GRUMEL (1958), *Traité d’Études Byzantines: La Chronologie I*, Bibliothèque Byzantine, PUF.
- E. JEFFREYS – M. JEFFREYS – Roger SCOTT (1986), *The Chronicle of John Malalas: a translation*, Melbourne, 251-69.
- KIFLÄ GIYORGIS – KIDANÄ WÄLD Kiflé (1948 E.C. / =1956), *Mäshfä Säwasw Wägəś Wämäzgäbä galat haddis*, ed. by DĀSTA Tākle Wäld, Addis Abāba.
- David KEYS (1999), *Catastrophe: An Investigation into the Origins of the Modern World*, Arrow Books.
- Henry F. LAMB – Richard C. BATES – Paul V. COOMBES – Michael H. MARSHALL – MOHAMMED Umer – Sarah J. DAVIES – ESHETE Dejen

- Plague as a Possible Factor for the Decline and Collapse of the Aksumite Empire
- (2007), “Late Pleistocene desiccation of Lake Tana, source of the Blue Nile”, *Quaternary Science Reviews*, vol. 26, 287-99.
- Wolf LESLAU (1987, 1991), *Comparative dictionary of Ge'ez (Ge'ez-English / English-Ge'ez)*, Wiesbaden: Harrassowitz.
- Lester K. LITTLE (2007), “Life and Afterlife of the First Plague Pandemic” in L. K. Little (edit.), *Plague and the End of Antiquity: The Pandemic of 541-750*, Cambridge: Cambridge University Press.
- Maria J. MACHADO Alfredo PÉREZ-GONZALES & Gerard BENITO (1998), “Palaeoenvironmental Changes during the Last 4000 yr in the Tigray, Northern Ethiopia”, *Quaternary Research* 49, 312-21.
- Maria Mundell MANGO (1996), “Byzantine maritime trade with the East (4th-7th centuries)”, *ARAM*, vol. 8, 139-63.
- Michael H. MARSHALL – Henry F. LAMB – Sarah J. DAVIES – Melanie J. LENG – ZELALEM Kubsa – MOHAMMED Umer – Charlotte BRYANT (2009), “Climatic change in northern Ethiopia during the past 17,000 years: A diatom and stable isotope record from Lake Ashenge”, *Palaeogeography, Palaeoclimatology, Palaeoecology*, vol. 279, 114-27.
- J. R. MARTINDALE (ed.) (1992), *The Prosopography of the Later Roman Empire (PLRE)*, vol., IIIB, AD527-641, Cambridge: Cambridge University Press.
- Martyre de Saint Aréthas et des Ses Compagnons* (Le), BHG 166, 2007, French critical edition, translation by Marina DETORAKI – Joëlle BEAUCAMP, (Monographie 27), Paris.
- Joseph W. MICHELS (1994), *Regional political organization in the Axum-Yeha area during the Pre Axumite and Axumite eras*, in Claude LEPAGE (ed.), *Etudes éthiopiennes 1*: 61-80. Paris: Société française pour les études éthiopiennes.
- Joseph W. MICHELS (2005), *Changing Settlement Patterns in the Aksum-Yeha Region of Ethiopia: 700 BC–AD 850*, Cambridge (BAR International Series 1446, Cambridge Monographs in African Archaeology), 64.
- Michael G. MORONY (2007), “For Whom Does the Writer Write? The First Bubonic Plague Pandemic According to Syriac Sources”, in: L. K. LITTLE (ed.), *Plague and the End of Antiquity: The Pandemic of 541-750*, Cambridge University Press.
- Stuart C. MUNRO-HAY (1982), “The foreign trade of Aksumite port of Adulis,” *Azania*, vol. XVII, p. 107-125.
- Stuart C. MUNRO-HAY (1991), *Aksum: An African Civilisation of Late Antiquity*, Edinburgh University Press.
- Caroline NEGUSSIE (1994), “Aksum and Matara: A Stratigraphic Comparison of Two Aksumite Towns”, in: Harold Golden MARCUS (ed.), *New Trends in Ethiopian Studies. Papers of the 12th International Conference of Ethiopian Studies, Michigan State University, 5–10 September 1994*, Lawrenceville, NJ 1994, vol. I, 45-83.
- Denis NOSNITSIN, “Aṣe”, *Encyclopaedia Aethiopica*, vol. 1, 2003, Wiesbaden: Harrassowitz, p. 364f.
- Jan NYSSÉN – Jan MOEYERSONS – Jean POESEN – Jozef DEEKERS – MITIKU Haile (2002), “The environmental significance of the remobilization of

- ancient mass movements in the Atbara-Tekeze headwaters, Northern Ethiopia”, *Geomorphology*, vol. 49, p. 303-322.
- Jan NYSSSEN – Jean POESEN – Jozef DEEKERS – MITIKU Haile – A. LANG (2004), “Human impact on the environment in the Ethiopian and Eritrean highlands-a state of the art”, *Earth-Science Reviews*, vol. 64, 273-320.
- OGBAGHEBRIEL Beraki – L. BRANCACCIO – Gilberto CADERONI – Mauro COLTORTI – Francisco DRAMIS – MOHAMMED M. Ummer (1998), “The Mai Maikden sedimentary sequence: a reference point for the environmental evolution of the Highlands of Northern Ethiopia”, *Geomorphology*, 1998, vol. 23, p. 127-138.
- Richard PANKHURST (1972), “The History of Famine and Pestilence in Ethiopia prior to the Founding of Gondär”, *JES*, vol. X, no. 2, p. 42-43.
- Richard PANKHURST (1985), *The History of Famine and Epidemics in Ethiopia Prior to the Twentieth Century*, RHC, Addis Ababa.
- David W. PHILLIPSON (1998), *Ancient Ethiopia: Aksum its Antecedents and Successors*, British Museum Press, London.
- David W. PHILLIPSON (2000), *Archaeology at Aksum, Ethiopia 1993-7*, vols. I-II, London (Memoirs of the British Institute in Eastern Africa: Number 17, Report 65, Research Committee of the Society of Antiquaries of London).
- David W. PHILLIPSON (2000), “Aksumite Urbanism”, in: David M. ANDERSON – Richard RATHBONE (ed.) *Africa’s Urban Past*, Oxford: James Currey.
- David W. PHILLIPSON (2009), “Aksum, the entrepot, and highland Ethiopia, 3rd-12th Centuries”, *Byzantium Trade, 4th -12th Centuries*, the Society for the Promotion of Byzantine Studies, London: Ashgate Publishing.
- PROCOPIUS, *History of the Wars* (1914), ed. by H. B. DEWING, Books I & II, with an English translation, London – Cambridge, Mass. – London (repr. Harvard University Press-Heinemann 1961).
- Wim RAVEN (1988), “Some Early Islamic Texts on the Negus of Abyssinia,” *JSS*, autumn 1988, vol. XXXIII/2, p. 197-218.
- Recueil des inscriptions de l’Éthiopie des périodes pré-axoumite et axoumite* (RIÉth.), ed. by Étienne BERNAND – Abraham J. DREWES – Roger SCHNEIDER, with an introduction by Francis ANFRAY, t. 1: *Les Documents*, Académie des Inscriptions et Belles-lettres, Paris: De Boccard, 1991; t. 2: *Les Planches*, 1991; t. 3: *Translations and commentaires A. The Greek Inscriptions*, by Étienne BERNARD, Paris: De Boccard 2000.
- Christian ROBIN (1992), “Guerre et épidémie dans les Royaumes d’Arabie du Sud, d’après une inscription date (IIe siècle de l’ère chrétienne)”, *Académie des Inscriptions et Belles-Lettres, Comptes Rendus des séances de l’année 1992 (Janv.-Mars)*, Paris: de Boccard.
- Sven RUBENSON (1991), “Environmental Stress and Conflict in Ethiopian History: Looking for Correlations”, *Ambio*, vol. 20, No. 5: *Environmental Security*, 179-82.

- Plague as a Possible Factor for the Decline and Collapse of the Aksumite Empire
- Peter SARRIS (2007), “Bubonic Plague in Byzantium: The Evidence of Non-Literary Sources”, in: L. K. LITTLE (ed.): *Plague and the End of Antiquity: The Pandemic of 541-750*, Cambridge: Cambridge University Press.
- Federica SULAS – Marco MADELLA – Charles FRENCH (2009), “State Formation and Water Resources Management in the Horn of Africa: The Aksumite Kingdom of the Northern Ethiopian Highlands”, *World Archaeology*, Vol. 41, no. 1, p. 2-15.
- TADESSE Tamrat (1972), *Church and State in Ethiopia: 1270-1527*, Oxford: Clarendon Press.
- The Chronicle of Zuqnān / Harrak* Parts III and IV AD 488-775, translated from Syriac with notes and introduction by Amir HARRAK, Toronto 1999 (Pontifical Institute of Medieval Studies, Medieval Sources in Translation 36).
- THEOPHANES (1883), *Theophanis Chronographia*, ed. by Carlos DE BOOR, Leipzig: B.G. Teubner.
- TSIGE Gebru – ZEWDU Eshete – HUANG Yongsong – TADDESE Woldemariam – Nikki STRONG – MOHAMMED Umer – Michael DIBLASI – Valery J. TERWILLIGER (2009), “Holocene palaeovegetation of the Tigray plateau in northern Ethiopia from charcoal and stable organic isotopic analyses of gully sediments”, *Palaeogeography, Palaeoclimatology, Palaeoecology*, vol. 282, p. 67-80.
- William Montgomery WATT (1953), *Muhammed at Mecca*, Oxford.
- YOHANNES Gebre Selassie (2003), *Présentation critique des sources épigraphiques, numismatiques, littéraires et orales sur le règne de Kaléb, roi d’Ethiopie (VIe siècles)*, mémoire de maîtrise, Université Paris I Panthéon Sorbonne, Octobre 2003.
- YOHANNES Gebre Selassie – HILUF Berhe (2009), “Aksums’s Urban Past: a Reappraisal of its Rise and Decline from Archaeological, Written Evidence and Oral Tradition”, Paper read at the 17th ICES, Addis Ababa University, held 2nd -5th Nov. 2009 (see abstracts compiled by Aklilu Yilma, November 2009, p. 200-201).
- ZACHARIAH (also known as PSEUDO-ZACHARIAH): *The Chronicle of Zachariah: Syriac Chronicle known as that of Zachariah of Mitylene* (supposed author: Zachariah Rhetor, Bishop of Mitylene); Book X, translation by F. J HAMILTON and Edward W. BROOKS, London 1899.