THE BEGINNING OF TIME? EVIDENCE FOR CATASTROPHIC DROUGHT IN BARINGO IN THE EARLY NINETEENTH CENTURY

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Abstract: New developments in the collection of palaeo-data over the past two decades have transformed our understanding of climate and environmental history in eastern Africa. This article utilizes instrumental and proxy evidence of historical lake-level fluctuations from Baringo and Bogoria, along with other Rift Valley lakes, to document the timing and magnitude of hydroclimate variability at decadal to century time scales since 1750. These data allows us to construct a record of past climate variation not only for the Baringo basin proper, but across a sizable portion of central and northern Kenya. This record is then set alongside historical evidence, from oral histories gathered amongst the peoples of northern Kenya and the Rift Valley and from contemporary observations recorded by travellers through the region, to offer a reinterpretation of human activity and its relationship to environmental history in the nineteenth century. The results reveal strong evidence of a catastrophic drought in the early nineteenth century, the effects of which radically alters our historical understanding of the character of settlement, mobility and identity within the Baringo-Bogoria basin.

Keywords: Lake-levels; Baringo; Bogoria; palaeoecology; oral history; drought

The environmental history of the northern Rift Valley, within which the Baringo-Bogoria basin sits, is relatively well understood from the mid-nineteenth century and through the twentieth century. A variety of historical research in this region, mostly conducted during the 1970s and 1980s, has combined travellers' accounts, archival documentary sources, and detailed oral histories collected amongst Kalenjin-speaking Pokot and Tugen, and Maasai-speaking Il Chamus and Samburu.[1] Oral histories from neighbouring groups, principally Turkana and Dassanech to the north and north-west,[2] and Rendille, Gabbra and Oromo to the north-east,[3] has corroborated and elaborated a clearer understanding of environmental change in northern Kenya. In addition, histories have been recovered of groups who once occupied lands here but no longer do, for example the pastoralist Maasai sections who in the nineteenth century grazed their animals in the Rift Valley to the north of Nakuru and above the escarpment on Laikipia to the north-east. This area was also briefly occupied by Maasai sections under the *pax Britannica*, which set aside part of Laikipia as a Northern Maasai Reserve up until 1911.[4]

Accounts of all these events and the related movements of peoples in and around Baringo have allowed us to deepen the historical picture and set the northern Rift Valley experience from the nineteenth century in a wider context.[5]

Mobility and the territorial struggles between pastoralist groups for hegemony over fragile resources has been the central theme of this historical reconstruction for the nineteenth century,[6] whilst in the twentieth century the impact of colonial controls in restricting pastoralist movements and maintaining boundaries between groups is the dominant issue.[7] There has been a tendency in these reconstructions to see the nineteenth century as a time of pastoralist ascendancy and strength on the savannahs, in contrast with the rising economic and political dominance of agriculturalists in the surrounding highlands during the twentieth century. The shift in power within the Baringo-Bogoria basin was mediated through changing relations between herders and cultivators, linking pastoralists throughout the region with agriculturalists in niche areas, such as the Kerio Valley and the fertile alluvial flats at the south end of Lake Baringo. Augmenting their production with irrigation technology, farmers at Lake Baringo and along the Kerio river played a pivotal role in wider regional subsistence, producing grain and legumes for exchange with pastoralists, and acting as places of refuge in times of drought and disruption on the savannah.[8]

Two connected environmental questions run through this now considerable body of historical scholarship: The first is the impact of environmental events on human behaviour at moments of crisis – drought, famine, locust plague, and flood; the second is the longer-term impact of human activity on the savannah ecology of the Rift Valley. The first question is important because key moments of crisis have been used to calibrate the chronology of Rift Valley history, drought and famine in particular being given explanatory power in determining the causes of displacement, migration, pauperisation, and even conflict. The second question has significance because the Baringo-Bogoria basin has long been recognised as a highly degraded environment, with assumptions being made that much of the pressure of ecological stress here has been driven by human action: rising human populations, becoming increasingly sedentary on the lowland savannahs and escarpment rangelands, and enlarged herds of livestock, both grazers and browsers, are typically described as the causes of Baringo's degradation during the twentieth century.

This essay offers a reassessment of the historical evidence on environmental change in the Baringo-Bogoria basin, looking beyond the mid-nineteenth century. By

reviewing in the opening part of this essay a range of recently published palaeo-data on climatic and environmental changes, gathered from scientific studies conducted in and around the Baringo-Bogoria basin over the past two decades, and then in the second section setting this alongside the known historical data, much of it in the form of oral histories collected by the early 1990s, correlations and new historical interpretations can be made between these quite different forms of evidence. This highlights a major and prolonged period of drought as having occurred in the early part of the nineteenth century. The implications of this episode, here termed "The Great Catastrophe," are examined in the third and concluding section, where a fundamental reassessment of the environmental history of the Baringo-Bogoria basin is offered.

Palaeo-data

Whereas there is an absence of documentary evidence on climate in eastern Africa before the mid-nineteenth century, and while terrestrial archives of climate variability that offer absolute annual indicators for other parts of the world, for example dendrochronology, are not well-adapted for the seasonal variations of eastern Africa, the numerous lake basins in the region provide potentially revealing "sedimentary archives." Palaeoclimatologists and palaeoecologists have long recognised that these lake sediments hold important evidence on environmental change. Accurate dating of these palaeoenvironmental archives has often proved elusive, however, because of a range of technical challenges. Reviewing these challenges, Verschuren has observed that those lakes which are most sensitive to climate changes are also those most likely to have been disrupted by desiccation or erosion. Further, in eastern Africa it is very rare to find sediment records with annual lamination, which elsewhere have provided a chronological precision to climate reconstruction. There are also difficulties in establishing clear relationships with other identifiable climatic variables, and a lack of any proxy evidence of past changes in temperature.[9] As Tierney et al summarize, "this uncertainty can make the identification of shared trends between different site archives challenging, especially within the time frame of the past millennium." [10] Despite this caution, palaeoclimatologists have made considerable progress in refining the analysis of these sedimentary archives over recent years, moving toward the calibration of dates within a decadal range for specific sites, and then seeking to establish correlations between sites. Lakes Baringo and Bogoria have both featured in this research, while data from other

Rift Valley lakes, including nearby Nakuru, Elementeita and Naivasha, can be correlated to allow more elaborate interpretations. These findings now allow us to describe a broad chronology of environmental change, based on the palaeo-data.

Looking over the past millennium, researchers now broadly agree that the climate of inland eastern Africa, normally affected primarily by Indian Ocean weather systems, experienced a period of drought between approximately 1000 and 1250, followed by a gradual transition toward wetter conditions, culminating in peak pluvial conditions from about 1700 to 1750, this being followed by an abrupt transition back toward drier conditions to the end of the eighteenth century and beyond.[11] Within the drier phase experienced since 1750 there has, however, also been marked variability. The analysis that follows is principally concerned with the extremes of that variability since 1750.[12]

The continuous instrumental lake-level record from Naivasha over the twentieth century, as well as more fragmentary lake-level data from the hyper-saline lakes of Bogoria, Turkana, Nakuru and Elementeita, all indicate generally high lake levels at the start of the twentieth century – lakes Naivasha and Turkana both reached their peak in 1894[13] - and a prolonged lowstand between about 1945 and 1967.[14] The sediment properties of several of these lakes also reveal two severe droughts in the nineteenth century. The most recent of these, occurring in the 1870s, is reckoned to have been a severe drought of regional significance.[15] The lowering of lake level at Bogoria and the drying of Lake Nakuru at this point in the late nineteenth century fits with "reconstructed and historically recorded lake-level data from other lakes in the nearby Naivasha basin."[16] Lakes Naivasha, Olodien and Sonachi are all connected hydrologically, and all show a markedly low level during the 1870s, rising again in the early 1880s to reach their highest yet recorded levels around 1900.[17] This pattern is less clearly defined at the shallower Lake Elementeita, where the lake sedimentological signature has been disturbed by several subsequent droughts and associated desiccation.[18] Despite the problems with the Elementeita evidence, low lake levels across the central and northern Rift Valley strongly suggests a severe drought affected this part of eastern Africa in the 1870s.

The second, and earlier severe drought that emerges from the palaeoecological evidence occurs in the late eighteenth to early nineteenth centuries, that is c.1800, and is the worst drought to appear **anywhere** in the historical record for eastern Africa. This large-scale and prolonged episode was identified in historical climate analysis published by Nicholson in the 1990s, though the dating was then less precisely understood.[19] A

review of lake-level palaeo-data, published in 2004 by Verschuren, first confirmed the extent of the correlation across the wider region.[20] Using the then best-dated Naivasha lake-level reconstruction as reference frame, Verschuren labelled this most recent episode of extreme drought (i.e., a severity of drought unparalleled in historical times), as 'Naivasha Drought 1 (ND1)'. By 1800, the northeast sector of Lake Naivasha had dried up, before a brief episode (1830s) saw the lake fall completely dry and Crescent Island Crater become so shallow (<5m) that submerged macrophytes grew across the crater floor.[21] According to De Cort et al, this severe drought at the beginning of the nineteenth century is clearly signalled in the evidence from lakes Bogoria, Nakuru, and Elementeita,[22] consistent with the earlier conclusion by Bessems et al. "that it seems to have been widespread in East Africa."[23] But the most dramatic indication of this drought comes at Lake Baringo, just to the north of Bogoria, where the sedimentary record clearly shows that the lake dried up completely.[24] This coincided also with the drying up of the Loboi swamp, lying between Lake Baringo and Lake Bogoria.[25]

Recent palaeoecological research on Lake Baringo itself, published by Bessems et al, suggests a narrowing of the date range for this event to between 1801 and 1826, with the desiccation phase thus possibly spanning two decades, followed by a relatively rapid recovery of lake water levels.[26] The Bessems study used evidence from Baringo alongside that from two lakes in western Uganda, Chibwera and Kanyamukali. These three shallow lakes all provide evidence of complete desiccation at the same time. "These results add to an accumulating body of palaeo-environmental data revealing a prolonged period of extreme drought in equatorial East Africa about 200 years ago", write Bessems et al. They conclude that "the climatic anomaly of reduced rainfall responsible for this drought was at least sub-continental in scale".[27]

Their claim is widely supported by other evidence. Perturbations of a similar character in the sediment record for this date are also apparent from all four lakes in the Naivasha area,[28] and possibly also from Lake Turkana.[29] Further afield, the same signature is found from sites as far-ranging as Lake Hayq in Ethiopia,[30] Lake Challa,[31] Lake Victoria,[32] and several crater lakes in western Uganda.[33] While researchers acknowledge difficulties in correlating other historic events from lake sediments across the region, it is striking that the c.1800 drought appears to be unchallenged in any of the current available records.[34] We can therefore with some confidence point to this event as the most severe regional drought that eastern Africa experienced in the last 750 years – an event of unprecedented severity and regional scope compared with historical climate

extremes. We cannot be absolutely sure of its duration, but it is likely to have spanned many years - possible two decades - and its impact on the human and animal communities affected would therefore have been devastating. This was far worse than any drought or famine we have seen in eastern Africa in more recent times.

Further discussion of the severe impact of regional drought in the Baringo-Bogoria basin comes from Kiage and Liu, who examined the evidence for climate change and land degradation in the area after 1650 to be found in pollen, fungal spores, and microscopic charcoal records from Lake Baringo. This revealed a sharp drop in the major fungal spore taxa in the sediments correlating to the period 1750 to 1830, pointing toward a severe and prolonged episode of desiccation. "One of the most conspicuous characteristics of that period," write Kiage and Liu, "is the near absence of *Sporormiella*-type fungal spores", indicating a temporary disappearance of all herbivores – domestic and wild - from the area of the lake.[35] The exceptionally low concentrations and low percentages of Poaceae and Cyperaceae pollens before 1830 indicate a dramatic loss of vegetational cover and absence of cultivation. *Sporormiella* fungal spores again appear in the record after 1830, along with an "unprecedented increase in microscopic charcoal," indicating a rapidly growing and greatly enlarged presence of human and livestock populations in the years following the prolonged drought.[36]

Lake Baringo is a shallow terminal lake with large drainage basin. High rainfall in its upstream catchment drains into the lake, the two main rivers being the Perkerra and Molo, both rising on the Mau escarpment far to the south. The Endau and Chemeron rivers run into the lake from the Kamasia Hills, to the west, but neither is perennial. The rivers Mukatan and Ol Arabel drop into the lake from the Laikipia escarpment to the east. Both these rivers are also ephemeral, but, like the Endau and Chemeron, they carry considerable quantities of water to the lake when in spate after heavy rains. An episode resulting in the complete drying of Lake Baringo therefore implies not only high evaporation rates, but also a widespread failure in rains across three different highland zones covering a catchment of some 6200 km2.[37] Kiage and Liu thus interpret these transitions as indicating a major and prolonged drought in the early nineteenth century, driving people and their livestock to migrate out of the area for a period, only for them to return with a more intensive pastoral and agricultural economy after 1830, in which maize cultivation would increasingly appear.[38]

Oral histories

Documentary sources on drought and famine in eastern Africa from the early nineteenth century are exceedingly rare, and none provide direct evidence to support any hypothesis of a regional environmental catastrophe. A typical example, frequently cited by historians, is a letter of 1811 from Ras Walde Sellase, in Ethiopia's highlands, far to the north of the Baringo-Bogoria basin, to the English traveller Henry Salt, in which he laments: "Locusts have devoured my country. There is a drought. I had intended to make a [military] campaign, but I remained."[39] Such fragments are tantalising, allowing us to establish a date for a location and an event – a locust plague and drought in central Ethiopia in 1811 – but nothing more.

Accordingly, historians of eastern Africa have looked to oral history for evidence of environmental change. The boldest attempt to utilise oral sources in the reconstruction of environmental histories for the region was made by a group of Uganda-based historians, led by J.B. Webster, who in 1979 published a major work on the chronology of migration and drought in the interlacustrine region.[40] Drawing together scholarship on the many Lwo polities of central and northern Uganda, whose territories lay in the vicinity of the Nile river, and the kingdoms of southern Uganda, clustering between Lakes Edward, Albert and Victoria, Webster and his colleagues diligently worked to compile king-lists and dynastic charts against which they could plot incidents of drought. Triangulating between the oral accounts, they looked for corroboration of these disasters in the traditions, and then looked for further evidence in local histories of the scale and character of the reported drought.[41] Finally, Webster's methodology involved use of evidence from the Nilometer at Rodah, based on the assumption that low readings at Rodah would likely imply failed rains in the White Nile catchment areas in Uganda and so serve as an indicator of drought – although this element of the work proved to be deeply flawed as insufficient account was taken of the effects of periodic fractures and displacements of the measuring scale at Rodah.[42]

Despite the acknowledged limitations of Webster's work, palaeo-researchers have made attempts to use the findings in correlation with the palaeo-data. In particular, they have noted Webster's identification of a major drought and famine in the late eighteenth century, dated to the 1780s, named *Laparanat*.[43] Interpretation the oral histories, Webster claims that "The evidence for a late-eighteenth century famine in the north [of Uganda] is conclusive'.[44] The *Laparanat* famine is identified in eleven separate sets of traditions, and although there is considerable contradiction about its dating across these sources,

Webster settles upon a likely date for *Laparanat* of 1787. Taking this then one step further, Webster makes a bold attempt to connect this event to other traditions, from the kingdoms to the south, of a famine occurring later (between 1787 and 1830, by Webster's reckoning), that he also names *Laparanat*.[45]

Palaeo-researchers have been sceptical about the reliability of this evidence for a connection between the two *Laparanat's*, and have accordingly been hesitant to use the dating. They are right to be cautious. Webster's methodology necessarily made assumptions about the uncontested character, regularity, and authenticity (or "truth") of oral histories, in order to establish dates for past droughts. Few historians would now accept the premises loaded into Webster's study - and many even at the time doubted the veracity of such an approach.[46] Webster assumes that fixed-range generations can be established and projected back in time, apparently indefinitely: for the Lwo polities Webster takes each generation to be of 27 years duration (with 12 years allowed for each brother succession), and is prepared to push this back to the eleventh century AD.[47] This gives an appearance of precision in Webster's dating that neither social and political reality, nor shifting environmental context can sustain. As another historian politely but firmly observed in 1982: "[I]n view of the work done on age organisations elsewhere [in eastern Africa], stressing their actual irregularity, their multiplicity of function, and the way in which they are manipulated to produce an illusion of stability, the sceptical outsider might reasonably ask that regularity over a long period be demonstrated rather than assumed."[48]

What sense, then, do we make of the *Laparanat* droughts identified by Webster? Dismissing Webster's overly-precise dating, and leaving aside the dubious measurements from Rodah, we know from oral histories that *Laparanat* – meaning "the long, dry time" – does feature prominently in the history of those peoples in area to the west and south-west of Lake Turkana. Oral histories among these communities place *Laparanat* sometime toward the end of the eighteenth or early nineteenth century.[49] This broadly correlates with the evidence of desiccation from Baringo in the early nineteenth century, the result of a period of aridity that certainly began in the late eighteenth century. Oral histories of severe drought in south-western Uganda from the early nineteenth century (also termed *Laparanat* by Webster), are now confirmed by findings from other shallow lakes in that area.[50] Thus, these two severe droughts do indeed fall within the range of "The Great Catastrophe," though there is no evidence that as yet directly connects them in the way proposed by Webster.

Another initiative intended to establish a historical chronology for environmental events focuses on the *Gada* calendar of the Borana peoples, to the north-east of the Baringo-Bogoria basin. Climate research now suggests that because of Indian Ocean influences, this area more regularly shares environmental characteristics with the Baringo-Bogoria basin, than areas to the west that are affected by the fluctuations of the Congo-Air Boundary.[51] The Borana *gada* timeline used by the communities inhabiting this area is based on a system of social organization and transfer of power (each *gada* last for eight years) between five patri-classes, called *gogessa* by the community. Borana are able to recall events corresponding to a 40-year cycle when the same *gogessa* returns to power, but these cycles are believed to repeat. Using oral histories that deploy the *gada* timeline to reconstruct the impact of disasters associated with floods, epidemics, droughts and famine on the ancient *tula* well systems in southern Ethiopia between 1560 and 1950, Tiki and colleagues[52] have been able to reconstruct a detailed chronology that identifies multiple environmental events. To corroborate the oral history of the impact of disasters on *tula* wells, Tiki et al used other sources on regional climatic change. This method produced a strong positive correlation with evidence on the collapse and disuse of wells, but its broader applicability for dating environmental events remains unclear. However, the three *gada* periods at the beginning of the nineteenth century, Saaqoo Dhadacha (1808-1816), Jilo Nencoo (1816-24), and Sokoore Anna (1824-1832), do indicate a prolonged period of drought and famine on a regional scale, Saaqoo Dhadacha being described as "the worst drought for more than forty years", while Sokoore Anna also saw severe cattle epidemics.[53] Just as with the evidence from Uganda, it is apparent that the *gada* calendar reveals a drought of regional significance at this time, though it gives us little detail as to its ramifications.

What of oral histories gathered amongst peoples whom we know occupied the Baringo-Bogoria basin and its environs from the mid-nineteenth century onwards - peoples who might have been directly affected by the drying of Lake Baringo and the prolonged drought that caused it? A variety of traveller's records and European missionary sources from the mid-nineteenth century provide us with reasonably detailed information about the people inhabiting the lowlands around Lake Baringo and utilising the surrounding upland grazing at that time.[54] By the late 1840s, trading caravans from the coast of East Africa had begun to enter the northern Rift Valley, initially seeking ivory within the Baringo region. As trade routes opened up through to the interlacustrine region, by the 1870s, the numbers of trading caravans coming through

Baringo increased, with the settlements of Il Chamus at the southern end of Lake Baringo becoming an important sanctuary along the way. Traders used Il Chamus villages as a base camp, gathering ivory here and resupplying their caravans with food. The practice of irrigated cultivation, developed by the Maa-speaking Il Chamus on the fertile alluvial flats to the south of Lake Baringo, had seen these villages emerge by the 1870s as the most important supply centre among all the caravan routes crossing eastern Africa from the coast to Uganda. Nineteenth century information on the Baringo region thus focuses upon the fortified villages and irrigation agriculture of Il Chamus.[55]

From the 1840s, we can be reasonably sure of which peoples occupied the Baringo-Bogoria basin, and where they were dominant.[56] The region was inhabited by two Kalenjin-speaking groups, and by several Maa-speaking sections, some of which only entered the area seasonally. The Kalenjin-speaking Tugen inhabited the hills to the west of Lake Baringo marking the eastern escarpment along the Kerio Valley. The Kalenjin-speaking Pokot occupied the Cherangani Hills, moving onto the plateaulands to the north, and during the nineteenth century also spread across the Kerio Valley and through the north Baringo lowlands, towards Churo in the east. This brought Pokot herders into direct contact with the Maa-speaking Samburu, who occupied the lands to the east of Lake Turkana, and southwards onto the Leroghi Plateau. Laikipia itself was occupied by the Maasai section of that name, until their dispersal as a result of internecine Maasai conflicts in the 1870s. Other Maasai sections entered the Baringo lowlands from Nakuru in the south, moving in a grazing cycle that then took them into the northern corridor of the Rift Valley toward lakes Baringo and Bogoria beyond Menengai, and then up the escarpment onto Laikipia to the east. The Maa-speaking Chamus occupied the alluvial flats between lakes Baringo and Bogoria during the mid-nineteenth century, where they augmented their irrigation farming by keeping small herds of livestock.

Oral histories have been collected amongst all of these Baringo-Bogoria peoples at various points from the 1910s to the present. These are not presented in the form of king-lists or ruling dynasties, as was the case for the societies included in Webster's study of chronology and drought in northern and south-western Uganda. The societies of the Baringo-Bogoria basin are categorised as "acephalous", which is to say that they do not have ruling hierarchies that create formal historical traditions. Rather, their recounting of oral history is tied to the progression of age cohorts, each generation being assigned an age-set name that they carry through a full life-cycle. This makes it possible to tie specific events to the time at which a specific named generation (age-generation) were

young men – or *murran*, to use the Maa term that is widely applied in the northern Rift Valley to indicate the dominant "warrior" generation at any point in time. Knowing the sequence of age-generation names thus provides a listing that can then be calibrated in relation to known events, and then corroborated from other sources to provide a more precise dating ad fuller chronology. In the following sections we will consider what historical evidence relating to the early nineteenth century can be recovered from cyclical and linear age-generations for the peoples of Baringo.

(i) Cyclical age-generation systems

Reckoning historical time in relation to age-generations can be applied to all the peoples of the Baringo-Bogoria basin, but there is an important difference between the Kalenjin (Tugen, Pokot) and Maasai (Il Chamus, Samburu, Laikipiak) age organisation that needs to be explained. Tugen and Pokot age organization is cyclical, consisting of named generations, which rotate and recur.[57] For Tugen, this is constructed upon the principle that when the last old men of one named generation have died, the children then being born can be initiated under that same age-generation name during adolescence - the new set is literally seen as a reincarnation of the old.[58] All seven age-generation names are therefore always in existence, dividing Tugen male society into seven recognized segments (a parallel cycle operates for women). For Pokot, three named generations are considered to be "active" – warriors, seniors, and elders. Tugen and Pokot elders, when asked about the past, will order their histories through the sequence of the named generation then in the category of *murran*.[59] Thus, a particular named drought or famine will be remembered as having occurred at the time when a specific age-generation were *murran*.

Fig 1: Tugen age-set chronology, from mid-nineteenth century[60]

Age-set name	*Estimated dating, 14-year cycle*	*Actual initiation dates*
Korongoro	1876-1890	not known
Kipkoimet	1886-l900	not known
Kaplelach	1896-1910	not known
Kipnikue	1906-1920	not known
Nyongi	1916-1930	1913-1929
Chumo	1926-1940	1926-1940
Sowe	1936-1950	1934-1947

However, recurrence of the cycle of the same age-generation names places immediate and obvious limitations upon the application of this system in establishing an

historical chronology further back in time. Time-depth is necessarily shallow in this system, in effect only spanning one cycle of the seven age-generations, perhaps stretching into those generations in the previous cycle whose individuals are still remembered. This can be overcome to some degree by the careful reconstruction of lineage histories, tracing back the known members of a family through several biological generations that can be linked to age-generation names and thus correlated with known historical events. While researchers in the Baringo-Bogoria basin have understood this limitation, and generally been cautious in their historical reconstructions using Tugen and Pokot age names, elsewhere in eastern Africa some historians have naively projected cyclical age-generation lists back in time to provide fictional dates for generations whose existence we have no evidence for.[61]

These limitations in the use of cyclical age-generations in chronological reconstruction are made greater by the tendency to "telescope" the memories related to a particular age name into the account of events at the time of the most recent manifestation of that named set.[62] Further problems with specific dating are also apparent: while the duration between Tugen age-generations is notionally a period of l4 years, this is not fixed and there is in practice considerable overlap between preceding and succeeding generations. A survey of Tugen male elders conducted in 1980, and so covering those initiated into Nyongi, Chumo, Sowe and Korongoro age-generations between the 1910s and the early 1960s, revealed significant overlaps between initiation dates and variations from north to south depending upon the geographic location of the initiations.[63] Drought or famine might also have a significant impact upon initiation. This was the situation in East Endorois in 1929, immediately after the drought of *Kiplel Kowo*, resulting in many members of the prospective Chumo age-generation traveling to Lembus, and even to the Nandi areas, to be initiated.[64] Mobility of this kind is common throughout the Kalenjin-speaking areas of the western highlands.

Cyclical age-generation systems of the kind found amongst Tugen and Pokot are therefore not useful tools in seeking to establish a precise historical chronology with an extended time depth. Their usefulness is limited to the depth of remembered time – that of living generations and those whom they have known in their lifetimes – and to identifying trends and developments that might be linked to a specific named generation, rather than tied to an event or date. However, distinctive, and singular events can emerge in these histories for the relatively recent past. Amongst Tugen, detailed histories recount droughts and other environmental events that can be securely dated from the latter part of

the nineteenth century and into the twentieth century.[65] Similarly, Bollig has interrogated oral histories gathered among Pokot elders in the 1980s to identify a significant trend, dating to the early decades of the nineteenth century. This is a period in which Pokot relate their own emergence as increasingly mobile cattle pastoralists, moving across the Kerio river and extending their rangelands to the east and south into Baringo and onto the escarpment lands beyond. The oral histories relate this as a period of rapid transition, of innovation and growth, which Bollig characterises as a "revolutionary transformation". This is related as the foundation of Pokot society as it was to be throughout the twentieth century; and its origins are linked to disastrous drought and famine, sometimes also linked with an earthquake. Though these traditions cannot be precisely dated, Bollig's careful reconstruction of Pokot history for the nineteenth century places this transformation to the period prior to the 1830s,[66] thus making the events that provoked the "revolutionary transformation" co-terminus with the early nineteenth century drought identified in the palaeo-data.

(ii) Linear age-generation systems

The linear age-generation systems found among the Maa-speaking communities of the Baringo-Bogoria basin are generally more useful in recovering dateable chronology for the remembered past.[67] Among Maasai who grazed their cattle in Baringo during the nineteenth century, the linear system consisted of a sequence of named generations, each conforming to groups of initiates given a common name. Colonial period scholars understood the potential importance of the Maa age-set system in dating the past, and even in accounts from the early twentieth century we find reconstructions of Maasai history.[68] By far the most accurate and well-researched account of Maa history was that of Henry Fosbrooke, published in 1956. Fosbrooke picked up mistakes made in earlier reconstructions, and was the first scholar to make a serious distinction between named age-generations for which corroborating dates could be identified and those for which they could not.

Fig 2: Maasai age-generations[69]

Generation	*Tentative date*	*Fosbrooke's notes*
Merishari	c. 1811	
Kidotu	c. 1825	*Oloibon* Supet was active at this time. He died c. 1854.
Dwati I	c. 1839	*Oloibon* Mbatiany was a member of this generation
Nyangusi	c. 1853	Maasai southern penetration continues
Laimer	c. 1867	Some elders of this generation were still alive in 1935
Dalala	1881	For this and subsequent generations, dates are corroborated

Dwati II	1896	
Dareto	1911	
Derito	1926	
?	1942	Generation not yet named in 1956.

Bringing together the various attempts to compile age generation lists for the Maasai, from the earliest efforts by missionaries in the mid-nineteenth century, through the evidence gathered by colonial officers in the 1900s and 1910s, Fosbrooke observed that all of these lists appeared to have a common starting point: lists collected earlier were thus shorter, while those collected subsequently merely added the names of more recent age groups.[70] Though additional names could be identified that pre-dated those presented in this list in figure 2, Fosbrooke could not confirm that these related to any sequence, and argued against any attempt to extend the list. The Maasai age-generation system as practiced in the 1950s thus appeared to have begun in its current form sometime in the early nineteenth century. As he concluded: "Thus for the last century and a half we have well dated pegs on which to hang traditional events: beyond that speculation is profitless."[71]

Other evidence from age-generations in the Baringo-Bogoria region appears to reinforce this interpretation. The Chamus age-generation system, described by Spencer, is broadly similar to Samburu in structure and operation, but with elements of Maasai practice.[72] This linear sequence of named Il Chamus sets provides a relatively unproblematic chronology, and for the twentieth century up to the early 1960s it can be corroborated from the colonial archive. However, a distinctive feature of the system is that there are two parallel lines of age-generation names among Chamus, which are directly contemporaneous (from the 1860s), each line representing one of the two principal village communities around which Il Chamus society was organised, Leabori and Lekeper, the former being the larger of the two settlements. Figure 3 indicates the Chamus age-generations in chronological sequence, for both villages. For the nineteenth century, two series of approximate dates given are based upon a 12-year cycle, as indicated by Spencer, working back from the corroborated date for the initiation of Kiliaku (1901).[73] Once again, while informants recall other age-generation names that pre-date Twati (c.1841), these are not presented in sequence.

Fig. 3: Il Chamus age-generation chronology[74]

Leabori	*Lekeper*	*12-year*	*Actual*

		generation dating	
Twati		c.1841	
Nyangusi		c.1853	
Peles	Kilami	c.1865	
Kidemi	Memiri	c.1877	
Kinyamal	Tareto	c.1889	
Kiliaku	Parakuo		1901
Irimpot	Kireo		1913
Napunye	Takicho		1927
Parimo	Seuri		1939
Merisho			1948
Meduti			1959

The relationship of the Chamus age-generations (fig.3) to those of Maasai (fig.2) may also contain important clues as to historical developments in the central and north Rift Valley. The earliest Chamus age groups, Twati and Nyangusi, are contemporaneous to the Maasai age-generations of Dwati I and Nyangusi, and it seems probable that before the 1860s Chamus participated in Maasai initiations. The Chamus age-generation listing, local to the vicinity of Lake Baringo, therefore confirms the implication of the wider and regional Maasai listing that suggests a "foundation date" at the end of the 1830s.

The division of the Chamus age-generation system into two parallel naming lists can be explained by other historical developments. There are indications in the oral histories of Chamus that the changes that came in the 1860s reflect conflicts emerging between the northern sections of Maasai at this time. An alliance of the powerful Purko and Kisongo sections was formed, pushing against Lakipiak to the north, into Baringo and up onto Leroghi above the escarpment. From the 1860s, Laikipiak refugees scattered from these conflicts, some being assimilated with Chamus at Lake Baringo. Though the traditions are unclear on the reasons for the emergence of a second age-generation linked to the Lekeper village, this may have derived directly from the arrival of numbers of Laikipiak Maasai in the 1860s and 1870s.[75] A Purko-Kisongo attack on the Chamus villages as a consequence of their perceived affiliation with the Laikipiak Maasai is vividly recalled in local traditions, dating to the 1870s.[76] As Sobania confirms, although the Laikipiak were famously defeated and dispersed by the Purko-Kisongo alliance in the great battle at Il Kileti (c.1874-76), the struggles in which they were involved began more than a decade earlier and extended to the late nineteenth century.[77] Later influxes of destitute Samburu, and further elements of Laikipiak Maasai, would reach the Lake Baringo settlements in the early 1890s, in the wake of the great rinderpest

epizootic then sweeping through the Rift Valley. Throughout, Chamus oral histories link the Laikipiak refugees with Lekeper, and Samburu with Leabori.

Oral histories associate the Chamus Leabori community with Samburu Il Toijo clans, who are said to have been settled at Lake Baringo by the 1840s. Traditions recall that these formerly wealthy livestock herders had grazed their animals around Lake Baringo and to the south until they became destitute as the result of a major drought, so severe that it separated them from the rest of their Samburu kinsmen, who moved away toward Lake Turkana.[78] Other oral histories corroborate this account,[79] providing an explanation for the presence of so large a community of Samburu clansmen among Il Chamus by the 1840s that again invokes severe drought as the driver of change.

Details of the history of the peoples of the East Turkana basin, to the north-east of Baringo, provides further evidence supporting the notion of a disruptive event in the early nineteenth century that is reflected in the age-generations. Sobania's reconstruction of Rendille and Samburu history, compiled from oral histories collected in the mid-1970s, and meticulously correlated with traveller's accounts and other forms of independent evidence, also reveals age-generation lists originating sometime in the 1830s (fig.4). As with Maasai and Chamus traditions, other age-generation names are recalled among Samburu and Rendille, but are seen as belonging to a separate, perhaps mythical time in the more distant past, pre-dating the formal list that commences from the 1830s and for which people interviewed by Sobania were able to draw direct references to known, named members of their own families.[80]

Fig. 4: Samburu and Rendille age-generations[81]

Samburu age-generations	*Initiation years* Estimated	Actual dating	*Rendille age-generations*	*Initiation years* Estimated	Actual dating
Kipeko	c.1837		Ilkubuku	c.1839	
Kiteko	c.1851		Libali	c.1853	
Tarigirig	c.1865		Dibgudo	c.1867	
Merikon	c.1879		Dismala	c.1881	
Terito		1893	Irbangudo		1895
Merisho		1912	Difgudo I		1909
Kiliku		1921	Irbales		1923
Mekuri		1936	Libale		1937
Kilmaniki		1948	Irbandif		1951
Kishili		1962	Difgudo II		1965

For all of the peoples whose linear age-generation lists have been reviewed here – Maasai, Chamus, Samburu and Rendille – dating of events can frequently be corroborated relatively easily from the 1870s onwards. Many events prior to that date can also be confirmed through common points of reference across the age-generation systems, particularly those relating to the Laikipiak Maasai, whose history over these years consistently intersects with all the other peoples discussed here.[82] While we cannot therefore be certain of absolute dates before c.1870, we are very confident of the chronological sequencing and of the relationship between these histories. In all cases, the age-generation lists remained consistent through various renditions collected from the late nineteenth century to the late twentieth century. For all these peoples, with the exception of Il Chamus, other age-generation names are remembered for a time before the mid-nineteenth century, but they are not presented a part of the regular sequence of named sets. The age-generation lists thus have a consistent integrity. It may well be the other names date from the period between the 1780s and the 1830s, and that efforts were made at this time to create age-generations, but discontinuity and break in the sequence is clear. The evidence for a more or less common foundational point, or fracture, sometime before 1840, is therefore compelling.

Implications: the Great Catastrophe, and the beginning of time?

The palaeo-evidence presented here strongly confirms the occurrence of a prolonged drought of unprecedented severity in the Rift Valley region of eastern Africa between 1800 and the 1820s, preceded by a period of deepening aridity and followed by a period of rapid recovery. The evidence examined from the oral histories cannot confirm the details of such an event, but there are several indications that support the hypothesis that a "Great Catastophe" of regional proportions did indeed occur during these years: the evidence for the *Laparanat* droughts and famines highlighted by Webster; the Borana *gada* traditions (supported by evidence from the *tula* wells) examined by Tiki; Bollig's reconstruction of the "revolutionary transformation" amongst Pokot (again using oral histories); and the Toijo traditions of the split with Samburu at the time of a major drought.

The additional evidence provided from the age-generation lists for the peoples then inhabiting the Baringo-Bogoria basin is indirect, but it does present us with a puzzle that the Great Catastrophe hypothesis may help to solve. Why should it be that all of these age-generation systems appear to commence at approximately the same time,

coinciding with the beginning of the recovery after the Great Catastrophe? In a working paper presented in 1989, Neal Sobania and Richard Waller reviewed the oral histories then collected for the northern Rift Valley of Kenya,[83] noting the similarity in generational depth that pointed to a common starting point in the early nineteenth century. Sobania and Waller suggested that this was no coincidence, and that some common social or political feature, or environmental event of regional scope, was the catalyst for a major upheaval. The palaeo-data now suggests that this catalyst was the drought of the early nineteenth century that brought desiccation to Lake Baringo.

Sobania and Waller described this as "a remaking of identity": they understood the foundation of new age-generation systems as indicating the emergence of new communities across a wide region.[84] Drought on the scale implied in the palaeo-data would have caused widespread famine, wholesale displacement of communities, and most likely a high level of mortality among both human populations and livestock herds. Given the duration of the aridity associated with this event, beginning by at least the 1780s before culminating in Baringo's desiccation from 1800, the effects on human societies could only have been massively destructive. Whatever communities existed around Lake Baringo before 1800, were destroyed and dispersed by the Great Catastrophe. Writing of the peoples in the Omo Valley, at the northern end of Lake Turkana, Marco Bassi has suggested that it is precisely environmental catastrophes of this kind that have contributed to the making, and remaking, of community identities – what Bassi terms "primary identities" – emerging out of the displacements, relocations, assimilations and amalgamations that are the responses to periodic environment crisis.[85] The events in the Baringo-Bogoria basin in the first half of the nineteenth century provide an example of the process of "primary identity" formation described by Bassi, the emergence of new age-generation systems across the region being a clear social manifestation of this. Jan Bender Shetler has described a similar process in the "remaking" of age-generations amongst the Bantu-speaking groups of the east Nyanza region of northern Tanzania from the mid-nineteenth century, also, he argues, occurring in response to severe environmental stress.[86] We cannot be sure how far these new "primary identities" were innovative, in the Omo Valley, in the northern Rift Valley, or in east Nyanza, or even whether they merely replicated significant elements of a social order that had pre-existed the Great Catastrophe, but we might think of them as indicating "the beginning of time" – a major discontinuity, or rupture, in the history of eastern Africa.

If we accept the destructive and transformative power of this Great Catastrophe, it becomes possible to reinterpret the main threads of the region's history over the nineteenth century. Accounts of nineteenth century history in the Rift Valley of eastern Africa have long been dominated by the Iloikop Wars, fought between various sections of Maasai in three substantive phases between the 1830s and the 1870s. The first phase, commencing toward the end of the 1830s and probably ending by 1850, can thus be seen to have coincided with the rapid environmental recovery that took place in wake of the Great Catastrophe. A second phase, beginning at the end of the 1840s, was partly fuelled by the pressures of non-Maa groups, including the Pokot and Turkana, who had rapidly and aggressively expanded into Maasai areas to the east and south in the period of recovery. The final phase (the "Laikipiak War") raged around the Baringo-Bogoria basin in the 1860s and 1870s, as the dominance of the Laikipiak Maasai was challenged by other Maa sections from the south.[87] If these Maasai communities we in fact "remade" by the regional drought, and were then competing for new kinds of ascendancy over pastoral resources, rather than to defend an old and established order, the internecine and protracted character of the struggles becomes easier to comprehend. The problem of establishing the identities of the principal protagonists, that has so hampered the reconstruction of the history of these wars, also now becomes explicable: these Maa-speaking sections were not fixed and established, but in flux, still assimilating new factions, and in the process of defining their separate identities. Furthermore, some of the differences evident among the southern-most sections of the Maasai, whose geographical location may have lessened the impact of drought and who appear to have had a better defined sense of identity during these wars, and the northerly Maa sections who were at the epicentre of the Great Catastrophe and would have been most disrupted by its effects, may now be more readily explained.

This revision of eastern Africa's nineteenth century history will require further research to consolidate and develop, but it is clear that acceptance of the fact of severe and catastrophic drought in the early part of the century changes our understanding of this region at this time, and not least our appreciation of identity and what it might have meant. Historians can no longer blithely assume that societies described in the mid-nineteenth century might have gradually evolved from the eighteenth century or earlier. Discontinuity and radical change need to be accommodated in our historical reconstructions. And for our wider understanding of how the savannah environment of the Baringo-Bogoria basin may have altered over time, the impact of catastrophic

drought of this kind experienced between 1800 and the 1820s further sharpens awareness of the character and impact of both collapse and resilience on the human communities who inhabit this savannah landscape.

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Endnotes

[1] For Tugen and Il Chamus: Anderson, *Eroding the Commons*; Anderson, "Cultivating pastoralists," 241-60; For Il Chamus: Little, *Elusive Granary*; Spencer, *Pastoral Continuum.* For Pokot: Bollig, *Die Krieger*; Bollig and Österle. "The Political Ecology," 289-315; Dietz, *Pastoralists in Dire Straits*; For Samburu: Spencer, *Samburu*; Spencer, *Nomads*; Sobania, "Historical traditions," ch3.

[2] Lamphear, "Aspects", 87-104; Lamphear, "People," 27-39; Lamphear, *Traditional History;* Lamphear, *Scattering Time*; Sobania, "Historical traditions"; Sobania, "The formation of ethnic identity," 195-210; Bassi, "Primary identities," 125-157; Turton, "Movement," 145-70.

[3] Schlee, *Identities on the Move*; Robinson, "Gabbra"; Tiki and Oba, "*Ciinna,*" 479-508; Tiki, "The Dynamics"; Tiki, Oba and Tvedt, "An indigenous time-related framework," 33-43.

[4] Hughes, *Moving the Maasai;* Sobania, "Defeat," 105-19; Waller, "Lords"; Waller, "Interaction," 243-84; Waller, "Ecology," 347-70.

[5] For the best overview, Waller, "Economic and social," 83-151.

[6] Waller, "Lords," 347-70; Sobania, "Defeat," 105-119.

[7] Anderson, *Eroding the Commons*, *passim.*

[8] Waller, "Ecology," 347-70; Anderson, "Cultivating pastoralists," 241-60; Davies and Moore, "Landscape"; Davies, "Economic specialisation."

[9] Verschuren, "Lake-based climate reconstruction," 315.

[10] Tierney et al, "Multidecadal variability", 388-89.

[11] Verschuren and Charman, "Latitudinal linkages," 189-231; De Cort et al, "Late Holocene," 69-80.

[12] For the most recent overview, see Gelorini and Verschuren, "Historical climate-human-ecosystem," 409-21.

[13] Verschuren et al, "The environmental history," 495; Bloszies and Forman. "Potential relation," 489-501.

[14] De Cort et al, "Late Holocene," 69-80. Verschuren, "Decadal and Century-Scale," 139-58.

[15] De Cort et al, "Late Holocene," 69-74.

[16] Ibid., 78. Verschuren et al, "The environmental history," 494-501.

[17] Verschuren, Laird and Cumming, "Rainfall and drought," 410-414; Verschuren "Lake-based climate," 315–330; Verschuren, "Reconstructing fluctuations," 297-311.

[18] De Cort et al, "Late Holocene," 78.

[19] Nicholson, "Environmental change," 60-87; Nicholson, "Historical fluctuations," 7-35.

[20] Verschuren, "Decadal and Century-Scale," 139-58.

[21] Verschuren, "Reconstructing fluctuations," 307.

[22] De Cort et al, "Late Holocene," 78-9.

[23] Bessems et al, "Palaeoliminological," 107-120.

[24] Ibid.; Kiage and Liu, "Palynological," 60-72.

[25] Ashley et al, "Sedimentation," 1301-1321.

[26] Bessems et al, "Palaeoliminological," 116. See also, Aynalem et al, "200 years," 7.

[27] Bessems et al, "Palaeoliminological," 107.

[28] Verschuren, "Influence of depth," 1103-1113; Verschuren et al, "Rainfall and drought," 410-414.

[29] Halfman et al, "New AMS dates," 83-98; Verschuren, "Decadal and Century-Scale," 139-58.

[30] Lamb et al, "Oxygen and carbon," 517-26.

[31] Wolff et al, "Reduced interannual rainfall," 743-747.

[32] Stager et al, "Solar variability," 243-51.

[33] Bessems et al, "Palaeoliminological," 107.

[34] De Cort et al, "Late Holocene," 78-9.

[35] Kiage and Liu, "Palynological," 69-71. They speculate that this drought may have been accompanied by locust invasions, but no independent evidence supports this.

[36] Kiage and Liu, "Palynological," 71.

[37] Olaka et al, "The sensitivity," 629–644; Tarits et al, "Geochemical," 2027–2055; Bessems et al, "Palaeoliminological," 116.

[38] Kiage and Liu, "Palynological," 70-71.

[39] This document is reproduced in Rubensen (ed), *Acta Aethiopica, vol 1*, 7. See McCann, *People of the Plow*, 31-33, for a discussion of the dangers of making inferences about environmental change from such sources.

[40] Webster, *Chronology*.

[41] Webster, "Noi! Noi!", 1-37.

[42] Herring, "Hydrology and chronology," 39-86.

[43] Mentioned in Bessems et al, "Palaeoliminological," 118.

[44] Webster, "Noi! Noi!", 17.

[45] Webster, "Noi! Noi!", 17-18.

[46] See Baxter and Almagor, *Age, Generation.*

[47] Webster, "Noi! Noi!", 1-17.

[48] Waller, "Dating the undatable," 570.

[49] Lamphear, *Traditional History*, 51-2; Lamphear, "Aspects,'" 89–91.

[50] Ssemmanda et al, "Sensitivity," 1675-1706.

[51] Tiernay et al, "Multidecadal variability", 389-92; Gelorini and Verschuren, "Historical", 409-21.

[52] Tiki, "The Dynamics"; Tiki, Oba and Tvedt. "Human stewardship," 62-78; Tiki, Oba and Tvedt, "An indigenous time-related framework."

[53] Tiki, Oba and Tvedt, "An indigenous time-related framework," 40.

[54] For example, des Avanchers. "Esquisse geographique"; Krapf, *Vocabulary*; Krapf, *Travels*; Farler, "Native routes," 730-42; Wakefield, "Routes of native caravans," 303-38; Thomson, *Through Masailand*; Dundas, "Notes on the tribes," 49-72, though published later, contains many references to nineteenth century conditions.

[55] Anderson, "Agriculture and irrigation," 85-98; Anderson, "Cultivating pastoralists," 241-60.

[56] This paragraph summarizes Anderson, *Eroding the Commons,* 23-47.

[57] Huntingford, *Nandi*, 53-5, is largely applicable to Tugen. Also Kettel, "Passing Like Flowers." For Pokot, Peristiany, "The age-set system." For general discussion: Prins, *East African Age-Class Systems*.

[58] Kettel, "What's in a name?"

[59] Peristiany, *Social Institutions*, l60-75; Huntingford, *Nandi*, 76-89.

[60] Reproduced from Anderson, *Eroding the Commons*, 303.

[61] For striking examples: Walter, "Territorial expansion", 4-8; Anacleti, "Serengeti," 23-34. For commentary, Shetler, *Telling our Own Stories*, 18-19; Shetler, "Interpreting rupture," 387-93.

[62] For a Tugen example, see Kipkulei, "Origin, migration, and settlement".

[63] Interviews, Cherutich arap Too, at Kisanana, July 1980, Baringo Historical Texts [BHT]/Tugen[TG]/22; Cherogong arap Chebeyator, Ol Kokwe Island, August 1980, BHT/TG/32; Kiperenge arap Kipsiamian, Nyalibuch, July 1980, BHT/TG/34; Chepikiyeng arap Ngetich, Emining, June 1980, BHT/TG/39. These and all cited interview texts are in the possession of the author.

[64] Interviews, Chepkerio Chirchir, Kisanana, July 1980, BHT/TG/24; Kigen arap Kipsiabo, Waseges, December 1980, BHT/TG/33.

[65] Anderson, *Eroding the Commons*, 48-69.

[66] Bollig, *Die Krieger,* 51-56; Bollig, "Adaptive cycles," this volume.

[67] For general discussion, Baxter and Almagor, *Age, Generation*; Spencer, *Pastoral Continuum*.

[68] For examples: Hollis, *Masai*, 262-3; Fosbrooke, "An administrative survey".

[69] Adapted from Fosbrooke, "Masai age-group," 194-5.

[70] Ibid., 188-206. Jacobs introduced an erroneous foundational generation when using Fosbrooke's evidence: Jacobs, "A chronology," 10-32.

[71] Fosbrooke, "Masai age-group," 205.

[72] Spencer, *Pastoral Continuum*, 134-7, 152-8.

[73] Ibid., 134-7, 162-5.

[74] Adapted from Anderson, *Eroding the Commons*, 301.

[75] Interviews, Lekipapui Lekesio, March 1980, at Eldume, BHT/CH[Chamus]/1; Lelerupe, April 1980, at Eldume, BHT/CH/3.

[76] Interviews, Lesukone Lenakure, April 1980, at Eldume, BHT/CH/7; Matayo Lentele and Parsalelo Lendaperna, April 1980, at Ngambo, BHT/CH/8; Matayo Lentele, April 1980, at Ngambo, BHT/CH/10.

[77] Sobania, "Defeat," 105-119. This was part of the Iloikop Wars: see Waller, "Economic and social," 114-20; Waller, "Lords", 379-92.

[78] Anderson, "Cultivating pastoralists," 248-51; Dundas, "Notes on the tribes"; Sobania, "Historical traditions," ch3.

[79] Simpson and Waweru, "Becoming Samburu," 175-97.

[80] Sobania, "Historical traditions," 133-7. Spencer, *Samburu*, also provides several earlier age-generation names, but carefully explains why these cannot be added in sequence to the established list. However, Simpson and Waweru, "Becoming Samburu," 175-97, erroneously add these earlier names to the age-generation sequence.

[81] Adapted from Sobania, "Historical traditions," 135.

[82] Sobania, "Defeat," 105-117.

[83] Sobania and Waller, "Oral history."

[84] Ibid.

[85] Bassi, "Primary identities," 129-57.

[86] Shetler, "Interpreting rupture," 385-412.

[87] Waller, "Economic and social", 117-19.