ON THE EDGE OF THE DESERT – A NAMAQUALAND STORY: 1800-1909

Climatic and Socio-Economic Drivers of Decline

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DECLARATION

I declare that this thesis is my own, unaided work. It is being submitted for the Degree of Doctor of Science at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at any other University.

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Signature of candidate

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University of the Witwatersrand

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ABSTRACT

This research aims to identify the causes of impoverishment of the rural community of Leliefontein in Namaqualand during the 19th century. This is achieved through integrated, multi-disciplinary environmental assessment, in which the drivers of decline, both climatic and socio-economic are identified. The primary research is predominantly archival making use of historical documentary sources. The study includes two parts: a full reconstruction of the climate of the Namaqualand area using historical documentary sources and a detailed socio-economic history. To achieve the climatic reconstruction a proxy precipitation data set is compiled for the Namaqualand area using historical documentary sources. This data set is graphically represented and the notable periods of severe drought identified include: 1805; 1807; 1812; 1817; 1820-1821; 1825-1827; 1834-1836; 1844-1845; 1855-1857, 1860-1862; 1865-1868; 1874-1875; 1880-1883; 1893-1896. The documentary derived data set is tested for accuracy against available rainfall data for the period spanning 1878-1900 and overall a close correlation is revealed. In addition, widespread droughts were identified using other similar studies and possible co-incidence with El Niño Southern Oscillation low phase events is postulated. Drought frequency and intensity is revealed to have been similar throughout the 19th century however, the ability of the Leliefontein Namaqua population to cope with these droughts declines sharply. The reasons for this emerge though the second part of the research, the historical livelihoods and vulnerability study. The community experience decline from sustainable livelihoods at the beginning of the 19th century to poverty and famine by the end of the period. This deterioration is not constant and the period spanning 1816-1853 shows relative improvement due to nomadic pastoral livelihoods and the addition of seasonal agriculture. However, increased diversity of livelihoods and increased exposure to external economic factors result in rapid decline in the second half of the century. Exploitative cattle trade, encroachment and settlement by the colonial population, the introduction of agriculture, copper mining and the introduction of wage labour, the growth of a cash based economy and the restriction of land availability for transhumance lead to a dramatic decrease in community resilience in the second half of the century, resulting in each successive drought having worse effects. Finally, the role of the written word in representing the Namaqua population is interrogated. The function of Colonial scripting in justifying exploitative policy making and legitimating the expropriation of land and the extraction of labour is interrogated. This integrated study reveals the importance of including both human and anthropogenic factors in environmental historigraphy. Socio-economic changes and disempowerment drive the decline in Namaqualand, but climatic factors severely compound this and hasten the decline.

CHAPTER 1

INTRODUCTION:

THE DECLINE OF A SOUTH AFRICAN RURAL COMMUNITY:
A NAMAQUALAND CASE STUDY

> What we call man's power over Nature turns out to be a power exercised by some men over other men with Nature as its instrument (Lewis, 1943, 31).

1.1. BACKGROUND

At the beginning of the nineteenth century the Namaqualand area was inhabited by the Nama Khoikhoi who lived a predominantly nomadic-pastoral existence. Despite dry and highly variable climatic conditions their livelihoods were sustainable and according to various travel writers and reports of the late 18th century they were a relatively prosperous group (LMS(b), 1807; WMMS(b), 1820; LMS(b), 1820-1824). By the end of the 19th century the area was inhabited by mainly 'coloured'[1] people whose diverse livelihoods consisted of agriculture, the herding of mainly small stock, and various migrant labour activities. Their lifestyles had become increasingly sedentary and by this period the population are reported to be impoverished (Price, 1976; Leeuwenburg, 1972; P, LDE, 3952, 5977/1; 1928). This study traces the role of climatic factors in the 1800s, particularly periods of drought, in this decline and couples this with the impacts of social, political and economic forces. A comprehensive historical livelihoods study of this area is conducted in order to assess the causes of the decline and impoverishment of the Leliefontein community of Namaqualand.

1.2. AIMS

This research aims to ascertain the extent to which climatic factors compounded by socio-economic change play a role in the gradual, but nonetheless extreme,

[1] The term 'coloured' is used for the Namaqua Afrikaans speaking population who descended from the Namaqua Khoikhoi population, the 'Baster' population who migrated from the Cape and the colonial settler population some of whom inter-married with this group. The history and background of each of these populations is examined in more detail in *Chapter 4*.

impoverishment of the population of the Leliefontein settlement during the 1800s. In order to achieve this it is necessary to trace, as far as possible, an accurate climatic chronology of Namaqualand, as well as a political and economic history of the Leliefontein Namaqua during the 1800s. The majority of the research is based on historical documentary sources, the language and racist descriptors used to denote or describe the Namaqua Khoikhoi population during the earlier part of the 19th century and the Namaqua coloured population during the latter part also became of interest. The way in which this colonial scripting operates to justify further colonial expansion and resource extraction is explored in the final chapter of the thesis.

The climatic reconstruction of Namaqualand for the 19th century is achieved using historical documentary sources such as travel writing, government papers and missionary diaries and journals. This section of the research alone makes a contribution to the need for accurate historical climatic information for sub-saharan Africa and is included in Chapter 5. Elements of this chapter were developed into a paper entitled 'The climate of Namaqualand in the nineteenth century', which was recently published in *Climatic Change* (Kelso and Vogel, 2007).

In addition, this research produces an in-depth environmental historiography of the Leliefontein population. Specific emphasis is placed on assessing the degree to which climatic variability, specifically periods of drought, are responsible for causing the decline of the Leliefontein population. Along with this, other causes of livelihood decline are examined. These include socio-political, institutional and economic factors. Conclusions are drawn regarding the relative importance of climatic fluctuations compared to these other factors in affecting impoverishment of the community.

The aim of this research is to identify whether physical or human factors were primarily responsible for the decline to poverty of the residents of the Leliefontein area in Namaqualand. The anticipated answer was that, due to the major political, social and economic upheaval during the period, human factors would be most important in their influence on the society of Leliefontein. As this thesis will show however, the

importance of climatic and other physical factors should not be underestimated. At each stage these factors serve to reinforce or worsen the impacts of the changes brought about through human influence. Climatic and other physical factors compounded the effects of human-induced livelihood change in the area.

Racist and derogatory discourse and representation of the Namaqua Khoikhoi and later the Namaqua 'coloured' population is so glaring to a 21st century reader that it necessitates specific investigation. Examining the discourse and terminology used by the missionaries, travel writers and colonial government officials to describe the Namaqua population reveals how these are translated into policies such as hut tax and land privatisation directly serving European interests in Namaqualand.

1.3. LELIEFONTEIN

The focus of this research is on the Leliefontein area of Namaqualand
Figure 1]. The historical and physical background to this area is discussed in detail in Chapter 4. Namaqualand is a semi-desert area with a highly variable climate and frequent droughts. The majority of the rain falls in the winter months but occasionally the area experiences summer rainfall. The 'coloured' population, with whom this research is concerned, are mainly concentrated into what were formerly the Coloured Reserves, more recently referred to as the 'coloured' rural areas (INCO-DP Project, 1998a; 1998b; 1997). The particular focus area for this study will be on the 'coloured' rural area of Leliefontein which is approximately 48 000 square kilometres in extent (INCO-DP Project, 1998a).

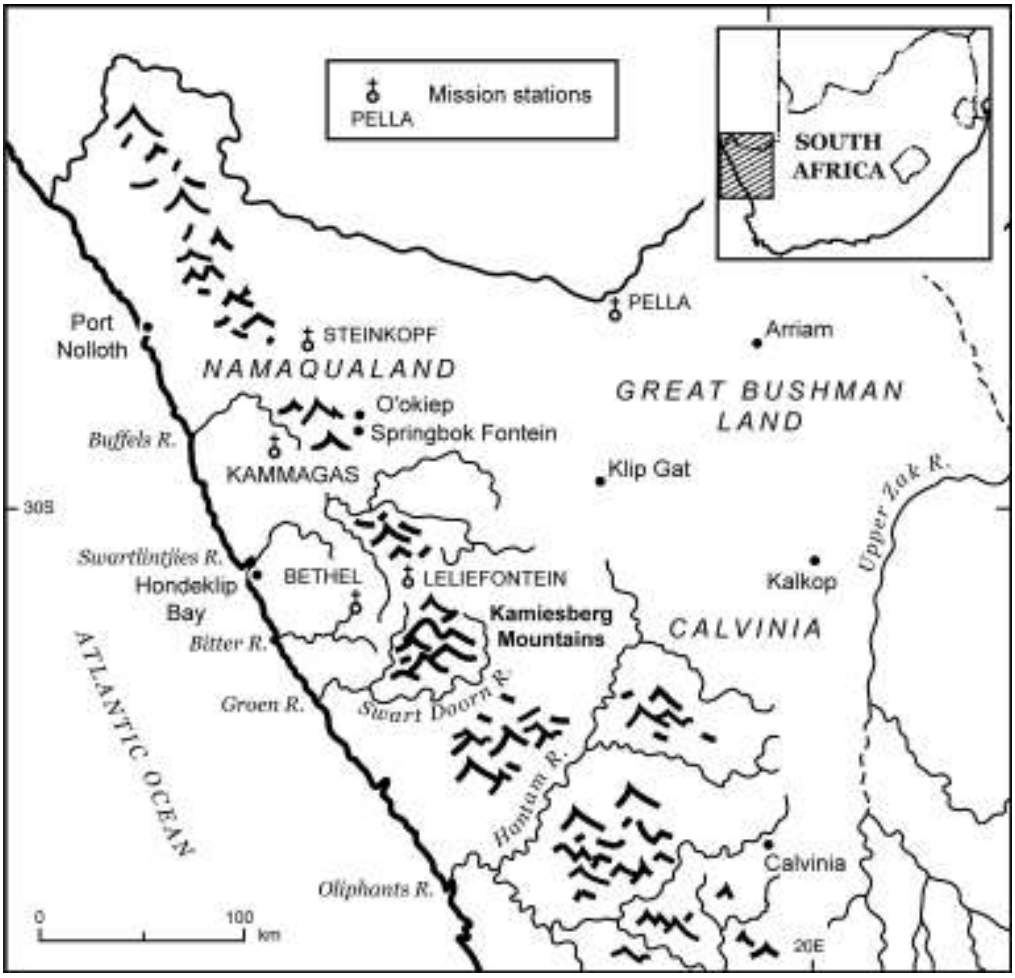

Figure 1: Map of Namaqualand

The Namaqualand area and more specifically the 'coloured rural area' of Leliefontein was chosen for this research, as this study formed part of the background to a larger research project on rangeland change and degradation, in which the researcher was involved. The research project was entitled *Global Change and Subsistence Rangelands in Southern Africa* and involved a detailed study into land use and land cover change in various selected subsistence rangelands in Southern Africa.[2] The site chosen for the

[2] This research formed part of a larger project entitled Global Change and Subsistence Rangelands in Southern Africa. The project was funded by the European Commission, Project No. ERBIC18CT970162. The study aimed to examine the causes of rangeland use change and degradation. There were a number of partners involved in the project these included the Centre for Arid Zone Studies (Wales), the National Botanical Institute (South Africa), the National University of Lesotho, the Norwegian Institute for Nature Research (Norway), the Pyrenean Institute of Ecology (Spain) and the University of Botswana. Similar co-ordinated studies took place in Lesotho and Botswana.

South African study was that of Paulshoek in the Leliefontein area of Namaqualand. This site was chosen because the community is a mixed-livelihood poor community, reliant largely on subsistence agriculture (INCO-DP Project, 1998a; 1998b; 1997). The original research for this study formed the historical component of the project, which aimed to reconstruct the climate of the area and to identify the historical livelihoods of the Namaqua Khoikhoi who inhabited the Leliefontein area from the later 1700s until 1909.

1.4. AFRICAN ENVIRONMENTAL HISTORY

Detailed, local historical research is vital in order to better understand the present environmental situation and to identify the ways in which the local inhabitants were able to adapt to their environment in the past. Various academics have identified a need for increased research into environmental history in South Africa, in order to better understand livelihood change and its implications for policy making (Beinart, 2003; Beinart and McGregor, 2003; Jacobs, 2003). Most existing research provides either a climatic history or a human history. In this thesis however, it is argued that the integration of the two provides a more thorough understanding of the subject (McCann, 1999a; Ballard, 1986).

This study aims to further contribute to a growing body of literature focusing on environmental history (Beinart and Hughes, 2007; van Stittert, 2004; 2002; Beinart, 2003; Beinart and McGregor, 2003; Jacobs, 2003; 2002; Curruthers, 2002; McCann, 1999a; 1999b). This literature informs the research and analysis conducted for this thesis and is examined in the literature review in Chapter 2. Much of this literature has, until recently, been fairly reductionist in nature, emphasising rather simplistic links between human activity and bio-geophysical change (McCann, 1999a). Approaches have been either deterministic ascribing changes in human activity directly to climatic extremes, such as drought, or conceptually limited, working from premises with limited practical application. This research has explored the past with preconceived notions of environmental degradation which affect the way in which the current environment is

analysed and understood (Beinart, 2003; Swift, 1997; Beinart and Coates, 1995; Pratt, 1992). Such approaches have led to the creation of a false understanding of environmental change, perpetuating several myths regarding the causes and consequences of environmental change in Africa (Fairhead and Leach, 1996a; Leach and Mearns, 1996).

Historical studies have often approached the links between humans and their environment from the political economy perspective (van Stittert, 2004). These have focussed on the changing rural economy or the growth of the mercantile economy, without acknowledging the centrality of the environment to these structural changes (Bundy, 1979). In this research, an attempt is made to integrate the study of environmental history with the study of historical livelihoods.

According to Beinart and Coates (1995, 1), "environmental history deals with the various dialogues over time between people and the rest of nature focusing on reciprocal impacts." This kind of integrated study is necessary in order to provide a deeper understanding of the role of environmental factors in human activity, especially in the light of environmental change in the 21st century (IGBP Report 48, 1999). Human activity cannot be understood in the absence of knowledge about the environment in which it takes place (Butzer, 2005; Beinart and Coates, 1995). Environmental historiography calls for a thorough understanding of the relationship between society and the environment in which it exists. In the African context, particularly in semi-arid environments such as the one forming the focus of this research, one of the biophysical factors with the greatest influence on the human population is climate, particularly drought.

Climate has formed a central theme in African environmental historiography, tracing causal relationships between climatic crises and human action (McCann, 1999a). According to McCann, "…historians of Africa writing on issues of climate have ventured ambitious conclusions on the basis of extremely weak historical data, drawing broad conclusions about effects of climate on economic, social, and demographic change"

(McCann, 1999a, 263-264). Thus, it has been suggested that this new African environmental historiography needs to focus on the ways in which the effects of environmental factors on society are filtered through social, economic and political structures (Leach and Mearns, 1996). These effects vary placing the population in a more or less vulnerable position, to fluctuations in physical factors (Varley, 1994).

Much of the literature on environmental history presumes that rapid, large scale environmental degradation has taken place in Africa (Beinart and Coates, 1995). This conceptual framework has equated any environmental change with loss. According to this framework, precolonial African society is viewed as living in harmony with nature. Nature is viewed as a self-regulating system that maintains a state of equilibrium in the absence of human intervention (Benhke and Scoones, 1993; 1990). It has been contended, however, that approaching environmental history with these preconceived notions has led to a narrow construction of African environmental history:

> A central informing concept of much recent environmental history has been degradation. Yet all human activity alters the composition of the natural world which in itself is never static. A critique which regards all change as decay begs the very question of the legitimacy of human survival, under whatever economic or ideological system. Distinguishing degradation, especially long-term from change or transformation – less emotive terms – is rarely easy. The natural world has such a deep and elaborate human imprint that we must confront the awkward reality that we may search in vain for a recognizable and definable state of nature (Beinart and Coates, 1995, 3).

Studies based on preconceived notions of degradation have obscured actual human-environment interrelationships, inferring process from form and judging local people as unable to manage their own environments (Fairhead and Leach, 1996(b); Leach and Mearns, 1996). Thus more accurate and detailed local level studies of human-environment interaction and change are necessary. As Beinart states:

> First while there is no doubt that growing population, stock numbers, commercialization and apartheid have contributed to environmental problems in southern Africa, environmental historians are on shaky ground if they stalk the past only with the limiting concepts of decay and degradation. Environmental change should be examined in a less linear manner; deployment of the concept of transformation, rather than just degradation, might help to shift the emphasis of debate (Beinart, 1996, 55).

Thus a new environmental historiography of Africa, should involve a deeper understanding of the interactions between humans and their environment over the last centuries. The impact of human use of resources on particular local landscapes needs to be examined, tracing the way in which these impacts are filtered through economic, political, social and ideological systems. Studies conducted on a local level are capable of analysing these links more effectively than large structural-scale studies (Butzer, 2005). Focus on land use decision making and on local level drivers of land use change will provide greater insight into actual human-environment relationships. Natural phenomena cannot be understood in the absence of the context of human society and vice versa. It is therefore necessary to:

> ... examine the changing local social and political relations which influence how people deal with land and vegetation, and, more broadly, how regional economic, political and demographic changes shape these local dynamics (Fairhead and Leach, 1996a, 10).

Recent literature challenging the perceived wisdom regarding land degradation in Africa calls for a more dynamic understanding of human-environment interactions (Jacobs, 2003). This needs to take into account the feedback between human agency and environmental change (Folke, 2006; Hoffmann and Jackson, 2000). For example, the idea that precolonial Africa was in a state of harmony with nature is challenged and it is argued instead that rural societies should be viewed as innovative and adaptive to environmental change, transforming their local environment (Giblin and Maddox, 1996). So too, the belief that precolonial African environments existed in a state of equilibrium has also been challenged by in this new African environmental historiography (Giblin and Maddox, 1996; Benhke and Scoones, 1993; 1990).

Thus an integrated approach to environmental change studies, taking into account human and physical factors is necessary. This approach should treat local rural people as conscious agents of change and also examine the ways in which they adapt to, embrace or oppose externally imposed changes. This understanding should produce an appropriate development policy for African rural communities.

This study constitutes a local-level, detailed environmental historiography feeding into a larger project focusing on land use change in southern African subsistence rangelands (INCO-DP Project, 1998a; 1998b; 1997). By examining the driving factors of land use change on a local level and including physical, climatic factors as well as social, institutional and economic changes, an integrated detailed and analytical environmental historiography for the Namaqualand area will be constructed. In this way the study aims to contribute to fill a gap in environmental history research.

1.5. METHODOLOGY

The methodology used in this thesis is discussed in detail in Chapter 3. Briefly, however, it comprises two parts: a climatic reconstruction of Namaqualand focusing on the study area of Leliefontein and a livelihood change study of the Namaqua Khoikhoi people group who inhabited the area. The climatic reconstruction spans the whole of the 19th century and the livelihood study spans a longer period from the mid-1600s till 1909, but with emphasis on the 19th century.

The climatic reconstruction of the Namaqualand area relies upon two types of primary sources: the available measured rainfall data for Springbok in Namaqualand and all available documentary sources, including missionary journals, travel writings, administrative and government reports, correspondence and newspapers. For the Namaqualand area the earliest measured meteorological data available are for the area of Springbok. This comprises of monthly rainfall data and is only available from 1878. Rainfall data for O'okiep is available from 1883 and for the area under study, Leliefontein data is available (although not continuous) from 1885 (South African Weather Service). This data is used to plot periods of above or below normal rainfall, as well as to verify the data set compiled using the documentary evidence.

The second part of the research traces the historical livelihoods of the Leleifontein Namaqua. This is done using a similar methodology to that used for the climatic reconstruction. Using all available historical documentary sources for the period 1801-

1900 and earlier (where relevant), references to livelihood changes of the people in the Leliefontein area are extracted. All relevant information relating to the livelihoods of the population, their livestock numbers, agricultural yields, involvement in wage labour and any other changes in their circumstances are collected to create a chronological picture of their history. From this a land use change history is constructed tracing the main changes in the livelihoods of the Leliefontein population. This includes changes such as the introduction of agriculture, the shift to a more sedentary lifestyle, the introduction of agricultural technology, the introduction of a cash economy, the role of mining and many other changes which occur during the 19th century.

In addition, striking representations of the Namaqua population in written sources are extracted for later interrogation. Derogatory descriptors of the Namaqua and their land use practises are extracted verbatim for separate analysis. These are then reviewed for patterns and similarities and an assessment of how the written word functions as justification in certain policy interventions in the region.

Using the climatic reconstruction and the livelihood history the reasons for the rapid decline of the Leliefontein population are sought. In this way the relative influence of climatic factors, particularly periods of drought, on decline, are assessed. Where the main factors are social, economic or political, the extent of their influence is assessed and an integrated environmental history of the Leliefontein area is constructed.

1.6. RECONSTRUCTION OF THE CLIMATE OF NAMAQUALAND

Chapter 5 presents the proxy rainfall data set constructed for the area of Namaqualand using documentary sources. Each year is awarded a confidence rating to give the reader an indication of the confidence the author invests in each year's data, dependant on the number of sources available for each year. The data set is presented in the form of a graph. The years which stand out as notable dry or drought years included: *1682-1684; 1762; 1805; 1807; 1812; 1817; 1820-1821; 1825-1827; 1834-1836; 1844-1845; 1855-1857, 1860-1862; 1865-1868; 1874-1875; 1880-1883; 1893-1896.* The documentary

derived data set is compared to historical data sets compiled by other authors for the surrounding areas. In addition, tentative connections are made to the El Niño southern oscillation low phase events. The chapters that follow address the livelihood reconstructions.

1.7. HISTORICAL LIVELIHOODS OF THE LELIEFONTEIN COMMUNITY

Chapters 6 and 7 include a history of the Namaqua Khoikhoi population and the San population in the Namaqualand area. Chapter 6 examines the livelihoods of the Leleifontien population from the early 1800s until 1853, when the Leliefontein settlement was awarded a Ticket of Occupation by the Colonial government. The early stages when the settlement of Leliefontein became a mission station and the livelihood transitions that take place during this time are traced in this chapter, where it is argued that this initial period of the 19th century is actually a period of comparative improvement for the population of the Leliefontein settlement. Becoming a mission station provides increased security over their land some of which they had lost during the 18th century. Analysis of historical livestock figures shows an increase in numbers. In addition, agriculture came to be used for subsistence, and this appears to have been reasonably successful, certainly initially.

Chapter 7 reveals the rapid decline in the material circumstances of the Leliefontein community from 1853 to 1909. Their livestock numbers decline, especially the number of large stock, when pressure on the borders of the mission station restrict their transhumance. So too, with an increasing reliance on agriculture, the yields seem to decline. Wage labour on the mines became less profitable and less widely available as the copper mines are increasingly unsuccessful and the European price of copper fluctuates. The livelihood adaptations which are forced by colonialism as well as those which are actively embraced by the community seem to place them in a position more vulnerable to the highly variable climate of the Namaqualand area.

1.8. REPRESENTATIONS AND LAND ALIENATION

Using historical documentary sources one engages with language of an earlier period. All written records of the 19th century are authored by the colonial population and seldom does the voice of the Namaqua population appear directly. Much of the literature uses racist and derogatory terminology to represent the Namaqua and their land use practices. Quotes using racist descriptors were so jarring for a 21st century reader that these were also extracted, initially for a paper on representations of the Namaqua in the 19th century. During the process of the research it became evident that these representations actually played a role in determining colonial government policy relating to land alienation and labour extraction and as a result a chapter on this is added to the research thesis. This is Chapter 8 examining racist discourse and its role in land enclosure and alienation.

1.9. CONCLUSION

Finally, the information from the different aspects of the environmental history of Leliefontein are brought together in an assessment of vulnerability, coping and adaptation of the Namaqua population in the 19th century. Specific attention is given to the role of climatic factors in the decline of the population in comparison other socio-economic drivers of decline.

Chapter 9 draws conclusions regarding the relative importance of climatic reconstruction and livelihood change. The impacts of, and recovery from, various drought periods of the 1800s are compared. By the late 1800s the impact of each successive drought is worse and the recovery period longer, with livestock numbers, grazing and the general material circumstances of the community often not recovering to their previous state. It is argued that the livelihood changes which take place throughout the 19th century place the community in an increasingly vulnerable position, worsening the effects of each successive drought.

SUMMARY

This study aims to provide a detailed local level land use history of the Leliefontein area of Namaqualand. The role of climatic variability, particularly drought in causing the decline of the Leliefontein Namaqua Khoikhoi community of Namaqualand is assessed relative to other social, ideological, economic and political factors. This study aims to contribute to a growing body of literature constructing a new African environmental historiography, which examines actual causes of land use change in detail on a local scale. It is the intention of the author that this study will contribute to a more integrated environmental historiography of South Africa. The climatic reconstruction contributes to the lack of existing historical climatic data for the sub-Saharan African region and by paying attention to historical factors which enhance the vulnerability of the population as opposed to those which help them adapt over the long term, this study contributes to an understanding of rural livelihoods which can be beneficial in the context of new stressors resulting from climate change. With this brief overview of the thesis attention now turns to the theoretical framework and relevant concepts to the research in Chapter 2.

CHAPTER 2

ENVIRONMENTAL HISTORY

> Environmental history deals with the various dialogues over time between people and the rest of nature, focusing on reciprocal impacts (Beinart and Coates, 1995, 1).

2.1. INTRODUCTION

The study falls within the research framework, briefly outlined in Chapter 1, known as environmental history (Beinart and Hughes, 2007; Beinart and McGregor, 2003; Jacobs, 2003; Carruthers, 2002). This is a relatively recent field of study and is multi-disciplinary in nature (Beinart and Hughes, 2007; McIntosch, *et.al*., 2000). It examines the complex relationship between humans and the environment they inhabit. In examining the relevance of environmental history to South Africa, Jane Carruthers describes this approach as follows:

> Although methods, sources and focus vary, at the core of environmental history is a deliberation on how people use, manage or interrelate with natural resources and the natural environment, in specific circumstances at given times and places (Carruthers, 2002, 4).

In attempting to trace the causes of the decline of the material wealth of the Leliefontein community, this framework seemed the most appropriate. In the search for a full causal narrative of the landscape, it is necessary to examine both its physical and its anthropogenic history, as taking one in isolation from the other will obscure the real causes of environmental change.

Environmental history is an important area for research in South Africa at present (Carruthers, 2002; McCann, 1999a). Detailed, accurate environmental histories of people groups in South Africa will provide a better basis for understanding the relationships between people and their environments. This is especially important in the context of current land reform and land restitution programmes, tracing historical land rights when land claims are being processed (Kepe, 2008; Lebert and Rohde, 2007; May and Lahiff,

2007; Rohde *et al*., 2006; Rohde *et al.*, 2003). Understanding the capacity of a community to cope with climatic fluctuation in the past, and identifying successful adaptations will assist in current policy on climate change response.

This historical research will provide valuable understanding of the complex and dynamic livelihoods of people groups in South Africa and enable policy makers to make relevant land use and environmental policies (Berzborn, 2007; Rohde *et al*., 2003; Ziervogel and Calder, 2003). Much past policy has been based on a limited understanding of the relationship between human beings and the environment (for instance, South African stocking rates were based on European understandings of carrying capacity) (Benjaminsen, *et al*., 2006; Vetter, 2004). In this chapter these limited conceptual understandings will be reassessed with particular attention to theories of rangeland management at equilibrium and disequilibrium.

Interpreting the decline of the Leleifontein Namaqua involved an historical livelihoods reconstruction. Literature relating to livelihoods, livelihood diversity and the knowledge systems of vulnerability, adaptation and resilience as well as their related concepts of exposure and risk are presented in this chapter. Understanding vulnerability allows one to explore the economic, social and political filters through which impacts of successive shocks, such as droughts are experienced by a community. Current research shows that rural livelihoods, particularly those of vulnerable communities in marginal landscapes, tend to consist of a diversity of activities and access relationships and that this diversity acts as security in times of stress. This is explored in more detail below.

2.2. A MULTI-DISCIPLINARY APPROACH

Environmental studies of the African landscape have often been reductionist in nature, looking at the physical landscape in isolation from the human stresses which influence it. Recently, researchers have promoted a more integrated study of African environmental history, analysing more closely the reciprocal links between physical factors and human-induced change in causing land use changes (Beinart and Hughes, 2007; Hoffman *et al*.,

2007, Cousins *et al*., 2007; Carruthers, 2002; McCann, 1999a; 1999b; Beinart, 1996; Beinart and Coates, 1995; Giblin, 1992). This approach integrates knowledge from varying disciplines and has been more recently referred to as a transdisciplinary or cross-disciplinary approach (Cousins *et al*., 2007; Butzer, 2005).

In the past, environmental studies have tended to study physical processes in isolation from those caused by humans. This is a result of the fact that western science tends to conceptualise the natural and social sciences separately (Fairhead and Leach, 1996a). Scientists including zoologists, botanists, geomorphologists, or climatologists mostly undertake studies into the physical environment, while historians and social scientists tended to concentrate on the human history of an area (Ballard, 1986). These approaches however, do not provide a full picture of the interactions between human beings and landscape, and the two are intimately connected (Jacobs, 2003). The environment too, can rarely be understood without a focus on the human activities which have impacted and shaped it; and human communities are directly impacted by environmental change (Reynolds, *et al.*, 2007; Folke, 2006; Holling, 2001).

The environment has often been treated by the sciences as a static entity with constant effects on the population which inhabits it (McCann, 1999a; Ballard, 1986). This view is insufficient because it does not take into account the role of human histories in natural systems (Jacobs, 2002).

Current literature in environmental history has been born out of these earlier deterministic environmental studies. Historical studies which have attempted to include climatic factors in their research often oversimplified the relationship by viewing climate as the direct cause of social, political and economic changes (McCann, 1999a; Ballard, 1986). Thus ignoring the structures through which the effects of climate are filtered. It is therefore necessary to study in more detail the links between human activity and climate and to analyse more closely the ways in which the effects of climate on human populations are mediated. As McCann states:

> The real value of linking environment to historical process may lie in a more subtle, nuanced view of how environmental conditions set a context for social and historical interaction (McCann, 1999a, 268).

Only recently have studies which incorporate both of these aspects, begun to emerge and these have been broadly categorized into the new field of environmental history (Beinart and Hughes, 2007; Carruthers, 2002; Jacobs, 2003; 2002; Beinart, 2003; Griffiths, 1997; Beinart and Coates, 1995). There are currently several research groups and projects which are undertaking and calling for local-level studies into environmental history, such as the Human Impacts on Terrestrial Ecosystems (HITE) branch of the International Geosphere-Biosphere Programme and the Past Global Changes International Project (PAGES). In addition, a branch of PAGES has started a project – Past Human-Climate-Ecosystem Interactions (PHAROS) – designed to examine past interactions between humans and the environment (Dearing and Battarbee, 2007). Academic research in the fields of geography, environmental science, biology, zoology and archaeology also place increasing emphasis on historical ecology (Hoffman and Rohde, 2007; Jacobs, 2003; Carruthers, 2002, Leach and Mearns, 1996; Scoones, 1996).

In a semi-desert area like Namaqualand the climatic factors cannot be separated from the lives of the rural populations whose very daily activities are directly affected by climatic factors. In order to ascertain the main causes of environmental change for the nineteenth century in Namaqualand, a detailed examination of both the socio-political changes and the physical variability of the period is needed. Thus, an environmental history framework was chosen for this research.

2.3. THE ROOTS OF ENVIRONMENTAL HISTORY

Early environmental history involved descriptive research originating with early explorers and travel writers. Much early research carried out by the Royal Geographical Society took this descriptive form. Two dichotomous views of African populations and their relationship with the environment dominate during the precolonial period. On the one hand, Africa as a dark continent of disorder and savagery: African people are viewed as primitive and less rational than Europeans (Livingstone, 2005; Grove, 1995; Duncan,

1993, Pratt, 1992). In Duncan's words, "this view provid[ed] the ideological superstructure for spreading European exploitation of the world" (1993, 45). On the other hand, African people are seen as 'noble savages' living in harmony with nature and embodying the ideals of freedom from culture and civilisation celebrated by the Romantic movement in Europe at the time (Beinart and Coates, 1995; Comaroff and Comaroff, 1991).

As contact with Africa and African people increased through exploration, the slave trade and other trade relations, research into African environments became more deterministic in nature, ascribing characteristics to population groups according to the environment which they inhabited. This was used as an ideological justification for slavery and later for colonialism (Duncan, 1993). Within this discourse Africa was represented as a barbarous and dark continent (Duncan, 1993). Duncan describes how African people and their environment were represented in this discourse:

> … Africans, because of their association with enslavement for nearly three hundred years and the alleged inhospitality of their continent, began to be seen as the lowest form of human life, slaves by nature, savage beasts of burden, who might, or might not be capable even of receiving civilization. Such a portrait lent necessary ideological support to European exploitation and colonizing practices (Duncan, 1993, 48).

It is from these beginnings that myths about the African landscape and the role of African people in transforming their landscape were born. These ideological perspectives incorporated racist ideologies and were used to justify many of Europe's activities in Africa (Duncan, 1993). This discourse was given greater scientific respectability by the discourse of Darwinism after the middle of the nineteenth century (Duncan, 1993). African societies were interpreted by scholars as being at a lower level of evolution than European societies (Duncan, 1993; Comaroff and Comaroff, 1991). Meanwhile, Africa was represented as a place rich in resources and open to exploitation (Beinart and Hughes, 2007; Comaroff and Comaroff, 1991). Chapter 8 interrogates the representations of the Namaqua Khoikhoi in historical the sources.

2.4. HISTORICAL LIVELIHOODS AND VULNERABILITY

In trying to avoid the shortcomings of earlier environmental literature, it is necessary to examine and critique the premises and ideologies of existing studies. Most past environmental history research involved large-scale studies, written from either a physical or a human science perspective and emphasising one of these sides and presenting a simplified view of the other. More recent environmental history research advocates an inter-disciplinary / transdisciplinary approach which does not exclude either side, but rather takes both physical and human factors into account and thus challenges the reductionist ideologies and crisis narratives which have developed around the African environment (Cousins *et al.*, 2007; Reynolds *et al.*, 2007; Benjaminsen *et al*., 2006; Swift, 1996).

Environmental themes that are particularly relevant to this research are studies in vulnerability analysis and livelihood diversity. Also relevant to an environmental history of Namaqualand is research on grazing practise and policy, focussing on equilibrium and disequilibrium grazing theory, both are examined below.

2.4.1. Livelihoods

Each people group or community has a specific set of resources and access rights which translate into a livelihood (Ziervogel and Calder, 2003; Chambers, 1995; Chambers and Conway, 1991). In rural areas this livelihood is usually made up of a cluster of different activities and access profiles which allow the community to sustain and reproduce itself (Blaikie *et.al.*, 1994). Access rights include all the resources which a community or household has command over including, for example, livestock, agricultural land, communal grazing land, common property resources (such as rights to gathering naturally occurring food stuffs or plants with medicinal value) and rights to water sources (Kepe, 2008; Berzborn, 2007). Livelihoods also include individuals wage earning opportunities as well as ownership of tangible productive and non-productive resources (Anseeuw and Laurent, 2007; Chambers, 1995). This combination of assets and earnings form a livelihood.

Assessing livelihood change is a useful conceptual tool for evaluating the increasing vulnerability of a people group in changing political and economic climates (O'Brien *et al*., 2009; Ziervogel and Calder, 2003). It uses a framework for analysing the livelihoods of communities, population groups, households or individuals. 'Livelihood' refers to the way in which individuals or communities attain access to, or command over, resources to sustain themselves over a period of time: including subsistence activities, income and resources. This perspective is effective for assessing how livelihood capabilities are altered with changing political and economic power, access and social relations.

Vulnerability analysis is employed in order to trace the livelihoods of the community of Leliefontein and their adaptations to the changes which occur during the period examined. The vulnerability approach assesses communities' potential to cope with environmental change over time (O'Brien *et al*., 2009; Endfield, 2007; Cutter, 2003).

2.4.1.2. Livelihood Diversity

Existing livelihoods research from the Namaqualand area, and indeed from other rural areas in South Africa, shows that a diversity of livelihood activities accounts for greater resilience among rural populations, on both a community and a household scale (Anseeuw and Laurent, 2007; Berzborn, S, 2007; Rohde, 2003; Ziervogel and Calder, 2003). Each of these papers shows how the households with greater livelihood diversity, including incomes and assets from a number of different livelihood activities tend to be more resilient in times of increased stress.

Anseeuw and Laurent (2007) use the term 'pluriactive' to describe farmers in the Namaqualand area who are involved in multiple livelihood activities, focussing on those in mining employment and livestock farming. Berzborn (2007) identifies the same pattern in the Richtersveld in Namaqualand, showing how economic diversification enhances household resilience. The majority of these households were involved in various combinations of livelihood activities, including varying combinations of livestock farming, wage labour, social capital (social reciprocity and redistribution) and state

remittances (Berzborn, 2007). The importance of social capital and extended family networks extends to family members beyond the village (Rohde, *et al*., 2003).

Anseeuw and Laurent (2007) suggest that policy aimed at encouraging the growth of black farmers with larger herds should take livelihood diversity into account, support it and recognise that it is the farmers who are 'pluriactive' who have the largest chance of growing larger herds of livestock and possibly engaging in some commercial farming activity. The reason for this is the off-farm earnings that they are able to invest into livestock, in the case of this article they are looking specifically at earnings from mining employment (Anseeuw and Laurent, 2007).

Where livelihoods are composed of a bundle of different activities, assets and networks, livestock farming plays a significant role, but this role varies depending on the other activities. For some households livestock are their main resource, for others they are held as security against crises (such as loss of employment), as a financial investment and as a measure of social standing (Cousins *et al.,* 2007). Although livelihood diversity is almost celebrated in literature as security against crises it must be noted that these are survivalist coping mechanisms for a society experiencing chronic poverty, high vulnerability and risk.

2.4.2. Vulnerability

The concept of vulnerability has its origins in hazard and disaster theories. The concept can be defined as follows:

> Vulnerability is the state of susceptibility to harm from exposure to stresses associated with environmental and social change and from the absence of capacity to adapt (Adger, 2006, 268).

The key climate change research group, the *Inter-Governmental Panel on Climate Change*, includes a working group focussed exclusively on Impacts, Vulnerability and Adaptation (working group II) and an entire volume of their 2007 publication is devoted to this aspect of climate change. They provide a system-orientated definition of vulnerability:

> Vulnerability is the degree to which a system is susceptible to and unable to cope with, the adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude and rate of climate change and variation to which a system is exposed, the sensitivity and adaptive capacity of that system (IPCC(b), 2007, 6).

Vulnerability analysis began as a framework for analysing natural hazards showing how, a natural hazard, such as an earthquake, volcano, drought or flood becomes a disaster only once it impacts on a community which is vulnerable to the hazard (Blaikie *et.al*., 1994; Smith, K., 1992). The factors which create vulnerability to natural hazards include political, economic and social factors, in addition to physical factors such as proximity to, or frequency of, natural hazards (Blaikie *et.al*., 1994; Cannon, 1994; Varley, 1994).

> Vulnerability is greater among the environmentally, politically, socially or economically marginal groups, whose ability to adapt and to recover from environmental changes and biophysical events can be limited or constrained (Endfield, 2007, 8).

The concept of vulnerability developed out of the recognition that individual hazard events had differential impacts on different people groups within the same country, or indeed the same cities or region. The effects of the hazard were a result of both the physical process causing it, and the living conditions and the livelihoods of the people affected (Cutter, 2003; Varley, 1994). Vulnerability research and interventions can take place at multiple scales with the smallest unit of study being the household or the individual, or the level of community, or finally national vulnerability (Vincent, 2007; Adger and Vincent, 2005). The scale here is delineated according to human structures and boundaries, which differs from that of resilience frameworks examined in Section 2.5.1. below.

Various different traditions have evolved within vulnerability research including livelihoods and entitlements focus, a political ecology focus and the pressure-release model which draws the two together (Adger, 2006). A related concept is that of resilience but it has a different conceptual background and is examined separately below.

The political economy stream of vulnerability studies focussed on resource access and control from a livelihoods and entitlements perspective. Emphasis was on power

dynamics that allowed certain groups in a society to have control over food and resources while others did not. This entitlements approach to understanding famine shifted the principal cause of famine from food production to food access (Sen, 1981).

> Entitlements-based explanations of vulnerability focused almost exclusively on the social realm of institutions, well-being and on class, social status and gender as important variables ... (Adger, 2006, 269).

This perspective at times downplayed the role of physical and environmental factors in placing pressure on human systems, but functioned effectively to draw attention to inequality in society and how this functions through the institutions of society (Adger, 2006; Watts, 1983). Economic development; empowerment; access to political and social institutions; and changes in the power structure of society are the principle mitigatory measures from this perspective.

The hazards branch of vulnerability studies focuses more on the physical aspect of risk and exposure to natural hazards and issues like marginal locations in urban and rural areas become priority. This approach shows that the impacts of all natural hazards are filtered through the social, economic and political institutions of society, creating differential impacts for different groups. This extends to recovery after a shock, and the adaptations which allow some communities to recover quicker or more effectively than others. Poorer communities might fail to recover completely or become trapped in a cycle of vulnerability resulting in each successive shock having worse effects. The concept of social resilience relates to this.

The final theoretical framework from which vulnerability originated was the so-called 'pressure-release' model based originally on the work by Blaikie (Blaikie *et. al*., 1994). Here, structural disadvantage creates vulnerability and the hazard or shock forms a further pressure on an already marginalised community (Blaikie *et. al*., 1994). Thus, recovery and mitigation should target both the physical hazard and the socio-economic and political circumstances of a community, drawing together physical mitigation and long term adaption.

The term vulnerability has been employed in a number of different fields such as "ecology, public health, poverty and development, secure livelihoods and famine, sustainability science, land change, and climate impacts and adaptation" (Füssel, 2007, 155). It is often used with different meanings in these different fields and as a result can lead to some confusion, particularly in the context of inter-disciplinary research where differing uses interact (O'Brien *et al*, 2004). Füssel (2007) addresses the complexity of this term directly in a paper written with the intention of clarifying the uses of the term vulnerability and identifying groups of vulnerability concepts which should be addressed in vulnerability literature and research. He states that research into vulnerability should take account of the temporal reference (have a stated temporal context); the sphere of vulnerability factors (including internal and external factors); the knowledge domain (socioeconomic vs. biophysical vs. integrated); the vulnerable system being examined; the attribute of concern; as well as the identification of the particular hazard being examined (adapted from Füssel, 2007, 159). In specifying and delineating these foci he recommends that vulnerability research could become more specific and interchangeable between disciplines (Füssel, 2007). In the primary research chapters of this thesis which follows in Chapters 6 and 7, close attention is paid to delineating these specific aspects of the livelihood vulnerability being examined.

More recent vulnerability research has three main areas of focus. The first is vulnerability to climate change and variability, the second is sustainable livelihoods and vulnerability to poverty, and the third is vulnerability of social-ecological systems (Adger, 2006). This research relates most closely to the sustainable livelihoods work, but aspects of all of the frameworks have been incorporated.

Vulnerability should not be treated as a static concept: it is dynamic in both meaning and experience. It is affected by social factors such as ethnicity, race, caste, gender and furthermore, may be altered on a regular basis by political shifts, technological changes, or natural hazards. Shifts in both political and social environments increase vulnerability and the risk to further hazards. Vulnerability analysis is the most relevant analytical framework for this research, because it integrates both physical and human systems, their

weaknesses and thresholds. It allows for an incorporation of response and adaptation, giving more analytical weight than a purely descriptive history. In this way the concept of vulnerability is, as Adger asserts:

> ... a powerful analytical tool for describing states of susceptibility to harm, powerlessness, and marginality of both physical and social systems, and for guiding normative analysis of actions to enhance well-being through reduction of risk (Adger, 2006, 268).

Bohle (2001) created a framework for the analysis of vulnerability which distinguished between 'internal' and 'external' vulnerability and showed how these two function together to create the pressure on a particular group. External exposure included human ecology perspectives and entitlements perspectives. Human ecology includes the structural, political and economic constraints on livelihoods and choices available to a community (Blaikie *et al*., 1994). The entitlements perspective looks more at the actual livelihood bundles of a community and the choices and control available to them (Sen, 1981). These are the external constraints on a community and work that falls into a political economy framework would fall in here. Much of the research to follow looks at the structural constraints and changes which befall the Namaqua during the 19th century. External vulnerability and constraints are important for consideration.

Bohle (2001) goes on to show how external factors are only one half of vulnerability and the other half is internal vulnerability. Internal vulnerability focuses on assets, coping mechanisms and adaptations, that is, the actions taken by the community in order to change their circumstances. Livelihood change, coping and social capital are integrated here. Bohle (2001) argues that too little research has focussed on this side of vulnerability and that both sides should be taken into account in order to effectively understand vulnerability and to gain a more integrated understanding of the multiple structure of vulnerability (Bohle, 2001). Bringing internal and external aspects of vulnerability together allows for a more integrated theoretical focus and this research has attempted to identify both of these. Bohle represented this in a graphic format which helps to conceptualise the two levels of vulnerability [Figure 2: Double structure of vulnerability (after Bohle, 2001, 3)Figure 2].

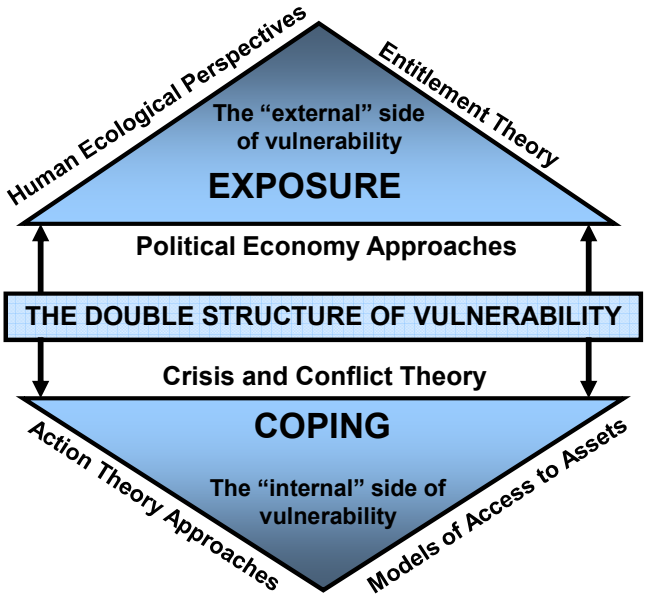

Figure 2: Double structure of vulnerability (after Bohle, 2001, 3)

2.4.2.1. Exposure

Exposure addresses external aspects of vulnerability, particularly economic vulnerability and structural constraints experienced by a vulnerable community. Earlier vulnerability studies focussing on this aspect were embedded in political economy frameworks, looking at structural constraints and limited options available to powerless communities.

Recent vulnerability literature has developed the notion of exposure in more detail, particularly the latest work by O'Brien and Leichenko examining the double exposure of certain groups to climate change and economic globalization (O'Brien and Lechenko, 2003; 2000). Both processes: climate change and globalisation create 'winners' and 'losers' and it is often the same countries, regions, communities or households who are the 'losers' in both (O'Brien *et al*., 2009; Leichenko and O'Brien, 2008; Young *et al*.,

2006; O'Brien and Leichenko, 2005; 2000). They assert that the joint impacts of the two processes should be considered in order to identify the most vulnerable groups. This argument introduces the role of economic exposure into the vulnerability concept. Exposure to environmental factors such as hazards, climate change and variability increases vulnerability of certain groups; and economic exposure to the negative impacts of globalisation such as increased competition, increased liquid capital and decreased investment in certain areas might increase the vulnerability of the same groups. This they term double exposure (Leichenko and O'Brien, 2008; O'Brien and Leichenko, 2005; 2003; 2000).

Globalisation as an economic process is not really relevant to this 19th century study. However, the concept of double exposure, and the role of economic exposure in creating greater vulnerability is extremely applicable here. Exposure to the wider economic forces is key in increasing the vulnerability of the Namaqua population (Chapter 6 and 7).

2.4.2.2. Coping Strategies

Coping strategies address the decisions and changes made by communities during times of increased stress, such as a drought event. Identifying changes made to the livelihood package during such times gives insight into the agency of the local people (Ziervogel and Calder, 2003; Scoones, 1996(a); Devereux, 1993; Blaikie, *et.al.*, 1994). Coping mechanisms include changes made by vulnerable people in order to widen "the portfolio of income-earning activities [to] offset and reduce vulnerability" (Blaikie, 1994, 6). Acknowledging coping strategies represents local people as active agents of change and provides an alternative to earlier representation of vulnerable groups as passive victims of disaster (Scoones, 1996(a)). In addition, it allows the researcher to identify responses to stress which may increase long term adaptation.

Coping strategies include things like diversification of subsistence activities; seeking wage employment; taking on migrant labour; liquidating assets such as livestock, land or tools or withdrawing children from school so that they can contribute to household earnings. Many of these coping strategies are effective in the short term, but often have

the effect of increasing vulnerability in the longer term, thereby worsening the impacts of further hazards on vulnerable groups (Devereux, 1993; Blaikie, *et al*., 1994; Blaikie, 1985). Eriksen *et al.* (2005) caution that households using a diversity of activities in order to cope in times of stress might actually become more vulnerable when this diversity comes at the expense of effective specialisation in a single more profitable activity.

Hazards can become mutually reinforcing shocks, with each one leaving the community increasingly vulnerable to the next event. An example of one such coping strategy in the case of Namaqualand was the purchasing of seed on credit during the second half of the 19th century with the result that the community owed the majority of their harvest in debt repayments (Chapter 7). This causes long term worsening of their situation.

2.4.2.3. Adaptation, Adaptive Capacity

Adaptation is a separate research domain to vulnerability and has its origins in anthropology (Janssen *et al*., 2006). This concept has been very closely related to vulnerability research with much overlap in the two knowledge fields (Smit and Wandel, 2006). In using the concept of adaptation it is important to distinguish coping mechanisms from adaptation. A coping mechanism is anything which a community changes in order to survive a situation of stress or high risk, such as a drought event. An adaptation is a change in livelihood or access profiles which can take place either before, during or after a stressful event, but has the effect of enhancing the community's ability to cope over the longer term (Bunce *et al*., 2009; Gallopín, 2006; Smit, and Wandel, 2006; Smit and Skinner, 2002; Vogel, 1998). Thus identifying change which can be termed adaptation is one goal of historical research. Distinguishing adaptation from coping mechanisms is important and something which can benefit from the long term perspective offered by historical study.

Adaptation is described as:

> adjustments in ecological-socio-economic systems in response to actual or expected climatic stimuli, their effects or impacts (Smit *et al*. in Smit and Wandel, 2006, 282).

Adaptations can be "anticipatory or reactive," "autonomous or planned" (Smit and Wandel, 2006, 282). The term is generally used where the change has enabled better coping of the system allowing it to survive or reproduce further, thus it is normally employed only for positive change. The term has origins in species biology where an adaptation within an individual or a species gave it competitive advantage, thereby perpetuating its survival. Its use in vulnerability studies is therefore similar.

The IPCC definition uses the term adaptation where adjustments are made that improve the ability of a system to cope specifically with climate change or variability.

> Adaptation is the adjustment in natural or human system in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities (IPCC(b), 6).

An adaptation in the vulnerability context is something that allows a group or a community to cope better with risk and to survive or improve into the future, it is something that enhances the sustainability of a group. In this research particular attention is paid to identifying change which constitutes adaptation as differing from that which constitutes coping. This allows for interesting findings regarding livelihood change and exposure, to be examined in later chapters.

Adaptation, coping strategies and exposure, all of which are concepts within vulnerability analysis have more bearing on this study and are introduced here. Exposure traces the external side of vulnerability, where coping strategies and adaptation address the internal side of vulnerability (Bohle, 2001).

Most studies on livelihoods, vulnerability, adaptation are located within the temporal framework of the present or short term past, historical studies with attention to these issues have been fairly few although they can provide useful insights into effective adaptation (Endfield, 2007; Endfield and Fernández Tejedo, 2006, Butzer, 2005, Diamond, 2005; Eriksen *et al.,* 2005). Chapters 6, 7 and 9 of this thesis address the adaptations of the Leleifontein population of Namaqualand which enhanced resilience and those which did not.

2.4.2.4. Applying Vulnerability Analysis to Namaqualand

Vulnerability analysis is used to assess the way in which the changes in the livelihood options of the Namaqua people exacerbated the effects of subsequent hazards. In the Namaqualand case the most frequent natural hazard is climatic: that is, the frequent occurrence of below average rainfall and droughts. This research traces historical vulnerability at a local level identifying the adaptations which increased the resilience of the populations as well as the coping strategies which decreased it. The research traces the effects of the changing political and economic circumstances, the increased exposure, of the Namaqua people and the ways in which these worsen the impacts of successive droughts. Assessing the livelihoods of the Namaqua community and tracing the changes in their access and entitlement profiles form a vital part of this thesis (Sen, 1981).

Vulnerability is socially produced. In the case of the Namaqua this can be seen in their increasing vulnerability to droughts during the 1800s; a period of changing social and political status. The negative impacts of successive droughts increase throughout the 1800s, especially from 1850 onwards. Using the vulnerability approach requires a thorough analysis of the social, political and economic structures of society. Analysing the causes of the increased poverty and risk of the Namaqua community requires a careful "deconstruction of the social, political, and economic structure of the society so afflicted, and of its historically specific systems of production" (Watts, 1983, 19), this takes place in Chapters 6 and 7 of this thesis.

2.5. RESILIENCE FRAMEWORK

Resilience research originated in the field of biology, more specifically in research on ecosystems, examining their sustainability over time despite various shocks or perturbations (Folke, 2006; Janssen *et al*., 2006; Holling, 2001). This perspective makes use of theoretical models to conceptualise ecosystem change over time (Janssen *et al*., 2006). This knowledge field is only weakly linked to the knowledge field of vulnerability although it has been proposed that increasing linkage between these fields could be beneficial particularly in the context of global change (Gallopín, 2006).

Resilience thinking employs a systems analysis of ecological and human-ecological systems in order to identify and assess the dimensions in which a system is able to sustain itself, or to adapt while continuing to maintain its functional aspects (Holling, 2001). It involves a theoretical modelling approach to systems analysis allowing a complexity of variables to be included (Holling 2001; Holling and Gunderson, 2001). It is an extremely valuable perspective for assessing the multiple internal and external factors driving system change and identifying thresholds within which a system will remain resilient and past which it will decline.

2.5.1. Resilience

Where the concept of vulnerability developed in the human sciences, resilience thinking originated within the physical and ecological sciences and refers to:

> … the magnitude of disturbance that can be absorbed before a system changes to a radically different state as well as the capacity to self-organise and the capacity for adaptation to emerging circumstances (Adger, 2006, 268-269).

Focus is on the capacity of a system to adapt to change and still maintain function, with concern to identifying the threshold past which the physical or socio-ecological system will not recover its original state (Folke, 2006; Holling and Gunderson, 2001). Resilience studies generally focus on a larger scale, focussing on entire ecosystems or bioregions. Policy interventions related to resilience include approaches such as bioregional planning from an ecosystem framework allowing a combination of interventions at the social, economic and ecological levels (Reynolds, *et al*., 2007; Holling, 2000). Although interventions may be both biological or socio-economic, the scale is generally a larger one than that associated with vulnerability. These fields are increasingly integrating, especially in the field of climate change research (Gallopín, 2006; Janssen *et al*., 2006; Smit and Wandel, 2006). The resilience framework was not used as much in this study, although for the Namaqualand context, the work of Richardson *et al*., (2007), which uses ecological modelling to identify maximum grazing thresholds in the Namaqualand commons, falls into a resilience framework (Section 2.6.2. below). The resilience framework can complement vulnerability studies and vice versa.

2.5.2. Risk

'Resilience' in a social system describes the ability of a community to adapt to political, economic and environmental change (Holling, 2001). It provides an understanding of the ability of a social-ecological system to absorb perturbations and still retain their overall function. Community capacity needs to be built, encouraging learning and adaptation which enable people to cope with change (Adger, 2003). Appropriate policy must aim to improve the long term security and livelihood potential of communities by addressing the ability of societies and individuals to cope with risk.

Mitigation measures targeted at vulnerable communities must address the issue of long term risk reduction. These need to target successful coping mechanisms already employed by local communities and develop them for long term sustainability (Ziervogel and Calder, 2003; Anseeuw and Laurent, 2007). Adaptations which increase long term resilience need to be encouraged through appropriate policy making and local action. Detailed research regarding coping mechanisms must be conducted on a local level, in order to develop mitigation measures which directly target the needs of local people. This will be tackled further in the final chapter of this thesis.

2.6. GRAZING POLICY AND PRACTICE

Literature which deals with African environments and the histories of African societies often reflects the influence of certain pervasive narratives which result not from empirical evidence, but rather from the perceptions and ideologies of the researchers themselves (Benjaminsen, *et al.*, 2006; Redclift, 2006; Beinart, 1998; Swift, 1996; Pratt, 1992; 1985; Merchant, 1980). Examples of such concepts include the progressive degradation and desiccation of Africa; African pastures as overstocked; external management necessary for effective management of African rangelands effectively; the notion that nomadic pastoral lifestyles will necessarily cause overgrazing; and the notion, often perpetuated by historians, that during the colonial period Africans were passive victims of exploitation and expropriation and did not play a role in influencing their own destinies. All of these ideologies, some of which have developed into hegemonic scientific discourses, will be

re-examined in the next section of this chapter and will be challenged in the environmental history of Namaqualand, in the chapters to follow.

Certain of these notions can be attributed to the broader theories of grazing management, specifically grazing models based on equilibrium theory and those based on the more recent disequilibrium idea. More recent research has questioned the overarching validity of either of these models, suggesting that there is a danger in taking the principles of either at the expense of the other in a rangeland system with multiple drivers of change (Richardson, *et al*., 2007).

2.6.1. Grazing Models at Equilibrium

Much pastoral rangeland theory has been based on European style grazing models in which vegetation coverage is driven primarily by livestock grazing and is a direct outcome of the stocking rates of a particular region (Vetter, 2005; 2004). Underlying this model are the ecological concepts of Clementsian succession, Darwinism and equilibrium theory in the physical and biological sciences. The theory of plant succession presented by Clements in 1916, explained how an empty piece of land will move in an orderly directional process through various stages of vegetation coverage with one plant species replacing another (Sullivan and Rohde, 2002; Ellis *et.al*., 1993; Behnke and Scoones, 1990). It is assumed that, all things being equal, climax vegetation will eventually dominate any site and that, should any kind of disturbance occur, the land would once again begin progressing through the stages towards climax (Behnke and Scoones, 1990). This succession-to-climax paradigm has been dominant in most ecological thinking and writing throughout the 20th century (Sprugel, 1991). This theory is based on the premise that all natural systems move towards a state of equilibrium if all factors outside of the system remain stable. This 'balance of nature' concept later became referred to as equilibrium theory (Ellis *et.al*., 1993).

Succession theory was later used as a basis for the development of the range management style based on the concept of carrying capacity. 'Carrying capacity' meant that for every area of land there was a specific and constant stocking density at which that land should

be held (Benjaminsen, *et al.*, 2006). The range manager had to balance the grazing pressure of the stock against the natural regenerative power of the vegetation, "thereby maintaining a stable sub-climax which yielded a steady and profitable flow of animal products" (Behnke and Scoones, 1990, 3). Range managers in Africa have insisted that, because it is a dry area with a variable climate, it should only be stocked up to its carrying capacity during the most unfavourable seasons (Benjaminsen *et al.*, 2006; de Leeuw and Tothill, 1993). This contributed to the assumption that many African rangelands are overstocked, and encouraged the implementation of destocking policies in many rangeland areas.

The concept of carrying capacity was prevalent in European land management at the time of colonialism, and as a result it was assumed that African rangelands were overstocked. This supported the Malthusian idea that as populations increased, the ability of their environment to supply food would eventually be outstripped. Degradation and desertification were viewed as direct results of carrying capacity being exceeded. Exceeding carrying capacity would cause overgrazing resulting in exposed soil, sub-climax vegetation and a drying up of the land. Crisis narratives developed from assumptions about what would happen should carrying capacity be exceeded (Endfield and Nash, 2002a; 2002b; Maddox, 2002; Beinart, 1996; Fairhead and Leach, 1996(b); Leach and Mearns, 1996; Swift, 1996). It was therefore believed that livestock numbers had to be controlled in order to prevent this from occurring (Scoones, 1996(b)).

2.6.1.1. Tragedy of the Commons

Communal areas in particular were expected to suffer overstocking. Garret Hardin's 1960s seminal article entitled 'The Tragedy of the Commons' lent particular weight to these arguments (Hardin, 1968). The central argument is that when a natural resource is held in common there is little incentive to preserve it for the future, an individual's aim in the context of communal ownership would be to maximise his/her profit from this resource in the shortest amount of time because the benefits reaped from a shared resource are individual whereas the costs are shared among the whole community. The logical conclusion of this is to maximise individual benefit (Rohde *et al.*, 2006). Applied

to communally held grazing land this theory suggests that each individual will exceed the ecological carrying capacity of the area with the eventual outcome being overgrazing, soil erosion and the deterioration of the land, to use Hardin's phrase 'the tragedy of the commons' (Rohde *et al*., 2006).

'The tragedy of the commons' is a pervasive narrative governing grazing policy. In South Africa this narrative is used to justify the use of the carrying capacity concept to recommend lower stocking rates on communal rangelands (Lebert and Rohde, 2007; Lebert, 2004; Benjaminsen *et al*., 2006; Rohde, *et al*., 2006). The national stock reduction scheme in the 1960s and 1970s was largely in response to the perceived degradation of South African rangelands, particularly across the Karoo (Hoffman and Ashwell, 2001). The basis for this was the idea that African rangelands are equilibrial systems, where vegetation cover and density is controlled predominantly by grazing and therefore by the number of livestock in a particular region. During the early 1980s the applicability of these equilibrium concepts within semi-arid, particularly African, rangelands was widely challenged and an alternative paradigm viewing rangelands at disequilibrium emerged (Vetter, 2005; 2004; de Leeuw and Tothill, 1993; Ellis *et al*., 1993; Behnke and Scoones, 1990).

2.6.2. Disequilibrium Grazing

Disequilibrium theory evolved from various studies indicating that the availability of forage in African rangelands is controlled by many factors and that grazing pressure is not always predominant (de Leeuw and Tothill, 1993; Ellis *et.al*., 1993; Behnke and Scoones, 1990). In an ecosystem where the climatic factors are relatively consistent (an equilibrium system), meanwhile, the quantity of vegetation is controlled almost entirely by the number of herbivores (de Leeuw and Tothill, 1993). However, in an ecosystem where the climatic variables of rainfall and temperature fluctuate widely, these factors may have a greater influence on forage supply than grazing pressure. This is defined as an ecosystem at disequilibrium (Behnke and Scoones, 1990):

> If physical factors such as rainfall and temperature fluctuate widely, it is likely that these non-biological variables will have a greater impact on plant growth than marginal

> changes in grazing pressure caused by different stocking densities. Moreover, unavailability of forage in bad years may depress livestock populations to the point where the impact of their grazing on the vegetation is minimal in most years. Thus, in these fluctuating climates, rainfall, not forage availability, may ultimately be the variable which limits herbivore population growth (Behnke and Scoones, 1990, 9).

Long-term studies in Africa pose a challenge to conventional understandings of rangeland degradation, using empirical evidence indicating that local land-management practices might be more appropriate in ecosystems which experience high levels of climatic variability than imported European approaches dependent upon carrying capacity and equilibrium theory. Examples of such studies are those done in Turkana, Kenya (Ellis *et.al.*, 1993); northern Nigeria (de Leeuw and Tothill, 1993); Botswana (Abel, 1993); West Africa (Fairhead and Leech, 1996a; 1996b; Smith, A.B., 1992); the Karoo (Beinart, 1996; Hoffman and Cowling, 1990); Zimbabwe (Scoones, 1996(a)) and a general study on desertification (Swift, 1996). Each of these studies have challenged the appropriateness of destocking policies and the use of the concept of carrying capacity in these areas (Benjaminsen, et al., 2006; Rohde *et al.*, 2006).

An environment which maintains a state of equilibrium is one in which conditions such as temperature and rainfall are consistent from year to year (Sprugel, 1991). In environments where disturbances are frequent, scientists feel that the concept of equilibrium might not be appropriate: “results from studies conducted in arid ecosystems over the last twenty years seem to offer strong support to the non-equilibrial hypothesis” (Ellis *et.al.*, 1993). It is argued that standard range management policies might not be applicable to dry rangeland areas (Ellis *et.al.*, 1993). It is suggested that disequilibrium theory is more appropriate to ecosystems which experience frequent shocks or disturbances and for which a stable state of climax vegetation would be exceptionally difficult to identify. For these ecosystems an alternative form of land management needs to be found and opportunistic grazing has been identified as this alternative employed by many communities (Vetter, 2005; 2004; Ellis *et.al.*, 1993).

The applicability of the carrying capacity concept to African rangeland areas where the conditions are seldom held at any kind of equilibrium was also challenged. Studies have

shown that in areas where climate is highly variable it is hard to arrive at an exact carrying capacity figure which is not in fact too low to support the population, suggesting that in drylands a stocking strategy known as opportunistic grazing might be more appropriate (de Leeuw and Tothill, 1993). Ellis *et.al.* explain an opportunistic grazing strategy as follows:

> In a most direct sense opportunism means being prepared to respond to the opportunities and difficulties which present themselves from the viewpoint of development and management, this suggests a strategy which allows for high mobility and rapid de-stocking and re-stocking or other such tactics for dealing with uncontrolled changes in plant community structure and biomass (Ellis, *et.al*., 1993, 40).

According to this grazing strategy a herder should allow his livestock numbers to expand naturally during good seasons thereby insuring against loss and diebacks of animals during drought or drier periods. This is known as an opportunistic grazing strategy. Animal numbers can gradually increase again during better seasons. The theory surrounding this strategy developed from normative observations of grazing strategies throughout a variety of communal rangelands in Africa. Animal numbers will be slower to recover than vegetation thereby giving vegetation a chance to recover more effectively than in areas where animal numbers are consistently held at carrying capacity being inflated with additional purchases of livestock when a season improves (Richardson, *et al.,* 2007). This grazing model is seen as accurate in systems where the dominant drivers of system dynamics are more abiotic factors than biotic factors, including things like rainfall, fire and floods (Vetter, 2005; 2004).

Linked to this are papers examining the way in which grazing systems utilising opportunistic type grazing patterns are not managed with an individualist perspective aiming to maximise output in the shortest amount of time, but are rather built on systems of local knowledge and interaction. Daily grazing decisions are governed by both livestock requirements and vegetation recovery, although at times these are moderated by other more immediate needs of the livestock herders themselves (Allsopp*, et al*., 2007; Baker and Hoffman, 2006).

2.6.3. Beyond Equilibrium and Disequilibrium

Richardson *et al*. (2005) suggest that in fact both the equilibrium and disequilibrium models of grazing fall short of explaining many African landscapes and the multiple drivers of vegetation cover and density, and state that aspects of both should be included in analysis of a landscape dynamics and projections of future action to ensure sustainability. Examining Namaqualand specifically they acknowledge that the main driver of vegetation cover and productivity is rainfall and this finding concurs with other studies (Anderson and Hoffman, 2007; Hendricks, 2007; Richardson, *et al*., 2005). This would seem consistent with a disequilibrium system. Despite not being the main driver in the system however, the livestock do have an impact. Anderson and Hoffman (2007) compared communal and commercial grazing lands adjacent to each other where the only real difference between the two regions was livestock density with the commercial farms having consistently lower stocking rates than the communal areas. They found that despite there being little difference in the vegetation composition and types across the two areas, communal areas had dramatically less overall vegetation cover. In addition there was a loss in the large succulent and woody shrubs and an increase in smaller dwarf shrubs (Anderson and Hoffman, 2007). The exact dimensions of vegetation change fall outside the scope of this study, but what these studies point to is certain limitations in the singular use of disequilibrium theories to argue that opportunistic grazing at consistently high stocking rates do not have long-term impacts on overall vegetation productivity.

Models of grazing at different livestock densities similarly show that although rainfall appears the main determinant in the semi-arid systems of Namaqualand higher stocking rates will ultimately impact the rangeland condition and its long term sustainability (Richardson *et al*., 2007; 2004; Hahn, *et al*., 2005). Richardson *et al*. (2007) particularly caution concerning this in the context of climate change and decreased rainfall in Namaqualand (MacKellar, *et al*., 2007; Midgley and Thuiller, 2007; Midgley *et al*., 2001).

It seems then that one should be cautious in extracting an entire grazing policy from one or other of these theories as although opportunistic grazing and higher stocking ratios

might have been sustainable in terms of livelihoods in Namaqualand in the past, this might not be the case indefinitely (Richardson *et al*., 2007; 2004; Hahn, *et al*., 2005). These models propose a reduction in livestock numbers in the communal rangelands as the only viable response to vegetation decline (Richardson *et al*., 2007; 2004; Hahn, *et al.*, 2005).

The papers which focus on the sustainability of livelihoods over the longer term, tend to argue in favour of opportunistic grazing and its success in maintaining stocking rates to a higher level. Whereas, those that focus on the sustaining biodiversity and long-term ecological sustainability, tend to advocate lower stocking rates. These papers fall into the resilience framework. One could contend that the arguments in these papers are representative of the interests of the individual or group conducting the research. As Benjaminsen states

> Any discussion about whether or not an area is degraded inevitably involves actors' interests, values, and power, and requires a study of the links between science and policy (Benjaminsen, *et al.*, 2006, 531).

Where the livelihoods of the population are seen as of preeminent importance one might argue that higher stocking rates are both logical and justified, but where biodiversity and conservation are prioritised the arguments might differ (Cousins et al., 2007; Hendricks *et al*., 2007; Benjaminsen *et al*., 2006).

2.6.4. Sedentary Lifestyle as Evidence of Civilisation and Progress

Land management strategies which incorporate concepts of equilibrium and carrying capacity are based on the idea that pastoral populations live a sedentary lifestyle (de Leeuw and Tothill, 1993). This was not true of most pre-colonial and many colonial African populations, most of whom were nomadic pastoralists. Nomadic pastoralism allowed populations to respond to seasonal and annual climatic fluctuations. Missionaries however, assert that a settled lifestyle is a sign of civilisation and progress and played an active role in encouraging permanent settlement. This and various similar notions are examined in depth in later chapters (Chapter 8). During the middle and late

nineteenth century the Cape colonial government legislated in favour of permanent settlement among native populations as a form of control.

The assumptions made in both academic and popular writing on African grazing systems are not supported by empirical evidence, and yet they have held much weight in determining land use and agricultural theories and policies. While there may be some truth in the conventional approaches, this research aims to open up possible alternatives through thorough examination of the past to identify actual causes of land use change and impoverishment. Here, these notions are challenged through an in-depth local-level historical study, rather than by constructing theories looking only at the existing landscape.

2.6.5. Agency of Local Populations

Finally, much past environmental and historical research on regions in sub-Saharan Africa failed to acknowledge the agency of local populations. Much historical writing tended to look at the ways in which change was imposed upon local populations and failed to acknowledge the active role played by local people in determining the ways in which these changes affected them (Kimambo, 1996). Historical writings on the influence of colonialism often fall into this categorisation. As Giblin and Maddox put it, "historians have tended to be preoccupied with the impact of imperialism and capitalism on East Africa and overlook the initiatives taken by rural societies to transform themselves" (1996, 1). One reason for this is the fact that historians were often concerned with colonial injustices and the resulting dispossession of the local people (Jacobs, 2003). As a result the active agency of local people in adjusting to and altering their own destinies is often silenced (Kimambo, 1996). Recent studies have attempted to redress this and to show the active role of local populations in accepting certain changes brought by colonialism while at the same time choosing to resist others. In constructing an environmental history for the Namaqualand area instances of local agency have been clearly identified.

Colonial pressures and policies had the effect of weakening the Namaqua population and limiting the livelihood choices available to them. However, during the unfolding of colonialism in South Africa the Namaqua people made certain choices concerning which changes they embraced and which they resisted. Environmental histories written more recently have begun to emphasise the agency of local populations (Beinart, 2002(b); Jacobs, 2002; Giblin and Maddox, 1996; Kimambo, 1996). Bundy's (1979) monograph, *The Rise and Fall of the South African Peasantry*, although not strictly an environmental history, challenges the idea that change was simply imposed on local South African populations. He shows how the population of the Transkei initially found ways to profit from the new opportunities provided by colonisation. It was only later, as Cape government policies designed to create a labour force and competition from colonial farmers began to tighten around them, that the decline of the peasantry began (Bundy, 1979). In writing a history for the Namaqua people, an attempt has been made to identify and acknowledge this agency wherever it is visible.

2.7. CONCLUSION

Understanding landscape necessitates a knowledge of its past. Thus environmental history is a vital and rapidly growing field of study. The literature reviewed above has been included as it is relevant to constructing a thorough, detailed, environmental history of Namaqualand. The study uses a multi-disciplinary approach including aspects of both human and natural sciences. This reconstruction of history aims to avoid the errors of applying conventional wisdom and totalising discourses to the landscape, suggesting the necessity of detailed local-level historical studies that tease out the complexities and nuances of change, in order to discover the actual nature of environmental change. Hence this literature is selected as the theoretical perspective for this research as much of it challenges perceived wisdom including notions of desertification, degradation, carrying capacities and lack of local human agency.

In order to trace the decline of the Namaqua population it is necessary to understand the bundle of activities, incomes and social reciprocities of which their livelihoods are

composed. The knowledge fields of vulnerability, adaptation and resilience and their related concepts are discussed and differentiated and their applicability to this research is identified. A distinction is drawn between external vulnerability including economic exposure and other structural constraints on livelihoods and internal vulnerability including agency and coping. External exposure becomes particularly important in driving the decline of the Namaqua population, and this link is drawn in Chapters 6 and 7.

Equilibrium and disequilibrium dynamics form important theoretical concepts for understanding grazing patterns and practises in the rangelands of the Namaqualand area. Both of these theories and the concepts on which they are based were presented in this chapter. The limitations of these theories were discussed, concluding with a cautionary note against basing grazing policy exclusively on either theory in isolation, as aspects of both are shown to have validity. Allowing stocking rates higher than official carrying capacity may be sustainable from a livelihoods perspective, but long term sustainability of biodiversity and conservation initiatives will certainly suffer ultimately affecting long-term livelihood sustainability, particularly in the context of climate change.

The vulnerability approach is used in this study to assess the increased exposure and risk of the population to environmental hazards. The concepts of risk and resilience are employed to assess the changing livelihoods of the community. These concepts provide a useful conceptual framework for understanding the increase in the vulnerability of the community and the increasingly negative effects of successive droughts.

In the chapters that follow the concepts and theoretical frameworks from the literature assessed above have been applied to the primary research conducted in Namaqualand. A detailed local-level study further assesses whether there is in fact evidence for the progressive degradation of the Namaqualand area for the period 1800-1900. There was a pervasive belief that such degradation took place towards the close of the 20th century and this led to a parliamentary inquiry into land ownership and allocation patterns in Namaqualand in 1896. It was assumed that poor land management by the local

Namaqua, under a system of communal land tenure, led to severe desiccation and land degradation. These claims will be investigated further in Chapter 8, making use of the challenging contentions prevalent in recent environmental historiography.

SUMMARY

In the past much environmental historiography has involved either a social or a physical focus usually with little integration. In understanding past community livelihoods and dynamics as well as the risks to which they are exposed, the use of a livelihoods' framework with attention to issues of vulnerability, adaptation and exposure is necessary. Research shows that rural livelihoods with greater diversity are more resilient in times of increased stress whereas those with more limited livelihood bundles are worse affected. External vulnerability, particularly as it relates to increased economic exposure and the increased risk that accompanies it is important in driving the decline of the Namaqua discussed in Chapters 7 and 8. Past grazing policy and practise relied on European models of equilibrium dynamics incorporating management practices such as carrying capacity and lowering stocking rates. An alternative framework, based on empirical observation of African rangelands known as the disequilibrium framework, was developed. This, although possibly a more accurate framework for African rangelands, nevertheless also has limitations. There is a danger in taking either of these models as a sufficient understanding of the impact of livestock on a local environment and African environmental historiography needs to be based on detailed long-term local-level studies. The agency and resistance of the local people also needs to be taken into account. The following chapters will employ these theoretical concepts in an assessment of Namaqualand in the 19th century.

CHAPTER 3

METHODOLOGY:
SORTING THROUGH THE RECORDS, RECONSTRUCTING THE PAST

> … recorded history is usually the record that dominant cultures leave behind them as they regulate the dominated to the shadowy status of 'people without history' (Penn, 1995(a), ix-x).

3.1. INTRODUCTION

This chapter provides an overview of the methodology used to construct the past environment of Namaqualand with particular focus on reconstructing climate and a thorough livelihoods study. The research for this thesis was conducted primarily through the use of historical documentary resources. A documentary-derived climatological reconstruction was undertaken, owing to the paucity of measured meteorological data for 18th and 19th centuries. Extensive archival research was conducted in various South African collections. The sources consulted included missionary reports, journals and correspondence, travel journals, government reports and correspondence, private correspondence and newspaper articles. In addition to references to climate the rich accounts of various social, economic and political changes further enabled the reconstruction of detailed environmental history for the Namaqualand area with specific emphasis on the area of Leliefontein. All descriptions, statements or discussions mentioning climatic conditions, as well as aspects of livelihood, or other relevant socio-economic aspects of the life of the Namaqua Khoikhoi were transcribed. The processes of selection, ordering and analysis of relevant material are explained in this chapter.

Reliance on qualitative sources for quantitative climatological data can be problematic. In order to minimise the problems related to this, confidence ratings were given to each year to which a precipitation category was assigned. To ascertain the accuracy of the documentary-derived data set, it was also tested against the where possible against measured meteorological data available for Namaqualand area for the 19th century. This

comparison shows that despite a small margin of error, the documentary derived record is fairly accurate.

The use of documentary sources to compile a wider and richer environmental history of the Leliefontein Namaqua also presented the researcher with certain challenges inherent to reconstructing a history from limited sources. Most of the historical sources were produced by the colonising population and thus are often biased in their representations of the local people groups, placing value judgments and obscuring actual events. The voices of the local people themselves are not heard directly in these sources, presenting an additional challenge to the researcher. It is not the primary focus of this research to address these issues, but issues around discourse and representation in sources need to be acknowledged (see section 3.4.2.). Aspects of the debates around the use of historical documentary sources in compiling social history are introduced briefly in this chapter, and expanded on in more detail in Chapter 8, with the intention that the researcher and the reader will become more sensitised to them during the course of this study.

In the context of the raised awareness created by attention to these issues it is felt that the integrated environmental history constructed using the methodology discussed below will be both unique and valuable. It is hoped that this study will help to create a greater understanding of the history of the Namaqua Khoikhoi and, indeed, of broader processes affecting the livelihoods of the South African rural subsistence pastoral population in general.

3.2. OBJECTIVES OF STUDY

This research aims to produce both a climatological and a socio-economic history of the Namaqualand area and to juxtapose the two in order to better understand the major forces affecting the increasing vulnerability and poverty of the Leliefontein Namaqua population during the 19th century. The central research question involved the relative contributions of climatic factors and socio-economic factors to the impoverishment of the Leliefontein community of Namaqualand during the 19th century. Therefore, the study

consisted of two parts: a climatic reconstruction and a socio-political history of the Leliefontein area. The research for both parts was based mainly on historical documentary resources for the Namaqualand area with an emphasis on Leliefontein during the 1800s. There are fewer sources available for the 1700s but where these were available they have been included. Very little quantitative climatological data were available for the Namaqualand area for the period being studied, but where this was available it is also used.

3.2.1. Historical Documentary Sources

The sources consulted for this research included missionary correspondence and journals, travel writings, and government reports and letters. During the 18th and 19th centuries, several travellers passed through the Namaqualand area and their journals provide a useful source. Leliefontein is situated on the main route to the Orange River in the north, so there are frequent references to this area and its people in these writings. Well known early travellers of the 17th and 18th centuries passed through this area: for example, Simon van der Stel (1685-1686), Ensign Rhenius (1724), Carel Brink (1761-1762), Robert Gordon (1779), Hendrik Wikar (1779), John Barrow (1797-1798) and Paterson (1779). These travellers' depictions of Namaqualand occur earlier than those of the missionaries and are the only written source available for the Namaqualand area for the 18th century.

For the 19th century, missionary journals and letters provide an excellent source of information. Missionaries from the London Missionary Society – Christian and Austin Albrecht and Mr. Sydenfaden – travelled through Namaqualand and into the Kalahari region in 1804. Their writings provide some of the first records for the 19th century and many of their letters and journal extracts are published in the *Reports of the London Missionary Society*. In 1816 Barnabas Shaw set up a mission station of the Wesleyan Methodist Missionary Society at Leliefontein where a missionary was resident for over a century. Many of the writings of these and subsequent missionaries are published in the Wesleyan Methodist Missionary Society publications, which include the *Methodist Magazine*, the *Reports of the Wesleyan Methodist Missionary Society* and the *Missionary*

Notices. Many of these missionaries resided at the mission station for long periods of time and grew accustomed to the climate and its changes. Barnabas Shaw himself resided at Leliefontein from 1816-1826 and the missionary who worked with him, Mr. Edwards, was there from 1818-1832. They were succeeded by Reverends Jackson, Baillie, Goodman and Tindall. The accounts of these missionaries are useful as they grew familiar with the climatic conditions of the area and, more especially, because they introduced agriculture to the local people and continued conducting agricultural activities throughout the century. Travel writings from the 1800s were also used.

For the second half of the 19th century, government reports, records and correspondence become a more prolific and valuable source of information. The latter are available from 1857-1881 and include an annual report on the Namaqualand area which is useful for the climatic reconstruction. Newspaper articles concerning droughts in Namaqualand begin to appear in Cape newspapers towards the close of the 19th century. These have been consulted. Another useful continuous source was provided by the volumes of letters of the Civil Commissioner of Namaqualand: of which hand-written copies are held at the Cape archives for the years 1856-1895. Certain of the Civil Commissioners remained in office for relatively long periods, such as J. Eustace, who resided in Namaqualand from 1879 untill 1890. Many of his letters are held in letter books in the Cape Town archives. Historical maps of the area have been used to establish the locations referred to in the primary sources as many of the place names have changed since the 19th century [Figure 3].

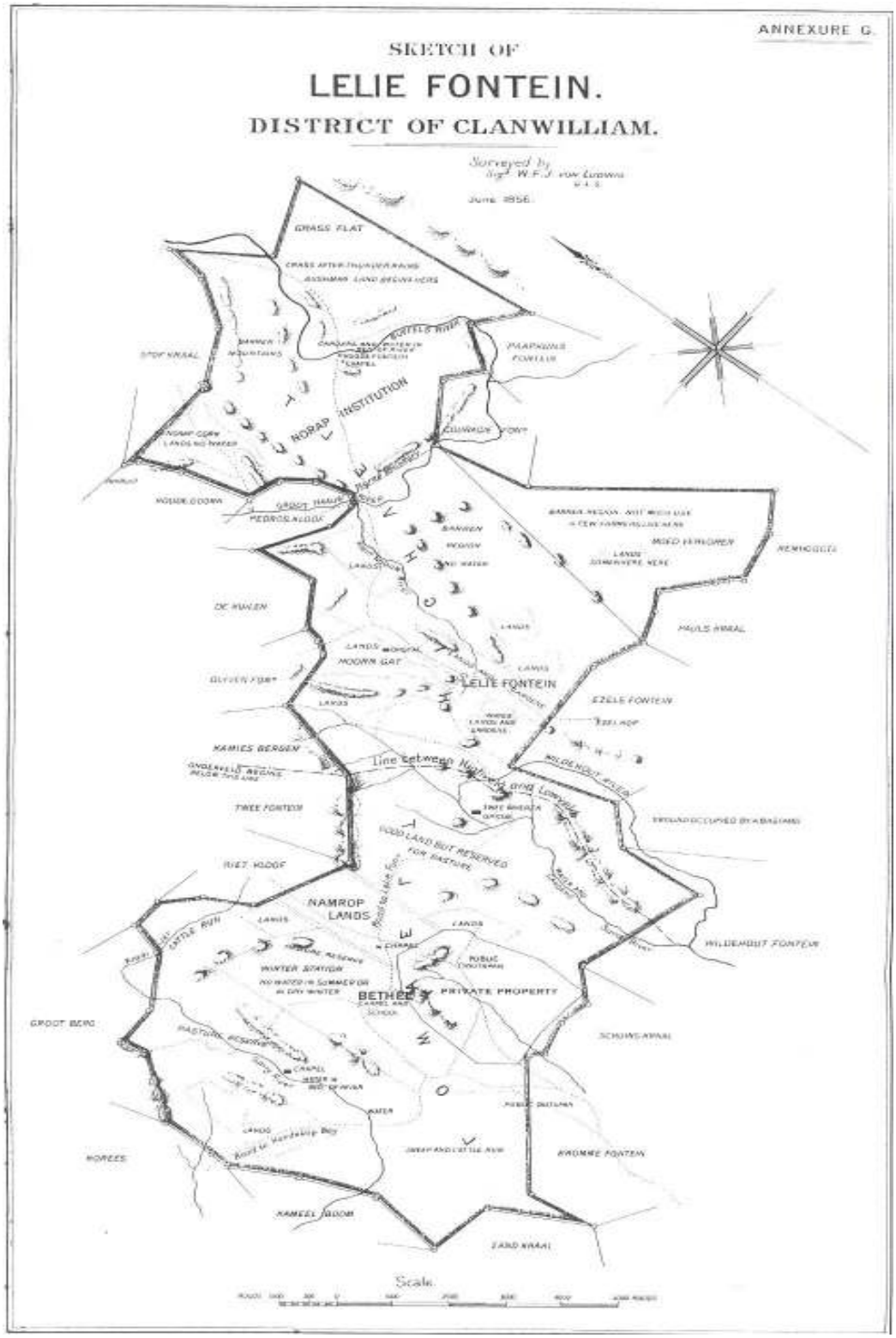

Figure 3: Historical Sketch of Leliefontein Mission Institution (C.T., A.G.,1538, 1905)

3.3. METHODOLOGY

The first of the study identifies periods of dryness, drought, wet years, floods, and so called ‘normal’ climatic conditions. This forms the backdrop to an environmental history of the Namaqualand area with particular focus on the coloured Rural Area of Leliefontein. This was then used to examine the effects of climatic extremes on the population during the early 1800s in comparison to those during the late 1800s. The climatic reconstruction is therefore initially separated from the socio-economic history of the Leliefontein people. References to climate are initially separated from those concerning the social history and the two are reconstructed separately [Figure 4].

Figure 4: Methodological Process Followed

STEP 1

Archival Work

ARCHIVES CONSULTED

Cape Town Archives
Historical Papers, University of the Witwatersrand
Pretoria State Archives

KEYWORD SEARCHES

Namaqualand
Kamiesberg
Leliefontein
Missionary Names

CATEGORIES OF SOURCES USED

Explorers, travellers and hunters journals
Missionary letters, journals, reports
Government reports, letters, and debates
Newspaper articles
Private correspondence
Records of loan farms granted
Historical Maps

STEP 2A

Climate Quotes Extracted

INDICATORS USED

- Drought
- Dry
- Crop failure
- Increased crop price
- Death of livestock
- Excessive heat
- Rain
- Good crop yields
- Floods
- Snow

STEP 2B

Precipitation Record Constructed

Table created showing:

- Drought
- Dry spell
- Normal
- Wet spell
- Floods

Climate chapter written

STEP 3A

Socio- Economic Quotes Extracted

INDICATORS USED

1700s:

- Cattle Trade with the Colony
- Encroachment of the Basters
- Encroachment of the Trekboers
- Smallpox epidemic
- Deteriorating relations with the San

1800s

- Basters
- Trekboers
- Restriction of nomadic movements
- Restricted land availability
- Missionary influence
- Introduction of agriculture
- Copper mining
- Transport riding
- Changing authority structures
- Taxation

STEP 3B

Environmental history chapters written examining livelihood change

Step 1: Archival Research

The methodology involved reading all available documentary sources for the Leliefontein area specifically and Namaqualand generally. This included research in the Pretoria, Cape Town and University of the Witwatersrand archives and the South African National library historical papers. Keyword searches were conducted for Leliefontein, Lily Fountain, Kamiesberg, and Namaqualand and the names of the missionaries who resided at the Leliefontein station were tracked. Statements relating to climatic and socio-economic changes were recorded verbatim.

The majority of the relevant government reports and correspondence as well as private letters are held at the Cape Archives. The published reports of the mission institutions are held at the University of the Witwatersrand Historical Papers Library, and copies of certain government documents relevant to the area are held in the Pretoria archives. Lengthy visits to all of these archives were therefore necessary. Government reports concerning the land held by the Mission Stations in Namaqualand were complied towards the end of the 1800s. These provided insight into the governance and governance disputes of these areas. In addition, a number of individual government and private letters also provided useful information, as discussed in the section above. Difficulty in securing sufficient research funds meant that a visit to the missionary archives held in the School of Oriental and African studies in the University of London was unfortunately not possible, but effort was made to gather all of the archival sources available in the various locations in South Africa.

Once all the relevant information had been extracted from all the available sources, the research was divided into two sections. The first consisted of a climatic reconstruction to create a precipitation record for the 19th century. The second consisted of a reconstruction of the socio-economic history of the population of the Leliefontein area for the same period. The steps followed for each section will be discussed separately below.

Step 2: Climatic Reconstruction

The climatic reconstruction section of this research falls into the field of historical climatology, as distinct from palaeoclimatology and instrumental climatology. Although each involves the study of past climatic data, the data source and method of analysis differs for each field. Historical climatology involves the use of historical documentary source materials to obtain the data set, using both direct and indirect indicators of past climatic events. Palaeoclimatology makes use of evidence stored in natural archives (such as ice cores, tree rings or pollen deposits), and instrumental climatology is based on recorded instrumental data (Pfister, *et al*., 2009). Within the research framework of historical climatology both direct and indirect observations can be used. Direct observations include recordings of actual weather events, such as drought descriptions, flood line markings, storm events; whereas indirect observations include recordings of climate controlled outcomes, such as crop yields, livestock productivity and more (Pfister *et al*., 2009). Within this research both direct and indirect indicators were extracted for analysis and triangulation.

The climatic reconstruction involved a number of steps. First all references to climatic factors were transcribed from the archival research. These were then placed in chronological order so that all of the references to each particular year could be triangulated and a rainfall category assigned to each year. Confidence ratings were assigned to each reading based on the number of references to each climatic event. The documentary-derived data set was then graphically represented. In addition, the data was tested against the available measured meteorological data for Springbok from 1878 to assess its accuracy.

Step 2a: Climatic Indicators Selected and Relevant Quotes Extracted

The earliest rainfall figures available for most of southern Africa date back to as recently as the 1870s (Lindesay and Vogel, 1990; Nicholson, 1979). For the Namaqualand area the earliest measured meteorological data available is for the area of Springbok, shown on the map with its historical name ‘Springbokfontein’ [Figure 1]. This comprises monthly rainfall data and is only available from 1878. Due to the limited measured meteorological data available it was necessary to find another source of climate

information for this period. As a result, available data was used in conjunction with historical documentary sources. Using the historical documentary sources, descriptive information was used to reconstruct the climate for the 19th century. From the various sources mentioned above all references to climate or climatic factors were extracted. These included direct references to climatic factors such as dry periods, drought, lack of rain, rainfall, storms, floods and snow; as well as indirect references to events such as crop failures, planting times, famine, crop yields, poor grazing, lake and river levels and others (Pfister *et al*., 2009; Nash and Endfield, 2002a). The dates and specific locations of each quote were noted. Certain sources (such as journals) provide the exact date of the reference, while others (such as the reports of the Civil Commissioner) only describe the overall climatic state of the year in question.

The quotes were then put into chronological order to facilitate the identification of major drought periods, wet spells and normal conditions respectively. This enabled the cross-referencing of information from various sources and the corroboration of the conditions described. A table was compiled for the whole of the 1800s, listing the climatic conditions for each year. Daily weather data were copied where available, because these provided information with regard to temperature ranges and the timing of rainfall events relative to seasonality (Mock, 2002). With Namaqualand being a predominantly winter rainfall area, January to December is recognised as the rain year. However as many of the historical documentary sources are only dated with the year and the exact date is not given it was felt that accuracy of the overall data set is improved by using the calendar year for the graphic representation. This is consistent with the work of Vogel (1987), which allowed the comparison of the two studies [Figure 14].

Some of the references are ‘temporary observations,’ made by travellers, government officials or visitors to the mission stations. Others provide us with ‘multi-year records’ in cases where the individual doing the observation resided in an area for a number of consecutive years (Nicholson, 2001), for instance, missionaries and the Namaqualand Civil Commissioner. Multi-year records are useful sources as the observer had achieved

an understanding of the climate and therefore was less prone to exaggeration with regard to climatic conditions.

Historical documentary sources have been used by other climatologists and environmental historians in order to reconstruct the climate of particular areas for periods where little or no detailed instrumental data exists (Grab and Nash, 2009; Nash and Grab, 2009; Pfister *et al*., 2009; Nicholson, 2001; Nash and Endfield, 2008; Nash, 1996; Quinn and Neal, 1992; 1987; Ballard, 1986; Hamilton and Garcia, 1986; Ingram *et al*., 1981). Examples of such studies relating to parts of the African continent are those done by Nicholson for the Africa as a whole (1979; 1981; 2000; 2001), Grab and Nash for Lesotho (Grab and Nash, 2009; Nash and Grab, 2009); Pikirayi for Zimbabwe (Pikirayi, 2003); Vogel for the Cape (Vogel, 1987; Vogel, 1989; Lindesay and Vogel, 1990) and Nash and Endfield for the Kalahari region (Nash and Endfield, 2008; Endfield and Nash, 2002a; 2002b; Nash and Endfield, 2002a). Other similar reconstructions have also been used for vulnerability assessments and anthropological studies (Endfield, 2007; Endfield and Fernández Tejedo, 2006; Bundy, 1979; Ballard, 1986). Many international studies have also employed similar methodologies for climatic analysis (some examples include: Grab and Nash, 2009; Nash and Grab, 2009; Nash and Endfield, 2007; Metcalfe *et al.*, 2002; Mock, 2002; Ortlieb *et al.*, 2002). Such evidence is extremely valuable, as it extends climatological records earlier than instrumental measured records and it is the only source of historical evidence from which the timing and severity of climatic events can be attained (Pfister *et al*., 2009). Therrell *et.al.* (2006) recently published the results of their tree-ring reconstructed rainfall data set for Zimbabwe and they found that, with few exceptions, many of the drought periods identified by their tree-ring studies correlated with those identified by Nash and Endfield (2002a) in their historical documentary studies.

Graphic Representation and Confidence Ratings

A climatic reconstruction was developed for the whole of the 19th century showing the dominant climatic events during particular years. As the sources used are qualitative, the climate could only be broadly classified into categories. Five categories were chosen to be consistent with other research conducted for surrounding areas (Nash and Grab, 2009;

Nash and Endfield, 2002a; Lindesay and Vogel, 1990; Vogel, 1987). These included very wet (flood years), wet years, 'normal' climatic conditions, dry years and very dry (drought) years. 'Normal' rainfall as referred to in descriptive documentary sources cannot be assumed to refer to mean annual rainfall, but rather it tended to be applied to a rain year in which rain fell timeously for both agriculture and grazing. These were documented according to the descriptions as they appeared in the sources. Reference to repeated dry years or droughts and the associated effects were identified. This information was then used to compile a graph showing years of drought, dry, normal or wet conditions [see Figure 13, Chapter 5]. This methodology provides a method for deriving quantitative data from qualitative sources (Pfister, *et al*., 2009; Grab and Nash, 2009; Nicholson, 2001; Vogel, 1987; Nicholson, 1981; Bryson and Paddock, 1980).

The following references have been selected to illustrate the approach used. These references were obtained from various letters from the Civil Commissioner in Namaqualand, Eustace, detailing the 1880-1883 drought and describing the conditions experienced during this drought.

> I know that the last three harvests have been either very indifferent, very bad or total failures (C.T., 1/SBK, 5/1/8, Eustace, J.T., Namaqualand, March, 1883).[3]
>
> The most notable event during the year 1883 in this Division was the considerable distress amongst our farming population both white and coloured consequent upon a drought extending more or less over nearly three years (C.T., 1/SBK, 5/1/8, Eustace, J.T., Namaqualand, 11/01/1884).
>
> With regard to all kinds of stock there will be I believe a considerable reduction in numbers, owing to the loss during the late drought (C.T., 1/SBK, 5/1/8, Eustace, J.T., Namaqualand, 15/04/1884).
>
> I believe the three years drought from which this Division suffered in 1880. 1881. 1882 and the poverty – by that drought from which many of the inhabitants of Namaqualand have never recovered is the primary cause of this arrears (C.T., 1/SBK, 5/1/9, Eustace, J.T., Namaqualand, 27/1/1887).

[3] Unpublished archival resources have been referenced using the first letters of the archive collection from which they come. That is, for the Cape Town archives they are referenced with the letters C.T., followed by the source number and the volume number of that particular piece of material. For articles from the University of the Witwatersrand archives they are sourced with the letter W., followed by the reference number of the box in which they are to be found. Documents from the Pretoria archives are referenced with the letter P., followed by the source number, the volume number and the reference number of the document. In the case of quotes, this is followed by the name of the author, place of writing and the date. Where quotations are paraphrased, only the date is provided (after Nash and Endfield, 2002a).

As can be seen from these sources, the drought, its duration and its impacts could all be identified. In this case, the drought spanned 1880-1883, and affected both the white and the coloured population of Namaqualand negatively, causing a decline in stock numbers. There are many other references to this drought period in the sources used which provide an even more detailed picture than the quotes selected here. The methodology, while not as objective and precise as might be desirable for a climatic reconstruction, nonetheless yields a good surrogate data source of the major precipitation events (Nash and Grab, 2009; Pfister, *et al*., 2009; Nash and Endfield, 2002a; 2002b; Nicholson, 2001; 1981; 1979; Ingram *et al*., 1981).

For certain periods references to a particular climatological condition are prolific but for others there are few or vague. The number of sources referring to climate for each year ranged from 1-20. As a result confidence ratings were awarded for the information for each year in order to allow the reader to easily distinguish data with the greatest certainty [Table 1]. The rating for each year was derived from the number of sources consulted for that particular year as well as the number of references to the particular climatological condition in question, and this was used to assign a confidence rating of between 1 and 3 to each year. The confidence rating of 1 was given where there was only one source referring to the climatic condition. The years with confidence ratings of 1 are therefore questionable. However, it was felt that where the source was reliable – such as that provided by a missionary living in the area – it would still be useful to include these in the data set. This follows the method used by Ortlieb (2000) in conducting similar research to construct an historical El Niño sequence. He argues that to leave out the years in which there was only one reliable source would severely shorten the record available. A continuous record is also valuable for comparison with similar research in the surrounding areas and for botanists, environmental historians and others.

Nevertheless, a confidence rating of 1 serves as a caution to the reader that the information may be inaccurate. The years which were awarded a confidence rating of 3 were those which had more than 3 references to them and where the dates and places of

these references were very specific, these have been distinguished on the graph for easier reference [see Figure 14, p.132]. This classification of confidence developed here and used in the article published from this research in *Climatic Change* and has since been employed in subsequent historical climatic reconstructions by other authors (Grab and Nash, 2009; Kelso and Vogel, 2007).

Since the main purpose of the documentary sources used was not to record climatic conditions, there are a number of years for which no references to climate could be found. Nicholson (2001) suggests that for many areas it can be safely assumed that any unusual climatic conditions would have been remarked upon in the sources. Certain of the sources consulted for this research, such as those of the missionaries and civil commissioners, were concerned with grazing and crop yields and therefore would probably have remarked upon below normal rainfall periods. However, one cannot assume this deduction to be one hundred percent accurate in every case and as a result this assumption has not been made for this research. For the precipitation record table and graph, only the years where there was a direct reference to a climatic event in the sources were represented on the graph. In the text discussing climate use is sometimes made of the assumption that, as climate was not mentioned it can be assumed to be normal or slightly wet, but where this has been done the reader's attention is drawn to it. In this way every attempt has been made to make the precipitation record as accurate as possible.

Year	Classification	Confidence Rating
1817	Drought	3
1818	Wet	3
1819	Dry	1
1820	Drought	1
1821	Drought	3
1822	Wet	3
1823	Wet	2
1824	Normal	2
1825	Drought	2
1826	Drought	3
1827	Drought	3
1828	Normal	2
1829	Insufficient evidence	
1830	Normal	1
1831	Wet	2
1832	Insufficient evidence	
1833	Normal	1
1834	Drought	1
1835	Drought	1
1836	Drought	1
1837	Dry	1
1838	Dry	2
1839	Drought	1
1840	Insufficient evidence	
1841	Insufficient evidence	
1842	Insufficient evidence	
1843	Insufficient evidence	
1844	Dry	2
1845	Drought	2
1846	Insufficient evidence	
1847	Insufficient evidence	
1848	Dry	1
1849	Insufficient evidence	
1850	Insufficient evidence	
1851	Drought	1
1852	Insufficient evidence	
1853	Insufficient evidence	
1854	Dry	1
1855	Drought	1
1856	Drought	2
1857	Drought	2
1858	Insufficient evidence	
1859	Wet	2
1860	Drought	3
1861	Drought	2
1862	Drought	3
1863	Wet	2
1864	Normal	2
1865	Drought	3
1866	Drought	3
1867	Drought	2
1868	Drought	2
1869	Normal	2
1870	Wet	2
1871	Dry	2
1872	Wet	2
1873	Normal	2
1874	Drought	3
1875	Drought	3
1876	Dry	2
1877	Insufficient evidence	
1878	Wet	2
1879	Dry	3
1880	Drought	3
1881	Drought	3
1882	Drought	3
1883	Drought	3
1884	Dry	3
1885	Normal	2
1886	Normal	3
1887	Normal	3
1888	Wet	3
1889	Insufficient evidence	
1890	Dry	1
1891	Dry	2
1892	Insufficient evidence	
1893	Drought	3
1894	Drought	3
1895	Drought	3
1896	Drought	3
1897	Dry	3
1898	Dry	1
1899	Wet	3
1900	Wet	3

Table 1: Confidence Ratings
(Kelso and Vogel, 2007)

1: The value 1 was given when it was felt that the climatic condition assigned was questionable. This was awarded where there was only a single, although definite, reference to a particular condition or there were only references for the surrounding areas and not Leliefontein or Kamiesberg itself. 1 was also used where only the effects of a particular climatological condition were mentioned and not the actual condition itself, for example harvest failures indicating possible dry conditions.

2: A confidence rating of 2 was given when there was a very definite mention of a particular condition in the sources with clear and accurate date and place given but where the condition was only categorically mentioned in a single source. Here, specific words were looked for in order to indicate a condition, such as 'drought', 'crop failure', 'copious rains', a vague reference to a particular condition was disregarded.

3: A confidence rating of 3 was given to the climatological conditions with a number of references in the sources and where accurate place and dates were given, as well as a description of the impacts. These were the periods of which there could be little question. On the graph showing the climatological periods these have been shaded in order for the reader to easily distinguish them from the others which are more questionable [Figure 3].

Step 2.c. Data Verification

In Namaqualand the earliest instrumental figures available were recorded in Springbok from 1878. This data set was used to test the accuracy of the documentary-derived data set (South African Weather Service). Some data was also available for the Kamiesberg, the mountainous region where Leleifontein settlement is situated, but this data was very erratic and as a result the Springbok data was chosen for the verification. Despite the fact that Springbok is slightly north of the study area and at a lower altitude (Springbok is 991m above sea-level; Kamiesberg is 1448m above sea-level), and therefore receives less rainfall than Kamiesberg, preliminary analysis of the data for these two locations for the 20th century has shown that the patterns of wet, dry, normal and drought periods generally coincide. The Springbok data for 1878-1900 was used to confirm the accuracy of the information obtained from documentary sources [Table 2]. The mean annual rainfall for this area is 222,5mm. Laing's definition of a drought period as one in which less than 75% of mean annual rainfall is experienced was used for this analysis (Laing, 1992; Vogel *et al*., 2000). Wet periods were classified as more than 125% of mean annual rainfall, while slightly wet or dry periods were between the mean and these figures (Kelso and Vogel, 2007; Vogel *et al.*, 2000; Laing, 1994) [Table 2].

Year	Annual Rainfall (mm)	Data Verification
1878	315	Correspondence
1879	251.9	No correspondence
1880	178.8	Correspondence
1881	212.6	Seasonal anomaly
1882	62.3	Correspondence
1883	168	Correspondence
1884	130.8	Seasonal anomaly
1885	216.3	Correspondence
1886	214.5	Correspondence
1887	218.9	Correspondence
1888	418.6	Correspondence
1889	151.9	No documentary evidence available
1890	224.6	No correspondence
1891	216.6	No correspondence
1892	344.9	No documentary evidence available
1893	222.9	Seasonal anomaly
1894	203.8	No correspondence
1895	109	Correspondence
1896	132.1	Correspondence
1897	180.9	Correspondence
1898	247.6	Seasonal anomaly
1899	330.6	No documentary evidence available
1900	303.5	No documentary evidence available

Table 2: Verification of Documentary Data with Available Rainfall Data from Springbok
(Kelso and Vogel, 2007)

Rainfall Data Classification Categories (adapted from Laing, 1992)

Wet	more than 278mm
Slightly wet	between 245mm and 278mm
Normal	between 200mm and 245mm
Dry	between 167mm and 200mm
Drought	less than 168mm

The analysis revealed a direct correspondence in the climatological periods for 11 years out of a possible 19. An analysis of the monthly rainfall data for the 8 years that did not correspond directly revealed seasonal anomalies during the growing season for 5 of those years. 1881, 1891, 1893 and 1989 all received little or no rain during the months of October to December. Documentary research showed 1884 to be a dry year when it was in fact a meteorological drought year, but received unusually heavy rainfall during September and October: which are vital months of the growing season. As a result the

documentary sources describe the harvests during 1884 as reasonable, thus producing the error in the historical records (C.T. 1/SBK, 5/1/9, Eustace, J.T., Namaqualand, 1886).

1881 received what would be classified as normal rainfall when looking at the annual rainfall figures, although analysis of the documentary evidence showed it to be a drought year. However, monthly rainfall data reveals that between September and December only 6,4mm of rain fell, while the normal average for these months is 46,3mm (South African Weather Service). In this instance, then, it is evident that seasonal drought occurred and this, during the period in which rainfall is vital for agriculture and therefore 1881 was represented in the sources as a drought year with widespread crop failures. This error can occur when documentary data is converted into climatological data: for example, the effects of a drought might be experienced when rain falls during a time of year when it is not useful for agriculture and therefore sources might describe it as a drought, whereas annual rainfall figures represent it as a relatively normal year. As in the case of 1881, where the previous year and the following three years were meteorological drought years, the sources actually discuss how the rains improved in 1881, but the latter rains failed causing crop failures (Cape of Good Hope, 1881, C.T. AG 1538, Tindall, Stellenbosch, 13 June 1890). Therefore the effects of this drought lasted throughout the period causing several writers to perceive it as a drought year (Cape of Good Hope, 1888; C.T. AG 1538, Tindall, Stellenbosch, 13 June 1890).

> The year 1881, has, generally, in this division, been one of improvement upon the two previous years …. Owing to the abundance of rain that fell in the beginning of the year in Bushmanland, the chief grazing of this division, stock of all kinds throve well …. We also had fine rains during seed time in the more western and corn-growing districts, and there was, in consequence, a larger breadth of ground broken up and sown than in former years. Unfortunately the rain-fall during the time the seed was in the ground – a little over an inch, between August and November – was insufficient to bring the grain to maturity; this year's harvest was therefore generally a failure. This is the third year in which the ingathering has been little or nothing, owing to the absence of the latter rains. (Cape of Good Hope, 1881)

It is evident from this discussion that the main period of drought was identified using the documentary sources and taken in conjunction with the descriptions of the conditions in 1881, it can be seen that the documentary sources provided an excellent overview of the

climate of 1881. Using documentary sources thus allows for the identification of periods of climatic stress with only a slight margin of error.

Data verification shows therefore that the data is reasonably reliable – and where it is incorrect this is only by a small margin. In addition, analysis of the monthly rainfall showed that 5 of the 8 years that did not correspond experienced seasonal anomalies. The confidence ratings also enable the identification of climatological periods for which the greatest certainty exists [see Figure 14, 132]. Thus, despite certain difficulties, this is a useful source of climatic information, especially in the absence of other records.

The drought chronology for this provides a necessary backdrop to the successive changes which the local population experienced as the century progressed. It is necessary to know whether the climatic conditions during the 1800s were similar to those experienced today to accurately identify the sources of the impoverishment of the local population. The following discussion is concerned with the way in which the socio-economic history was compiled.

Step 3a: Social, Political and Economic Indicators Selected and Relevant Quotes Extracted

A similar methodology to that discussed above was used to reconstruct the social history of Leliefontein: based on archival studies, in which historical documentary evidence was consulted. Statements relating to major changes or events were collected, including quotes relating to changes in the political organisation of the Leliefontein peoples, changes in the livelihoods of the local people groups and the relationships between these. Specific details were also collected: for example, statements regarding population numbers, livestock numbers, and nomadic routes. References to social, political and economic changes affecting Namaqualand during this period were also recorded, along with their date and location. This produced a huge volume of raw historical information related to many different factors which then had to be sorted to identify the dominant factors influencing changes in land-use and livelihood.

Once a general understanding of the shifts and changes of the period was obtained these socio-political factors were grouped together under predominant influences. Factors which stood out as major anthropogenic causes of changes in land-use and livelihood were selected. These included the introduction of mining and compulsory taxation and restrictions on land-use and migration. Information extracted from the sources which related to one of these main factors was then grouped together in chronological order to provide a clear picture of the relative influence of each factor. This methodology has been advocated for anthropological studies by Baron (1982) and used for historical and archaeological studies by Penn (1995a, 1995b) and Archer (1996).

Step 3b: Socio-Economic History Compiled

Once the factors affecting changes in land-use and livelihood in Namaqualand were identified and the information available in the primary sources sorted, the history of the area was constructed. The change inducing factors identified for the 1700s were different those identified for the 1800s. The section covering the 1700s was written using primary and secondary sources and is included in Chapter 4.

More primary sources exist for the 1800s and this, along with other factors presented later meant that it was more effective to divide this period into two separate sections and discuss it in two separate chapters. The first spans the period from 1800 to 1853: a period dominated by missionary influence. The second period spans 1853 to 1909, which although still influenced by missionaries, was also affected by the introduction of copper mining to the area and the activities associated with it. During this period there was also an increase in the influence of the colonial government and a decrease in the land available to the population for nomadic movement. All of these factors influenced land-use and livelihood. All references to livelihood activities such as agriculture, harvests, transhumance, livestock, labour activities, mining and trade were grouped together and periodised in order to present a detailed picture of the changes that occurred. References to the prosperity or decline of the community were also noted. The methodology used for this research has been diagrammatically represented in Figure 3.

Step 3c: Representations

In addition to the climatic and socio-economic references, ideological and racist representations of the Namaqua were also extracted. The use of historical documentary sources necessitated this because the references to the local population were so often strikingly racist and were repeatedly used as a direct justification for expropriation of land or exploitation of labour. Issues of representation are examined further in section 3.4.2 of this chapter and in Chapter 8.

Identifying Drivers of Change

The two sections of the research – climatic reconstruction and environmental history – were then brought together to explore the relative influence of climatic and anthropogenic factors in inducing livelihood and land-use change in Namaqualand. Conclusions are drawn as to the major drivers of change. The influence of climate on livelihood change is analysed in the light of the influence of other human induced factors of change.

The methodology employed in this research is open to criticism: the use of historical documentary sources for the reconstruction of climate has been debated in a number of sources and has many drawbacks. Despite all the difficulties it is necessary to use this methodology as documentary sources are the only available source for the period studied. A discussion of the problems resulting from the use of documentary sources follows.

3.4. RETHINKING THE SOURCES – CRITIQUE OF METHODOLOGY

The use of historical documentary sources presents a number of problems for the researcher. Certain of these difficulties relate to climatic reconstruction and others to the use of these sources for the reconstruction of socio-economic history, these are presented separately here.

3.4.1. Accuracy and Precision: Problems Arising from the Use of Historical Documentary Sources for Climatic Reconstruction

Accurate records of dates and locations are essential to obtain quantitative climatic information from qualitative sources. Quantitative meteorological data such as rainfall

figures and temperature recordings provide a measured scientific record of the climate. Historical documentary sources, however, give a more subjective description of climatic conditions, which often involves generalisations for a large area or a long time period. In the case of Namaqualand, sources are particularly subjective as they were often written by people who were recent immigrants to the area, such as missionaries or travellers. Thus, descriptions of climate are often exaggerated as writers were unfamiliar with the normal climate of the area they are describing. This exaggeration occurs frequently with regard to dry conditions in Namaqualand in cases where the author was unfamiliar with the low rainfall of the area and compared it to that of his place of origin.

3.4.1.1. Accuracy of dating

The accurate dating of extracts presented a serious problem. Sources such as the *Reports of the Civil Commissioner* contain annual reports which generalise climatic conditions for the whole year. This is useful information for areas like Namaqualand where the rainy season falls in the middle of the year, but it is less useful for areas like Bushmanland where the rainy season is in summer and therefore spans two years. Some of the missionary sources also presented dating problems. The letters and journal entries were usually sent by ox-wagon to Cape Town and then by ship to the missionary societies in London. This created a long delay between the time that the letters were written and the time when they were published. It was usually the case that the letters were published in the year following that in which they were written, although in certain exceptional cases they appeared in volumes published two years after the date of writing. Letters from missionaries or mission stations do not always appear in chronological order and this also created dating problems. For the most part these problems were dealt with on an individual basis. Certain of the letters were not dated, and thus could only be roughly dated in relation to previous and subsequent letters. Where there was no precise way of dating letters, the information contained therein could not be used.

3.4.1.2. Spatial scale

The spatial extent covered by references discussed by different sources varied extensively. Some sources related to Leliefontein specifically while others dealt more

broadly with the whole of Namaqualand. For the most part the missionaries were based at the Leliefontein mission station and thus reported the weather conditions there. The correspondence of the Civil Commissioner, newspaper reporters and others tended to deal more generally with Namaqualand as a whole. Travellers usually only passed through the area once and often generalised about the climate based on a single season. This caused a problem with regard to the scale of the precipitation record. Although the focus is on the Leliefontein station itself, climatic references to the whole of Namaqualand have been used. This can safely be done for references to droughts, which are widespread phenomena. However, where the author refers only to a single rain shower or storm these extracts cannot be assumed to relate to the whole area as it has been shown that "[d]ry spells have had a greater areal extent and spatial homogeneity than wet spells" (Preston-Whyte and Tyson, 1988). The author's location was noted for each reference to establish whether generalisations could be made. References to long-term drought or good climatic conditions were more useful than those to isolated events.

3.4.1.3. Overemphasis of extreme climatic events

Another shortcoming of documentary sources is that they tend to emphasise extreme climatic events and neglect to make reference to normal climatic conditions. This is because the effects of extreme events on human beings are so much greater than the effects of the 'normal' or expected climatic regime. None of the sources used were centrally concerned with chronicling weather patterns, and therefore references were only made to conditions which had a direct effect on the people. Missionaries, for example, refer to the way climatic conditions affected the nomadic patterns of the Leliefontein population. The Namaqualand Civil Commissioner's discussed climate only when it had an adverse effect on the productivity of the region. This created difficulties for research as climatic extremes, particularly drought, often received several references while normal conditions and 'wet-spells' often go unmentioned in the documentary sources as the effects of these were not detrimental. Thus there is a possibility of over-representation of climatic anomalies in the records.

Travel writers tended to emphasise the dryness of the landscape because of the importance of water for their oxen and other livestock. Although there are frequent references to dryness in travel writings this does not necessarily indicate a drier than normal climate, it could simply be normal dry season conditions. People who resided in the area for a number of years tended to make less of these errors. It is therefore important to use and cross-reference a number of sources. The researcher needs to be aware of all of these possible problems in order to select information which is accurate and be able to justify it as valid.

3.4.1.4. Subjectivity

One of the main problems associated with the use of documentary sources is the subjectivity to which they succumb (Vogel, 1987; Bryson and Padoch, 1980). The information is often descriptive in nature and imprecise (Nicholson, 1981). Some sources do not include the date on which they were written, presenting problems for accurate climatic chronology. Most of the evidence used for this research was obtained from primary sources: in other words, they were written by a person who was present in the area at the time (Pfister *et al.*, 2002). This avoids the distortions to which secondary information is subject. An effort was made to avoid the use of secondary sources as far as possible, and where these were used, other sources have been used to corroborate them.

The verification of sources involved proving that the observer was actually located in the area and observing the recorded information themselves (Pfiser *et al*., 2002). In most cases this was fairly easy to do as missionaries included their location in their letters. Travellers too, usually included their location in their journal entries and almost always described their river crossings. In addition, many travel writers were accommodated by missionaries and often refer to one another's journeys: thereby cross-referencing information and reinforcing its validity.

3.4.1.5. Lack of continuous consistent sources

The sources consulted were often discontinuous as they were made by individuals for their own sake and did not form a continuous record (Pfister, 2002). There were no single uninterrupted sources for the area, and this meant that a number of different sources had to be used from different authors each of whom had different purposes in writing. As a result individual subjectivity and interpretation was to be expected. This made it difficult to interpret the severity of the climatic event recorded, especially because certain authors were prone to exaggeration. None of them were originally from Namaqualand or areas with semi-arid climates, and as a result they found the dryness of the Namaqualand area strange and unbearable. Endfield and Nash (2002a), for example, discuss how the extreme dry climate of the Kalahari region was so strange to the missionaries of the 19th century that it was awarded religious significance. To overcome the problem of discontinuity of sources as many available primary sources as possible were consulted in the Cape Town, Pretoria and Wits University archives, as well as all published sources for the 18th and 19th centuries. Even so, for certain years however, information was still scarce and these present gaps in the precipitation record.

Other problems caused by the use of documentary sources included missing data or reports, differing observation times or seasons and the brevity of records (Baron, 1982). Accuracy is another difficulty produced by the use of historical documentary sources for a precipitation record for the 18th century. However, despite these difficulties, these sources still provide a valuable precipitation record.

3.4.1.6. Removing the descriptive layers – A defence of historical documentary sources for the reconstruction of climate

Historical documentary sources provide the only continuous sources of climatic information for the area being researched, and also offer valuable information through their subjective interpretation of the effects of the political, economic and social changes which occurred in the area during the 1800s. Missionary sources in particular provide continuous insight into the area as they come from a position of familiarity with climatic conditions and an understanding of anomalous conditions. This methodology has been

used in other studies in order to create precipitation records. Vogel (1987) made use of historical documentary sources for the Cape region to construct a precipitation record for the 19th century. Nicholson (2001) made use of this methodology to construct a precipitation record for the whole of Africa. In this study a data verification process was followed to confirm the accuracy of the documentary derived data set (see section 3.3, Step 2c). The problems with using these sources for the reconstruction of a social history are quite different.

3.4.2. Politics of Representation and the Power of Discourse – Difficulties Using Documentary Sources for Social History

The aim of this thesis was to produce an account of environmental change in the Leliefontein area of Namaqualand in the 18th and 19th centuries. This necessitated the climatic reconstruction discussed above as well as an anthropogenic history of the area. Environmental change in an inhabited area is never merely a result of physical factors such as climate: there are always elements of human-induced change. Thus it is necessary to reconstruct both the climatic and the human history. This is never a neutral process as in any scripting of a human story bias and misinterpretation is inevitable. In a narrative like the one being constructed here this problem exists on two levels: that of the subjectivity and ideology of the authors of the original sources and also that of the researcher compiling this narrative. Thus no claim is made here to produce an exhaustive or totally accurate history. Rather the aim here is to recognise and highlight some of the ideological bias of the original sources. In order to achieve this, the ideologies presented in each of the sources are clearly identified and deconstructed and that will be discussed in this section.

The use of historical documentary sources for the reconstruction of a social history presents problems of a different nature to those experienced when reconstructing the climate. The different intentions of the sources affect the way in which they represent the events taking place. None of the sources were written by the local populations, neither the Namaqua nor the Bushmen, but rather they were scripted by missionaries, explorers, hunters, or government officials. All of these individuals were recent immigrants to the

area or were temporary visitors and their ideological and religious convictions prejudice their impressions of the lives of the local people. These sources constitute a narrative for the period. They are written by specific authors with specific intention. The mission sources, journals and letters were written to be sent to the mission headquarters and were therefore often self-justifying. Similarly, explorers and travellers documented their experiences for a European audience, describing and cataloguing the landscape and its inhabitants; while government sources reflected the governance concerns of the period.

3.4.2.1. Discourse and ideology in missionary sources

Missionaries' letters, reports and journals were sent to their headquarters in London. These sources, as with all texts, contain ideological, religious and cultural biases: invariably presenting a Eurocentric outlook (Duncan and Ley, 1993). Missionaries were concerned to justify their positions by defending their 'achievements' amongst the population. They therefore tended to emphasise religious and so-called 'civilising' changes that occurred amongst the local people. Many moral judgements appeared in the missionary writings (Endfield and Nash, 2002a). Climatic and physical factors in these sources often attribute the desolation of the environment to the religious failings of the local population (Endfield and Nash, 2002b). As Endfield and Nash assert:

> The implication is that, but for heathen superstition and rainmaking practises, this region of Africa [Kalahari] would be well watered (Endfield and Nash, 2002b, 731).

Representations of local people and their culture by missionaries present the traditional livelihood and cultural practises of the Namaqua Khoikhoi as opposing conversion and civilisation. Missionaries encouraged sedentary lifestyles in which people could remain close to the church and their children receive a Christian education. Permanent housing, permanent buildings and agricultural activities as well as dress and a good work ethic were all attributed eternal significance.

Missionaries played a role in the colonisation process moving into areas where colonial power had not yet reached with the aim of converting local people to Christianity (Comaroff and Comaroff, 1991). Part of their goal was also to 'civilise' the local people

through major cultural change couched in the guise of religious conversion. It would not be possible to argue that the missionaries did this with the direct aim of imposing colonial power over people, but with cultural change being introduced concurrent with religious conversion this influence occurred nevertheless. It has been argued that missionary influence was what prepared dominated cultures for colonisation (Comaroff and Comaroff, 1991).

In missionaries' representations, indigenous communities are presented as the 'other', in contrast to missionary ideology and lifestyle.

> Like many explorers and commentators of the period, the missionaries engaged in a good degree of othering of the indigenous community and a negation of their customs. The missionaries were essentially trying to create a society and a Christian space, where the local population were incorporated. Traditional custom and practice stood in the way of progress to this end (Endfield and Nash, 2002b, 734).

The local communities were represented as requiring cultural change in order to fulfil the 'bettering' opportunities offered by the missionary. Thus, missionaries were also concerned with justifying their own activities within communities, and cite evidence of improvement change for the purposes of obtaining financial support. Therefore it must be borne in mind that their writings constitute a narrative of power, of repression and of the subjugation of a culture (Comaroff and Comaroff, 1991). Local knowledge, meanwhile, has been re-inscribed by the authors of the records and therefore remains elusive (Endfield and Nash, 2002b).

> All information regarding indigenous practise and belief is reported by the missionaries themselves and hence provides at best merely a distorting lens through which to view the way in which indigenous populations comprehended and conceptualised the missionaries' presence (Endfield and Nash, 2002b, 734).

It is clear, then, that utilising these sources to construct a narrative of the history of the Namaqua Khoikhoi of Leliefontein is extremely problematic. Missionaries' representations of their own ideologies and moralistic judgements of the local people make it difficult to identify actual processes. It is in exactly these absences and silences however, that one may find indicators of what has become lost (Comaroff and Comaroff, 1991). It is in these value judgments that we find signs of the cultural practises and

livelihood organisation of the community. It is precisely in these statements that an alternative reading can often be found. As Comaroff and Comaroff (1991) state:

> The flood of writings by colonizing whites conveys much that was unintended; even the most tightly rationalized texts are polyvalent and convey far more than they mean to say. In subtexts that disrupt their major themes, the voice of the silent other is audible through disconcerted accounts of his "irrational" behaviour, his mockery, or his resistance. Thus, while we have relatively few examples of direct Tswana speech in the archives, we do have ample indirect evidence of their reactions and conversations with the mission – of the ways in which they chose to express themselves, often using the poetically intensified language of action, gesture, and the concrete sign. There is also a great deal of detailed description of "native" products and practices, detail for its own sake being the stuff of colonizing surveillance (Comaroff and Comaroff, 1991, 37).

Despite all the problems with mission sources, they remain useful to the process of historical reconstruction. They provide evidence concerning a number of environmental changes which took place during the 19th century and in this sense they continue to form an invaluable source. No written sources exist which were authored by the Namaqua Khoikhoi discussing the events of the 1800s. There are, however, many references to the Namaqua Khoikhoi in the writings of missionaries and explorers. These provide evidence concerning the processes and influences at the time. Many of the missionary sources used were written by missionaries who resided in Leliefontein for long periods of time who grew to know the Namaqua Khoikhoi and the San, and in some of their representations of these people groups are sympathetic.

3.4.2.2. Explorers and travellers: The naming and classification of the African landscape

Explorers, travellers, naturalists and hunters also provide a record of 18th and 19th century Namaqualand. In the case of the 18th century these are the main sources available. Their intention in writing is obviously quite different to that of the missionaries described above. Their intention was to discover, to document, to map. Their journeys were scripted in their journals emphasising the harshness of the landscape and the hardships they endured as a result of this (Duncan and Gregory, 1999). Many illustrated the animal, insect and plant life they came across, removing samples of plants and pelts to send back to botanists and biologists in their countries of origin to be subjected to empirical analysis. Duncan and Gregory (1999) explain the purpose of their activities thus:

> What [imperial travelers] saw with their omnivorous eyes, they named 'properly' for the first time, in the grand Linnaean manner (Duncan and Gregory, 1999, 1-2).

The inhabitants, too, were illustrated as natural curiosities, and their customs and traditions discussed with a spectator's interest. In some cases converstations with Namaqua or San were recorded, although as transcription took place after these conversations, these too cannot be taken too literally. At times the people groups referred to in the sources are incorrectly named, with groups of disappropriated Namaqua Khoikhoi referred to as Bushman-Hottentots. It is unfortunate that these outsider descriptions constitute the main surviving record of the people of Namaqualand for the 1700s and 1800s. Using these sources involves dealing with individual authors each with their own interests, distortions and selections (Penn, 1995(b)). But through a recognition of the situatedness of the author of each source, vital information can still be gained (Duncan and Ley, 1993). Thus the act of reading these sources involves interpretation and the writing of history an act of narrative construction (Penn, 1995(b)).

3.4.2.3. The Language of Power: Deconstructing Colonial Government Sources

The use of colonial government correspondence and reports is equally fraught with complications as these sources are written by European observers rather than the local people themselves. These sources are distinguished by their colonial concerns, rather than the interests of the Namaqua Khoikhoi, and thus they are subject to ideological distortions "operating in the service of power" (Duncan,1993, 39).

Government sources were predominantly concerned with white farmers and settlers in the Namaqualand area, the prosperity of copper mining, the labour supply for the mines and governance and control in the Namaqualand area (Penn, 1995(b)). Several letters concerned the extension of the boundary of the colony to the Orange River in order to gain increased control over the population there. Others discussed the provision of grazing land to the transport riders who were supplying the mines. For example, a parliamentary debate occurred over the introduction of private land holding into the communal reserve areas (C.T., CCP, 1/2/2/1/46, June 1896). These matters would not

have been the themes that would have emerged from the local population. Nevertheless, there are glimpses of the experiences of local peoples, which need to be extracted with a retrospective understanding of the processes occurring.

3.4.2.4. General Themes and Myths

Certain themes which run through-out a number of different sources, including the myths and ideologies underlying European colonial projects, whether they were those of missionaries, travellers or government employees. Chiefly, these involve the dichotomy between civility and savagery and between the known Christian world and the 'barbaric' heathen world (Wheeler, 1999; Penn, 1995(b)). According to these ideologies, local people were described as 'other' than European and their customs seen as inferior to the Western model. Penn describes it in the following way:

> Europeans had long believed in a fundamental dichotomy between civility and savagery. The European heartlands, i.e., the "known world", represented civilisation, where people looked like Europeans and practised the Christian religion. The further one went beyond the borders of civilization, however, the more likely one was to find wildness and savagery, the inverse in other words, of civilisation (Penn, 1995(a), xv).

3.4.2.5. Deconstructing the myths – A defence of the use of historical documentary sources

The main problem with the use of these sources to construct a history of Namaqualand is that they are all written by the colonising, white, male population: in other words, they are records of the dominant or powerful groups, and it is from this perspective that they are written. The voices of the colonised Namaqua Khoikhoi and hunter-gatherer San populations are never heard directly. Therefore, it is difficult to extract the processes which were directly affecting these people groups and to construct the histories of these groups. Nevertheless, many historians and anthropologists argue that the voice of the dominated groups can be heard through these very same European sources: that in the writings of the powerful lies the history of the struggle and the interplay of the two cultures can be detected (Comaroff and Comaroff, 1991). In other words, the silences in these sources and the explanations which trivialise local histories present an account of domination and suppression.

It is this account which the current research sought in its use of these sources, aiming to extract from them what has been silenced and to construct a more satisfactory representation of the processes affecting the Namaqua Khoikhoi in the 19th century. By acknowledging the historical situatedness of each author and the ideologies underlying the texts, it is possible to derive an alternative reading of history (Duncan and Ley, 1993). Reading these sources required the acknowledgement of missionary evangelism, explorers' concerns with categorisation, and colonial expansionism (Endfield and Nash, 2002a; 2002b; Duncan and Gregory, 1999; Duncan, 1993).

This process allowed for the acknowledgement of textual bias and sensitivity to subtext. In the stories of protest and opposition of local people, resistance to the changes imposed on them, and the frustrations of government officials and missionaries, it is possible to discern an alternative local history. As Comaroff and Comaroff (1991) found in their research among the Tswana people:

> In all these cases, of course, the Tswana speak through the European text; to the extent that "the other" is a construction of an imperialising imagination, s/he will always dwell in the shadows of its dominant discourse (Comaroff and Comaroff, 1991, 38)

Despite all the shortcomings of the historical documentary sources discussed they proved vital for this study of the people of Leliefontein, Namaqualand.

3.5. DEFENCE AND JUSTIFICATION OF AFRICAN ENVIRONMENTAL HISTORY

McCann (1999a) identified the main shortfall in research into African environmental historiography and described it as follows:

> … approaches to climate within African historiography overall have not seriously addressed either the problems of climate data or the development of a methodology appropriate to types of climate evidence available in preliterate societies. There have been few if any attempts, for example, explicitly to link questions of climate to micro-level studies of communities, villages, or ethnic groups that have been the hallmark units of analysis within Africanist historical and social science scholarship. Studies …. have taken place on a national or regional scale on the basis of interannual patterns of climate impact that provide little or no foundation for establishing a precise relationship between the effect of climate on local social, economic, and political life. African ecological and

> climate history would be far better served by a focus on the reconstruction of climatic and ecological systems, … rather than on crises. In Africa, the role of interannual variation – the seasons – has a far greater potential for describing historical interaction between human populations and their physical environment (McCann, 1999a, 273-274).

He highlights the necessity for studies which incorporate historical climatic reconstruction into local-level assessments of political, economic and social history. In this way he defends the type of study that has been attempted for Namaqualand in this research.

To understand the land-use and land cover change that has taken place throughout South Africa (and indeed Africa as a whole) it is necessary to conduct thorough studies identifying the drivers of this change, both physical and human. This involves in-depth studies of the multi-faceted drivers of change at the local level. No landscape can be understood without an examination of its past and thus, the field of environmental history has grown rapidly both in South Africa and internationally (Carruthers, 2002; Beinart and Coates, 1995). Progressive desiccation and degradation cannot be affirmed without research into past land cover and land-use. This needs to be done through local level in-depth studies and archival historical documents provide an important source for this as they provide insight into the land-use and productivity of the past. A better understanding of the relative effects of colonisation, commoditisation and privatisation as well as physical factors such as climate on the population and the environment is necessary.

In Namaqualand, the Namaqua Khoikhoi of the Leliefontein settlement were self-sufficient and even wealthy during the 18th century. By the close of the 19th century, however, they had become impoverished and remain so to this day. Research which looks only at present land-use practises will not unravel the changes which led to the impoverishment of this population. An historical study is vital in order to gain insights into the processes which led to impoverishment, and possible policies which could overcome this.

A newsletter from the Past Global Changes (PAGES) research programme expresses the necessity for this kind of research in the following way:

> Understanding present day and effectively anticipating future global changes calls for a thorough appraisal of this history (Oldfield and Messerli, 2000, 1).

A thorough historical study of a particular local area, such this one, allows for the tracing of the processes through which rural communities can move from being well-adapted to their environment, however harsh, to becoming vulnerable to the same environment through a process of changes. A semi-arid area such as the one chosen here is a useful place to base such a study because the harsh environment presents natural disturbances, and yet in past centuries the populations able to survive. It is therefore vital to identify the factors which changed people's ability to cope with their harsh environment.

3.6. CONCLUSION

In examining the driving forces behind land-use change on a local level and including physical, climatic factors as well as social, institutional and economic changes, an integrated detailed and analytical environmental history for the Namaqualand area was constructed. This study aims to contribute to fill a gap which the above-cited literature has identified in environmental history research.

The methodology employed for this study involved a thorough review of all the available historical documentary sources regarding Namaqualand with a specific emphasis on the area and communities of Leliefontein. All quotes relating to the climate of the area or to the political, social and economic organisation of the society were copied verbatim. These were then collated and analysed separately to construct a precipitation record for the 1800s and develop a socio-political history of the Nama-Khoikhoi of Leliefontein. These results were then verified using measured meteorological data and confidence ratings were assigned to the findings for each year. These results follow in Chapter 5 of the thesis and were published in an article in Climatic Change (Kelso and Vogel, 2007).

For the socio-economic part of the study all relevant findings were thematically organised to identify the main drivers of livelihood change. The history of this period was written up and it was found that it was useful to separate it into two periods, that spanning 1800-1853 and that spanning 1854-1900. The drivers of change were very different during these two periods and external exposure increased in the second. These findings are included in Chapters 6 and 7.

The methodology employed is however, far from flawless. The use of historical documentary sources created problems both for the development of the precipitation record and for the social history. The problems with using these sources for a climatological reconstruction included matters related to accuracy and dating and the descriptive nature of the sources. Using documentary sources for the socio-economic history presented a different set of difficulties as a result of ideological bias in the sources. The ideological perspective of the authors needed to be identified to deconstruct and evaluate their commentary and develop an alternative local history. The difficulties and problems with the use of these sources have been examined to show the shortcomings of research of this kind, and to allow the reader to reflect on the validity and reliability of the findings. These difficulties are examined further in Chapter 8 of the thesis.

The aim of this history has been to produce an historical narrative. Obviously, this too is open to bias and interpretation, although an attempt has been made to remove some of the layers of ideology imposed by the authors of the original sources. However, the very act of constructing an alternative history of necessity involves a reconstruction and representation of its own. The author of this history is no less situated in her cultural and ideological perspective than those of the original sources. Ideology that will, no doubt, be recognised retrospectively.

SUMMARY

The methodology used in this study included a thorough review of historical documentary sources and all measured meteorological data available for the 1700s and 1800s, with an emphasis on the 1800s. All quotes relating to the climate of the area were extracted in order to construct a precipitation record and graph for the Leliefontein area of Namaqualand. This presented methodological difficulties as many of the sources were imprecise and descriptive in nature.

Using the same sources, quotes relating to major shifts in the social, economic and political base of the Khoikhoi of Namaqualand were also extracted and recorded. These were organised into major change-inducing factors to be written up in two chapters discussing the history of the people of Leliefontein. The use of these sources presented problems of an ideological and subjective nature. These were different for each type of source and the effects of this on the research are discussed in detail in this chapter.

Despite the shortcomings of the research methodology and the lack of alternative sources for this period much can still be gained by this research. These problematic sources do gesture towards a more balanced, local-level, people-centred history. It is within the indications and silences that an alternative understanding of history can be sought and this has been attempted in this research.

Chapter 4 will now provide the physical and socio-economic background to the Leleifontein region of Namaqualand in the late 18th and early 19th century as the backdrop for the primary research to follow.

CHAPTER 4

COPING WITH MARGINAL CLIMATE, DISEASE, EXPLOITATIVE TRADE AND ENCROACHMENT: THE NAMAQUA BEFORE 1800

4.1. BACKGROUND TO STUDY AREA: INTRODUCTION

The location of the study area is the present day coloured rural area of Leliefontein: a marginal area both in terms of climate and the experiences of the population. Leliefontein is unique in that, although it is relatively small in spatial extent, it occupies two climatic zones and two distinct physiological zones, the characteristics of each of which will be discussed in detail. Familiarity with these zones forms a vital background to understanding the migratory movements of the local people. The aim of this chapter is therefore to present both a physiographic and a socio-economic background to the area of study.

A general introduction to the climate of the Leliefontein area and a discussion of the climatic controls of the region provides a vital backdrop for the reconstruction of the climatic history presented in Chapter 5. As a background, this chapter discusses the main climatic controls in the Namaqualand area and also examines briefly the possible link between the El Niño Southern Oscillation Low Phase events and drought periods in Namaqualand.

A discussion of the physiological background to Namaqualand will be followed by an examination of the population groups in the area prior to the main period of study: that is, the 17th and 18th centuries. The main people groups in and around the area of Leliefontein in the 17th century were the San and the Namaqua Khoikhoi. During the 18th century the Basters and the Trekboers began moving north from the Cape into the Namaqualand area and this had dramatic effects on the population. Disruptions to traditional livelihoods predate the 19th century (the main period with which this thesis is

concerned): for example, the smallpox epidemic and the exploitative cattle trade had set the disintegration of the Namaqua Khoikhoi in progress by the close of the 18th century. An understanding of the main processes of the 18th century, then, is vital to understanding the causes of environmental change and the economic decline which had already occurred within the Namaqua population by the beginning of the 19th century.

4.2. LOCATION

Namaqualand covers an area of 50 000 km^2 (Hoffman *et al*., 2007) [Figure 1, 14]. Historically, Namaqualand was known as the district of Little Namaqualand in the Cape Colony, while the area across the Orange River to the north (present day Namibia) was referred to as Great Namaqualand. Many sources dating from the 18th and 19th centuries do not refer to Leliefontein specifically. Thus, references to the Kamiesberg mountains, Kamiesberg village, or the area north of the Buffels River and south of the Groene River were included in the current study. The village of Leliefontein is also mentioned in earlier sources and it is important to distinguish this from later references to the Leliefontein area. The village of Leliefontein is located on the Kamiesberg Mountains and the name Leliefontein originated for this village in 1816 after the establishment of the Wesleyan Methodist mission in that area. Prior to that it was an important summer rainfall season gathering point of the Namaqua Khoi, but it was termed Kamiesberg derived from the Namaqua word meaning 'to gather' (Price, 1974; WMMS 1819a).

Leliefontein is one of the six coloured rural areas of Namaqualand. The others are Steinkopf, Komaggas, Concordia, Pella and the Richtersveld. Much of the population of Namaqualand is concentrated in the coloured rural areas (Archer and Meer, 1995). The histories of these areas have many similarities as they all originated as mission stations. Leleifontein covers an area of 75 000 acres (Hoffman *et al*., 2007). Leliefontein includes the Kamiesberg mountains as well as lower lying areas to the west and east. It straddles two rainfall zones which will be discussed in the following climatic section to follow.

Present day Leliefontein originated as a mission station of the Wesleyan Methodist Missionary Society founded in 1816. In 1854 it later received a Ticket of Occupation from the Cape Colonial government awarding land entitlement rights to the inhabitants of the mission station under the authority of the missionary (see section 7.3, p. 176). Under the apartheid government it became a 'Coloured Rural Reserve,' and under the Government of National Unity in 1994 was classified as a coloured rural area.

4.3. CLIMATE OF NAMAQUALAND

Namaqualand has a semi-desert climate and it experiences high diurnal and seasonal temperature ranges (MacKellar, *et al*., 2007). It spans two distinct rainfall regions: the Kamiesberg Mountains, which run throughout the Namaqualand area in a roughly north-south direction, separate the winter rainfall zone to the west of and on the mountains (into which the larger spatial area of Namaqualand falls) from the summer rainfall area to the east (MacKellar, *et al*., 2007; Dunne, 1988; Tyson, 1984; Price, 1976; Weather Bureau, 1960) as shown in Figure 1 [p.14]. A well defined atmospheric boundary layer separates moist air to the east from dry air to the west (Harrison, 1983). The escarpment, of which the Kamiesberg forms part modifies the winter rainfall brought by the frontal systems. The north eastern side (referred to historically, and therefore in this study as Bushmanland), falls within the summer rainfall region where summer convective precipitation plays a vital role in annual rainfall (Mackellar *et al*., 2007).

The region is a semi-arid area which is prone to extended periods of low rainfall and drought. Rainfall tends to be lower in the winter rainfall area (averaging at around 180mm per annum) than that in the summer rainfall area (where averages reach 250mm), with high variability between 50-250mm per annum (Desmet, 2007; INCO-DP Project, 1998a; Dunne, 1988).[4] Despite relatively high rainfall variability, in comparison to other semi-arid areas Namaqualand's rainfall is fairly reliable both in its seasonality and its quantity (Carrick and Krüger, 2007; Desmet, 2007; Hoffman *et al*., 2007). In addition, both summer and winter temperatures are moderated by the close proximity of the

[4] These averages apply to the whole of the western and eastern zones of Namaqualand, not just the Leliefontein area.

Atlantic Ocean (Desmet, 2007). As a result, winter temperatures are relatively mild resulting in conditions which allow for plant growth in winter (Desmet, 2007; Carrick and Krüger, 2007).

Periods of extreme rainfall – both low and high – occur frequently in Namaqualand (Schulze, 1965), which is also prone to drought. Droughts usually span several successive years, during which the negative impacts worsen as the drought continues. The north-western Cape region as a whole experiences highly variable rainfall:

> The position in the north-western Cape …. [is that] only 35% of all annual falls are within ±20% of the normal whilst both dry and extremely dry, and wet and extremely wet years are quite frequent which is shown by the wide "spread" of the percentage about the normal. In other words the annual district rainfall is much more varied and one can expect very large fluctuations from year to year (Schulze, 1965, 263).

Periods of climate stress and low rainfall in the Namaqualand area result from the combination of the various atmospheric pressure systems that dominate this region and sea surface temperatures (Carrick and Krüger, 2007; Kruger, 1996). The South Atlantic Anticyclone advects in cold dry air originating over the Atlantic ocean. The cold Benguela current causes less moisture to be advected over the west coast of South Africa, resulting in the development of desert climates along the west coast and western interior of the country. Some of the winter rainfall in the western parts of the Northern Cape results from cyclonic rainfall caused by the movement of mid-latitude cyclone systems inland over the south west coast (MacKellar *et al*., 2007). These systems usually predominate over the western regions of South Africa during the winter season. During the summer season, the mid-latitude cyclone systems usually bypass South Africa to the south and seldom affect rain except along the southern coastal regions (Harrison, 1983; Jackson and Tyson, 1971).

Moisture in the region is associated with both local and wider regional atmospheric controls. Cloud-cover over the Namaqualand area averages less than two tenths per annum (Jackson and Tyson, 1971). Fog and mists also form an important source of moisture in this region. During the night sea breezes advect in a significant amount of

water in the form of fog which is important for vegetation in the coastal regions (Desmet, 2007; Weather Bureau, 1996).

Rainfall records show that the region experiences periodic wet spells where the rainfall can be more than 100% above the mean annual rainfall (INCO-DP Project, 1998a). The whole north-western Cape region experiences highly variable rainfall as shown in a study conducted by the South African Weather Service. Namaqualand is therefore an area where the extreme rainfall values, both low and high, occur fairly frequently. It is an area of high rainfall variability (Schultze, 1965).

4.3.1. Climatic Statistics and Climatic Classification of the Leliefontein Area

Most of South Africa receives rainfall during the summer season apart from a belt of winter rainfall along the west coast (Desmet, 2007; Tyson, 1984). The South African Weather Bureau has classified South Africa into 15 climatic regions of which Namaqualand falls into the area which has been classified as desert and poor steppe (Schultze, 1965). According to this classification, approximately half of the province of the Western Cape, the whole of southern Namibia and the Namib Desert fall into this zone (Schultze, 1965), which is characterised by unreliable rainfall, reaching average annual rainfalls of about 250 mm in the interior and 50 mm near the west coast. This zone receives its precipitation mainly in the form of thundershowers. The west coast is frequently foggy, especially at night, as a result of the cold Benguela Current (Desmet, 2007; Schultze, 1965). Frost is common in the winter months, and has a limiting effect on agriculture.

The South African Weather Bureau has developed a series of maps which classify the rainfall districts of South Africa (Weather Bureau, 1960). Although they correspond roughly to the maps of the climatic districts, there are some differences, notably for the area of Namaqualand. It is therefore surprising that the area has a single climatic classification.

In classifying Namaqualand as a desert area the Weather Bureau ignores many of the local climatic influences which are vital to an understanding of the anthropogenic interaction with the climate of the area. In researching the climate of this area it has been difficult to obtain information other than a generalised discussion of the climatic characteristics and controls. There is little available research on the climate of the Northern Cape winter rainfall areas. Possibly as a result of its importance to agriculture, far more studies have been conducted on the summer rainfall areas of South Africa (Harrison, 1983). Recently though, research into the climatic controls of this region has been increasing seemingly as a result of its classification as a biodiversity hotspot and attention to the possible effects of climate change on this area (MacKellar *et al*., 2007; Midgley and Thuiller, 2007). Although not the central aim of this research, it does nevertheless contribute to a more detailed understanding of the historical climate of this region of South Africa (see Chapter 5).

4.3.1.1. Rainfall classification

One of the earliest classifications of the rainfall zones of South Africa was compiled by Schulze in 1965 for the South African Weather Bureau. The rainfall zones of South Africa were classified according to the season in which they receive their maximum rainfall [Figure 5]. The settlement of Leliefontein spans two of these districts with the Kamiesberg mountains forming the division between the two. The western part of the settlement falls into Type 1: 'Mediterranean', which experiences from the middle of April to September (Mulock-Houwer, 2001). The eastern part of Leliefontein falls into the area which he refers to as Type 4: the 'monsoonal' type, which has a single maximum rainfall in late summer or autumn, usually during the month of March. This area extends over the Bushmanland area right up to the Orange River, and across most of the Northern Cape (Schulze, 1965).

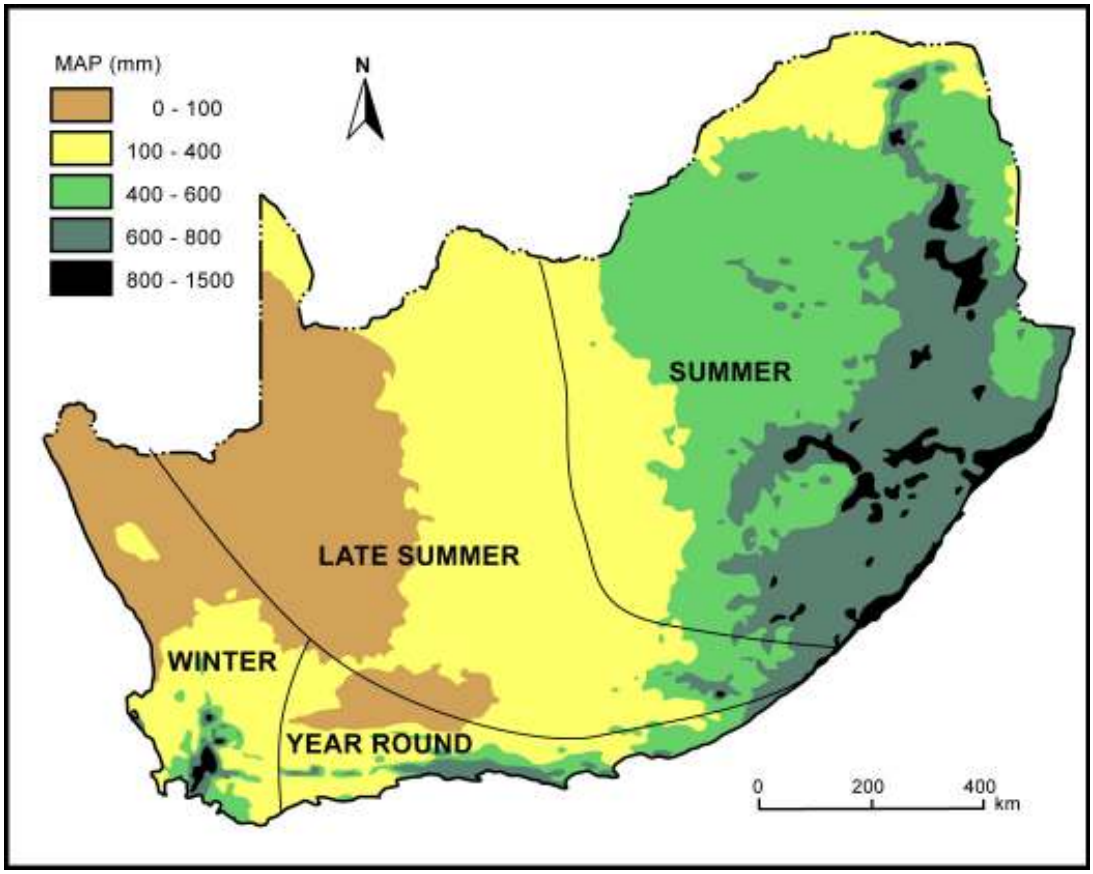

Figure 5: Seasonal Rainfall Regions of South Africa
(Adapted after Schulze, 1965, 289)

A more recent rainfall map classifies the rainfall zones of South Africa according to the month in which the highest rainfall occurs (Kruger, 1996). This shows that the North Western Cape is split with the winter rainfall area to the west where the rainfall is highest in the month of July, and adjacent to that is the summer rainfall area of the interior where the rainfall is highest in the month of March (Kruger, 1996) [Figure 6]. This has very important effects on the grazing patterns of stock farmers in Leliefontein (see Chapter 5).

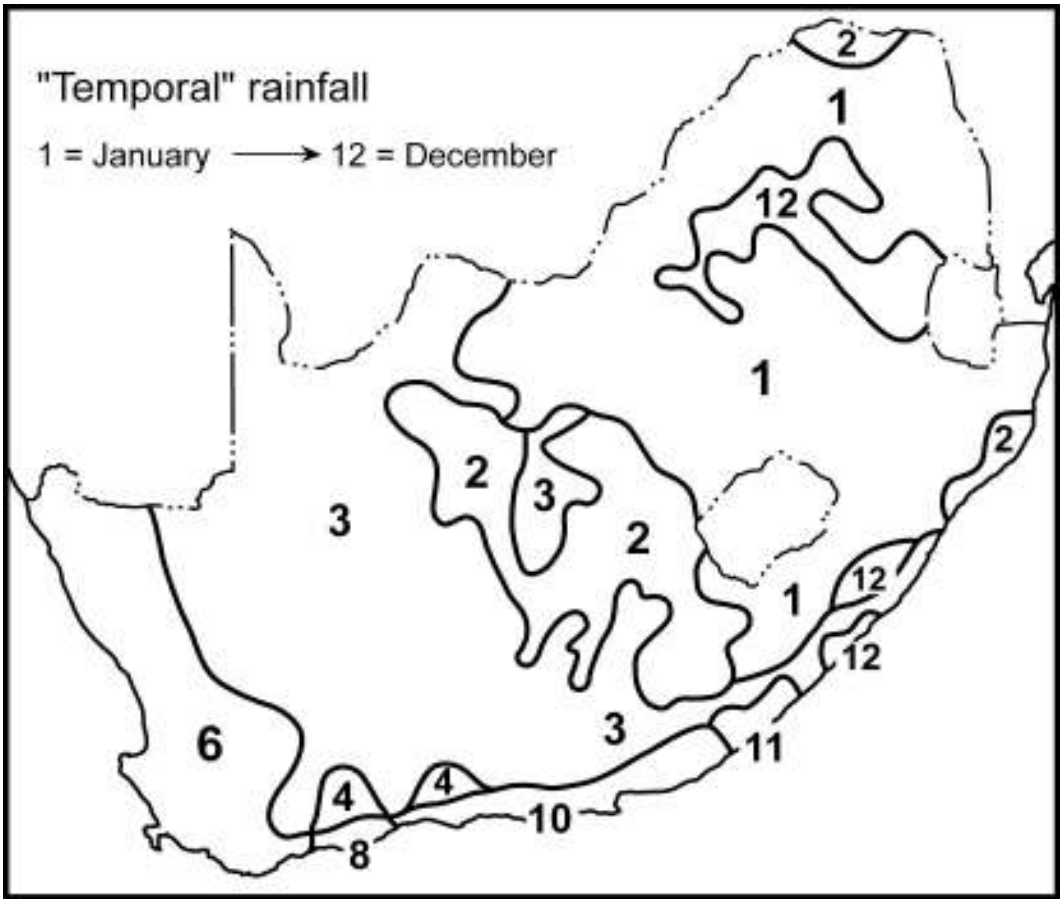

Figure 6: Month in which Highest Rainfall Occurs
(Adapted after Kruger, 1996)

The settlement of Leliefontein is the area with the highest mean annual rainfall in Namaqualand, with its average annual precipitation ranging between 301-330 mm annually [Figure 9]. Although it is also an area in which extreme wet and dry spells occur frequently, average figures are often not reached or surpassed (Schultze, 1965).

4.4. CLIMATIC CONTROLS

South African climate is dominated by anti-cyclonic circulation resulting from the discontinuous high pressure belt which is located around the latitude of 30ºS (Vogel, 1994; Preston-Whyte and Tyson, 1988; Tyson, 1986). This circulation has an effect throughout the year, but it is particularly dominant during the winter season when the cells shift approximately 6º northwards. Three cells dominate this circulation pattern

over South Africa: the South Indian Anticyclone, the South Atlantic Anticyclone and the continental (or Kalahari) Anticyclone [Figure 7] (MacKellar *et al*., 2007; Preston-Whyte and Tyson, 1988). The two which are most important to the area under study here are the South Atlantic Anticyclone and the continental anticyclone.

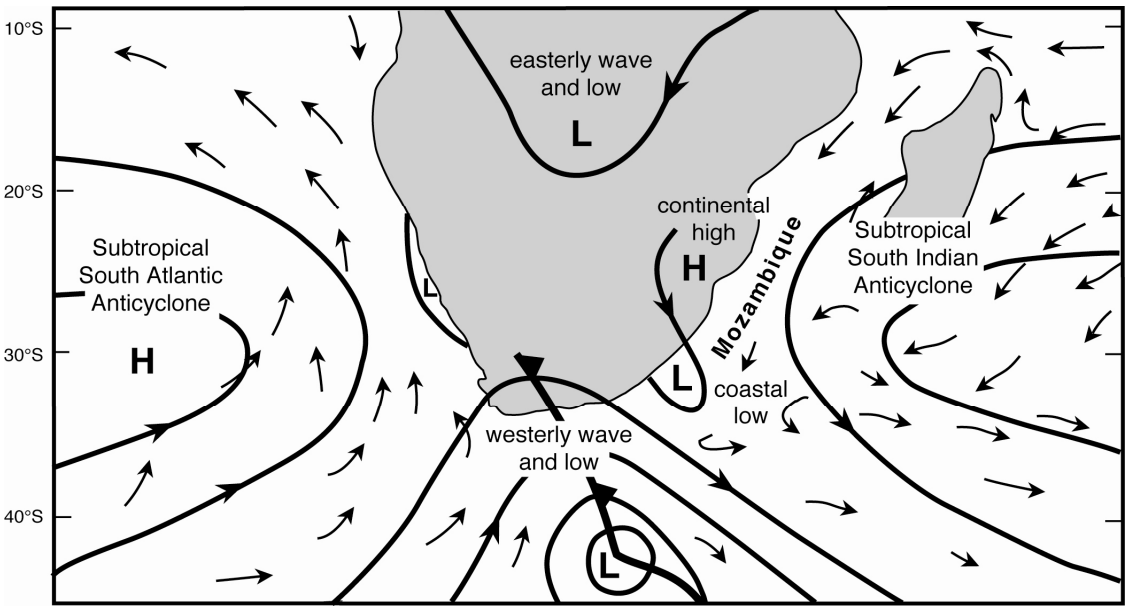

Figure 7: Dominant Anti-Cyclones
(Adapted after Preston-Whyte and Tyson, 1988, 210)

The circulation associated with these anticyclones is predominantly subsiding, anti-clockwise circulating air. This frequently results in clear, dry conditions and subsidence over the plateau. The anticlockwise circulating air can also result in a certain amount of uplift over the mountain belt of which the Kamiesberg mountains are a part, causing some orographic rainfall in this region, which contributes to the fact that this area has higher rainfall than most other parts of Namaqualand (Kröhne and Steyn, 1991).

Some of the winter rainfall in the western parts of the Northern Cape results from cyclonic rainfall caused by the movement of mid-latitude cyclone systems inland over the west coast. These systems predominate in the western regions of South Africa during the winter season, when the anticyclonic high pressure belt has shifted north. During the

summer season, the mid-latitude cyclone systems bypass South Africa to the south of the country and do not affect rain except along the southern coastal regions of South Africa (Harrison, 1983; Jackson and Tyson, 1971).

The higher rainfall received on the eastern side of Namaqualand is a result of the fact that this area receives its moisture from the eastern coastal regions (Preston-Whyte and Tyson, 1988; Harrison, 1983). Most of the rains in this area have not been advected in from the Atlantic Ocean to the west, but rather from the Indian Ocean to the east of South Africa. The rains in the summer rainfall belt of Namaqualand occur mainly in the form of summer cyclonic thunderstorm rainfall. Rainfall variability increases rapidly westwards. In addition to the effects of anti-cyclonic circulation and ocean currents, the rainfall in this area is also modulated by the El Niño Southern Oscillation.

4.4.1. El Niño Southern Oscillation and the Climate of Namaqualand

One of the phenomena that modulates rainfall in the region is the El Niño Southern Oscillation. Links between the El Niño Southern Oscillation (ENSO) and its influence on African rainfall have been discussed by Nicholson and Entekhabi (1987), Ropelewski and Halpert (1987, 1989), Nicholson and Kim (1997), Nicholson (1997), Nicholson and Selato (2000) and Nicholson *et.al.* (2001). The strongest signals of ENSO are felt in the eastern equatorial and south-eastern parts of Africa (e.g. Ropelewski and Halpert, 1987, 1989; Nicholson and Kim, 1997). Research on the relationship between rainfall and ENSO, particularly in attributing cause to southern African rainfall, has shown that the links between the two are complex, making it difficult to isolate specific dynamical mechanisms (e.g. rainfall inducing systems) that link ENSO to rainfall in the southern African region (e.g. Mason and Jury, 1997; Nicholson *et.al.,* 2001).

The links between rainfall seasonality and moisture sources (for instance, mid-latitude and tropical systems) have also been shown to be significant considerations in this region resulting in apparent contrasting and lagged rainfall responses to ENSO in Botswana in comparison to parts of South Africa (Nicholson *et.al.,* 2001). In late summer, for example, when ENSO has a strong influence on rainfall in Botswana the Indian Ocean is

the main source of atmospheric moisture (Nicholson, Leposo and Grist, 2001). When the late summer season is dry, during post-ENSO years, moisture sources shift northwards (d'Abreton and Tyson, 1995; Nicholson *et.al.,* 2001).

The links between ENSO and rainfall are complex and include various temporal and spatial adjustments. It is problematic to attribute direct causality for rainfall patterns to ENSO alone, particularly during periods when there are relatively few reliable meteorological records (Davis, 2001; Fagan, 2000). Notwithstanding these problems, rainfall patterns have been reconstructed for parts of the southern African region that enable one to illustrate possible connection between periods of extreme drought or flood and ENSO. Imputing direct causality to ENSO for such periods of climate stress, however, is not the main purpose of this thesis, for this is currently difficult, even despite availability of reliable data and results from complex atmospheric circulation models. Given the reservations mentioned above, possible associations between notable ENSO periods and rainfall in Namaqualand are merely suggested in the last part of this chapter and these can then be added to the cohort of studies that are slowly emerging for this region. Deriving any stronger associations at this stage would be based on a rather fragile scientific base. This aspect of the research could possibly be taken further by someone wishing to make the relationship between ENSO and climatic extremes in southern Africa is a potential subject for further research, which would be dependent upon the existence of a sizeable data set informed with several past cases that possibly highlight similar drought and flood cases. Then perhaps one can begin to extend the debate and analysis on linkages to causation such as ENSO.

4.5. FLORISTIC ZONES OF THE NAMAQUALAND REGION

Namaqualand consists predominantly of two floristic zones, although these can be further divided into smaller subdivisions as illustrated in the figure below [Figure 8] (Carrick and Krüger, 2007; Kröhne and Steyn, 1991; Leeuwenburg, 1972). These main two zones are defined by their distinct vegetation types, which result from a combination of rainfall zone in which they are found and the orographic effect of the Kamiesberg mountains, and

correspond roughly to the climatic zones discussed above (Leeuwenburg, 1972). The mountainous region creates an orographic climate effect, which can be distinguished from the low lying winter rainfall area to the west and the summer rainfall area on the plateau to the east.

The two main physiographic zones of Leliefontein include the coastal plain or Strandveld area (also known as the Under Kamiesberg) to the west, which forms a narrow strip inland of the beach and coastal dunes and inland to 10kms "consisting mainly of succulent and non-succulent shrubs from a variety of families" (Carrick and Krüger, 2007, 770). The mountain belt (or Kamiesberg) runs through the centre and dividing the two zones (Carrick and Krüger, 2007; Kröhne and Steyn, 1991; Leeuwenburg, 1972). The Succulent Karoo (Sandveld) which extends inland 50-100kms to the uplands and "consists predominantly of leaf-succulent shrubs in the Mesembryanthemaceae [shallow-rooted leaf-succulent shrubs] Aizoaceae" (Carrick and Krüger, 2007, 770) [Figure 8, Figure 9]. The Namaqualand region consists of unique flora with many endemic species which has resulted in it being classified as one of only two biodiversity hotspots located in desert regions in the world (Desmet, 2007). The flora has two key adaptations to the region. One is shallow roots which allow it to take advantage of the frequent short rainfall events in Namaqualand, and the other is the "exceptional drought tolerance of seedlings which facilitates establishment under low-rainfall conditions" (Carrick and Krüger, 2007, 771). These adaptations have allowed effective survival and propagation under the adverse climatic and shallow soil conditions present in Namaqualand (Carrick and Krüger, 2007; Francis *et al*., 2007).

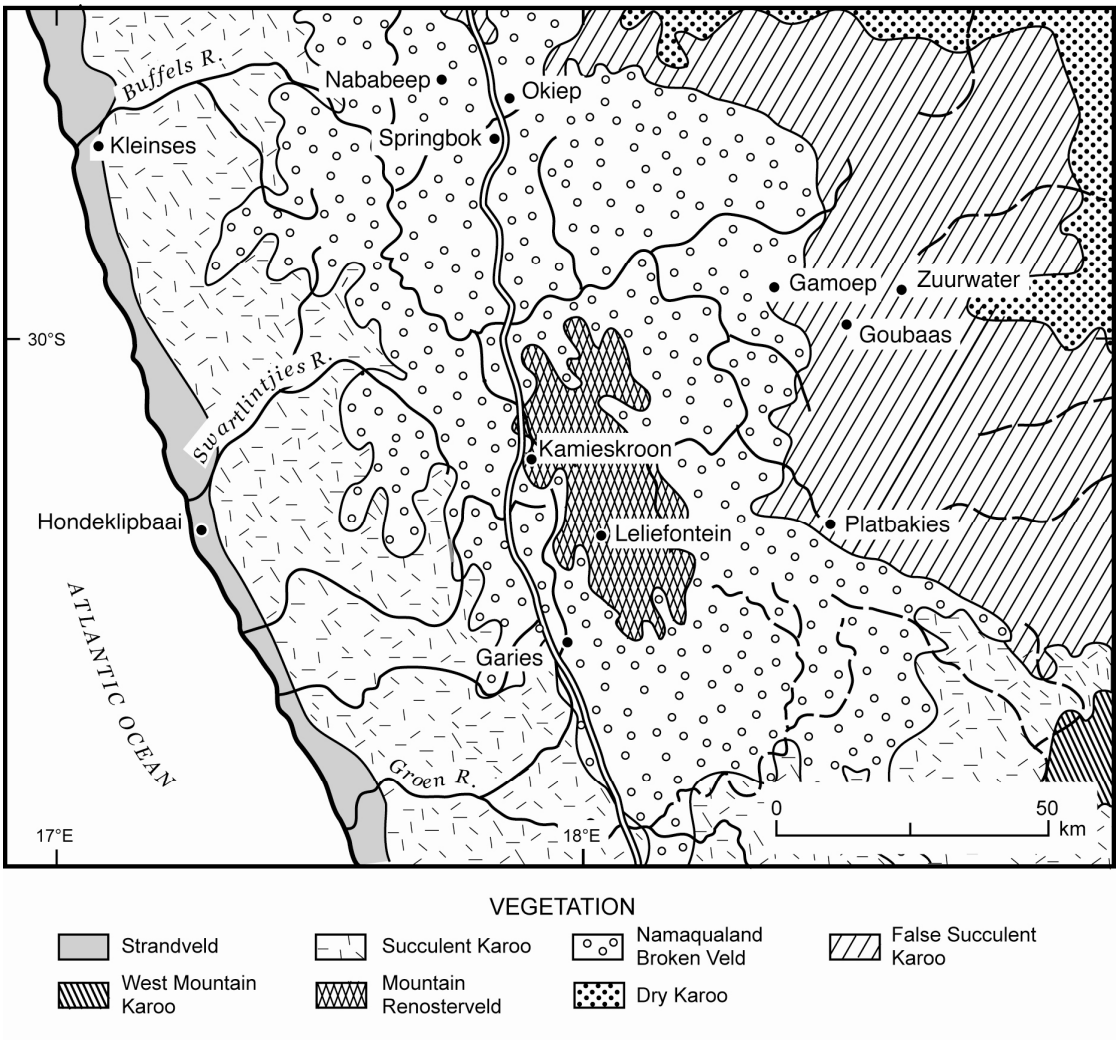

Figure 8: Vegetation Map of Namaqualand
(Adapted after Khröne and Steyn, 1991, 20)

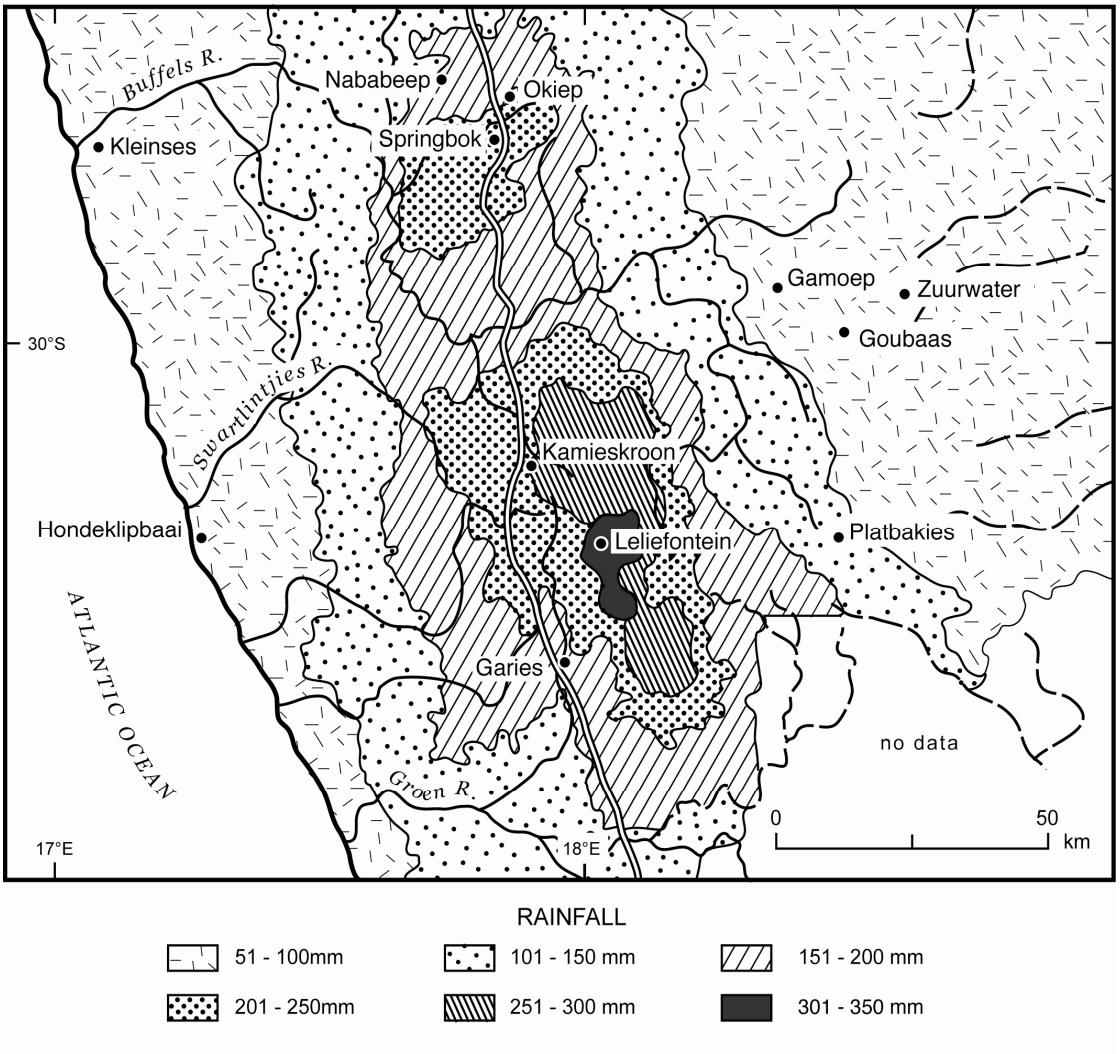

Figure 9: Namaqualand - Average Annual Rainfall
(Adapted after Khröne and Steyn, 1991, 14)

The first zone – the interior Sandveld (Succulent Karoo) – lies in the winter rainfall region, where rainfall is low and unreliable, although the area provides a source of winter grazing. The predominant vegetation type in this region is the Succulent Karoo vegetation, which extends to the foothills of the Kamiesberg Mountains (James, 2001; Webley, 1992). The Kamiesberg or mountain belt, also falls within the winter rainfall region, where it reaches an altitude of 1800 meters above sea level, thus creating an orographic effect causing this area to receive higher rainfall than the rest of the Namaqualand region (Price, 1976) [Figure 9, Figure 10]. This region also experiences extremely low temperatures with some of its precipitation falling as snow during the

winter season. The predominant vegetation around the lower mountain areas is also the Succulent Karoo, which consists of succulents, semi-succulents, herbs and natural grasses. It experiences higher vegetation densities than the lower lying Sandveld regions (Figure 8 - Namaqualand Broken Veld). This area has the highest carrying capacity in Namaqualand, with its optimum growth period between June and November (Webley, 1992). Although falling mostly out of the study region, the higher lying areas mountain areas, mountain renosterveld is predominant, consisting mainly of woody shrubs (James, 2001; Solomon, 2000).

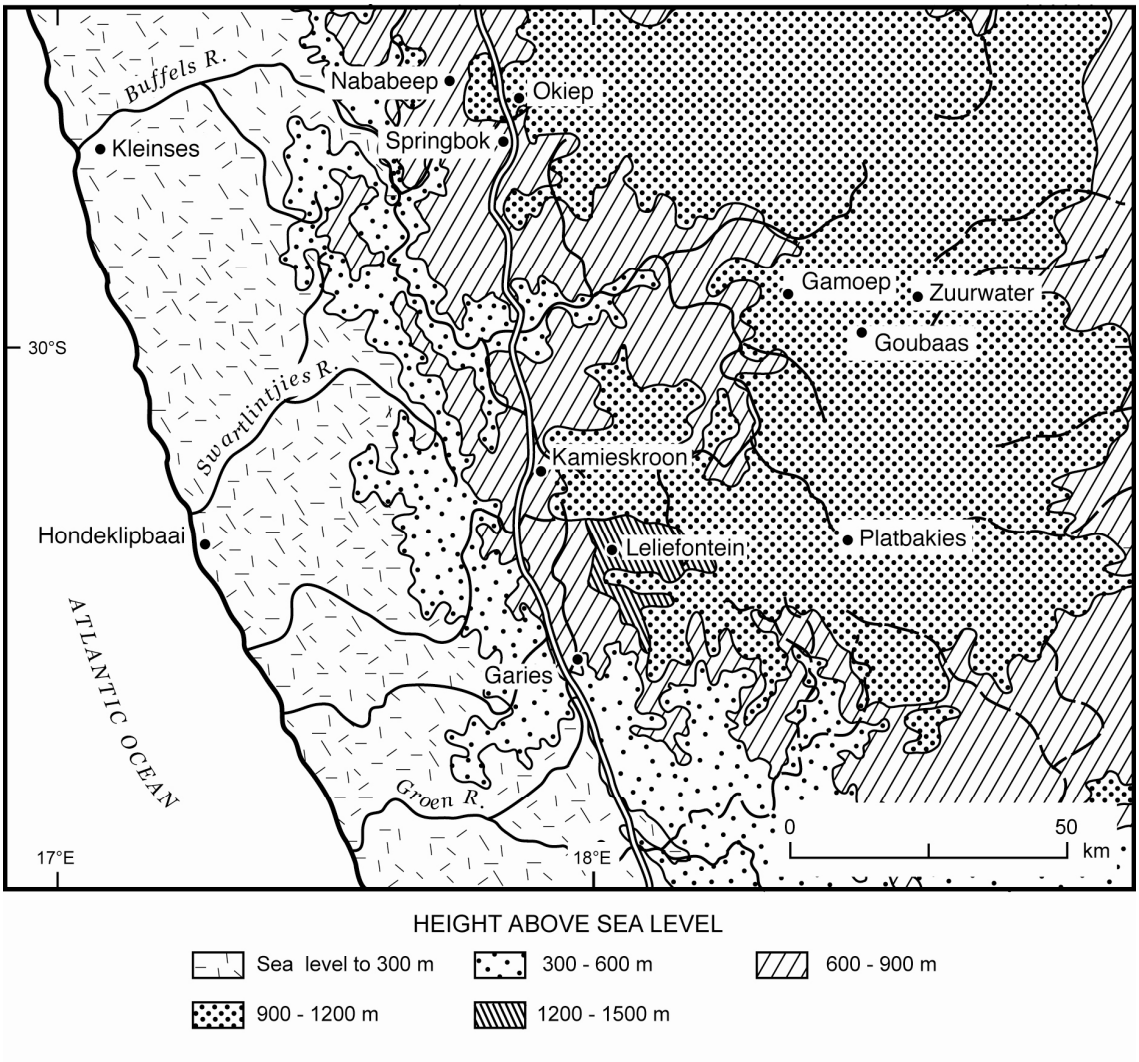

Figure 10: Namaqualand – Altitude
(adapted after Khröne and Steyn, 1991, 12)

The region extending towards Bushmanland in the east (also known as Kliprant), is part of the summer rainfall region. It also experiences extremely low and erratic rainfall and is prone to episodic droughts (Kröhne and Steyn, 1991). The Kamiesberg belt has for centuries provided summer grazing for the people inhabiting the Leliefontein area, while the Sandveld to the west and the Bushmanland to the east have formed winter grazing areas (Leeuwenburg, 1972).

Climatic controls, physiographic and rainfall zones affect the nomadic patterns of the population of Leliefontein. Therefore, one concern of this research will be to show how the population coped with and adapted their livelihoods to the low or erratic rainfall of this area. It is interesting to trace the way in which the Leliefontein coloured rural area developed politically defined boundaries which allowed it to span three different ecological zones. Thus, the history of the area demonstrates how environmental factors may influence political influences. The boundaries which developed were based on the areas which the population occupied most frequently. They now clearly show the ways in which the people had adapted their livelihoods to this arid environment and although now a small portion of land in comparison to what it was, it shows the influence of climatic factors on human settlement patterns.

4.5. SOCIO-ECONOMIC BACKGROUND

Having outlined climate, attention now shifts to the background to the people groups inhabiting the area which is now Leliefontein. This will provide a context for the primary study which will cover the period between 1800 and 1900 more thoroughly. The main people population group which inhabited the study area at the beginning of the study period are the Namaqua Khoikhoi[5] and they constitute the focus of the initial period of this study. The San[6] also need to be examined as historical documentary sources indicate

[5] Also referred to in sources as the Little Namaqua, the Nama, Nama Khoikhoi and sometimes the Namaqua Hottentots.

[6] Also referred to in sources as the Bushmen, Bosjemans or Hunter-gatherers. The term 'Soaqua' is also used in some historical sources and is usually used to refer to groups who live a hunter-gatherer lifestyle, or

that they were a separate group who also resided in the Namaqualand area and interacted with the Namaqua Khoikhoi in the 18th and 19th centuries. The 'Basters', who later come to predominate in the area of Leliefontein, will also be discussed as well as the European Trekboers whose influx into Namaqualand resulted in the extension of the border of the Cape Colony to the Orange River. The livelihoods and movements of each of these groups during the late 1600s and 1700s constitute the background to the development of the Leliefontein area.

4.5.1. Little Namaqualand Prior to 1700

Before 1700, the Namaqualand area was inhabited mainly by the pastoralist, Nama Khoikhoi and hunter-gatherer San (Hoffman and Rohde, 2007; Webley, 2007; Rohde *et al.*, 2003; Archer, 1994). The Namaqua Khoikhoi were nomadic pastoralists and travelled extensively with their livestock in order to obtain grazing. Historical sources distinguish between the Namaqua Khoikhoi and a separate group of San or Cape Bushmen who subsisted through hunting and gathering and did not possess livestock of their own (Webley, 2007; Ross, 1998; Wilmsen, 1989; Carstens, 1966; WMMS(b), 1819; LMS(a), 1813; LMS(b), 1806; 1814). It is uncertain whether the Khoikhoi and the San were in fact distinct cultural groups, some aspects of this debate will be touched on below.

4.5.1.1. Origins of the Khoikhoi Groups

The origin of the pastoralist Khoikhoi is a debated subject. The debate centres around the question of whether the Khoikhoi were originally hunter-gatherer San who acquired livestock from people further north or herder groups who moved into the Northern Cape with their livestock (Webley, 2007; 1992; Archer, 1994; Smith, A.B., 1992; Elphick, 1972b). Documentary evidence contains various versions of origin myths related by the Nama-Khoikhoi to different travellers in the 18th and 19th centuries. These indicate that the Namaqua Khoikhoi believed they shared a common ancestry with the hunter-gather

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to groups who are clients of the Namaqua, herding cattle for them. Some texts appear to distinguish the Soaqua groups from the San, however the general consensus seems to be that they are the same group.

groups, acquiring cattle to become a pastoralist group (Webley, 2007; 1992). A version of this origin myth was related to Gordon in 1779 and explains the Nama understanding of their split from the hunter-gatherer societies:

> Beginning. Were two brothers, the elder with poor sight. The Bushman or younger one found a hole in the ground from which many cattle came forth daily. He told the Namacqua and they plugged it with bushes so that the calves remained inside. At nightfall the cows and bulls returned and they made a fire. Then the younger one said "all the fiery-eyed cattle are mine." The eldest said "the black eyes are mine." In the morning the Namcqua said "take your fiery eyes," but, since it was then daytime, the "fire" had deceived him. He walked away and from that time became Bushman, the Namacqua retaining the cattle (Smith and Pheiffer in Webley, 1992, 1).

Archaeological evidence supports the notion that the San and the Khoikhoi share a common ancestry (Sadr, 1998). It also indicates that "domestic stock was being herded [in Namaqualand] some 2000 years ago" (Webley, 2007, 4) (Sadr, 1998; Marks, 1972). When or how this livestock arrived in the area, now South Africa, is more open to debate. Elphick argues that the pastoralist societies originated in what is currently northern Botswana.[7] They originated as a San group who acquired cattle from Bantu speaking people and later moved south across the Orange River in search of grazing (Webley, 1992; Elphick, 1972a, 1972b). Sadr and others argue that there is no archaeological evidence for the migration of people with their livestock into South Africa. On this basis, they offer an alternative hypothesis that it was in fact the acquisition of livestock which moved south, rather than a movement of people (Sadr, 1998). The intricacies of this debate are not the focus of this research therefore only the aspects that are relevant have been mentioned.

Linguistic evidence indicates that by the 17th century the Khoi speaking pastoralists belonged to a different language family to the /Xam, or Bush-speakers from the central Orange River area (Webley, 1992; Marks, 1972; WMMS(b), 1819, 34). Webley (1992) suggests that the separation of the Khoen and Central Bush (San) languages took place at around 2500BP.

[7] Others support this hypothesis, but dispute the area from which they came, suggesting that it was present day Namibia rather than Botswana (Webley, 1992).

Despite this Elphick argues that there was some fluidity between them, whereby San could acquire cattle and become pastoralists or a Nama-Khoikhoi could equally lose his cattle and resort to a hunter-gatherer livelihood (Elphick and Gilomee, 1979; Elphick, 1972a; 1972b). Other theorists argue that distinct ethnic barriers existed between the two groups and that they were in fact completely different cultures (Smith, 1992; 1990; Parkington, 1984). Despite these ongoing debates, the documentary sources which form the basis of this research overwhelmingly support the argument that by the late 1700s the San and Khoi were separate peoples (Gordon (1779), 1988, Shaw, 1970; Brink (1761), 1947; Wikar (1779), 1935; van der Stel (1686), 1932).

Primary sources indicate that the Khoi and San were co-operative and peaceful (Penn; 1995b; Webley, 1992, Shaw, 1970; Brink (1761); 1947; Wikar (1779); 1935). A client relationship existed between some of the Bushmen and the Namaqua whereby the Namaqua offered protection to the Bushmen in exchange for them herding their livestock (Penn, 1995a). During the 17th and 18th centuries, this changed to violent opposition (Gordon (1779), 1988; Brink, (1761), 1947). This occurred as a result of increased pressure on the land and environmental resources the influx of traders, Baster and Trekboer groups into the Namaqualand. Gordon's journal includes an artist's depiction of the Namaqua Khoikhoi in the 1779 [Figure 11].

Figure 11: Depiction of the Namaqua Khoikhoi: 1780
(Gordon, 1988, 377)

By the second half of the 18th century the Nama Khoikhoi had become weakened by their declining stock numbers resulting from unfavourable trade relationships with the Dutch and the encroachment of the Dutch trekboers (Penn, 1995a). The Bushmen began to plunder the livestock of the Namaqua and by the close of the 18th century the Namaqua were vulnerable to Bushmen attacks (Rhenius (1724), 1947).

4.5.2. San

The primary sources consulted for this research lend support to the argument that the San were hunter gatherers, often referred to in historical journals as the 'Sonqua' or 'Soaqua' and can be distinguished from the Nama Khoikhoi who were predominantly pastoralists, although they also relied on foraging and hunting (Webley, 2007; 1992; Parkington, 1984; Carstens, 1966; van der Stel (1685), 1932):

> For subsistence, they trust principally to the fruits of the earth, and to the game which their country affords: but when either of those are found deficient, few have any hesitation in supplying their wants from the flocks of their neighbours (Shaw, 1970, 25).

The San lived in small scattered groups to facilitate easy movement for their hunting activities (WMMS(b), 1819). European missionaries, travellers and settlers had far less interaction with the San than they did with the Khoikhoi and Bantu speaking groups as the San were more isolated and remained far more independent than did other groups. At no time did they voluntarily settle on the mission stations. As a result there is less documented information about the San than about other groups. An artist's depiction of the San from 1779 is included below [Figure 12].

Relations between the Khoi and San began to change dramatically in the late 1600s and 1700s when the San began to rely increasingly on stealing livestock from the Nama pastoralists (Gordon (1779) 1988; Brink (1761) 1947). These thefts increased during the late 18th and early 19th century with increasing pressure on the land resulting from the influx of Basters and Trekboers into Namaqualand and the weakened military and economic status of the Namaqua.

Figure 12: Artist's Depiction of a San Family 1779
(Gordon, 1988, 337)

Cattle theft resulted in clashes between the San and the Nama Khoikhoi groups and also between the San and Basters and Trekboers once they moved into the Little Namaqualand region (Cape of Good Hope, 1863; WMMS(b), 1818; LMS(a), 1814). Some of these clashes were particularly violent:

> The Bushmen, were frequently making attacks on [the Namaqua Khoikhoi] and stealing their cattle; the consequence of which was that much blood was shed (WMMS(b), 1826, 33).

The Khoikhoi and Basters retaliated by stealing their livestock back, while white farmers formed commandos, who more than once were reported to have recovered cattle by destroying whole kraals of Bushmen (Shaw, 1970; Cape of Good Hope, 1870; WMMS(b), 1818). The encroachment into Namaqualand of traders and trekboers meant that the San experienced increased pressure on land, wild game and other environmental resources.

4.5.3. Namaqua Khoikhoi

Documentary records of European contact with the Khoikhoi people in Namaqualand from the 1600s reveal that they were a nomadic, pastoral people who moved in fairly large groups, their movements governed by availability of grazing and water (LMS(a), 1803; 1806; Ross, 1998; Wilmsen, 1989). The Namaqua lived in fairly large kraals named after their chieftans (WMMS(b), 1819). When grazing was scarce they would split into smaller transhumant groups, gathering during the summer when conditions were more favourable. Archeological research has confirmed through pottery and evidence of domestic sheep and cattle that Khoikhoi groups lived along the southern and western Cape coast and further north as early as 2000 years ago, and inland about 1500 years ago (Webley, 2007; Sadr, 1998; Webley, 1992; Archer, 1994). The livelihood of the Little Namaqua was diverse including hunting, gathering, herding domestic stock, as well as some copper smelting and exchange relationships.

> It is clear that the Khoi were widely distributed over the whole of Namaqualand. They lived in groups under captains and owned herds of domesticated stock such as cattle and sheep, the pasturing of which caused continual movement within the dry areas. They lived from hunting wild animals such as springbok, hippopotamus, rock rabbits, tortoises, etc.; from gathering the tubers, roots, fruits and gum of plants; and from collecting honey and insects. This diet was supplemented with meat and mil from domestic stock as well as fish and shellfish which were caught and/or collected from the rivers or the sea. During the hot and dry summer months they mostly stayed at and moved between permanent waterholes and/or the few perennial rivers. In winter they broke up into smaller groups and dispersed over the grassy plains (Archer, 1994, 20).

The Nama Khoikhoi travelled extensively before the encroachment of the Basters and Dutch trekboers began to restrict the area available to them.

> The Little Namaqua had been accustomed, before competition from colonist prevented them from doing so, to graze their livestock in the Olifants River valley and the Sandveld of the West coast to the north of the Piketberg. Here in precolonial times they encountered both the San and Grigriqua. The Grigriqua, who had been under the patronage and protection of the Namaqua, were, by the early eighteenth century, experiencing rapid social disintegration (Penn, 1995a, 25).

Towards the end of the 1700s, dry season migrations of the Little Namaqua took them into the Sandveld and Bushmanland in search of good grazing. The Kamiesberg formed the summer grazing area, with the Namaqua moving from these areas in winter when temperatures became too low. The name ‘Kamiesberg’ is derived from the Namaqua

word meaning ‘to gather’, as this area formed a gathering place for groups of Namaquas during their migratory movements, when environmental conditions were favourable (Price, 1974).

There is evidence from as early as the 17th and 18th centuries indicating that the Namaqua Khoikhoi were involved in copper smelting activities and trade relations with European explorers and other local groups (Smalberger, 1975; Cornelissen, 1965). The earliest evidence of copper trading with the Namaquas is from the 1660s and 1680s when journeys of exploration were undertaken by Europeans from the Cape such as Olaf Bergh (1682 and 1683), Izak Schryver (1684) and Simon Van der Stel (Cornelissen, 1965).

4.5.3.1. The Nama Khoikhoi in the 1700s

The decline of the Namaqua economy and the disintegration of their society began before the period that forms the major focus of this research. It is therefore necessary to trace the causes and extent of the decline during the 1700s as a background for the chapters to follow. The first cause of decline in Namaqua stock numbers and wealth was the cattle trade with the Dutch East India Company in the Cape. This was followed by trade expeditions which moved north to trade with the Khoikhoi for a livestock supply for the Company. At the same time as these trade expeditions, the smallpox epidemic of 1724-1725 had a devastating effect on the Khoikhoi population (Rhenius, 1947). Thereafter freeburghers and later trekboers moved into the Khoi areas to the north of the Cape to obtain grazing for their livestock (much of which was originally obtained through unfair trade relations or plundering of Khoikhoi livestock) (Elphick, 1972). The settling of the trekboers and the granting of loan farms increased the pressure on the land which the Namaqua had used for nomadic grazing.

> These groups of tribes experienced at different times, and in varying measure, three major challenges from the whites: (1) penetration of their territories by Company officials, in particular traders; (2) settlement of their pastures by free agriculturalists; and (3) displacement of their people, herds, and flocks by semi-nomadic cattlemen. Of these three, the Company’s frontier of trade and influence was the one which Khoi experienced first, …. (Elphick, 1972(a), 277).

Stock Trade with the Colony

The Dutch East India Company station at the Cape was created to supply food and support to passing ships. Between 1652 and 1700 the number of ships passing the Cape increased dramatically and the increasing need for livestock was met through trade with the Khoikhoi (Elphick, 1972a; 1972b). Initially the Peninsula Khoikhoi (those inhabiting the area immediately surrounding the Cape) were able to control the supply of cattle and sheep to the Cape Colony and trade was initially only conducted at the fort. The Khoikhoi traded cattle and sheep for rice, bread, tobacco and arrack and the Dutch provided them with the facilities at the fort to dance, sing, and sleep. This situation was to the advantage of the Khoi as they were able to decide before going to the Cape exactly how many and which livestock they would trade and take only those animals with them. Initially the livestock traded were lame, sick or old: as Elphick put it, "Van Riebeeck reckoned in 1659 that not one tenth of the sheep he had obtained from Khoi were healthy enough to breed from" (1972a, 223).

The Dutch were predictably unhappy because they had no control over the number of animals offered for trading. It was this situation which eventually lead the Dutch to send trading expeditions inland to barter with the Khoikhoi. Under these circumstances they were better able to see all the livestock and choose the ones they wanted using increasingly coercive methods.

Initially these trading expeditions affected the areas immediately surrounding the Cape and spread inland as the stock numbers of the surrounding tribes dwindled. Increased trade under unfair conditions led to a decline in the stock numbers of the Khoikhoi in the late 1600s and 1700s (Elphick, 1972; Rhenius (1724), 1947;WMMS(a); 1826). The loss of livestock resulted in the disintegration of Khoikhoi society in the south-western Cape, and the Dutch were able to use increasingly forceful means of obtaining cattle without fear of retaliation (Webley, 1992; Elphick and Giliomee 1979; Marks, 1972).

A telling statement by a Namaqua who was captured by Rhenius, one of the Company's members who undertook a trading journey into the interior of the Cape over the Groene River and into Namaqualand, illustrates the effect of exploitative trade on the Namaqua.

> He [the Namaqua] added that for two successive years we had cleared them out of all their cattle; that they were no more inclined to trade with the Company and if all their cattle were gone from them then they would come and fetch cattle from the Dutch (Rhenius (1724), 1947, 137).

By the late 1600s and early 1700s the Khoikhoi were using various measures to avoid trading with the Dutch altogether. The Khoikhoi guides would deliberately mislead trade expeditions, the Khoikhoi would hide their stock, or try to persuade traders to barter for sheep instead (van der Stel (1685) 1932; Rhenius (1724); 1947). The trade journey of Ensign Rhenius documents the resistance of the Namaqua Khoikhoi to trade with the Dutch. Rhenius discovered a group of Namaqua scouts who attempted to resist trade with him through deception, misdirection, hiding their healthy animals and finally by only offering sick and thin livestock. Key passages from this text have been included in Appendix A, illustrating the methods the Namaqua used to avoid trade, as well as the methods of persuasion used by the Dutch.

As the demand for cattle in the Cape increased traders became more violent and often chiefs were forced to trade under conditions (Rhenius (1724), 1947; Elphick, 1972b). The traders began moving further north towards the border tribes whose cattle stock was also negatively affected. The declining stock numbers and weakened state of the Nama Khoikhoi made them increasingly vulnerable to plunder by the San groups. The San, who were also feeling the pressure from the encroachment of the Dutch, began more violent raids against the Namaqua.

The Smallpox Epidemic and the Namaqua Khoikhoi

The Cape Khoi and Namaqua Khoikhoi were also weakened by the smallpox epidemic brought by infected sailors to the Cape in 1713 (Elphick, 1972b). The extent to which the Khoi were affected by this disease is disputed in academic sources, with one source stating that more than half of the Namaqua Khoikhoi perished as a result of these epidemics (Elphick and Giliomme, 1979). Elphick asserts that the disease "swept away

the majority of the Khoi in the southwestern Cape," an argument which agrees with Mossop's assessment of the journals of Brink and Rhenius (Elphick, 1972a; 1972b; Mossop, 1947). The journals of Rhenius and Gordon both imply that the Namaqua were seriously affected by the smallpox epidemic (Gordon (1779) 1988, 252; Rhenius (1724), 1947, 39-141):

> The said Sergeant …. confirming that in the greater part the people were smitten by a foul stinking sickness very like the lazaretto sickness and some were dying daily, … (Rhenius (1724), 1947; 141)

Smallpox may have been responsible for the decline in the population numbers of the Namaqua. In 1661 Meerhof and Cruijthoff identified a Namaqua kraal with 700 inhabitants whereas in 1779 in which Gordon found only 400 in 1779 (Archer, 1994; Gordon (1779), 1988). However, it remains impossible to identify exactly the extent of the impact of the illness, which was severe, but not as severe as suggested by Elphick (1972b).

Many of the Little Namaqua who survived these epidemics migrated across the Orange River to settle in Great Namaqualand (Webley, 1992; Shaw, 1970). Those that remained gathered around the Kamiesberg mountains, and it is with these that this research is chiefly concerned. Chief Jantjie Wildschut (Noebee), the Namaqua chief, remained in this area and it was under his leadership that this group sought out a missionary at the beginning of the 19th century. The Leliefontein mission station formed on the farm Lely Fonteyn which Wildschut was originally granted by the Dutch colonial government (Webley, 1992).

Early reports of the 1600s show that the Namaqua were rich in cattle, sheep, copper, iron jewellery, ox-hide shields, were able to prepare skins, and were widely feared (Webley, 1992). By the close of the 18th century, however, they had been weakened by the influence of the White settlers, trade relationships, the smallpox epidemic and San raids.

4.5.4. Basters

To compound the effects of the stock trade and the smallpox epidemic another pressure began to affect the Namaqua Khoikhoi, in the form of the permanent settlement of Basters and trekboers into the area. In the beginning of the nineteenth century the Basters[8] began moving into the North-Western Cape (Waddington, 1993; Price, 1976; Barrow, 1801). They moved out of the Cape to escape their inferior status there, for among the Khoi they occupied a more privileged position. This emigration preceded that of the white trekboers or freemen of the Colony: a group which had a major effect upon much of Namaqualand (Leeuwenberg, 1972). The Basters and Trekboers were both pastoralist groups and therefore competed directly with the Namaqua for land, grazing, water and other environmental resources.

The status of the Basters at the Colony had declined from the mid-1700s as some began to be treated as slaves (Penn, 1995a). Others were conscripted into commandos in order to retaliate against Khoisan raids (Penn, 1995a). This caused many to move beyond the Cape frontier into Namaqualand, Bushmanland and towards the Orange River. Some settled in the area around present day Steinkopf, and others on the farm Elandsfontein (beyond the Copperberg in Namaqualand) (Penn, 1995a; Carstens, 1966). Many began to rely on hunting and raiding for their livelihoods and there were a number of complaints about their activities which reached the Colony in the late 18th century. One particular complaint came from the Namaqua chiefs Wildschut and Grootvogel who were attacked and robbed of cattle by the "Bosjeman Hotentots," who they claimed had been incited to do so by the "Bastaard Adam Boer" (Penn, 1995a, 36). Relations between the Namaqua Khoikhoi and the Basters were strained by the close of the 18th century.

4.5.5. Trekboers

The trekboers were a group of colonists who lived as semi-nomadic pastoralists in the Cape interior (Penn, 1995b). Initially freeburghers of the Dutch East India Company,

[8] Also known as 'Bastaards', 'Bastaard-Hottentots' or 'Oorlams' (Penn, 1995b). Basters were people of mixed descent: mostly the offspring of Dutch colonists/frontiersman fathers and Namaqua and Cape Khoikhoi mothers (Carstens, 1966).

they were farmers who were released from the company's employment and granted land for agriculture (Elphick and Gilomee, 1979). During the second half of the 18th century there was a rapid increase in the free population. Many found the climate to the north of the Cape unfavourable for agriculture and chose a nomadic pastoral lifestyle instead. Many of those who moved into the interior were

> … [S]o-called freemen who desired to escape duty, taxes, or what the Company called justice. Always desperate, and sometimes vicious, these fugitives often attacked Khoi kraals and plundered their stock in order to keep alive (Elphick, 1972a, 284).

Initially many of these men settled close to the Cape but they gradually ventured northwards. Early trekboers settled where they chose, but as Khoisan raids and general instability increased, the Colonial Government attempted to exert some control over settlement (Marks, 1972). Thus, during the second half of the 18th century, land in the form of loan farms was allocated to trekboers (Gordon (1779); 1988). Between 1760 and 1780 many such loan farms were granted to trekboers in and around the Kamiesberg area (Webley, 1992; Barrow (1797), 1801). In 1779 Gordon reports that there were 19 trekboer stock farms north of the Groene River (Gordon (1779), 1988, 291). A table listing the names of the farmers and their farms mentioned in the travel writings and journals of the period before 1800 has been included as Appendix B. A number of farms were granted by the company to the trekboers or freemen of the Colony before 1800, many of them north of the Buffels River around the area of present day Kamieskroon (Mossop, 1947). This infringed directly on the land of the Namaqua Khoikhoi.

With both Basters and Dutch trekboers encroaching on their land, many of the Namaqua chose to move further north over the Orange River to Great Namaqualand (Webley, 1992; Dunne, 1988). By the close of the 18th century the position of the Namaqua Khoikhoi had been severely weakened by several factors: the *trade with the Dutch East India Company* in the Cape, which was followed by more exploitative trade of the trading expeditions. During the same period *smallpox* swept through Namaqualand lowering population numbers. The San took advantage of the weakened strength of the Namaqua Khoikhoi to raid their already dwindled livestock herds. Two *waves of settler encroachment* began towards the end of the 18th century and continued into the 19th

century. The first was that of the Basters moving from the Colony, followed by the settlement of the Dutch trekboers. These lead to widespread violence and instability in the frontier zone around the area of Little Namaqualand. Nevertheless, a group of Little Namaqua Khoikhoi had managed to secure some land for themselves around the Kamiesberg mountains on the farm of Leliefontein, and it is this group with which the next chapters will mostly be concerned (Price, 1976). This brief sketch of the situation of the Namaqua Khoikhoi at the end of the 1700s will provide a vital background to the more detailed discussion of the processes effecting them in the 1800s.

4.6. CONCLUSION

By the close of the 18th century there were many processes which had already begun to produce a decline in both the economy and the society of the Namaqua Khoikhoi. They had been negatively affected by the settlement of the Dutch population at the Cape Colony: trade relationships with the Dutch East India Company reduced livestock numbers. This was followed by trade expeditions set inland from the Colony in order to obtain livestock from the Khoi. Some of these moved as far north as Namaqualand and the traders became increasingly exploitative and coercive in their methods of obtaining livestock. Documentary sources cite the attempts of the Nama Khoikhoi to avoid trade with the Dutch in order to prevent the further depletion of their stock.

The smallpox epidemic had a dramatic affect on the Namaqua Khoikhoi population in 1724, causing a huge number of deaths, further weakening the previous strength of the Namaqua population. The San used this opportunity to raid the livestock of the Namaqua, which caused another decline in livestock numbers and put an increased strain on the relations between the two groups. The San had also been experiencing pressure on the land and resources which they had previously relied on for their hunter-gatherer existence. The Basters, followed by the Dutch trekboers moved into the Namaqualand area and by the end of the 18th century had secured a number of loan farms had been granted to the trekboers in the area around the Kamiesberg Mountains.

By the close of the 17th century the Namaqua Khoikhoi found themselves in a severely weakened position. Those that remained were largely under the leadership of Jantjie Wildschut and many were clustered around the Kamiesberg mountains. It is with this group that the chapters to follow are concerned.

SUMMARY

This chapter provided both a physiological and a socio-economic background to the Leliefontein area. The climate of Namaqualand is strongly influenced by anti-cyclonic circulation, sea-surface temperatures associated with the cold Benguela current off the west coast of southern Africa and modulated by the El Niño Southern Oscillation. Leliefontein falls into two climatologic zones: the zone of winter rainfall and the zone of summer rainfall. The Kamiesberg mountains create a further physiographic zone, as they have an orographic effect causing increased rainfall and more vegetation in the middle or mountainous zone. The area of Leliefontein contains two florist zones which affect the nomadic movements of the pastoral population in this area. The main climatic controls are different for the winter and the summer rainfall areas and these have been discussed more fully in the sections above.

The late 1600s and the 1700s are important periods for the historical understanding of the Namaqua Khoikhoi. It is vital to have an understanding of these periods to form a clear background to the processes affecting the Namaqua in the 1800s. The influence of the Cape Colony had already been felt heavily in the Namaqualand area by the beginning of the 1800s (the period with which the majority of this thesis is concerned). Firstly there had been livestock trade with the Cape Colony. Initially this trade favoured the Khoi groups, who were able to trade more or less on their own terms. Later this trade became more exploitative, involving livestock with which the Khoi were not willing to part. The Company began sending trade expeditions inland to obtain cattle from the Khoi. Incidences were recorded where the Little Namaqua resisted this livestock trade. The encroachment of the Basters and the Trekboers to the lands to the north of the Cape also began to have a tremendous effect on the Nama Khoikhoi. These groups were also pastoralists and thus there

was increased pressure on the environmental resources which they had relied on for centuries.

The situation of the Namaqua at the beginning of the 19th century was therefore one of severe disruption. This needs to be understood in order to identify which of these forces continued in the 1800s and to document the responses of the Namaqua to further disruptions during this period.

CHAPTER 5

CLIMATE OF NAMAQUALAND IN THE NINETEENTH CENTURY

5.1. INTRODUCTION

Southern African climatic change research is hampered by a lack of long-term historical data sets. Part of the purpose of this thesis was to compile an historical precipitation data set for the area of Namaqualand using historical documentary sources. This historical precipitation data set is the first compiled for Namaqualand, extending the historical rainfall record a century further into the past than the measured meteorological records allow, through the use of documentary sources.

The methodology used for this climatic reconstruction has been discussed in Chapter 3 (Sections 3.3.-3.4) and will not be repeated here, but the reader should be aware that this forms the background and justification of the methodology used to compile this chapter. This chapter, then, presents the proxy rainfall data set compiled through documentary research. This precipitation chronology will form the backdrop for the livelihood and vulnerability analysis which make up Chapters 6 and 7.

The documentary-derived data for Namaqualand is compared to that of other droughts and dry periods in similar studies for the surrounding areas in which widespread droughts have been identified (e.g. Nash and Grab, 2009 for Lesotho; Nash and Endfield, 2002a for the Kalahari and Vogel, 1987, 1989 for the southern and eastern Cape). Finally, a possible link between certain historical drought periods and El Niño Southern Oscillation Low Phase events is suggested (Nicholson and Kim, 1997; Mason and Jury, 1997; Lindesay and Vogel, 1990). While not attributing direct causation to this phenomenon, the possible correspondence between wet and dry periods and ENSO are noted for possible further investigations by others. The information contained in this chapter has been published in *Climatic Change* (Kelso and Vogel, 2007).

5.2. DROUGHTS AND WET SPELLS IN NAMAQUALAND

The earliest records for drought periods in the northern Cape are the sporadic accounts of travel writers (van der Stel, 1979; Wikar, 1935; Jansz, 1935; van Reenen, 1935; van der Stel, 1932).The earliest recorded drought in the area of the Kamiesberg spanned 1681-1684 and was recorded after Olof Bergh's second expedition attempting to find the Copper Mountains (Ross, 1998). This drought ended with good rains in 1685 when Simon van der Stel undertook his first journey to the Copper Mountains (van der Stel, 1979; 1932). The four-year duration of this drought was fairly typical of Namaqualand droughts, which lasted for a minimum of 3 and a maximum of 5 years during the 1800s. For the remainder of the period 1600-1800 the records are very scattered, there are only a few travellers' records available. The records become more detailed for the 1800s.

5.2.1. Droughts and Dry Years During the 1800s

The earliest records for the 1800s are found in the Reports of the London Missionary Society whose missionaries settled near Warme Bad in Great Namaqualand (southern Namibia). These early records are not continuous and therefore it is only possible to establish individual dry years from them, and not to identify periods of drought. Nevertheless the years identified as drier than average were *1800*, *1804/5*, *1807*, and *1812* [Figure 13] (LMS(a), 1813-1816; 1804-1808).

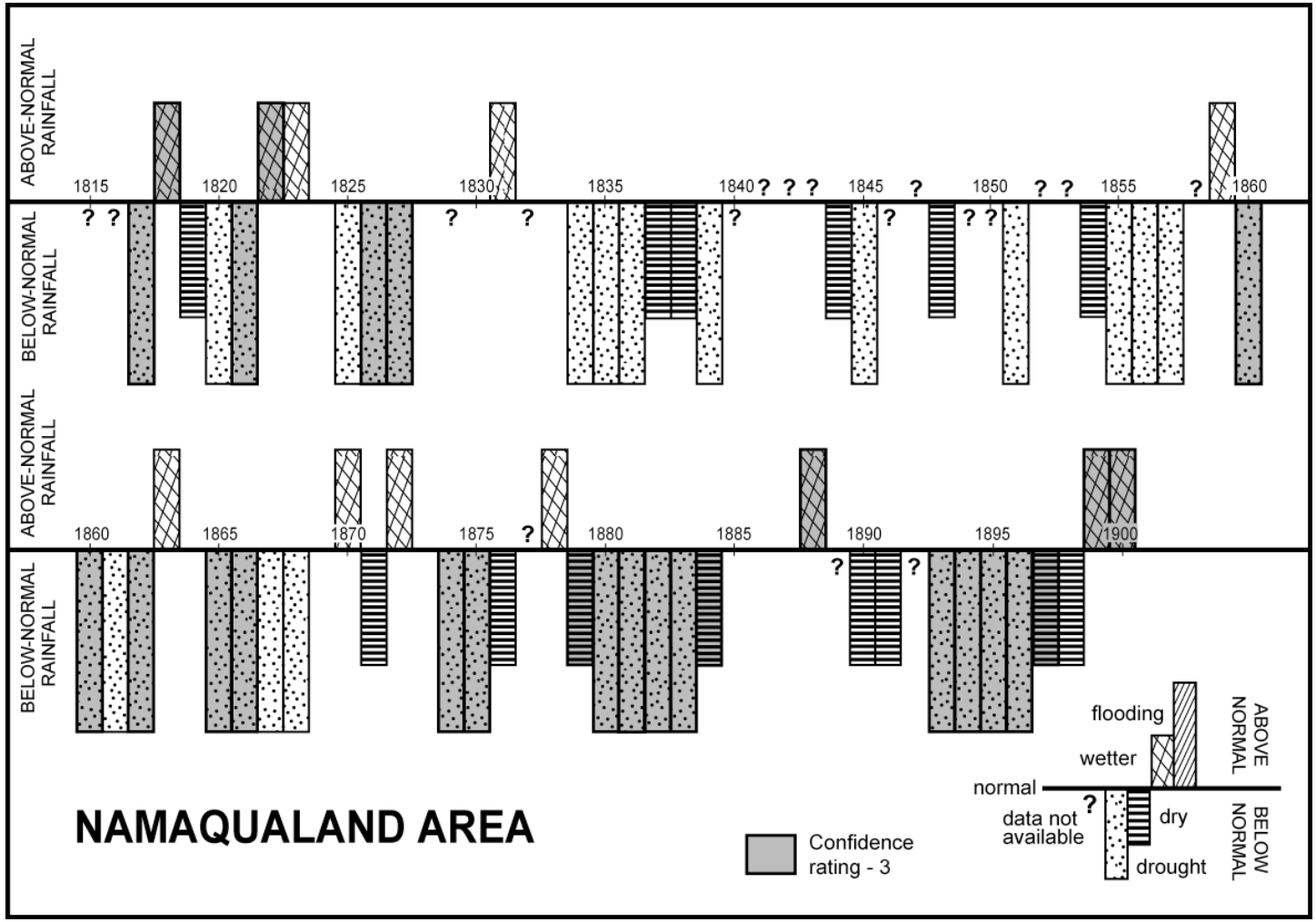

Figure 13: Graph: Proxy Precipitation Data Set for Namaqualand in the 19th Century

The first major drought periods (of which there are a number of reports in the documentary sources) are 1820-1821 and 1825-1827 [Figure 13]. These droughts were widespread over the Namaqualand areas to the north and east of the Kamiesberg around Pella and Steinkopff, where it spanned the whole period from 1820-1827 (Shaw, 1970; LMS(a), 1826; 1825; 1824; 1823; 1822). In the area of Leliefontein this drought was broken into two separate periods with dry conditions experienced in 1820-1821, two wet years occurring in 1822 and 1823, and further droughts in 1825-1827 (WMMS(c), 1826-1828; LMS(a), 1829; Shaw, 1970).

The Wesleyan missionary Barnabas Shaw described the initial two years of the 1820s drought as follows:

> 10th. [September, 1821]. – The failure of our harvest last year was a serious evil; but the loss of our wheat this year also is much more so, and has rendered the distress of some of our poor Namacquas great indeed. (WMMS (a), 1822, 607)

He further describes how the conditions have worsened by *1826*:

> The year 1826 was a time of great scarcity at Lily Fountain, in consequence of the long and continued drought. Several lived chiefly by hunting, and some on bulbs and roots, while others picked up parts of bullock hides, which for years had been thrown about the place. They pounded them for several hours. One evening a Namacqua came to me and said, he had been hunting the whole day, but could obtain nothing. He added, "Mynheer, ik ben drunken van honger, (I am drunk with hunger,) and ready to faint and fall to the ground." I was enabled to supply him with a little corn, which he received with gratitude and joy. Providentially, I had preserved a good quantity of wheat and barley the preceding year, which I so managed to eke out in small quantities, that none died of hunger. Indeed the Namacquas bore up with amazing patience and fortitude, till the rains commenced, and they obtained supplies of milk from their cows and goats (Shaw, 1970, p.95).

Documentary sources note the desiccation resulting from recurrent droughts (Endfield and Nash, 2002a; 2002b). Sir James Alexander, a Captain in British service who took a journey of exploration into Southern Africa, venturing just north of the Kamiesberg region, from 1836-1837 described the perceptions of the local people during the drought of 1834-1836 as follows (Alexander, 1967; LMS(a) 1837; 1836; 1835; 1834; WMMS(a), 1837):

> The fountain at the Copper Berg had much decreased within the last thirty years. Formerly a thousand head of cattle could at most times have drank at it; now there was scarcely water enough for a span of twelve. The old people said that much less rain had fallen within the latter years, - that there was no sea rains now as there used to be, only thunder storms from the east; but they hoped that the following years would take a turn for the better (Alexander, 1967, 138-139).

The drought of 1860-1862 is the first drought for which government assistance was proposed (C.A, 1/SBK, 5/1/2, 24 April 1862; Cape of Good Hope, 1862). This drought had severe consequences, particularly for the inhabitants of the various mission stations, as described in a letter written by the Civil Commissioner of Namaqualand to the Colonial Secretary:

> Letter of the Civil Commissioner, Namaqualand, 24 April 1862
> From the Revd. Mr. Bailie at Lily Fontein I have had accounts of similar distress among his people – With regard to some of these people I can speak from personal observation. Several of them were lately summoned for debt in my court. They had no means of paying these debts which amounted … sum of from £1 to £4 or £5 without selling their remaining few cattle. These cattle were however so poor in condition, that there were no chances of finding purchasers except at great sacrifices. One of these natives shortly afterwards started from Lilyfontein with a wagon and +14 oxen with the intention of coming to this place to pay his debt. Seven of the oxen were his own, seven were borrowed. He intended selling as many of his oxen as was necessary to pay his debt and returning with the remainder. But the oxen were in so wretched a condition that they could not perform the journey across the parched country from Lilyfontein to Springbok – Nine of them had died by the time he travelled to the distance of one days journey from Springbok. He could proceed no further. – He therefore came on foot to this place to report the circumstances (C.T., 1/SBK, 5/1/2, Judge, Namaqualand, 24 April 1862).

Another notable drought spanned the years of 1893-1896 (C.T., PWD 2/5/288, 18 May 1897; C.T., SG 3/2/1/31, 21 March 1896; C.T., PWD 2/5/288, 20 January 1896; C.T., CO 7373, 21 December 1895). Relief works were set up by the Government on which many mission station residents worked to produce income during the drought (C.T., CO 7373, Hugo, Namaqualand, 29 April 1896). There are prolific reports of extreme distress and starvation in Namaqualand during this drought (C.T. PWD, 2/5/288, 24 January 1896; C.T., CO 7373, 29 April 1896; C.T., PWD 2/5/288, 6 September 1896; C.T., AG 1538, 13 June 1890, 1896).

A newspaper article entitled *Cry from Namaqualand*, described the drought as follows:

> A drought, said to be longer than living memory could parallel, had reduced the division to dire straits. For some seasons past the farmers had got no fruits of their toil. Cattle and sheep had perished by the hundred of starvation or thirst. … and, according to our correspondents, the death of human beings from starvation, the chronicling of which always sends a shudder even through the squalid cities of the old world – is a fact of the moment in the Cape Colony. Our Correspondent draws a pitiable picture of the helpless condition of the people in one part of the division, three years harvestless. … Some having lost their cattle during the evil that has fallen upon the land, are unable to transport the food supplies which might be obtained at the Government depot, while others having no means of communication with the centre of distribution and so making their necessities known (C.T., PWD, 2/5/288, Cape Times, 20 January 1896).

A Namaqualand resident explains:

> I was born in Namaqualand, but I have never experienced such a time as we are having now (C.T., PWD, 2/5/288, Dixon in Cape Times, 20 January 1896).

The Acting Civil Commissioner of Namaqualand, A.B. Hofmeyr, in a report on the mission stations in Namaqualand, stated that, "[t]here is no doubt that the natives have steadily degenerated and men who some years back were well off and possessed a considerable number of stock, have little or nothing left to-day" (C.T., AG 1538, Hofmeyer, Namaqualand, 6 July, 1905).

5.2.2. Wet Spells During the 1800s

Having traced certain dry years and drought periods attention focuses now upon wetter years. Wet periods are often more difficult to identify using this methodology probably as a result of the fact that droughts had far more serious negative long-term consequences occurring than isolated wet periods. Drought is a lagged, creeping hazard, the effects of which last for several years. Wet periods, meanwhile, are shorter and more sudden and often the sources did not record these in as much detail, although severe weather such as floods were noted.

Despite these difficulties, the year 1818 stands out as a wet year, with severe storms experienced in the Kamiesberg although it is not clear to what extent this excessive rain was experienced elsewhere in Namaqualand (WMMS(a), 1819), [Figure 13]. Barnabas Shaw described it as follows:

> 12. [May, 1818]. We have actually for the two days last past been in the clouds, and the cold is almost insurmountable. The wind has raged most tremendously, and the rain fell almost in torrents.
>
> 18. [May, 1818]. The weather is now more severe than I have ever seen before. We have not only had mist and rain, but the most bitter storms of hail and snow; the wind has also increased to such a degree that we have now a complete hurricane. This storm has had an effect on the house of Brother Edwards (being in an unfinished state,) that it has found its way to the ground, where it must be till the rainy season shall be over before it can be rebuilt (Extracts from the journal of Barnabas Shaw in WMMS (a), 1819, 70).

During 1822 and 1823 the Kamiesberg region experienced excessive storms and heavy rains in the winter of 1822 [Figure 13] (WMMS (a), 1823). The resident missionary at the station describes these storms as resulting from winds from the north-west, indicating that they were advected in from the Atlantic Ocean: which explains why they did not affect eastern Namaqualand. These storms occurred in most of the winter rainfall area of the Cape Colony and devastated Leliefontein as follows:

> …[M]y presence being very soon necessary to repair the buildings which have fallen at Lily Fountain, in consequence of recent hurricanes (WMMS (a), 1823, 118).
>
> Aug. 19th. [1822] Our buildings on our station and also upon the new farm, have also been much injured by the late torrents of rain and wind from the N.W. The church, and smith's shop, have fallen to the ground, and the buildings upon the new farm will all want repair (WMMS (a), 1823, 118).

1831, 1859, 1863, 1864 1870, 1872, 1878 and 1899 all appear to have had good rains [Figure 13] (C.T., CO 7373, Studer, Bowesdorp, 23 October 1899; Cape of Good Hope, 1878; 1873; 1872; 1871; WMMS (a), 1860; WMMS (c), 1832-1834). 1888 in particular was mentioned as having exceptional rainfall:

> Our rainfall last year was very much in excess of any previous year, certainly within my knowledge, now extending over ten years – many rivers which had not been flowing for years, ran for some months, the veldt was everywhere good, and I have never seen stock of all kinds in better condition, and were it not for the present low price of grain in this Division I should say the farming interests had no cause for complaints – unfortunately in good seasons the supply is in excess of the local demand – and the transport to the only port available for chief corn growing districts – Hondeklip Bay – owing to the heavy road almost precludes its use (C.T., 1/SBK 5/1/10, Eustace, Namaqualand, 6 May 1889).

5.3. DISCUSSION AND OBSERVATIONS

The drought periods identified in this study have been compared with those identified in similar studies conducted for the same period in the Cape Province (Vogel, 1987), the Kalahari region (Nash and Endfield, 2002a), Zimbabwe (Therrell *et al*., 2006) and Africa as a whole (Nicholson, 1989). Possible Links between ENSO and droughts in Namaqualand have also been identified.

5.3.1. Widespread Droughts and Wet Spells: Namaqualand, Kalahari and the Cape

The years in which the droughts were found to be the most widespread in the Kalahari region, the southern Cape, the eastern Cape and Namaqualand were *1820-1821; 1825-1827; 1834;*

1861-1862; 1874-1875; 1880-1883 and *1894-1896* (Nash and Endfield, 2002a; Vogel, 1987). The exact dates vary for different regions, but these years are common to all. Certain of the wetter years identified also coincide in a number of the sources. Vogel (1987) identified the years *1822-1824; 1831* and *1859* as wetter years in the southern Cape, while the wet years of *1863-1864* and *1899* coincide with those identified by Nash and Endfield in the Kalahari (2002a). A graphic comparison of the precipitation rainfall sets for Namaqualand and the southern and eastern Cape was compiled showing the major drought years which coincided in all three regions [Figure 14]. The paper published from this part of the thesis included the first attempt to identify widespread dry and wet spells combining all historical precipitation studies conducted in the Southern African region, this has since been used and added to by Nash and Grab (2009) and is thus a valid contribution of the research.

Recently a tree-ring reconstructed rainfall data set for Zimbabwe for the 19th century was compiled. The authors compared their findings to the documentary derived data set for the Kalahari (Nash and Endfield, 2002a). It was found that there was a strong correlation between the tree-ring reconstructed data and that from documentary derived data.

> Contemporary historical sources in the Kalahari region (Botswana) report drought conditions in these areas that were often coincident with episodes shown in the reconstruction (Therrell *et.al.,* 2006, 681).

Widespread drought years which were consistent with the tree-ring reconstructed data set, the Kalahari data and the Namaqualand data included 1857-1858, 1860-1862, 1882-1883, 1893 and 1895-1896. These constitute some of the most severe drought periods in Namaqualand for the second half of the 19th century. The unusually high rainfall of 1899 and 1900 also correlated with the tree-ring data set (Therrell *et.al.,*2006).

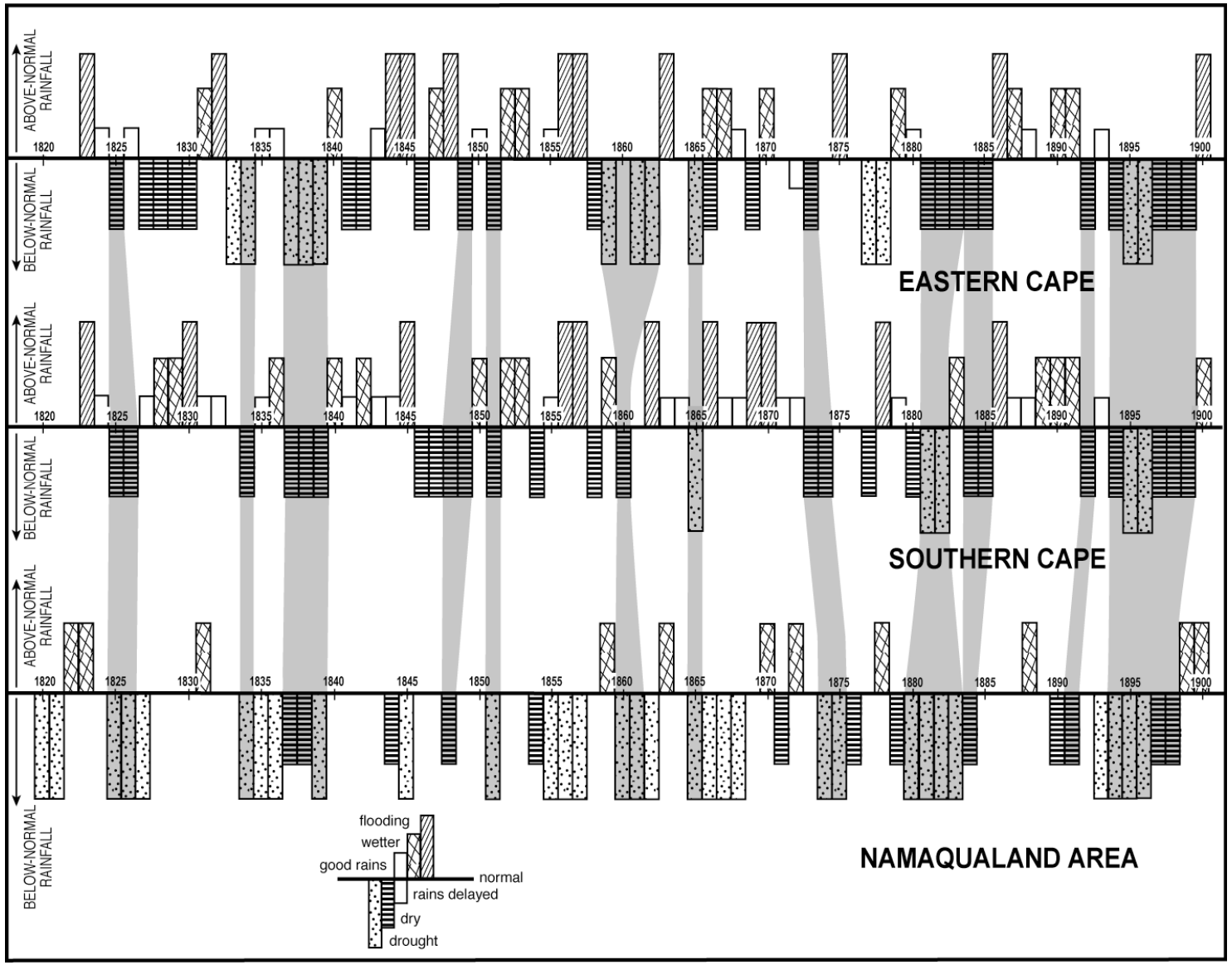

Figure 14: Climatic Conditions of Namaqualand Compared with those of the Southern and Eastern Cape: 1820-1900

Another important feature of rainfall identified in a number of sources is the failure of what are referred to in the sources as 'latter rains'. As part of Namaqualand is in a winter rainfall region, rains which are important for agriculture are those which fall in the months of September, October and November. In certain years the rains during the middle months of winter are good, allowing for good grazing, but if the 'latter rains' do not fall, harvests fail. Sources identify this as occurring in 1871, 1872, 1880 and 1881 (Cape of Good Hope, 1881; 1880; 1872; 1871).

As the Namaqualand area spans part of the winter rainfall area of the north-western Cape, as well as part of the summer rainfall area of Bushmanland, it is possible that it could have shared drought and wet periods with those of both the Kalahari region and the Cape Province. Key, however, is the very noticeable concurrence in all sources of the extensive and devastating droughts of the years 1825-1826; 1833-1835; 1839; 1860-1862, 1865, early 1880s and 1894-1897 (Nash and Endfield, 2002a; Vogel, 1987).

5.3.2. Droughts in Namaqualand and El Niño Southern Oscillation Events

In this study for the Namaqualand region, while not trying to over-attribute cause to wet and dry periods, attempts are made to see whether the dry spells identified here correspond to those already identified in previous work on ENSO. It should be noted that not all droughts in Southern Africa have been linked to El Niño events and these may result from other causes, such as intensified anti-cyclonic circulation over southern Africa (Mason and Jury, 1997). However, there appears to be some overlap between certain droughts and the years in which ENSO events have taken place.

The historical climatic chronology derived for the Namaqualand area was compared to the ENSO low phase events identified by Quinn and Neal (1992) and Ortlieb (2000) [Table 3]. The Quinn and Neal record has been cited prolifically has until recently been one of the only continuous historical records of ENSO. The validity of this record has been challenged by Ortlieb and Macharé (1993) and Ortlieb (2000), and as a result, both records were used for this analysis. However, where the more recent Ortlieb (2000) record conflicted with that of Quinn and Neal (1992), the Ortlieb record was given

preference. Both records identify the low phase events and include a grading of the strength of the event as shown in Table 3.

El Niño Events	Strength	Namaqualand dry/drought years	Droughts identified for surrounding areas
1806-1807	M	1807 (It is possible that this drought period lasted longer than a single year but sources were not available for the preceding or following years).	
1812	M+	1812	
1817	M+	1817	
1821	M	1820-1821	Kalahari: 1820-1827
1844-1846	M/S+	1844-1845	Kalahari: 1844-1851
1857-1858	M	1855-1857	Kalahari: 1857-1865
1862	M-	1860-1862	Kalahari: 1857-1865 Eastern Cape: 1861-1862
1866 1867-1868	M+ M+	1865-1868	Kalahari: 1857-1865 Southern Cape: 1865 Eastern Cape: 1865
1871	S+	1871 (Latter rains failed)	
1874	M	1874-1875	
1880	M	1880-1883	Kalahari: 1877-1886 Southern Cape: 1881-1882
1902	M+	1901-1902	
1904-1905	M+	1905	
1925-1926	VS	1924-1926	

Table 3: Correlation of ENSO low phase events, of moderate to strong intensity with drought periods in Namaqualand during the 19th century.
Column 4 identifies when the drought periods are more widespread, using Nash and Endfield (2002a) for the Kalahari region and Vogel (1987) for the Southern and Eastern Cape regions. These studies were conducted for 1815-1900 and 1820 to 1900 respectively and so there are no correlations shown for the years outside of these periods.

Correspondence between 14 drought phases in Namaqualand in the 1800s and low phase ENSO events were identified. In 9 of these cases these droughts were widespread and

affected the surrounding areas [Table 3]. Some severe drought periods in Namaqualand – notably those of 1819-1821; 1834-1839; 1844-1845; 1855-1857; 1860-1862; 1865-1868; 1880-1884 and 1893-1898 – stand out for their coincidence with ENSO events. It is worth noting that these dry periods also occurred in the Kalahari region and research has suggested correspondence with ENSO events (Nash and Endfield, 2008; Nash and Endfield, 2002a). These findings are neither exhaustive nor conclusive, yet they may provide points of departure for further studies in ENSO and past climates.

5.3.3. From Documentary-Derived Climate to Integrated Environmental History

A unique contribution of this thesis aims to combine the environmental history (including climate and vegetation) with the anthropogenic history (including livelihood changes, adaptations and pressures) of the Namaqua into an integrated local-level environmental history. Therefore, historical proxy rainfall data set forms an invaluable part of the analysis of the history of the Namaqua during the 1800s.

The value of this data set lies in the fact that it extends the historical climatic record for southern Africa into a region not previously researched. In addition, it fills a spatial gap between the historical climate studies for the southern Cape and those of the Kalahari region, thus facilitating the identification of widespread drought periods the extent of which was not previously recognised. This is useful to historians, botanists and sociologists conducting research in Namaqualand. Furthermore, it provides an historical climate record which may assist further research into possible links between El Niño events and droughts in southern Africa and extend these back into the 19th century and has already been used as such by more recent publications (Nash and Grab, 2009; Nash and Endfield, 2008).

In addition, availability of this kind of data set allows environmental historians to conduct more detailed research into human-environment linkages. The information contained in this chapter therefore enables the evaluation of the role of climate and particularly periods of climate stress in increasing the vulnerability of a local community, in this case the Leliefontein community of Namaqualand. Access to climate records for the 19th

century facilitates research into whether the climate stresses for the community have changed from the 19th to the 20th centuries and an assessment of the role of climate in contributing to the impoverishment of this rural community. In addition to this, a climatic background allows research into livelihood changes and other factors which may have increased the vulnerability of this local community. This is especially important in a semi-arid area where climatic variability is so closely tied to the livelihoods of the local people. A climate data set for the 19th century thus allows for a more detailed local level study of drivers of land-use change and factors which enhanced the vulnerability of the Leliefontein Namaqua.

Many researchers have noted the need for local-level studies that include the role of climate in an integrated environmental history (Beinart, 2002(b); Carruthers, 2002; Jones *et.al*., 2001; Oldfield *et al*., 2000; McCann, 1999(a); Beinart and Coates, 1995). Until now, much of this kind of research has taken place from a purely historical perspective ascribing little importance to the role played by climate and potentially that played by climate change in affecting local level changes in communities. This kind of local-level climatic data set is therefore valuable in both historical climate research and environmental history. The following two chapters aim to integrate the climatic history developed here with a livelihood and vulnerability study of the Namaqua community.

5.4. CONCLUSION

The Namaqualand region is a marginal area that suffers from low and unreliable rainfall with frequent periods of drought. In this thesis a documentary-derived chronology has been reconstructed, thereby extending the length of the meteorological data record for the area. Notwithstanding the limitations of such research, in particular subjectivity in interpretation, several distinctive periods of prolonged dry and wet spells emerge.

The dry years and periods of drought (denoted in italics below) identified for Namaqualand during the 19th century were: 1682-1684; 1762; 1805; 1807; 1812; 1817; 1820-1821; 1825-1827; 1834-1836; 1844-1845; 1855-1857, 1860-1862; 1865-1868;

1874-1875; 1880-1883; 1893-1896. The wetter years were more difficult to identify as there is not as much written about them in the sources. Despite this, the following were identified as wetter years: 1818; 1822-1823; 1831; 1859; 1872; 1878; 1888, 1899 and 1900. The most widespread drought years, which coincide with those identified in similar studies, were the droughts of 1820-1821; 1825-1827; 1834; 1861-1862; 1874-1875; 1880-1883 and 1894-1896 (Kelso and Vogel, 2007; (Vogel, 1987; Nicholson, 1989; Nash and Endfield, 2002a).

The drought periods were also compared to ENSO low phase events in order to identify possible coincidence between droughts and their possible intensification resulting from ENSO events. The drought or dry years which were found to *correspond* with ENSO low phase events were *1819-1821; 1834-1839; 1844-1845; 1855-1857; 1860-1862; 1865-1868; 1880-1884 and 1893-1898* (Kelso and Vogel, 2007).

The reconstruction of past climate extremes and their impacts enables an understanding and appreciation of the spatial and temporal extent of these events and provides improved appreciation of past events, their magnitude, frequency, spatial spread and associated impacts:

> By interweaving the many elements that make up climate research, and by continuing to compare and correlate different indicators, our understanding of climates of the past and the present will continue to illuminate and instruct us, and help us prepare for the challenges of future climates (Jones *et al*., 2001, 6).

Of particular value in this chapter are the derived sequences of severe droughts and wet spells, particularly those that were widespread. Despite problems of subjectivity and interpretation of data, this chronology provides a useful data set for others, such as historical-ecological researchers and those interested in ‘drivers’ of land-use change, to help frame further research into the causes and consequences of global environmental change.

SUMMARY

An historical rainfall data set for the 19th century was compiled and presented using historical documentary sources. The graphed precipitation data set constructed for Namaqualand for the 1800s is included in this chapter. The years which stand out as notable dry or drought years included: 1682-1684; 1762; 1805; 1807; 1812; 1817; 1820-1821; 1825-1827; 1834-1836; 1844-1845; 1855-1857, 1860-1862; 1865-1868; 1874-1875; 1880-1883; 1893-1896. Wetter years included: 1818; 1822-1823; 1831; 1859; 1872; 1878; 1888; 1899 and 1900. Certain widespread droughts were identified which also appear to have affected areas surrounding Namaqualand. These included the droughts of 1820-1821; 1825-1827; 1834; 1861-1862; 1874-1875; 1880-1883 and 1894-1896. This chapter also identified links between the El Niño Southern Oscillation and certain periods of climatic extremes in the 1800s. The climate chronology will be used as a backdrop for the livelihood study of the Leliefontein Namaqua for the 19th century. This research is invaluable for exploring the extent of the affect of climatic variability, particularly periods of extreme climatic stress, on the Namaqua population and the ways in which these effects might have changed during the 19th century. The precipitation record constructed in this chapter forms the climatic context for the livelihood and vulnerability study that follows in Chapters 6 and 7.

CHAPTER 6

MAKING OPPORTUNITY OUT OF OPPRESSION – LIVELIHOOD ADAPTATIONS: 1800-1853

> [I]t has however, afforded us much satisfaction, to learn that two commissioners, appointed to survey and report on the state of the colony, had visited [the mission station], and expressed to the government the persuasion they entertained, that the exertions of the missionaries would prove one of the most powerful means of civilizing the natives, and tranquillizing the colony (LMS(a), 1803 in 1795-1814, 166).

6.1. INTRODUCTION

At the beginning of the 19th century the Namaquas of Leliefontein were in a weakened position (see Chapter 4). The first half of the 19th century, however, brought about a period of muted prosperity as a result of the initiatives taken by the Namaquas and the changes and adaptations they made to their new circumstances. During the period 1800-1853 the most influential drivers of change, in addition to the effect of climate, were *the direct and indirect influences of missionaries, the introduction of agriculture, changes in livestock composition and transhumance routes and the encroachment of permanently settled Dutch farmers in the Namaqualand area*. The long-term effects of all of these were to weaken the livelihoods of the Leliefontein Namaqua population severely, making them increasingly vulnerable to the elements of their unreliable climate. However, it can be argued that certain circumstances and adaptations made by the Namaqua during the first half of the 19th century: they managed to secure access to land through acquiring a missionary, and as they actively engaged in the changes brought about by agriculture, their material circumstances improved. This improvement was reflected in the increase in agriculture, livestock numbers and the fact that people elected to join the mission station. Historical sources for the period contain numerous references to the prosperity of the Leliefontein station. This chapter provides a detailed discussion of the livelihood changes and adaptations made by the Namaqua during the first half of the 19th century.

6.2. THE NAMAQUA KHOIKHOI AT THE BEGINNING OF THE 19TH CENTURY

As discussed in Chapter 4, the Namaqua people lived a nomadic-pastoral existence herding sheep, goats and cattle (Shaw, 1970; WMMS(b), 1820; WMMS(a), 1818). The group with which this research is primarily concerned gathered at Leliefontein on the Kamiesberg mountains during the summer period, generally from around October/November until February-May (dependant on climatic conditions) (Shaw, 1970; WMMS(a), 1818; 1817; WMMS(b), 1818) [Figure 15]. Their transhumant journeys spanned a wide range, often winter grazing took place in Bushmanland, a winter rainfall area (WMMS(a), 1822; 1820; WMMS(b), 1818). During unusually dry or drought conditions some of their transhumant journeys took them to the coast where they reportedly relied on fish as an alternative source of nutrition (WMMS(a), 1846). The Namaqua did not conduct agriculture before the arrival of the missionaries [Figure 15] (Shaw, 1970; WMMS(a), 1819; 1817).

Their diet consisted of goats' and cows' milk (usually sour); cow, sheep and goat meat; roots; honey; ants; locusts; rabbit; partridge; springbok and other game and corn traded for cattle (Shaw, 1970; Alexander (1836), 1967; WMMS(a), 1842; 1837; 1829; 1825; 1824; 1819; 1818). Their economy was supplemented by trade with nearby groups (WMMS(a), 1817, 229).

Figure 15: Wesleyan Mission Station, Kamiesberg, Namaqualand (C.T, AG 8495)

Money was not in circulation in Namaqualand at the beginning of the 19th century. Trade was conducted in cattle, skins, and other items (WMMS(a), 1819; 1817). They wore predominantly sheep and goat skins and lived in mat huts which could be easily transported during transhumance (Alexander (1836), 1967; WMMS(c), 1837; 1836; 1835). At the beginning of the 1800s Namaqua was the primary language and only a few spoke Dutch, which became common during the latter half of the century (Shaw, 1970; WMMS(a), 1817).

The Namaqua population at the beginning of the 19th century was scattered, with many living on the far side of the Orange River (Webley, 1992). The group with which this research is concerned remained in Little Namaqualand was under the leadership of Jantjie Wildschut (Shaw, 1970; Gordon 1988 (1779)). This group gathered in Leliefontein in the summer and split into smaller groups moving in various directions in transhumant journeys during winter.

6.3. SEARCHING OUT SALVATION: QUEST FOR RELIGION OR SURVIVAL?

In 1816 the Leliefontein Namaquas under the leadership of chief Jantjie Wildschut literally sought a missionary and while travelling towards Cape Town, encountered Barnabas Shaw, who was heading northwards with the purpose of setting up a new mission station among the Great Namaqua people. This story as related by Barnabas Shaw follows:

> Having crossed the Oliphant Reveiere, (or Elephant River), while travelling on our way, Oct. 4, about 8 P.M. we were met by six Hottentots, on their way to Cape Town. We soon found out that one of them was the Captain of the Little Namaqua kraal, and the others were some of his people accompanying him to the Cape, in search of a Missionary. See here a heathen chief taking a journey on foot, between 3 and 400 miles, in order to seek a Leeraar (or Teacher) for himself and his people. As we were sure he could obtain no Missionary in Cape Town, and looking upon it as a particular Providence that we had fallen in with him in so peculiar a manner (there being many different roads leading to the same place) we proposed to him that I should remain at his kraal, which was about nine days' journey from the place where we met. He appeared highly delighted with our proposal, and said that the reason of his going to Cape Town in search of a Teacher was, he had heard a little of that which was good, (I suppose a Missionary on his journey had spoken at the kraal), but he longed to hear more. During the time of our religious

> worship he wept much; while brother Schmelen spoke (though he could not understand) of Jesus the Good Shepherd, the tears streamed down his cheeks, and during prayer he laid with his head bowed upon the ground, and his groaning of spirit (had it been heard by the friends of those outcasts of society in England) would have fanned that flame of zeal which had already been kindled in their hearts (WMMS(a), 1817, 235).

The reasons for the Namaquas' desire for a Christian teacher are unclear, and while they may have included religious conviction it is more likely that the Namaqua sought in a missionary protection for their livelihoods, systems of food production, control over their land, consolidation of the group and representation of their interests to the colonial government. The threats experienced by the unprotected Namaqua were described by Barnabas Shaw as follows:

> The Little Namacquas, so called because their country is of smaller extent, were known as a separate nation from the middle of the seventeenth century; and in the year 1708 a party of them went to pay their respects to the newly appointed governor, Louis Van Assenberg. They took with them presents of bullocks and sheep, and received in return a variety of European articles, with which they were highly delighted. The Dutch peasantry, however, soon followed them even to the Khamies mountains, where they purchased cattle and many parts of the country, for beads, brandy and tobacco. The harmless Namacquas considered the Dutch farmers as the most acceptable neighbours in the world; till most of their cattle, and many of their best fountains of water were wrested from them. Many then entered into a state of servitude with the farmers, and others fled to their more distant friends, beyond the Orange River (Shaw,1970, 18).

In other words, frontier communities were extremely vulnerable, and a missionary offered protection for their interests. This was not an unusual strategy: in fact, the Wesleyan records cite two other groups actively seeking out a missionary. In 1821 a group of Basters requested a missionary reside with them 75 miles north of the Kamiesberg (WMMS(a), 1822, 607), while in 1835 the chief of the 'Bondel Swarts' also came to Leliefontein in search of missionary (WMMS(b), 1835, 37). These two other cases seem to support the argument that these various groups became aware that having a missionary residing with them provided a certain set of benefits in the form of protecting their access to land, consolidating their group and representing their interests to the colonial government. [Figure 16]

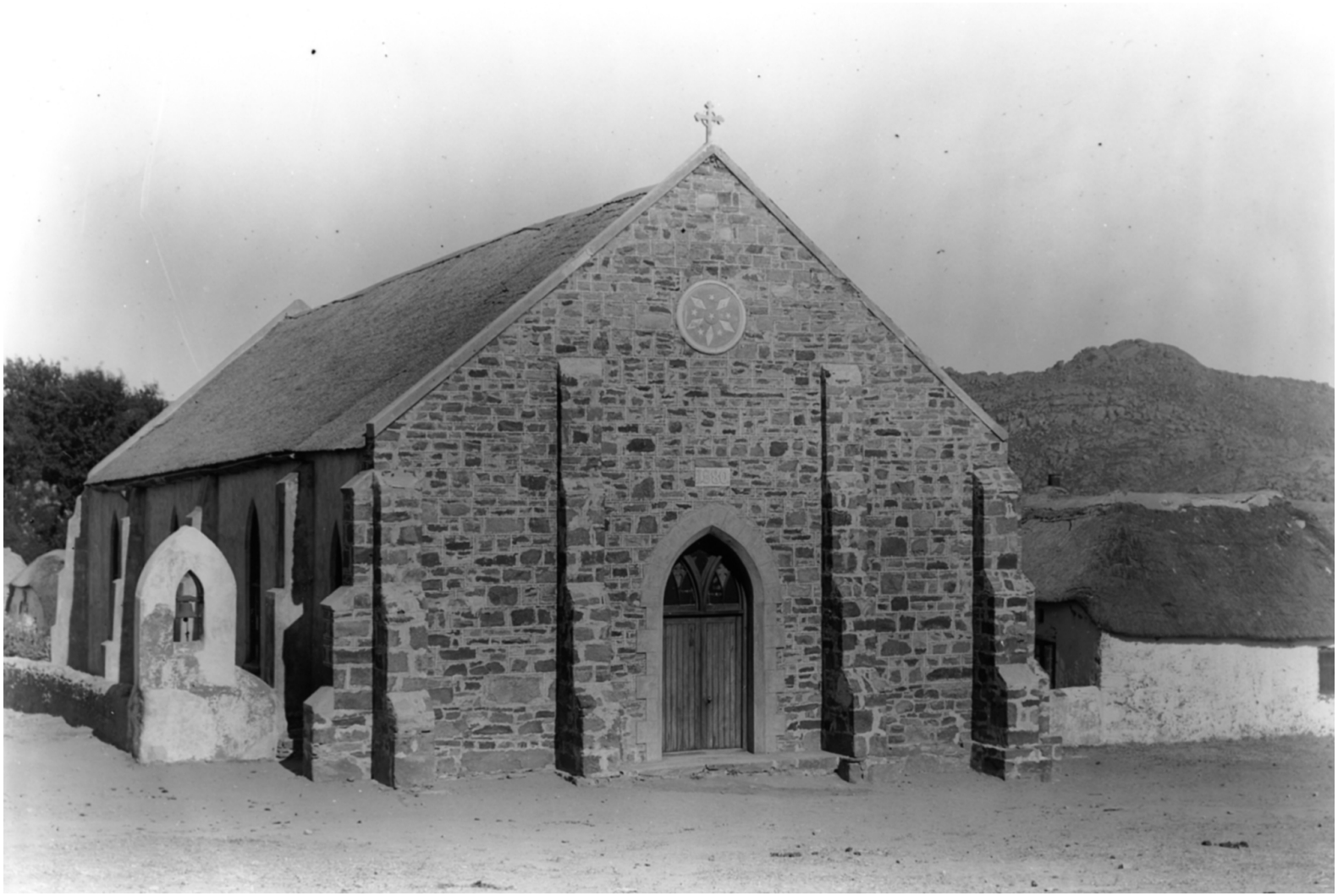

Figure 16: Church at the Leliefontein Mission Station (C.T. AG 8499)

Namaqualand became a frontier zone between the encroaching white population and the Namaqua population. The movements of both the Basters and the trekboers into the area began during the 1700s and continued right through the 1800s, intensifying with copper mining in the region in the mid 19th century. The Namaqua livelihoods were under multiple threats associated with the pressure of this influx and their frontier location (Redclift, 2006). Penn clearly elucidates various reasons why these societies might have turned to missionaries in this context:

> In the conditions of anarchy which had accompanied the disintegration of traditional societies along the river, conversion to Christianity offered social, political and economic advantages (Penn, 1995(b), 23).

The benefits for the Namaqua of constituting themselves as a mission station were multifaceted and are discussed in the next sections. It might be argued that constituting themselves as a mission station served as a form of resistance to the threats which they experienced in the marginal environment of the frontier zone.

6.4. THE MISSION STATION AS ACTIVE RESISTANCE

The influence of the missionaries over the Namaqua population, although overtly a religious one, had other implications for the population. The Namaqua community was suffering a decline by the end of the 18th century caused by the factors discussed in the previous chapter. Acquiring a missionary allowed them to preserve their traditional livelihoods and to retain their access to land, and thus constituted an act of resistance to livelihood threats resulting from the influx of trekboers and their increasingly permanent settlement in the area, the exploitative cattle trade and raids from the San whose livelihoods were also being threatened by the encroachment.

Elphick identifies four possible responses which the Namaqua had available to them:

> [B]efore the advent of the whites, a clan which had fallen on hard times had four possible courses of action: its members could trek away to a new region; they could revert to a San hunting existence; they could offer to herd for a wealthy chief; or they could try to recover their position through war. When Khoi society began to crumble before the Dutch advance, a very few Khoi chose the first alternative, namely to trek inland. Of the

> vast majority who remained, only a few became San – at last among the Peninsular and Nearby Khoi. This was because the Dutch offered them attractive terms along the lines of the third alternative: they could herd cattle for the conqueror, thus earning their keep and possibly enough stock to restart their own herds and flocks. In traditional Khoi society this process of rallying around the strong was the beginning of recovery; in this case, however, Khoi society virtually lost those men who chose to work in the colony (Elphick, 1972(a), 280).

In this way he suggests that most of the Khoi elected to herd livestock for the Dutch farmers in an attempt to recover their livelihoods. It can be argued however, that there was a fifth possibility: that which was enacted by the Namaqua Khoikhoi who chose to remain in Namaqualand. This involved seeking actively to retain control over their livelihoods and means of production by obtaining a missionary and constituting themselves as a mission station. This allowed them to retain their access to land and the opportunity to perpetuate their existing nomadic pastoral existence and secure their livelihoods in a hostile environment. At the same time, they actively embraced certain changes, such as agriculture. That this possibility has not perhaps been identified as active resistance, is not surprising, since it appeared to be capitulating to colonial powers. It is likely that the weakened Namaqua Khoikhoi, correctly identified this as the most effective way to retain control over their existing livelihoods.

The presence of the missionaries certainly offered some protection to the Leliefontein Namaqua population during the first few decades of the 1800s. They provided a link between the Namaqua interests and the Cape colonial government and although at a later stage this was used to gain more control over the Namaqua population, there were cases during the early decades of the 1800s when this proved to be to the Namaquas' advantage. As early as 1817 the mission lobbied the Colonial government for more land for the Namaquas, which the governor initially supported (WMMS(a), 1818). Historical sources mention a number of cases where missionaries represented Namaqua interests, enabling them to attain some political influence that they would not otherwise have had (Alexander (1836), 1967; C.T., 1/SBK, 5/1/2, 21 October 1862; WMMS(a), 1818).

James Alexander, a traveller in 1836-1837 who spent a considerable amount of time at the Leliefontein station, clearly expresses the protection benefits which the Namaqua experienced through the mission station:

> [T]he people would be more under the control of the missionary; and of course no white man would be allowed, on any pretence whatever, to use their watering places or occupy their grazing grounds (Alexander (1836), 1967, 101).

Early literature tends to represent the Namaqua as passive recipients of changes imposed on them by the missionaries, the colonial government and later the mining companies in the area. However, it can be argued that they actively embraced changes which they perceived to be to their advantage, from acquiring a missionary to embracing a certain amount of agriculture at certain times of the year and in years where the rainy seasons were favourable. Their central livelihood strategy, nomadic pastoralism, remained the priority, as is indicated by the fact that they would move away from the mission station seasonally and for longer periods when seasons were less favourable.

6.4.1. Missionary Influence

Missionary influence at the Leliefontein station, and indeed at many other mission stations across South Africa, was a fascinatingly contradictory one. Although they openly described the Namaquas as 'uncivilised' and 'savage,' resident missionaries learnt much of their language, culture and livelihoods and at times represented their interests to the colonial government. The influence of the missionaries had both genuinely beneficial and hugely negative consequences for the population (Shaw, 1970, 70; WMMS(a), 1817, 71). Living on the mission station enabled the Namaqua, in a larger group for much of the year, more effectively to resist exploitative trade and trekboer encroachment (Shaw, 1970, 107). [Figure 17]

Figure 17: Mission House at the Leliefontein Station (C.T. AG8498)

In addition to the benefits of the protection, legitimacy and security afforded to the Namaqua by the Colonial government, missionaries brought certain direct changes to their livelihoods, such as agricultural knowledge and new technologies. Of the changes introduced by the missionaries some were actively embraced by the Namaqua and others were rejected and still others were resisted. One of the most notable changes embraced by the Namaqua was the introduction of agriculture and the cultivation of small vegetable gardens (Shaw, 1970, 62). This was done in such a way that nomadic pastoralism remained their primary livelihood as both sowing and harvesting took place in a timeframe that allowed for migration with livestock during winter.

Barnabas Shaw planted his first garden at the Leliefontein mission not long after he arrived (Shaw, 1970, 62) and encouraged the building of permanent dwellings at the Leliefontein station. The earliest structures built included the mission house in 1816 and the chapel in 1817 (Shaw, 1970) [Figure 16]. Both Barnabas Shaw and Edward Edwards, his successor, actively encouraged the Namaqua to build their own permanent dwellings. They associated permanence with religious growth, as illustrated in the following quote from Mr. Haddy, missionary at the Leliefontein mission station in 1826:

> Before they had the Gospel, they wandered about with their cattle from place to place, "having no certain dwelling-place;" but now many of them have built houses, to dwell in themselves, and barns to preserve "the fruits of the earth." They have also learned the value of property …" (WMMS(a), 1826, 634-635).

While the missionaries' stated purpose was to introduce Christianity, teach the gospel and "sen[d] the word of eternal life" to "the Natives" (WMMS(a), 1827, 202), their influence was not exclusively religious. Indeed, they were responsible for radical changes to the Namaquas' livelihoods, many of which contributed to the decline of the community by the end of the 19th century. However, some of these changes appear to have produced a period of relative prosperity during the early years of the 19th century. During this period livestock numbers increased, agriculture expanded and the Namaqua continued with nomadic pastoral activities fairly successfully during this time. Each of these will be discussed in more detail in the sections to follow.

6.4.2. Livestock

As discussed in Chapter 4, the number of livestock belonging to the Namaqua Khoikhoi declined dramatically during the 1700s. Therefore, it is surprising to note the increase in livestock numbers in the first half of the 1800s as shown in Table 4.

DATE	STOCK NUMBERS	DESCRIPTION
1708		in the year 1708 a party of them went to pay their respects to the newly appointed governor, Louis van Assenberg. They took with them presents of bullocks and sheep …(Shaw, 1970, 18).
1816	1 individual: 300-400 sheep and goats	… Robert Kaffir, who possessed three or four hundred sheep and goats (Shaw, 1970, 65).
1821		… They have cattle in abundance, so much so that the place is not large enough to feed them." (Freyer in WMMS(b), 1822, 1iii; Freyer in Shaw, 1970, 99).
1824	4000+ livestock	… upwards of four thousand head belong to the community. (Thompson in Shaw, 1970, 100-101).
1832	3000 sheep 3000 goats 150 horses 125 oxen 250 cows	In 1832, the number of cattle belonging to the people of Lily Fountain was – 3,000 sheep, 3,000 goats, 150 horses, 125 oxen, 250 cows &c. (Shaw, 1970, 113).
1832	3000 sheep 3000 goats 150 horses 125 oxen 250 cows 10 pigs	The total number of cattle belonging to our people collectively, is as follows:- sheep, 3000; goats, 3000; horses, mares, and colts, 150; oxen, 125; cows and calves, 250; pigs 10. Cattle belonging to the station:- oxen, 30; sheep, 200; cows, 8; pigs, 10 (WMMS (a), 1832, 524)
1836	1 individual: 14 oxen 12 horses 700 sheep and goats	Mr. Edwards was absent at Cape Town when I arrived at the station, and a thin-looking corporal (Buchas) received me. It thought that he was very poor from his appearance, and I intended offering him the head and liver of a sheep I was about to kill, to keep him from starving, when I found, to my surprise, that he grew forty muids of corn annually, had a span of fourteen oxen, a wagon, twelve horses, and seven hundred sheep and goats (Alexander, 1967, 58).
1853	399 Horses 2185 Cattle 9685 Sheep and goats	399 Horses 2198 Cattle 9685 Sheep and goats (SA Lib, MSC39, C9-C13, Box 38, Bailie, Kamiesberg, 31 January, 1853)

Table 4: Livestock Figures Compiled Using Historical Documentary Sources

The earliest livestock figures available in missionary correspondence mention more than 4000 livestock belonging to the Leliefontein community in 1824 (WMMS(b), 1825; 1iii). The first detailed breakdown of livestock figures appeared in a letter written by the resident missionary in Leliefontein, Mr. Edwards, in 1832. These offer an interesting comparison to an 1852 church document recording contributions to the church including a list of residents, the livestock owned by each individual and a record of their residence in the community.

A comparison of these documents shows a remarkable increase in both small and large stock owned by the Leliefontein community. Total livestock ownership increased by 86% from 6375 sheep, goats and cattle in 1832 to 11870 by 1853 [Table 5]. What is even more remarkable is the increase in the number of cattle owned by the community, which grew by 483% from 375 in 1832 to 2185 in 1853. This unexpected growth may be a result of the growth of the community, which received 42 immigrants, mostly Basters (but also emancipated slaves to the Kamiesberg mission community) between 1830 and 1852 (SA Lib, MSC39, C9-C13, Box 38, 31 January 1853). 68% of the total increase in livestock was the property of the immigrants, while only 27% of the additional cattle were owned by them and the other 73% were owned by Namaqua who were born in the area [Table 6]. Therefore, there must have been factors internal to the community that allowed for an increase in livestock numbers, particularly in cattle. It is also necessary to determine why both Basters and emancipated slaves were inclined to settle in Leliefontein.

It is important to note that although for the Namaqua Khoikhoi land was not privately owned or used, the concept of private ownership existed with regard to livestock ownership. From as early as 1816 there was mention in missionary journals and travel writings recording the number of livestock owned by individuals (Shaw, 1970, 65). It seems too, from the 1853 statistics, that there was a huge range in the number of stock was owned by individuals. The highest number of livestock owned by one individual was 739, while 17 individuals owned upwards of 200 livestock (SA Lib, MSC39, C9-

C13, Box 38, 31 January 1853). Individuals and their livestock would split into smaller kinship groupings during winter or when conditions were otherwise unfavourable.

	SHEEP AND GOATS	CATTLE	TOTAL
Increase in livestock numbers since 1832	3685	1810	5495
Number of livestock owned by Basters and emancipated slaves who immigrated into Leliefontein since 1832 (42 individuals)	3231	480	3711
Percentage of livestock increase owned by immigrants (Basters and emancipated slaves)	88%	27%	68%
Percentage increase owned by the Namaqua born into the Leliefontein community	12%	73%	32%

Table 5: Increase in Livestock Numbers 1832-1853

	SHEEP AND GOATS	**CATTLE**	**TOTAL**	**% OF TOTAL**
Owned by the whole Leliefontein community:	9685	2185	11870	Not applicable
Owned by Namaqua born into the Leliefontein community	6413	1666	8079	68%
Owned by the immigrants (Basters and emancipated slaves)	3272	519	3791	32%

Table 6: Number and Percentage Increase in Livestock Owned by the Leliefontein-born Namaqua and those Owned by Recent Immigrants

6.4.3. Agriculture

The earliest crops introduced at the Leliefontein mission were wheat, barley (Shaw, 1970; WMMS(a), 1817), fruit trees (peach trees, fig trees and vines) and a vegetable garden containing potatoes, peas, beans, carrots, onions, lettuce, turnips, radishes and celery (WMMS(b), 1822, 1iv-1v; Shaw, 1870; WMMS(a), 1819, 552; 1817, 795).

No statistical measurements were kept of the land cultivated, amount of seed sown or agricultural yields. Therefore historical documentary sources have once again been used to obtain a history of the development of agriculture in the Leliefontein area. Although these sources are largely descriptive they also include indications of the amount of land cultivated and the yields produced. All the figures from the historical sources have been tabulated for easier analysis. Although the available figures are limited, those that were obtained indicate that agricultural production increased and yielded fairly well during the first half of the 19th century [Table 7].

The Namaqua practised agriculture during the summer when they remained at the Leliefontein station. Preparing the ground and planting seed was usually done in May and June with harvests taking place from November till January (WMMS(a), 1820;WMMS(c), 1832; 1833; 1834, 270). The introduction of agriculture did not interfere with the normal transhumant journeys of the Namaqua as ploughing was usually finished before they left the Leliefontein settlement for the winter and planting was only done when they returned (WMMS(a), 1822). Barley was harvested in November and wheat in January (WMMS(a), 1825, 496).

DATE	CROPS	AMOUNT	DESCRIPTION
1816	Vegetables		… we have already peas, beans, carrots, onions, lettuce, turnips, radishes, and celery, growing; and some of which are fit for use, in the garden. (WMMS(a), 1817, 795).
1823	Corn Barley	75 muids 6804 kg	… we have sown seventy-five muids of corn, barley, &c., and made alterations as to the extent of gardens (WMMS(a), 1824, 558)
1824	Not specified	90 muids 8165 kg	The extent of land cultivated is very considerable: about ninety muids of wheat had been sown this season, covering from three to four acres, and from which, if the season were favourable, a return of from thirty to fifty-fold was anticipated. Were there any accessible market for the surplus produce, a much larger quantity might be raised; but as there are at present no means of disposing of any large quantity of grain, the cultivation is necessarily confined to the immediate wants of the inhabitants. (Shaw, 1970, 100-101)
1824	Corn Barley	75 muids 6804 kg	We have sown seventy-five muids of corn, barley &c. and made many alterations as to the extent of gardens; so that, according to the present expectation, the people of Khamies Berg will not only be able, by the blessing of God, to remain a much longer time together on the mountain, but, at the season when the cold forbids their stay in so elevated a position, they may remove directly with their Missionary to the plains below, and by so doing possess the means of constant instruction. (WMMS(b), 1824, 46).
1832	Wheat Rye Barley	100 muids 9072 kg	The quantity of wheat, rye, and barley sowed last season, collectively, was nearly one hundred muids, or about three hundred Winchester bushels; covering nearly four hundred acres of land. The produce of our land is small, and I do not think that we average a return of more than fifteen fold. (WMMS(a), 1832, 524; WMMS(b), 1832, 49).
1836	Corn	1 individual: 40 muids 3 629 kg	… he grew forty muids of corn annually …(Alexander, 1967, 58).
1836	Wheat	90 muids 8165 kg 300-400 acres	The extent of land cultivated is very considerable; about ninety muids of wheat had been sown this season, covering from 3 to 4 hundred acres, and from which, if the season were favourable, a return of 30-50 fold was anticipated. (Thompson in Price, 1976, 17)
1836	Wheat	100 muids 9072 kg Harvested: 15000 – 20000 muids 1 360 777 - 1814 370 kg	The Namaquas of Lily Fountain had sown latterly about 100 muids, or 20,000 lbs of wheat annually, and had raised from this 1,5000 or 2,000 muids. (Alexander, 1967, 58).

Table 7: Agricultural Statistics Compiled Using Historical Documentary Sources

The following statement made by a Namaqua, Jacob Links, indicates that initially, the Namaqua themselves seem to have perceived agriculture as a beneficial livelihood adjustment.

> Brothers, let me ask again; before you had the gospel, what did you know of ploughing and sowing? What of making gardens, and partaking of the fruit thereof? What did you know of reaping cornfields, of thrashing the sheaves, of baking cakes, and of eating loaves of bread? What did you know of religious teaching … You knew nothing of them; but we see great things today, we have our teachers, we have the great work, and we have a school for our children (Links in Shaw, 1970, 232).

There were years when harvests were relatively successful and others when they appear to have failed almost completely (WMMS(a), 1822; WMMS(b), 1822). For the most part the introduction of agriculture seems to have been fairly successful. The Namaqua did not rely on it as their main source of subsistence, but it supplemented their pastoral livelihood effectively. Thus it agriculture became a successful livelihood addition, for a time.

Between 1824 and 1827 a system of private gardens for individual cultivation was introduced under the management of the missionaries, and thus the concepts of private land ownership and individual responsibility for cultivation were introduced (WMMS(b), 1839; WMMS(c), 1828; 1827; 1826; WMMS(a), 1827). The system of private land ownership never dominated land holding in Namaqualand, where communal land ownership is still the dominant practise. In the second half of the century increasing reliance on agriculture did increase the vulnerability of the Leliefontein Namaqua, but this but this is the subject of Chapter 7.

6.4.4. Trade

Trade in Namaqualand in the early 1800s was conducted in livestock, skins, honey and later in agricultural products (WMMS(a), 1826; 1819; 1817). Trade in agricultural produce, however, was limited as the nearest market was in Cape Town (Alexander (1836), 1967, 86-87; WMMS(c), 1835; 1836; 1837, 239). Travellers and traders passed through Leliefontein and by 1852 a cash economy had begun to develop, with contributions made to the church from the sale of surplus agricultural produce, labour on

the nearby mines and transport riding (Alexander (1836), 1967, 86-87; SA Lib, MSC39, C9-C13, Box 38, 31 January, 1853).

There are records of instances where the Leliefontein population worked as labourers on nearby Dutch farms (WMMS(a), 1824, 496). Wages were low and an incident was recorded where a Namaqua man working on a Dutch farm returned to Leliefontein almost starving and unpaid. In 1853, 4 of the 268 Leliefontein Namaqua men were recorded as working for Dutch farmers. The survey was conducted during the harvest and so this number seems to indicate that it was very few of the Namaqua who were willing to work as labourers on the surrounding Dutch farms. This also demonstrates the determined attempt by the Namaqua to retain their own access to land and their existing livelihoods as they were willing to incorporate agriculture into their lifestyle, but resisted giving up their access to land and control over their livestock by going away for wage labour.

It seems then, that the cash economy resulted from the exchange of surplus produce with traders and travellers rather than from labour on Dutch farms. The Dutch farmers in the area were not very wealthy, as their livelihoods were similar to those of the Namaqua. Although Dutch farmers appear to have felt entitled to 'native' labour, it did not follow that they would have been able to pay wages (Alexander (1836), 1967, 71). This would have added to the resistance of the Namaqua Khoikhoi to entering into labour for the Dutch.

As discussed in Chapter 4, the Namaqua had been subject to exploitative trade in livestock from Dutch traders. In addition, there had been livestock raids by the Dutch trekboers and livestock theft from the Bushmen. The Dutch traders paid the Namaqua Khoikhoi in non-productive items like alcohol, tobacco and dagga for their most productive asset, their livestock (Rhenius, 1947; WMMS(a), 1819). The negative effects of these trade relationships were seen towards the end of the 18th century (see Chapter 4). Once the missionary Barnabas Shaw was brought by the Namaqua to settle among the Namaqua, these exploitative trade relationships seemed to stabilise. There is evidence indicating that by acquiring a missionary and thereby increasing security of tenure over

their land, the Namaqua were able to decrease the amount of exploitative trade that took place amongst them. Their alignment with a missionary gave them more direct representation with the colonial government. [Box 1].

BOX 1: INCREASING ABILITY OF THE NAMAQUA TO RESIST LIVESTOCK TRADE

15th. [Februaruy, 1818]. … The Boor's son sat on a stone a short distance therefrom, not being sufficiently humble to sit in the same place with Bastards and Hottentots; his mother and sister looked out of the door of the dwelling-house on hearing us began to sing, but did not come, because, to use their common expression, "The English man has made the Namacquas too wise." That is, the Namacquas will no more exchange their cattle for brandy, tobacco, &c. as formerly, nor will they believe the idle stories of the Boors respecting Missionaries being sent to gather the heathens together, and then send them as slaves to another land (WMMS(a), 1819, 312).

In former days, many of them were much imposed on, by persons who failed not to take every advantage of their ignorance, and to use ever artifice to obtain their cattle, for articles of but little real value, and to them rather injurious than serviceable; but now they traffic on better terms, by which of course, their comfort and happiness are greatly promoted. They have been collected together, and form a sort of village, which, for the number it contains, though not in the mode of its formation, may be compared to many in England (WMMS(a), 1826, 634-635).

6.4.5. Transhumance and the Missionary Influence

The transhumant journeys of the Namaqua Khoikhoi varied from year to year. In general they tended to gather around Leliefontein in the Kamiesberg mountains during summer, and depending on grazing and rainfall remained there for 6 to seven months (Webley, 2007; Price, 1976; Shaw, 1970, WMMS(b), 1818; WMMS(a), 1817). The higher altitude of this location meant that the rainfall received in this area was generally higher than in surrounding areas making it a good location for the Namaqua during summer. During the colder months of the year, when temperatures on the Kamiesberg were very low and snow was often experienced, the Namaqua Khoikhoi would move from the Kamiesberg into Bushmanland.

The Namaqua usually left the Kamiesberg area during the months of May or June and during good years moved back to the Kamiesberg around October. This enabled them to preserve grazing for the summer season (WMMS(a), 1822). During the winter when the Namaqua moved from Kamiesberg, they did not move in one group, but rather split into

smaller family groupings and scattered over various parts of Bushmanland – and during more severe drought periods, to the coast, where fishing provided an alternative source of food (WMMS(b), 1846; 1818). Some of the outposts of the Kamiesberg included the Underveld, Bethany, Reed Fontein and Twee Riveren (Shaw, 1970; WMMS(b), 1839; LMS(a), 1826; WMMS(a), 1820; WMMS(b), 1820). The Namaqua lived in dwellings called *matjieshuise* (mat huts) which consisted of reed mats over a wooden frame and could be dismantled and moved at any time as they moved with their livestock. The Dutch trekboers also adopted the use of the matijieshuise and relied on transhumance with their livestock in response to aridity, climatic variability and sparse vegetation (Alexander (1836), 1967; WMMS(a), 1841).

Transhumant journeys and a scattered population did not enhance the missionary cause. The missionaries opposed transhumance and initially encouraged permanence among the Namaqua population from their earliest settlement in Leliefontein. Later they realised, however, that the Namaqua had to move from the Kamiesberg area during winter, although they were still actively encouraged to settle during the summer months (WMMS(a), 1822). Barnabas Shaw viewed agriculture as a way to keep the Namaqua together in one place for the purpose of religious instruction.

> Some have thought that Missionaries should take no concern in the temporal affairs of the people among whom they labour, but that they should be employed in promoting their spiritual welfare. This is correct as it regards nations already in a state of civilisation, but will not apply to the commencement of a mission among savages. He who goes to convert a wandering tribe to Christianity, must either collect them together for this purpose, or himself must become a wanderer. If he collects them together, he must show them some method of obtaining subsistence, that they may remain with him; otherwise the few cattle which they possess will soon be slaughtered for immediate use, after which they must either die of hunger, or again repair to the chase in search of food. Taking this view of the state of the Little Namacquas, I was desirous of keeping them together, by teaching them to live by agriculture instead of hunting. This led me to attempt the construction of a plough, in which I succeeded far beyond my expectations (Shaw, 1970, 70).

To the missionaries, permanence, agriculture and later manufacture and labour were equated with godliness. The growth in these activities among the Namaqua were proof of their progress in spiritual things and were actively encouraged by the missionaries. They promoted the building of a church, a mission house, permanent houses for the Namaqua, agriculture, the cultivation of gardens, manufacture and prescribed the months and

destinations of transhumant journeys (Shaw, 1870; WMMS(b), 1820; WMMS(a), 1825; 1824; 1822). This is illustrated in the example cited below.

> Extract of a Letter from Mr. Shaw, dated August 24th, 1826.
> … who have not only sent them the word of eternal life, but the means of cultivating their fields, of reaping their harvests, of erecting granaries, of building themselves substantial dwellings; thus enabling them and their children to remain together under the sound of the Gospel (WMMS(a), 1827, 202).

That the population may become more settled and less prone to 'wandering' was seen as a virtuous improvement and given moral and religious implications.

> The Missions in Southern Africa continue to present most cheering indications. Their present success is generally encouraging; and their prospects are connected with the diffusion of the civilizing; intellectual, and spiritual effects of Christianity over large tracts of that continent and its scattered and degraded population (WMMS(b), 1826, 31).

The Namaqua adapted their livelihoods with the changes which they perceived as beneficial, such as agriculture. However, when climatic conditions became unfavourable they returned to a reliance on nomadic pastoralism at the expense of agriculture and livestock again became pre-eminent.

> I [Mr. Edwards] called a general meeting of young and old, rich and poor, in order to impress upon their minds the necessity of keeping together upon the station during the summer months, that the young people might have more opportunities of hearing the word, and of receiving instruction in the school. The Meeting closed agreeably, and those who were not resident at the station, promised to come as soon as possible with their families (WMMS(a), 1822, 607).

Early records indicate that the Namaqua would move further afield during drought periods: a survival strategy that the missionaries attempted to constrain. Even during drought periods, such as the one spanning 1820-1827, the missionary, while acknowledging the need of the Namaqua to move during winter for grazing, nevertheless insisted that they remain in Leliefontein during the summer months. The missionaries asserted that it was necessary for spiritual growth that the Leliefontein Namaqua remain together during summer and that this had obvious ramifications for the sustainability of their previously flexible livelihoods.

It seems clear from the way in which the Namaqua responded to this attempt to encourage permanent settlement that they still prioritised livestock and grazing, despite embracing agriculture when conditions were favourable. Nevertheless, the priority remained grazing and during drought periods there are many cases where the missionaries complained that they could not keep the Namaqua population together even during the summer months (WMMS(b), 1846; WMMS(a), 1822).

6.4.6. Trekboers

It is not clear exactly how many loan farms were granted to trekboers or so called 'freemen' surrounding the Leliefontein mission station in the early 1800s. What is clear is that the relations between the Leliefontein Namaquas and the Dutch farmers on the surrounding farms were strained. The colonial government began allowing the movement of freemen out of the Colony in 1657, granting land to these farmers in the form of loan farms from 1703. The size of these farms was generally measured as the time that it takes to walk one hour across the farm: an inaccurate form of measurement that created major disputes (WMMS(a), 1841; 1821). See table [Appendix B] showing the loan farms mentioned in the primary sources in Chapter 4.

The number of loan farms being allocated and the strained relations between the Dutch farmers and the Namaqua may have been one of the factors which drove the Namaqua Khoikhoi to seek a missionary in 1816, having observed the access to land which had been obtained by earlier mission settlements in Pella and elsewhere.

6.5. PROSPERITY

The mission station therefore allowed the Namaqua greater security than they had experienced during the 1700s and afforded them the opportunity to continue their traditional livelihoods. Indeed, 42 livestock owning Basters and emancipated slaves elected to join the Kamiesberg mission station between 1830 and 1853 (SA Lib, MSC39, C9-C13, Box 38, 31 January, 1853): an indication of the perceived benefits afforded to mission inhabitants.

There are numerous references to the prosperity of the Leliefontein Namaquas during the first half of the century from missionaries, travel writings and the local population themselves, cited in missionary sources. These reports are not continuous, but are interspersed with some references to poor harvests, lack of grazing and absences from the station for long periods during the droughts of the 1820s and mid 1840s. Nevertheless the overarching impression given in the sources is that the livelihoods of the Namaqua improved in comparison to the later half of the 1700s, and their recovery from the droughts was much more rapid.

It was naturally better for the missionaries to report improvement than deterioration. The writings of these missionaries reached their societies, their body of financial support back home, so it was of benefit to them to demonstrate improvement. However, in the latter years they seem quite willing to clearly describe the deterioration. Thus, it is likely that the earlier statements are correct even if they are slightly exaggerated. Moreover, the records of travellers, who had nothing to gain from these reports, confirm the prosperity of the Namaqua during the early 1800s. In this context it is very interesting to note the extremely rapid decline of the Namaqua population in the second half of the century and to attempt to identify reasons for this (discussed in Chapter 7).

6.6. DISCUSSION

The period spanning 1800-1853 shows surprising improvement of the circumstances of the Namaqua. Livestock numbers, particularly large stock show a remarkable increase, 73% of which belong to Leleifontein Namaqua born into the area [Table 5; Table 6]. This is likely part recovery from the exploitative trade which occurred in the 18th century (Chapter 4), but even so this increase is remarkable. Agricultural yields also illustrate some good years, where the Namaqua have surplus for sale, 1824 and 1836 particularly stand out. It can be argued then that the period 1800-1853 is a period of effective adaptation by the Leleifontein population. Unfavourable seasons are coped with through widespread transhumance lowering vulnerability to climatic fluctuations and

seasonal variability is still the main determinant governing migration. Agriculture is also practised seasonally only in good years and is not yet something on which the Namaqua rely.

Grazing practise during this period is most similar to disequilibrium dynamics and related opportunistic grazing strategies. Rainfall is the main determinant in vegetation and the largest influence on stocking rates. The Namaqua do not deliberately limit livestock numbers and allow them to increase during favourable periods. Concepts like carrying capacity, private ownership of land, restricting livestock numbers, and practises associated with grazing practise at equilibrium were unheard of and certainly not practised. Bad seasons were compensated for by widespread transhumance and substitution with other environmental resources such as fish during severe droughts. Cattle numbers increased during this period as did small stock. Definitely, the first half of the 19th century illustrates similarity with disequilibrium grazing dynamics and during this time the Namaqua, for the most part profited and recovered more easily from drought. The opportunistic grazing strategy associated with non-equilibrium dynamics therefore seems to have been an effective grazing strategy in this region at this time. The Namaqua sustain themselves and prosper during this period.

The success of opportunistic grazing was directly dependent on widespread transhumance, an opportunity that disappears during the second half of the century. Thus it is not possible to extract from this finding the conclusion that opportunistic grazing would be a successful strategy today because at the time at which it was successful much larger land area was available. There is no reference in the sources of the time to degradation, references to this only begin in the second half of the century. Thus, a cautionary note should be taken when drawing these grazing practises into modern policy without clarification.

Greater control and self-determination also aid in more effective adaptation during this period with the Namaqua gaining more control over land than they had in the last years of the 18th century. Cash is obtained only through minor trade of surplus and wage labour is

mostly resisted. Transhumance was dictated by rainfall and seasonal variability, not by predetermination and although missionaries attempt to limit this, but they are unsuccessful and eventually began to move with the population instead.

Coping mechanisms include wide transhumance and they used agriculture only when seasons were favourable, when they were not this was not conducted and longer times are spent in migration, especially to Bushmanland, the summer rainfall region with different climatic controls. This is not to say that impacts of droughts were not experienced, but the Namaqua coped with them better in this period, as discussed in section 6.7.

The changes and coping strategies employed by the Namaqua during this period are mostly strategies which did not increase their exposure or risk in fact many of them, such as securing better access to land, actually decreased it. Widespread migration is an effective adaptation to the region, one which becomes limited in the second half of the century. Thus most decisions during this period actually decrease the vulnerability of the Namaqua. Grazing strategies are mainly opportunistic and power remains with the Namaqua. The second half of the century reveals a very different narrative.

6.7. DROUGHTS AND RESILIENCE – EARLY 1800s

Droughts, especially those which last several years, expose the increased vulnerability of the community. The droughts of the 1820s and the early 1830s have been examined to illustrate the resilience and capacity for coping and recovery exhibited by the Leliefontein Namaqua during this period. A comparison between these drought periods and those of the second half of the 19th century is made at the end of Chapter 7.

In most of Namaqualand and the Kalahari, a severe drought occurred between 1820 and 1827, although in the Kamiesberg area it was interrupted in 1822 and 1823 with slightly wetter years as shown in Chapter 5 (Kelso and Vogel, 2007; Nash and Endfield, 2002a). Nevertheless drought struck again from 1824-1827 and was extremely severe. By this stage Leliefontein had become a mission station and the community were accustomed to

agriculture, although they still practice transhumant grazing and livestock is still their most important source of livelihood. The impacts of the drought were severe, but the recovery period appears to have been short, with reports of good harvests and prosperity as early as 1828. (WMMS(c), 1828, 484-485). In 1827, the effects of the drought on the Namaqua population was described by the missionaries of Leliefontein as follows:

> The poverty of a large portion of the Namacquas is very great, and since my return to this place continued applications are made for food, &c. The harvest this year was very indifferent, so far as the crops of most of our people were concerned (WMMS(c), 1827, 388).
>
> You have heard how much the country has suffered from the late drought, the crops of corn have greatly failed again the last summer: many whose principal dependence is on the produce of the land, are reduced to great want and distress (Haddy in Shaw, 1970, 107-108).

What is fascinating about this period is that the recovery after this drought was very rapid. As quickly as the following year, 1828, the station is already described as prospering once again.

> In short, I may affirm, with the greatest propriety, that I never saw the station in a better state than at present. In reference to temporals, we are in a state of improvement; the harvest this year has turned out better than the last: our people are daily employed in gathering its fruits (WMMS(c), 1828, 484-485).

In 1832 one of the Namaqua described how they were prospering once they had constituted themselves as a mission station:

> I was also poor, but I can now live; formerly I used to hunt duarses and other wild animals in the mountains, but I have a better living now. When did we eat such bread before? When did we buy so many clothes of the merchant before? Who could hunt better than I? Yet I live much better now than I did then (WMMS(a), 1832, 270).

Another drought period following which the recovery was rapid was that of 1834-1836. A traveler to Leliefontein in 1836, immediately after the drought period, when one might expect that the effects of the drought were ongoing, described the station as follows:

> I was quite surprised and pleased to see the quantity of land they cultivate, …[t]he Namaquas of Lily Fountain had sown latterly about 100 muids, or 20,000 lbs of wheat annually, and had raised from this 1,5000 or 2,000 muids. Mr. Edwards was absent at Cape Town when I arrived at the station, and a thin-looking corporal (Buchas) received me. I thought that he was very poor from his appearance, and I intended offering him the head and liver of a sheep I was about to kill, to keep him from starving, when I found, to

> my surprise, that he grew forty muids of corn annually, had a span of fourteen oxen, a wagon, twelve horses, and seven hundred sheep and goats! (Alexander (1836), 1967, 58-59)

Both of these examples illustrate the Namaqua's ability to recover rapidly from the effects of severe drought. The mission inhabitants coped with drought by dispersing with their cattle: in 1821 and 1824 it was recorded that they were widely scattered (WMMS(a), 1825; 1822; WMMS(b), 1821). During the drought of 1844-1845 it was recorded that the Namaqua travelled to Bushmanland and the coast for fishing to cope with the effects of the drought (WMMS(b), 1846). Greater resilience and more rapid recovery from drought can therefore, at least partly be ascribed to wide ranging transhumance.

Migration was especially effective because they migrated between the winter rainfall area of the Kamiesberg and the summer rainfall area of Bushmanland. This became less possible however, in the late 1700s and the early 1800s with the increased encroachment of settlers into the area. When Leliefontein became a mission station the inhabitants once again had control over their land and their grazing and the mission lands incorporated both winter and summer rainfall areas. Agriculture was introduced but not at the expense of their migratory movements and as a result their recovery from the droughts of the first half of the 19th century was relatively rapid.

6.8. CONCLUSION

During the first half of the 19th century the Little Namaqua community attempted to preserve their traditional livelihood of nomadic pastoralism and to protect their access to and control over their land. Evidence shows that the Leliefontein Namaquas were in fact prospering during the early years of 1817-1853. Droughts such as those of 1826, 1836 and 1845 had negative effects on the Namaqua, but they were able to adapt by expanding the range of their transhumance (WMMS(b), 1846). In addition to this, the greater protection afforded by the presence of a resident missionary, the increase in livestock numbers and the relatively good agricultural yields in years when climatic conditions were favourable illustrate a period of relative prosperity for the Namaqua in the first half

of the 19th century and provide a stark contrast to the rapid deterioration and poverty which afflicted them in the second half of the century.

Research has shown that opportunistic transhumant livestock management is one of the most effective livelihood strategies in a semi-arid area and it sustained the Namaqua successfully through generations. It appears then, that as long as they were able to use transhumant livestock management as their central livelihood strategy they were able to sustain themselves successfully. The dramatic changes to their livelihoods which accompanied increased encroachment of Dutch farmers and the influx of mining into the area caused a rapid decline in the material wealth of this population in the second half of the 19th century and it is with this that the next chapter will be concerned.

SUMMARY

This chapter has examined the improvement in the circumstances of the Leliefontein Namaqua population during the first half of the 19th century. This improvement resulted from the acquisition of a resident missionary. It has been argued in this chapter that this was possibly one of the only forms of resistance to settler encroachment and the loss of access to land that was available to the Namaqua. This strategy appears to have been initially successful, as is indicated by the increase in livestock numbers, the early success of agricultural activities and the fact that a number of Basters and emancipated slaves elected to join the mission station. Throughout this period the Namaqua managed to retain nomadic pastoralism as their central livelihood activity with the other livelihood additions remaining secondary. Transhumance occurred on a seasonal basis with longer periods of transhumance when seasons were unfavourable. Evidence suggests a period of comparative prosperity for the Namaqua despite the repeated droughts which occurred during this period. Their resilience and capacity for recovery from the droughts of the 1820s, 1830s and 1840s appears to have been relatively good. This contrasts with the second half of the 19th century which is discussed in chapter 7.

CHAPTER 7

FROM LIVELIHOOD DIVERSITY TO POVERTY AND DEPENDENCE: 1853-1909

7.1. INTRODUCTION

In light of the evidence for increased prosperity of the Leliefontein population in the early part of the 1800s, their rapid deterioration in material circumstances to impoverishment by the end of the 19th century demands explanation. This chapter focuses on the livelihoods of the Leliefontein population during the second half of the 19th century and the deterioration in their material circumstances to a position where poverty, starvation and famine were the words most frequently used to describe their state (C.T., ACLT, 218, 1909; C.T., AG 1538, 1905). It will be argued that although the adaptations the first half of the century caused some improvement in the material circumstances of the population, the coping strategies which they employed in the second half of the century placed them in a position of increased vulnerability.

The climatological reconstruction of the 19th century shows that climate variability – including periods of climatic stress, particularly droughts and dry periods – exhibited a similar pattern throughout the 19th century. The ability of the Leliefontein population to cope with these stresses, however, decreased rapidly during the second half of the 19th century. The increased reliance on agriculture, in particular, seems to have made the population of the mission station more vulnerable to periods of climatic stress. The introduction of mining to the area and the temporary wealth it brought with it, through opportunities for transport riding, the sale of surplus agricultural produce and short term employment; as well as the influx of traders and hawkers to the mission stations and the increase in the trekboer population, all contributed to the long term decline of the once sustainable and resilient livelihoods of the Leliefontein population [Figure 18]. Diversification of livelihoods, which often enhances resilience, caused the opposite with the Leliefontein population due to the increased exposure that came with it.

Figure 18: Leliefontein Mission Station (C.T., AG 11530)

7.2. LIVELIHOOD CHANGE

During the first half of the 19th century the Leliefontein people had gained some control over their land and secured aspects of their traditional livelihoods, but the second half of the 19th century saw them having to move away from traditional nomadic pastoralism and towards an increasing reliance on agriculture and wage labour. In addition, the population grew from 700-800 in 1826 to 2500 in 1928. (P. LDE, 3952, 5977/1, 9 February 1928, WMMS(a), 1826, 635). Population increase without an adequate increase in livestock and with the amount of land they had access to shrinking, led to impoverishment and vulnerability.

The Leliefontein population made several rapid livelihood changes during the second half of the 19th century. First, the opportunity for wage labour on the copper mines became available after the opening of the first copper mines in Namaqualand in 1854 (Bain, 1949; Wits, A6, 1854). Second, some of the population begin transport riding of copper ore for the mines, increasing their wage income though this activity (Cape of Good Hope, 1862). Third, the population grew to rely increasingly on agriculture (Rohde *et. al.,* 2003; Cape of Good Hope, 1874). Fourth, trekboers encroached into all the available land surrounding the Leliefontein mission station, some of them having private control over loan farms and some freehold nomadic pastoralists making use of government land such as Bushmanland (C.T., 1/SBK, 5/1/1, 1856). In addition, the mining areas of Springbok and O'okiep grew into settlements which were sometimes supplied with surplus agricultural produce from the mission stations. Hawkers came to the mission stations in greater numbers offering credit to the Leliefontein population, especially during bad seasons.

7.2.1. Increased Dependence on Agriculture

During the late 1800s, the Leliefontein population became increasingly dependent on agriculture, particularly wheat and barley. In the highly variable climate of Namaqualand (see Chapters 4 and 5), this made them more vulnerable to climatic fluctuations.

Nomadic pastoralism, meanwhile, which provided the flexibility to change the routes of transhumance depending on rainfall, had been well adapted to the climate of the area. Agriculture, on the other hand, allowed for less spatial flexibility and despite the benefits in good years, in drought years with successive harvest failures it resulted in impoverishment.

The Civil Commissioner of Namaqualand observed that the populations of the mission stations were the worst hit by drought because of their greater reliance on agricultural produce than the other farmers in Namaqualand (Cape of Good Hope, 1874). It is ironic that the population of the mission stations who had been entirely nomadic before colonisation became more vulnerable to the climate through the 'improvements' introduced by the colonisers, whereas the colonising farmers took on nomadic pastoralism as the best way to survive in Namaqualand. The trekboers relied on winter grazing in Bushmanland as the Namaqua had once done while the Leliefontein inhabitants enjoying all the benefits of agriculture and 'civilisation', became increasingly vulnerable to what had always been an unreliable climate (C.T., 1/SBK, 5/1/7, 1880). Increasing reliance on agriculture in this drought prone area was one of the driving forces in livelihood decline (Cape of Good Hope, 1865):

> Our harvest owing to our very limited rainfall (7¼ inches) has been a bad one, fortunately our farming population depend chiefly upon their flocks, and herds and but little upon agriculture, and these generally do not appear to have suffered from either disease, or drought, no doubt at the different missionary institutions, where the people depend more largely upon their grain crops, there may be some distress, before another harvest (C.T., 1/SBK, 5/1/7, Eustace, Namaqualand, 31 December 1880).

Following the repeated drought periods from 1866 the Leliefontein population were not able to recover using only their own resources, but had to rely on government aid in the form of seed, supplies and later wage labour on relief works. Government aid in the form of seed wheat was provided for the droughts in 1866; 1875; 1883, 1886 and 1896-1897. Often the bulk of this went to the mission institutions as they were suffering the worst from the droughts, due to their reliance on agriculture (C.T., 1/SBK, 5/1/9, 1886).

7.2.2. Livestock

From 1853 to 1905 cattle numbers belonging to the Leliefontein community decreased from 2185 to 1400, while small stock numbers increased from 9685 to 12400 [Table 8] (C.T. AG 1538, Melville, Cape Town, 30 June, 1890; SA Lib, MSC39, C9-C13, Box 38, Bailie, Kamiesberg, 31 January, 1853). Given the increase in population, this meant a per capita livestock decrease: partly the result of four incidences of lung sickness among the cattle, as well as the introduction of transport riding and losses resulting from illness and drought (see section 7.2.3.) (C.T., 1/SBK, 5/1/8, 24 February 1883; C.T, 1/SBK, 5/1/6, 27 August 1875; Cape of Good Hope, 1865; C.T., 1/SBK, 5/1/2, 10 October 1862; C.T., 1/SBK, 5/1/1, 22 December 1855). Cattle numbers continued to decline at the Leliefontein station, leaving only 1100 cattle by 1928 (P., LDE, 3952, 5977/1, 9 February 1928).

YEAR	LIVESTOCK NUMBERS	QUOTE AND SOURCE
1853	399 Horses 2185 Cattle 9685 Sheep and goats	399 Horses 2198 Cattle 9685 Sheep and goats (SA Lib, MSC39, C9-C13, Box 38, Bailie, Kamiesberg, 31 January, 1853)
1905	600 Horses 1400 Cattle 12400 Sheep and goats	The number of families at the institution is from 175 to 200, who own about 600 horses, 1,400 head of horned cattle and 12,400 sheep and goats. (C.T. AG 1538, Melvill, Cape Town, 30 June, 1890)
1928	200 Horses 1100 Cattle 6900 Sheep	Mr. Weir informed me that the number of families and burghers is 250 and the population about 2500 souls, possessing 6900 sheep, 1100 cattle and 200 draught animals. (P. LDE., 3952, 5977/1, Vos, 9 February, 1928)

Table 8: Livestock Numbers – Compiled using Documentary Sources: 1853-1928

As the veld deteriorated during droughts, large stock numbers also declined more quickly than the small stock with small stock numbers increasing more rapidly when the rains improved (C.T., 1/SBK, 5/1/9, 27 August 1885; C.T., 1/SBK, 5/1/8, 1883). The farming of small stock has been cited as a coping strategy for the rural poor although it can have

long term negative effects on vegetation cover and the sustainability of grazing (Vogel, 1994).

The mission population were still reliant on transhumance, although during the later part of the 1800s this became even more severely restricted when the borders of Leliefontein station were totally surrounded by farms. The station itself, as it still does today, contained winter and summer grazing: a necessity in an area with low and unreliable rainfall (C.T., CCP, 1/2/2/1/46, 30 July 1890). However, the increasing population, increasing pressure on the land from surrounding farms and the increasing numbers of small stock with their more diverse grazing habits produced a rapid decline in the Leliefontein population during the 19th century. Each subsequent drought period caused greater impoverishment to the point of starvation and famine. The livelihood strategies made during the 1700s and 1800s seem to have crossed a threshold of vulnerability in the second half of the 1800s.

Livestock illness occurred frequently between 1857 and 1866. Lung sickness produced a decline in cattle numbers in 1857, 1858, 1864 and 1866 (Cape of Good Hope, 1865; WMMS(a), 1860). Those who used their oxen for transport were particularly vulnerable due to a greater chance of exposure to the disease.

7.2.3. Transport Riding

With the start of the copper mining, the mission inhabitants at Leliefontein took up the new, and initially lucrative opportunity, for transport riding copper ore from the mines (C.T., 1/SBK, 5/1/1, 1 December 1855). It is not clear exactly how many of the Leliefontein Namaqua took up this activity however, a report submitted to the Colonial government in 1888 states that the mission inhabitants "went largely into this business" (C.T., AMPT PUBS CCP 1/2/74, November 1888).

Initial profits from transport riding were great and the prices paid by mining companies were high. However, the losses of cattle associated with transport riding were severe. Although initially profitable the spread of lung sickness and the exacerbation of the

effects of drought by transport riding caused livestock loss in this new endeavour. The effects of drought had in the past been buffeted, to an extent, by widespread transhumance, but transport riding, on fixed routes, during drought periods meant the effects were more severe. Outbreaks of lung sickness in 1855, 1856, 1859, 1862 and 1866 had a worse effect on the cattle involved in transport riding (C.T., 1/SBK, 5/1/3, 19 December, 1866; C.T., 1/SBK, 5/1/2, 10 October, 1862; WMMS(a), 1860):

> Sheep and cattle have died in large numbers from poverty. Among the latter lung sickness has also been very destructive. The carriage of copper ore has not been so profitable as usual to the riders. The losses in cattle on the road must have been nearly if not equal to their receipts. This is attributable partly to the bad state of the roads and partly to the drought (C.T., 1/SBK, 5/1/3, January 1866).

The newfound wealth produced by transport riding also allowed those involved to take on more debt than they could cope with and in the long run severely weakened what had been sustainable livelihoods (C.T., 1/SBK, 5/1/3, January 1866; Cape of Good Hope, 1874). The following report, presented to the Colonial government in 1888, placed much of the responsibility for the decline of the wealth of the Leliefontein institution on the involvement of its inhabitants in transport riding.

> From all accounts, this institution [the Leliefontein mission], though suffering heavily, like all the farmers in this division, from repeated drought, was in fairly flourishing condition until the opening of the copper mines. Since that date there seems to have been a more or less general decadence in this and the other older missionary institutions, induced by the high prices then paid for riding copper ore to Hondeklip Bay. They went largely into this business, which, from the difficulties of the road and the absence of grazing veldt and water along the route, entailed heavy losses amongst their draught cattle, which was not recouped by their profits on the freight. This far oftener found its way to the canteen than in the replacement of their oxen, so that, year by year, the wealth that this institution once had, in abundance of stock, became expended and the people largely demoralized (C.T. AMPT PUBS CCP 1/2/1/74, November 1888).

Transport riding was a short-lived opportunity with dire long term consequences, exposing the mission inhabitants and trekboers to the unreliable copper industry, which involved fluctuating copper prices in Europe and an increased vulnerability to drought and cattle disease [Box 2]. Towards the end of the 1800s the copper mining companies conducted their own transport riding using railway and mules (C.T., 1/SBK, 5/1/10; 16 April, 1889). The copper industry in Namaqualand fluctuated dramatically and was an unreliable alternative source of income for the Leliefontein inhabitants. By 1887, the

mining companies which remained were no longer making use of transport riders, but transported their own ore (C.T., 1/SBK, 5/1/10, 28 November 1887).

BOX 2: TRANSPORT RIDING

> Many of them [mission inhabitants] have waggons and nearly all have cattle and flocks; with the former they earn considerable sums by the carriage of ore, but strange as it may appear, though earning more in one month, than they probably did before in twelve, they are mainly all involved in difficulties and debt, a .... before, and I believe the time not far distant, when they will be without stock of any kind (C.T., 1/SBK, 5/1/1, 1 December 1855).
>
> The circumstances of the people are at present very trying. In consequence of the drought last year…[a]nd their oxen are so weak, that they will scarcely be able to work at carrying copper to the Bay, which is a new, but now their only, means of earning money (WMMS(c), 1857, 163).
>
> Sheep and cattle have died in large numbers from poverty. Among the latter lung sickness has also been very destructive. The carriage of copper ore has not been so profitable as usual to the riders. The losses in cattle on the road must have been nearly if not equal to their receipts (C.T., 1/SBK, 5/1/3, January, 1866).
>
> Not long ago a number of copper riders took their cattle off the road and resorted to Bushmanland to rest and repair them. Some four or five of these gathered round the water at Garies a well known squatting place of Government ground. They had not been there long before lung sickness broke out among the cattle of one of them (C.T., 1/SBK, 5/1/3, 19 December 1866).

Transport riding was not the only new livelihood activity with short-lived benefits and long-term negative effects. Wage labour on farms and mines also had only temporary benefits.

7.2.4. Mining

It is necessary to give a brief history of the development of mining in Namaqualand, to provide background for the growth of transport riding and wage labour on the mines as alternative sources of income for the Leliefontein Namaqua. Copper mining in Namaqualand began in the 1850s at Spektakel, Springbokfontein (present day Springbok) and Concordia (WITS, A6, June 1854). Despite the perceived richness of the mines, the rapid increase in their share value and the influx of miners and mining companies into the

area, problems resulted from the distance that copper ore needed to be transported to Hondeklip Bay before being shipped to England (WITS, A6, June 1854; WITS A72, 1854). The cost of the transport was high. Due to cattle losses, people became less willing to transport copper ore. Early mines did not have the facilities to process the ore and it was being transported before processing, meaning that the weight of the ore being transported was high relative to what was finally obtained. Bain describes how:

> Hundreds of tons of ore are now lying at the different mines which the proprietors cannot get conveyed to the coast at any price (WITS, A6, 1854).

Mining in Namaqualand had a turbulent history. The copper carrying trade boomed from the early 1850s till the late 1860s, initially benefiting both the local Namaqua population and the white trekboers who took it up. The problems with transport riding however, in such an arid climatic zone, caused a rapid decline in profitability (C.T., AMPT PUBS CCP 1/2/1/74, November 1888).

The mines continued to grow during the 1860s with a boom in the mining industry in the early 1870s. In 1869 it was recorded that there were 144 Europeans and 625 Africans employed at the mines and between 1870 and the early 1880s (Cape of Good Hope, 1870; 1871; 1880). Setbacks during this period took the form of outbreaks of Typhoid fever amongst the miners in 1872, 1875 and 1876 and the transportation problems referred to above.

Copper ore was exported, initially via Hondeklip Bay and later, with the road being constructed, via Port Nolloth. As a result, the mines were vulnerable to the shifting market value of copper in Europe. Slumps in the market value of copper had a hugely negative effect on the Namaqualand copper mines. The first recorded slump was in 1879, and this was followed by another more serious slump in 1884 and again in 1889, resulting in job losses and declining demand for transport riding (C.T., 1/SBK, 5/1/10, 6 May 1889). Another setback for the mines was the lack of labour available as, for the most part, the local Namaqua population resisted working on the copper mines (Cape of Good

Hope 1872, 1873; C.T. LND 2/5, 6 January 1892). This is discussed in the next section on wage labour.

7.2.5. Wage Labour

Wage labour became an option in Namaqualand in the 1850s with the opening of the copper mines, while loan farmers in the Namaqualand area also employed temporary wage labourers. For the most part wages were poor to non-existent and the mission inhabitants who owned their own livestock were not willing to take it on. During severe drought periods government relief works were established: and the Leliefontein Namaqua were involved in the relief work on the road from Garies to O'okiep (C.T., CO 7373, 1896).

There is clear evidence for resistance on the part of the Namaqua mission inhabitants to wage labour on mines and farms. Mining companies employed foreign labour and the mission stations were often criticised for providing land for people who would otherwise have been a labour force. The Namaqua chose instead to protect their pastoral agricultural livelihoods rather than engage in what they perceived as insecure wage labour which would remove them from their primary obligation of pastoralism. Many complaints came from the mining companies and government officials that even when the Namaqua did work on the mines they abandoned them during ploughing and harvest periods and only when seasons were particularly bad did they evince an increased desire for wage labour (C.T., CCP, 1/2/1/46, 1896; Cape of Good Hope, 1873).

Despite their resistance, it becomes evident that subsequent harvest failures and declining livestock numbers left the Leliefontein Namaqua more reliant on wage labour. However, by the end of the 1800s, copper mining had collapsed and was no longer a viable source of income for mission inhabitants (Smalberger, 1975; Morley-Crampton, 1915). By the early 1900s, wages had dropped following the decreased international demand for copper (P, LDE, 3952, 5977/1, 1928). Therefore, wage labour increased the risk of the population and exposed them to broader economic threats such as declining European

demand for copper and the declining copper price, in addition to local climatic variability and competition for land.

7.2.6. Hawking at Mission Stations

Hawking also influenced the decline in the livelihoods of the Namaqua when travelling traders passed through the mission stations, offering goods to the local population on credit. These Hawkers would extract payment in the form of agricultural produce immediately after harvest, thus leaving them indebted:

> There is no doubt that the Natives have steadily degenerated and men who some years back were well off and possessed a considerable number of stock, have little or nothing left to-day. …. [a] very important cause is the system of credit which obtains in this Division. So long as a man possesses stock the storekeepers are but too willing to give credit. In this respect the Jew Hawker is a great evil and is described by the Missionaries as a curse to the occupants of the Mission Stations. He visits the Reserves regularly and is so persistent in pressing his wares on the residents that few can resist his importunity. He is always willing to give credit and to wait for his money until the harvest time. When that time cones he is present at the threshing floor to demand and take his pound of flesh. The result is that the little grain the Native produces is carried off for debt, and he is left destitute and compelled to borrow or seek credit elsewhere (C.T., AG 1538, 6 July 1905).

Missionaries, of the various mission stations, considered preventing hawkers from coming onto the stations altogether as they felt they were responsible for the steady impoverishment of the population (P, LDE, 3952, 5977/1, 1928; C.T., AG 1538, 6 July 1905).

7.2.7. The South African War

The conditions of the Leliefontein inhabitants were compounded by the three month occupation of the Boers during the South African war. Buildings were damaged, crops were looted and livestock killed (C.T., CO 7373, 18 July 1902):

> The matter which caused the inhabitants and the Missionary most concern was the shortage in cereal food. I was told that the arrival of the Boers immediately succeeded the intake of last year's harvest. Every family, every hut, in the community has its stock of corn for the year and this was at once confiscated by the enemy - Then the people fled to O'okiep. The members are coming back every week now and there appears to be much fear of starvation (C.T., CO 7373, 20 September 1902).

The inhabitants sought exile in O'okiep and later Port Nolloth, and returned to find their water supply contaminated, their crop and livestock consumed and their buildings either destroyed by fire or severely damaged. The missionary describes the station on their return as follows:

> I discovered on the first occasion that about forty mat houses belonging to my people and in the immediate vicinity of the Mission Premises, had been destroyed by fire and also that all the grain had been looted in addition to almost all the live stock. The square houses of my people had been badly treated and the interiors presented a scene of wreck and confusion indescribable. The Mission Premises were in a most filthy state and the inside view was heartbreaking. The whole slope of the mountain was strewn with wreckage and the skins etc. of slaughtered animals lay everywhere contaminating the air and water and constituting a source of great danger to health. There was absolutely nothing to support human life. I hurried back to O'okiep in order to make arrangements for cleaning up the filth etc left by the enemy (C.T., CO 7373, 18 July 1902).

The long term effects of this event were therefore extreme.

7.3. EXTENSION OF COLONIAL AUTHORITY

The boundary of the colony was extended from the Buffels River to the Orange River in 1847 and trekboers were granted farms on the land surrounding the mission stations thus extending colonial authority into the mission stations (C.T., CCP, 1/2/2/1/46, 1 June 1846). In 1854, Leliefontein received a Ticket of Occupation from the colonial government which effectively reserved the land for use but not sale by the Leliefontein population (see Appendix C). Ultimately, this document led Leliefontein to be classified as a 'Native Location' under the South African government because it was found that legally this land could not be alienated from them (C.T., 1/SBK, 5/6/1, 2 September 1914). Missionaries were given authority to govern the mission stations by Act 10 of 1870. This allowed them to admit new inhabitants, expel inhabitants and to allocate grounds for cultivation and grazing, however it was repealed by Act 29 of 1881 and the missionaries had no legal authority from this time on (C.T., CCP 1/2/2/1/46, 12 June 1896).

The official area that the mission population was granted under the Ticket of Occupation was considerably smaller than the land they had had access to in the past. However, it

included both winter and summer grazing land and continued to allow for transhumant grazing albeit on a smaller area.

Towards the end of the 1800s the colonial government debated whether or not the mission stations – and the Leliefontein station in particular – should be divided into individual small farms. It was believed that individual ownership would result in better land management and reduce the problems of overgrazing which were ascribed to communal land ownership and use. The Melville Report on the mission stations proposed that the land be divided into individual farms. This was vehemently resisted by the Leliefontein inhabitants and missionaries who had lived and worked on the station. They opposed it on the basis that there would not be sufficient water on any one portion of land and that transhumance and access to winter and summer grazing was essential to livestock management in Namaqualand (see Chapter 8) (C.T., CCP, 1/2/2/1/46, 1 June, 1896).

7.4. DECLINE OF A POPULATION

So it seems that despite some improvement in the lives of the Leliefontein population in the first half of the 1800s, their circumstances declined rapidly in the second half of the century. Increased land security and the initial benefits of agriculture were soon reversed by the negative impacts of increasing reliance on agriculture, credit and wage labour, and intensifying pressure on the land surrounding the station. A population that had been able to cope with climatic fluctuation became unable to cope with even a single drought year.

Analysis shows that the livelihood changes made by the Leliefontein population increased their vulnerability. This resulted in increasingly detrimental effects and longer recovery periods from each successive drought.

7.5. DISCUSSION

The second half of the 19th century sees rapid decline of the population of Leleifontein. The vulnerability perspective provides some insights as to why this occurred. Where in the first half of the century the Namaqua secure better access to land while predominantly sustaining themselves through transhumant grazing and some agriculture, in the second half more livelihood bundles increase with greater diversity. They go into the business of transport riding for the newly-opened copper mines in order to earn cash income. This presents increased ecological exposure to cattle disease on transport routes and less flexibility during times of drought. Outbreaks of lung sickness in 1855, 1856, 1859, 1862 and 1866 spread rapidly on set transport routes and back to the mission station. Short term profit quickly translates to long term loss, due to increased exposure. Increased reliance on agriculture means that the Leliefontein Namaqua are more vulnerable to dry seasons than the trekboers who ironically practise only migratory pastoralism. Thus none of the coping strategies of the second half of the century can be termed adaptations and the poverty of the population increases rapidly.

Reliance on wage labour on the copper mines opens the Namaqua to increased economic exposure which in turn causes loss when the price of copper slumps resulting in reduced demand and job losses. This increased economic exposure parallels with the increase in external vulnerability of the nature identified by Bohle (2001) (see Chapter 2). It is a completely new exposure for the Namaqua and income on which they had come to rely is lost as suddenly as it appeared. This shows similarities to the double vulnerability discussed by O'Brien and Leichenko although their analysis is based on a modern context and economic exposure is related to globalisation (2005; 2003). Economic exposure and the increased risk which accompanies is a strong driver in the decline of the Namaqua in the second half of the 19th century. This is the main change in livelihood strategies between the first half of the century and the second half and is clearly the cause of the rapid decline.

The land available to the Namaqua for transhumance becomes more limited with increased settlement by trekboers in the area, and competition from other functions, such

as mining. Increasingly therefore, the use of opportunistic grazing strategies has negative effects on vegetation and land, causing overutilization especially adjacent to permanent water sources. This and disease causes diebacks in cattle. Small stock numbers are increased as a coping strategy, but this has worse long term effects for vegetation cover (Vogel, 1994). Thus, disequilibrium rangeland management starts to indicate some of the negative effects that it can be associated with when land availability declines. Droughts have increasingly negative effects.

7.6. DROUGHTS AND RESILIENCE – 1853-1909

By the latter half of the century livelihoods had been more severely altered and the effects of droughts were long lasting or permanent. Recovery from the droughts of the 1860s, 1870s, 1880s and 1890s all depended on seed provided by the Colonial government. The drought periods of 1860-1862, 1881-1883 and 1893-1896 are discussed in more detail here to show the decrease in the resilience of the Namaqua population.

The drought spanning 1860-1862 had particularly negative effects on the populations of the mission stations, largely because of the increased reliance on agriculture. This decreased their resilience as they became more susceptible to climatic fluctuations. The 1860-1862 drought had extremely negative impacts as a severe outbreak of lung sickness occurred at the same time. This affected the cattle numbers and could be one of the reasons for the long-term decrease in cattle at the station. Cattle used for transport riding were the worst affected as the disease spread along the road with the movement of the cattle. The notion that the mission population were more vulnerable to droughts was elicited in this quote describing the conditions at the station in 1862:

> The drought too, which seems to have prevailed so generally, has been felt most severely by the farmers, and to a still greater extent by the Natives of Namaqualand. From the Revd. Mr. Bailie at Lily Fontein I have had accounts of similar distress among his people - With regard to some of these people I can speak from personal observation. Several of them were lately summoned for debt in my court. They had no means of paying these debts which amounted … sum of from £1 to £4 or £5 without selling their remaining few cattle. These cattle were however so poor in condition, that there were no chances of finding purchasers except at great sacrifices. One of these natives shortly afterwards started from Lilyfontein with a wagon and +14 oxen with the intention of coming to this place to pay his debt. Seven of the oxen were his own, seven were borrowed. He

> intended selling as many of his oxen as was necessary to pay his debt returning with the remainder. But the oxen were in so wretched a condition that they could not perform the journey across the parched country from Lilyfontein to Springbok - Nine of them had died by the time he travelled to the distance of one days journey from Springbok. He could proceed no further. - He therefore came on foot to this place to report the circumstances (C.T., 1/SBK, 5/1/2, 24 April, 1862).

During the droughts of 1874-1875, 1880-1883 and 1893-1896 the government encouraged work on relief works and the building of roads among the Leliefontein population (C.T., 1/SBK, 5/1/8, 1883; C.T. 1/SBK, 5/1/6, 26 November 1874). Wages were paid in corn and were so low that the Leliefontein inhabitants appealed to the colonial government for a wage increase in 1896:

> From: The Leliefontein Namaquas, working on the relief works in Garies. A translation.
> Signed: Your "Werk Volk"
> To: J.D. Hugo, Special Relief Commissioner.
> Date: 29 April 1896
> "Dear Sir, We write these few lines to you to beg you dear Sir to be good enough to make some change. We are very grateful for the 6 lbs (corn) and yet we are starving and therefore we beg kind Sir to make some change in the allowance, we must take 6 d coffee out of it, 3 d tobacco, and 3 d sugar and what do we keep over dear Sir. So dear Sir, you must please do something if only to add two pounds our children are dying from starvation and if we do not get assistance from you, to whom must we appeal. We promise to perform our work well and to obey the overseers instruction, if dear Sir you think we are making false statements visit the camp and see our wives and children they are dying from starvation. Dear Sir we promise to be very obedient to the overseers at the works, dear Sir we are perishing from hunger with our wives and children therefore dear Sir increase the allowance we are not able to exist. - We are not ungrateful but dear Sir you might assist us in our request" (C.T., CO7373, 29 April 1896).

The capacity of the Leliefontein population to recover from drought events decreased phenomenally during the second half of the 19th century. A report from 1890 stated that the people had not recovered from the drought in 1881-1883. The years 1885-1887 and 1890 exhibited normal rainfall, 1888 experienced exceptionally high rainfall and 1889 was slightly lower than average (South African Weather Service). This is, for a region with such a high drought frequency, a relatively good rainfall period and the fact that this report is citing a drought of seven years previous to explain the decline of the population, points to the fact that their ability to cope with droughts, their resilience and their capacity for recovery had declined dramatically when compared to the first half of the 19th century.

> It is now nearly nine years since I left the Kamiesberg. At the time of my departure the people were enjoying the fruits of several good seasons, and their stock had largely increased, but during the severe droughts of 1881-1883, many of them lost nearly all they had, and have not since recovered their former position (C.T., AG 1538, Tindall, Stellenboch, 13 June, 1890).

During the period from 1893 to 1897 another severe drought was experienced. The state of the Leliefontein population is described as 'famine' and they were said to be "in a starving condition" (C.T., CCP 1/2/2/1/46, 5 June 1896; 18 June 1896). This drought indicates a similar recovery pattern to that following the 1881 drought, with the population still in a state of distress by 1899 despite exceptionally good rainfall in 1898 and 1899 (South African Weather Service; C.T., PWD 2/5/288). From 1900 onwards all indications seem to be that the mission inhabitants were in a state of abject poverty despite three good rainfall years.

In addition, transhumance does not appear to be as wide-ranging as during the first half of the 19th century. Only Bushmanland, Bethel, the Onderveldt, Norap, Rooifontein and Uitkomst are mentioned as outposts during the dry season, all of which lie on the Leliefontein mission lands (C.T., AG, 1538, 30 June 1890; C.T., AMPT PUBS, CCP 1/2/1/74, November 1888; C.T., 1/SBK, 5/1/2, 21 October 1862). At no stage are journeys further than Bushmanland mentioned and there is no record of any further movements to the coast for fishing as a coping strategy. By this time Bushmanland was used as the main winter grazing area for all farmers, causing heavy grazing during the drier seasons (C.T., PWD 2/5/288, 18 May 1897; C.T., 1/SBK, 5/1/2, 21 October 1862).

7.7. CONCLUSION

The question still remains what the respective roles of climatic and environmental factors and human-induced changes were in the deterioration of the Leliefontein population. The human-induced changes in livelihoods, economic and political circumstances, control over land and livelihood composition appear to have had a stronger influence than environmental change, as livelihoods which had been sustainable before these changes were introduced became unsustainable. The frequency and duration of the drought periods during the first half of the 19th century were the same as those during the second

half and similar to those in the 20th century and therefore long-term climatic change cannot be the reason for the decline of the community. However, the role of climate in their process of decline should not be underestimated. The livelihood changes which occurred – some actively and some as a result of the processes of colonialism – made the Leliefontein community increasingly vulnerable to climatic fluctuation. The unreliable rainfall of the Namaqualand area which they had coped with until the mid 19th century began to cause poverty and starvation.

The worsening impacts of the droughts reveal the increased vulnerability of the Leliefontein population and indicate that this is a result of livelihood changes rather than a direct result of climate. The droughts simply compounded the effects of these changes. This is not to argue that the droughts do not have a profound effect in the declining situation of the community, but they are the catalyst that intensifies the effects of the unsustainable livelihood adaptations of the community. This chapter moreover illustrates the complex interactions of socio-ecological systems and requires further detailed interrogation to fully appreciate the nature and influence on environmental change in this location.

SUMMARY

This chapter dealt with livelihood decline and increased vulnerability of the Leliefontein population from 1853-1909. The community became increasingly at risk to climatic fluctuation as a result of changing livelihood conditions. Increased reliance on agriculture, a decrease in cattle numbers and increase in sheep and goats, reliance on fluctuating wage labour and transport riding as well as indebtedness and the effects of the South African war, all played a significant role in the vulnerability and decline of the population. Analysis of selected drought periods reveals lower resilience and slower recovery from droughts than those of the first half of the 19th century despite subsequent wet years. The decline of the Leliefontein population was not a result of an increase in drought frequency or the duration, but rather the fact that the people became less adapted to the climatic conditions of the area.

CHAPTER 8

SCRIPTING THE COLONIAL PAST:

POLICY AND RACIST DISCOURSE

> Surely the time of the efficient visitation of the dark and degraded continent of Africa is come (WMMS(a), 1820, 148).
>
> ... they found this people lazy, filthy, depraved; - now, the Missionary is welcomed by hundreds of individuals, whose cleanly attire, intelligent address, and Christian deportment, show that "old things have passed away, and all things have become new" (WMMS(c), 1856, 163-164).
>
> While the copper mining industry is often crippled for want of labour, whilst the crops of the famers often stand unreaped until the grain drops out of the ears, the Leliefontein tract abounds in lazy, idle scamps who lead a life of disreputable loots eating, and keeping body and soul together by the exercise of the least possible exertion, ... the population is composed of the thriftless, the improvident and the untrustworthy, who make no improvements, and who never lay by the produce of a good season against the inevitable years of drought (C.T.; CCP 1/2/2/1/46; Civil Commissioner, Namaqualand, 06/01/1892).

8.1. INTRODUCTION

Utilising historical documentary sources for research one necessarily stumbles on language, signifiers and metaphors that are not acceptable in 21st century discourse. This language is racist in its descriptors, asserting European superiority in everything from attire, through language, to land management strategies. Colonial writings used for this research include a number of different voices notably those of explorers, hunters, scientists, missionaries and government officials. The majority are European, white, male voices interpreting the landscape and its people (Beinart, 1998). The audience of these writings ranges from mission organisations to the general public in Europe whose understandings of Africa, are based on these narratives of the landscape and its occupants. The scripting of this region impacts the perceptions of people who have never visited Namaqualand, but the ramifications are larger than this, they also influence the policy decisions of the Colonial Government and operate to justify colonial expropriation of land, labour and mineral resources. It is for these reasons that this chapter on the representations of local people in colonial writings is included in the thesis.

This chapter reviews recent academic work analysing discourse and representations in colonial, travel and scientific writings, it examines the perspectives these analyses bring to colonial writing. Most make use of Foucauldian analysis assessing how local populations are cast as 'other' to European immigrants and inferior to them. This chapter aims to show how the implicit ideologies function in the interests of the colonising populations.

Particularly, what emerges is how these writings are used to enforce the changes in livelihoods of the Namaqua during the 19th century. This thesis aimed to identify the causes of the decline in of the Leliefontein population of Namaqualand, which are linked to the missionaries, colonial authorities or mining companies. Preceding chapters show how these livelihood changes are ultimately responsible for the decline of the population. However, the written records assert their superiority to local land use and assert their changes as progress, when from a sustainability perspective they are responsible for decline. This contrast is examined in this chapter.

Firstly, some of the analytical perspectives which emerge from the literature are examined. Secondly, specific ideological perspectives are discussed and finally, these perspectives are assessed against the findings of the previous chapters of this dissertation.

8.2. REPRESENTATION

Many academic studies have emerged, initially within comparative literary theory, history, ethnography, anthropology and art history and more recently within human and cultural geography, which critically examine the links between written representation and the reality which it claims to represent (Duncan and Ley, 1993). These studies are particularly relevant when analysing colonial writings which are so obviously embedded in European imperialist ideological perspectives of the nineteenth century. Representations analysis requires that one asks the following questions of texts:

> who was being represented, by whom and what qualities were being imputed (Duncan, 1993, 43).

In a colonial texts one can be even more specific asking:

> [h]ow do such signifying practices encode and legitimate the aspirations of economic expansion and empire? (Pratt, 1992, 5).

A discourse or representations approach asserts that written sources reveal more about the writer than they do about those being depicted (Urry, 2002). Perhaps, immigrants to colonial Africa felt the need to distinguish themselves from the local cultures, due to fear of the numerical dominance of the local people. Sources often reveal more about the dominant ideologies in Europe, than they do about the local people (Duncan, 1993). This makes it necessary to read multiple sources, interrogate their assertions and derisions, in order to ascertain some understanding of the local people.

For 19th century colonial South Africa, the only written records that exist are those of the colonial population. The sources used for this research include only three instances where the voice of the Namaqua is related directly (Shaw, 1970, 222; C.T., CO 7373, Leliefontein Namaquas on Public Works, 29/04/1896; WMMS(c) 1832-1834, 270). Aside from these three instances the sources consulted were those of the colonising population whether travellers, hunters, missionaries or colonial government officials. Critical reading of these sources is therefore vital to identify the silent voices of the local people.

8.2.1. Colonial Scripting

Colonial sources make claims to truth that are not only given scientific weight, but also claim religious and moral superiority. It is often easier to identify the distortions of these writings than it is our own as they are so obviously embedded in the thinking of centuries past. However, they require closer examination and interrogation to identify what they reveal about the writer, the culture from which s/he comes and their intention in making these particular representations. Even deeper analysis is necessary to identify what they may reveal about the local population. Colonial authors assert authority of knowledge and thus provide implicit justification that their assertions whether moral, religious or scientific should go unchallenged.

> Such binary oppositions between us and them serve the dual purpose of reinforcing and defining group identity while simultaneously ordering complex difference into a simpler, homogeneous entity which is more easily appropriated (Duncan, 1998, 44).

8.2.1.1. The 'Other'

Duncan (1993) suggests that the best way to tease out aspects of representations implicit in writing is to use the concept of the 'other' and assess how the 'other' is represented and distorted (Gikandi, 1996). This is particularly important in this research as no alternative sources written by the local people exist and thus no direct insight into their systems of knowledge, experiences and perceptions is available.

Colonial writings in particular, constantly compare aspects of colonised people and colonial environments and cast them as inferior or 'other' to their own. The culture of the writer is represented as normal and normalised through the text, while the culture of local people is represented as 'other,' inferior or even deviant (Urry, 2002). The colonized territories too, are cast as unfavourable, the measure of normalcy being the landscape or climate of the author's place of origin (Endfield and Nash, 2005; 2002(a); 2002(b); Hooper, 2005; Livingstone, 2003; 2002). Unpacking these representations requires a particular assessment of signs and signifiers used to represent the 'other' (Duncan, 1998).

European morals, value systems, social systems and even land management practices are cast as superior to those of the local people (Beinart, 1998; Pratt, 1992; Mills, 1991; Comaroff and Comaroff, 1991; Grove, 1989). Casting people as 'other' to oneself is common to many types of writing where different cultures or language groupings are operating in close proximity to one another. What makes it of particular importance in this case, is the way in which these systems of knowledge operate to justify colonial activities, both from a moral perspective and from a practical one (Livingstone, 2002; Grove, 1989).

8.2.1.2. Scripting Africa

Colonial representations of Africa and Africans moved through various stages; each, it has been argued, has been based on the dominant interests of Europe within Africa at the time. During the period of the slave trade, for example, Africa was represented as a barbarous and dark place, from which the removal of people as slaves was almost a rescue mission (Duncan, 1993). Later, following the abolition of the slave trade Africans became represented as victims and the British as their saviours. Once European imperial interests in Africa spread to the interior and to resources other than exported labour, Europeans again appear as the saviours of the continent, their mission now, to civilise the Africans within Africa. Redemption takes the form of the protestant work ethic, industrial capitalism, resource extraction and exploitation. European superiority translated into European authority and by

> ... the mid-century [19th], Victorians could not conceive of Africans (whether redeemable or not) living without European rulers (Duncan, 1993, 49).

> Explorer-writers such as Burton, Speke, Livingstone, Barrow and Stanley constructed representations of Africa for Europeans, opening it up conceptually for their readers as they opened it up economically for their governments. Such representations, while built upon the bedrock of older representations, simultaneously constructed an Africa suitable both to the needs of nineteenth-century imperial interests and to a European readership longing for tales of exotic worlds being mastered by heroic European males. Such travel accounts could be divided into two genres, the 'heroic' and the informational or scientific. (Duncan, 1993, 50).

8.2.1.3. Racist Discourse

Racist ideology, in as far as racism asserts the superiority of one group of people above another, is implicit in much colonial writing used for this research. Racism is found in the signifiers used to denote or describe people groups, their social practices and their cultures, sometimes even the land is subjected to racist distinction.

Concern here is not simply to identify the representations within written sources but to examine their function in lending "necessary ideological support to European exploitation and colonizing practices" (Duncan, 1993, 48). The imperial world, Britain in particular, expanded and appropriated resources and labour from colonies causing widespread environmental impacts. Beinart and Hughes' (2007) volume of the companion series to

the *Oxford History of the British Empire*, is devoted to the effect of colonization on the environment. They introduce this volume as follows:

> ... British consumers and manufacturers sucked in resources that were gathered, hunted, fished, mined, and farmed in a great profusion of extractive and agrarian systems. Our discussion is based on case studies of environmental and social change, driven by imperial forces, whose legacy is still apparent today. We are particularly concerned to compare the impact of different commodity frontiers on colonized people (Beinart and Hughes, 2007, vii).

Different authors have focussed on different sources of literature describing colonial territories and peoples in the 19th century. Some have focussed on travel writing (Galansińki and Jaworski; 2003; Urry, 2002; Crush, 2000; Beinart, 1998; Grewal, 1996; Pratt, 1992; Mills, 1991), others on mission writing (Enfield and Nash 2005; 2002(a); 2002(b); Livingstone, 2002; Comaroff and Comaroff, 1991; Grove, 1989) still others on scientific writing (Livingstone, 2003; Merchant, 1980). The section to follow will look at the ways in which local people are represented in each of these categories of writing. The discourse of the mission sources is moralistic and authoritarian, while travellers are more scientific and colonial authorities are imperialistic.

8.2.2. Travel Writers

Mary Louise Pratt (1992) wrote what became a vital critique of imperial travel writing, in her book *Imperial Eyes: Travel Writing and Transculturation*. Although some of her assertions have been challenged (Beinart and Hughes 2007; Beinart, 1998), this book nevertheless formed a fundamental work in the critique of travel writing of the colonial period. Specifically, she examines expansion of natural history as a structure of knowledge. Colonial writings of this style use an objective scientific voice and aim to classify the world's natural species which lead to an increasing number of explorers in colonial territories. Coinciding with this, the expansion of European industrial capitalism results in an increasing need for resources. Scientific exploration categorised natural environments and resources for later colonial expansion and possession. Thus, she argues that scientific exploration became one of the most powerful ideological justifications of the expansion of European imperial interests (Pratt, 1992).

Specifically Pratt examines how the systematising and classifying of nature (Linnaean classification) served to legitimate accumulation and represent colonies as territories of resources available for extraction by Europeans. In addition she draws attention to the way in which many sources focus on nature and landscape rather than people and minimise the human presence in Africa (Beinart and Hughes, 2007; Beinart, 1998; Pratt, 1992). Emphasis is on landscape and resources not on people. "The visual descriptions presuppose – naturalize – a transformative project embodied in the Europeans" (Pratt, 1992, 61).

Beinart and Hughes (2007) also examine early European recordings of colonised territories. They examine the way recorded resources were turned into commodities by exporting their descriptions home.

> As sailors and slavers, traders and hunters, Europeans traversed colonized space and literacy gave them the power to record what they saw and found. In their mapping and classification of lands and peoples, many of these travellers helped to commodify and package the resources of empire. In their fulsome descriptions of the riches of overseas territories, they made these lands and all that they contained desirable to prospective hunters, settlers, speculators, and administrators (Beinart and Hughes, 2007, 76).

This acknowledges the impact of colonial writings during the 19th century.

More recent assessments of travel writing also examine the extent to which the superior European eye constructs local inhabitants and local environments as 'other' (Hooper, 2005; Urry, 2002; Gikandi, 1996). The land was represented as something to be cultivated, improved, planted and secured (Hooper, 2005). Africa is a dark and foreboding continent, a land of dessication and waste; its inhabitants either romanticised as simplistic, idyllic and naturalist or uncivilised, savage and in need of redemption through religion, modernity and capital expansion (Crush, 2000; Duncan, 1993).

8.2.3. Scientific Scripting of Empire

There is overlap between styles in science and travel writing during the colonial period and this section will not repeat what has already been said above. Explorers and missionaries describe natural environments and species, due to the sudden popularisation

of scientific identification and categorisation in Europe at the time. Prior to the professionalization of science during the 19th century the work of amateur naturalists proliferated (Pratt, 1992). Science claims authority and objectivity that in one sense distances it from the colonial enterprise and in another allows it to justify imperial objectives from a supposedly neutral point of departure (Duncan and Ley, 1993). Livingstone examines the role played by science directly in his analysis of scientific practitioners in mobilizing ideological conflicts to serve particular interests (Livingstone, 2003).

Science facilitates the identification of resources and their extraction (Beinart and Hughes, 2007). Scientific arguments relating to better management practices legitimated the expropriation of land from local communities. Scientific identification of mineral resources and methods for their extraction are used to justify authoritarian means to coerce Africans from agricultural livelihoods into mines.

8.2.4. Missionary Writing

Signifying words are similar in scientific, travel and mission sources however, there are particular tenets of mission sources that are worth mentioning. A strong moralising tendency runs through all mission writings (Endfield and Nash, 2005; 2002a; 2002b; Comaroff and Comaroff, 1991; Grove, 1989). The missionaries viewed their role as civilising and uplifting the heathen populations of Africa, this is particularly evident in the writings of the Namaqualand missionaries. Religious conversion is the primary goal, saving the population from eternal damnation. Within this though, all change towards European aspects of civilisation are perceived as benefitting the local population (Pratt, 1992). No clear distinction is made between the goal of religious conversion and that of 'civilising the natives' (LMSa, 1795-1814, 166). Religious conversion goes hand in hand with change in language, dress, dwellings, land use patterns, and labour. Changes espoused by the missionaries include promoting hard work, agriculture, sedentary lifestyles, European dress, literacy and private land holding (Chapter 7 and 8).

The unfavourable climate of the colonised world is the cause of the perceived moral degradation of the people, inhospitable and arid climates are a direct result of the heathen state of the inhabitants (Endfield and Nash, 2002a; 2002b). These climates threaten Europeans, not only to their health, but also their moral state. Livingstone (2002) examines the depiction of tropical climates in colonial sources and the judgemental vocabulary used to describe tropical climates and warn of their threat to European constitutions.

> ... [they] bear witness to the temperate world as the mensural standard against which its tropical 'other' is again and again unfavourably compared. Temperate normalcy remained inviolate, its features valorized as the touchstone of mental and moral excellence alike. ... an inclination to think of climate in moral categories. This involves both a widespread tendency to deploy moralistic language in depicting climatic conditions and a conviction that it is entirely reasonable to read moral order straight off patterns of global climate (Livingstone, 2002, 160).

As an example of this he includes an extract from Kant's posthumously published lectures on Physical Geography, where he:

> [elaborates] a global cartographic in which the temperate world was exalted to the apogee of human excellence. Here he observed that in "the hot countries the human being ... does not ... reach the perfection of those in the temperature zones. Humanity is at its greatest perfection in the race of the whites;" that "all inhabitants of the hottest zones are exceptionally lethargic" and that "[t]he inhabitant of the temperate parts of the world, above all the central part, has a more beautiful body, works harder, is more jocular, more controlled in his passions, more intelligent than any other race of people in the world. That is why at all points in time these peoples have educated the others and controlled them with weapons (Kant in Livingstone, 2002, 164).

This quotation indicates how climatic difference is converted into a justification for expropriation and colonialism.

European sources "constructed tropical regions as hostile, pestilential and fetid" (Endfield and Nash, 2005, 368). It is interesting to note the ease with which colonial sources in general, and mission sources in particular, translate the climatic conditions of the colonies into moralistic judgements resulting of the heathenism of the populations (Endfield and Nash 2005; 2002a; 2002b; Livingstone, 2005; 2003). The missionaries link drought to moral degradation (Endfield and Nash, 2002b). Europeans dwelling in

these countries for any length of time are at risk not only of disease, but also of moral degeneration, and women were even more at risk than men (Endfield and Nash, 2005).

Richard Grove similarly examines the way in which early conservationist ideologies espoused by Scottish missionaries are used to deride local inhabitants land-use practises and to justify expropriation of land and removal of people for conservationist purposes. Moralistic and deterministic views are used to illustrate how local people cannot be responsible for their own environment and are responsible for its desiccation. This rationalisation justified paternalistic intervention by Europeans. Early conservationist ideologies operate as justification for expropriating land from Africans. Grove terms this "discriminatory environmentalism" (Grove, 1989, 184). In this way various colonial narratives, with differing intentions and different representations, justify the colonial project from moralistic or humanistic perspective or aid it by coding and categorising resources available for European use.

The literature discussed examines the representations of people within colonial sources, none however, interrogates the influence of these on things like policy and livelihood change. Both the missionaries and the colonial government sources influence the livelihoods of the local population. They had different motivations for changing livelihoods: missionaries to encourage the local people to remain for longer periods of time for religious instruction; colonial authorities to extract labour from the local people and to force them to farm more productively for the extraction of agricultural surplus.

8.3. SCRIPTING NAMAQUALAND – A REPRESENTATIONS APPROACH

The academic sources discussed in the literature review section above concentrate on a specific source in isolation, such as those authored by scientists or explorers or missionaries. The documentary sources consulted for this research have multiple authors, as source selection was regionally based. For ease of discussion sources are still separated by authorship, although there are similarities between them. The main

similarity throughout is the representation of the superiority of the European in everything from religion, morality, appearance, to land use and even beauty.

The reason for teasing out these ideological presuppositions is not to pass a 21st century judgement on 19th century writers. A greater accomplishment would be to recognise one's own situatedness and ideological bias but that is not what is being attempted here either. Rather, this is an attempt to expose the realities of the local people that these sources veil, to examine the impact of these dominant ideological perspectives on the changes in the livelihoods of the local people and ultimately to show how they operate to legitimate control over people and to justify the colonial endeavour. Even the missionary sources, which in the later part of the 19th century begin to defend the land rights of the Namaqua, are nevertheless products of their time, making use of signifiers which depict the local people as subordinate and inferior and serve to entrench the imperial cause. Such interpretations can lead to bias in how such land-use is read, interpreted and managed.

Each type of scripting is interrogated to identify the motive of the author in writing, their intended audience and their message. These differ between sources. Missionaries are concerned to justify the Namaquas' need for the gospel and their progress once they receive it, and colonial government sources on the other hand, stress the need for labour on the copper mines in Namaqualand and the need to extract surplus produce from agriculture. This eventually translates into Colonial government policies designed to coerce people into labour through the means of hut tax and attempts to privatise lots of land to remove 'unproductive' people off the land.

Ideological and moralistic tenants run through colonial narratives of Namaqualand in the 18th and 19th centuries. Travellers employ an imperialistic perspective, scientists a resource orientation and missionaries a moralistic one. Quotes and passages of sources will be presented here to illustrate these views and it will be shown how they translate into livelihood adjustments, policies and coercive measures ultimately contributing to the decline of the Namaqua. Ideological underpinnings of sources differ depending on the

author of the source and its intended audience, certain exceptions also occur. First, the representation of the continent of Africa is discussed, second mention is made of the most common representations of the Namaqua and their characteristics. Overall, the sources tend to be extremely racist with words like 'heathen', 'barbarian', 'savage' being some of the most common nouns used for the Namaqua. These derogatory representations extend from the depiction of the people to their land use practices and operate to justify the colonial endeavour.

8.3.1. Representing Namaqualand – Travel Writings

Representing local people as inferior to the European is common throughout the archival sources consulted. Travel writings were used for the earlier part of this research. Travel writings tend to be more descriptive, metaphors comparing the Namaqua and the bushmen to animals are common, although the animals chosen vary from snails to baboons depending on the characteristics being described (Shaw, 1970, 222; C.T, 1/SBK, 5/1/9, Eustace, Namaqualand, 24/2/1887).

The representations are both patriarchal and condescending. van der Stel as early as 1685 describes the Khoikhoi in the following way:

> After that he presented them with a little brandy, with which they made merry, dancing, singing and shouting in a very queer fashion, resembling nothing so much as a herd of yearling calves just turned out of the cowshed. It was undoubtedly, as they themselves confessed, the only happy day they had had all their lives (van der Stel (1685-6), 1932, 128).

In further description their dancing is described as a comedy for the entertainment of the European observer and its primitive nature is emphasised. The conclusion of the description being that

> [a]ll this passed off very decently, considering that they are savages ... and when the comedy was ended the feast duly began (van der Stel (1685-6), 1932, 134-135).

The descriptions of characteristics like language, dress and beauty demonstrate the absolute, unquestioned inferiority of local people. Gordon states his perception of superior European beauty:

> ... she was one of the prettiest Hottentot women I had ever seen. She was almost white, and although she had a Hottentot face, her features were refined (Gordon (1779), 1988, 287).

'Whiteness' is directly associated with beauty. Difference is emphasised, representing the local population as 'the other'. Travel writings are the earliest sources consulted for this research. Missionary and later colonial sources have different intentions in their writings.

8.3.2. Namaqualand – Missionary Writings

Missionaries, as is to be expected, give very moralistic and religious justifications for their involvement with the local people. The majority of the sources used for the first half of this thesis are mission sources, allowing the ideologies implicit in their writings particular mention. The mission sources consulted for this research come from the Wesleyan Methodist Missionary Society and the London Missionary Society. Their writings, both journals and letters, were sent back to the mission societies and read by those responsible for supporting them. Their style of writing is a fervent, religious one.

Two particular strands emerge in the Namaqua mission writings. One is a concern to emphasise their struggles, difficulties and hardships in Namaqualand, intended to elucidate sympathy and support from the missionary societies (Crush, 2000; Pratt, 1992). The other illustrates their success in converting the population to Christianity and uplifting their material circumstances. Their letters read like a continual process of conversion to superior dress, education, livelihoods and value systems. All change towards more European traits are scripted as improvements.

8.3.2.1. Namaqua population as depicted in mission sources

The first missionary to Leliefontein, Barnabas Shaw, arrives in a "wilderness of savages" (Shaw, 1970, 60) and describes the inferiority of the Namaqua population with religious authority. They are the "idle," "lazy," "ignorant," "benighted sons of Ham" (Shaw, 1970, 73). Descriptors used for the Namaqua by the missionaries include "indolent,"

"depraved," "untutored," "debased," "destitute" and "wretched" (WMMSa,1819, 69, 553; 1818, 877, WMMSb, 1824, 46, 1832-1833, 47-48; WMMSc,1856, 163-164). Such derogatory terminology and the European superiority it implies functions to justify the missionary role in Namaqualand. The salvation and civilisation brought to the Namaqua by the missionaries is, in this context, clearly in their own interests. They are depicted as primitive people which has leanings towards Darwinian theory (Livingstone, 2002).

Their dress is immoral and even their language is patronised:

> The language at first appears to be of such a nature, as to render its acquisition impossible to a European. Almost all their mono-syllables, and the leading syllables in compound words are thrown out of the mouth with sudden retraction of the tongue from the teeth or palate, and sound not unlike the clacking of a hen with her chickens (Shaw, 1970, 17).

As illustrated in the statement above metaphors likening the Namaqua to animals, was acceptable discourse in the 19th century.

The missionaries are also constantly concerned to show how Christianity and salvation uplift the Namaqua both spiritually and materially. First they emphasise the underdevelopment and lack of civilisation of the local people, stressing their need for Christianity, civilisation and development. Second, they depict the hardship they are enduring in this Christian mission, thereby promoting their own labours in the eyes of the Society back home. Finally, they discuss their success in converting people, and in altering lifestyles and material circumstances. Missionary success is presented in statements such as:

> The number thus rescued from Hottentot degradation and pagan vices, were, at the last count, 67; whilst an improvement in the morals of the tribe generally was manifest (WMMSb, 1821).

Missionaries document many changes made by the Namaqua population. How accurate they are would be difficult to assess. But a focus on accuracy might distract from something of more interest, that is what these statements tell us about the writer and his intention in making these representations. In this case, documenting the changes made by the local population is intended to reinforce the success of the missionary endeavour.

The type of changes the missionaries emphasise include things as diverse as building 'proper' dwellings, washing themselves, dressing in 'civilised' (European) attire, learning to read and write and 'reason' (although how it was evident that they could not reason before, when the missionaries did not even understand their language, is not entirely clear) (Shaw, 1970; WMMSa, 1825).

> Khamies Berg, in Little Namacqualand.- "This station is one of fourteen years' standing, and affords evidence that 'Godliness is profitable unto all things.' Here the people no longer range the country with aimless indifference, except to the immediate cravings of nature; but they have their fixed residences, their domestic associations, and their family interests. Their grounds, which formerly were unproductive wastes, are now under careful cultivation. Enclosed gardens, fruitful fields, and pasturage for cattle, are the rural ornaments which meet the eye of the observer upon the Khamies Mountain, and remind him of Isaiah's glowing description of millennial prosperity. 'The wilderness and the solitary place shale be glad for them, and the desert shall rejoice and blossom as the rose' (WMMSb, 1831, 50).

Advancement and improvement is ascribed to the missionaries and Christian conversion. Even tidy huts are attributed to the influence of Christianity (Alan and Gibson, 1900).

8.3.2.2 Missionaries and the Colonial Project:

The work of the missionaries is depicted as being to the advantage of the colonial objectives as a whole as described in this quote:

> it has, however, afforded us much satisfaction, to learn that two commissioners, appointed to survey and report of the state of the colony, had visited it [the Leliefontein station] and expressed to the government the persuasion they entertained, that the exertions of the missionaries would prove one of the most powerful means of civilising the natives, and tranquillizing the colony (LMSa, 1795-1814, 166).

Missionaries here are seen as agents of a larger project furthering colonial interests in the colony.

8.3.2.3. Livelihood Changes:

Changes in livelihood activities are encouraged by the missionaries, attributed to the conversion experience and given religious significance. Missionaries introduce agriculture and actively promote sedentary lifestyles and permanent dwellings, with the express reason of having the Namaqua remain at the mission station for longer in order to

receive Christian instruction. Transhumance is derided as 'wandering' and in some cases referred to as aimless.

> ... that many of these wanderers, scarcely human in their habits, and treated by the colonists as the beasts of the field, may be brought by the influence of religion into the fold of Christ (WMMSb, 1819, 34).

Decreased Transhumance, Increased Sedentary Living

Increased permanence and the introduction of agriculture, both of which have been shown in this research to result in increased vulnerability and risk, are espoused by the missionaries as improvements to local livelihoods (WMMSb, 1826).

> I have been deeply impressed with gratitude to God for His goodness, so conspicuously displayed towards these Namacquas, the people belonging to this institution; ... they have been greatly benefited in temporal things; having been taught useful arts, and to cultivate land, sow corn, and make gardens &c., and having risen from a merely pastoral life. Before they had the Gospel, they wandered about with their cattle from place to place, "having no certain dwelling-place;" but now many of them have built houses to dwell in themselves, and barns to preserve "the fruits of the earth." They have also learnt the value of property. In former days, many of them were much imposed on, by persons who failed not to take every advantage of their ignorance, and to obtain their cattle, for articles of but little real value, and to them rather injurious than serviceable; but now they traffic on better terms, by which, of course, their comfort and happiness are greatly promoted. They have been collected together, and form a sort of a village, which, for the number it contains, though not in the mode of its formation, may be compared to many in England (WMMSb, 1826, 32).

It is evident in this quotation that the missionaries are active in promoting increased sedentary living and agriculture. Livelihood changes are easily incorporated into religious discourse and given religious significance using scripture to re-enforce their significance. Likening the village of Leliefontein to a European one is clear proof of improvement.

Also interesting in this quotation is the evidence which emerges of benefits that accrue to the Namaqua in constituting themselves as a mission station. The missionaries are able to provide them with information which ultimately protected them from aspects of colonial exploitation. The subscript of this passage shows the motivation the Namaqua had to actively seek out a missionary and become a mission station.

Agriculture

Increased permanence is depicted by the missionaries as a moral and spiritual improvement, 'wandering' is even described as an addiction from which people are being released and laziness as an affliction from which people are being freed (Shaw, 1970, 106). Introducing agriculture, decreasing transhumance and promoting sedentary living, permanent houses and alternative forms of income are depicted as advancement. Religious language is employed to describe this, the missionaries being involved in "convert[ing] a wandering pastoral people to an agricultural life" (Shaw, 1970, 97). The change from transhumance to more sedentary living is depicted as a religious conversion experience when in fact the research for this thesis has shown that it was a shift from a sustainable to a more risk exposed and vulnerable livelihood.

Even scripture is used to describe this 'progress':

> it may now be said: 'There he maketh the hungry to dwell, that they may prepare a city of habitation, and sow fields, and plant vineyards which may yield fruits of increase' (Psalm cvii, 36-37 in Shaw, 1970, 98).

One of the few 'direct' Namaqua voices reinforces this:

> After I had delivered my address, one of our Namacquas rose and spoke as follows:- "Hear brothers, we must attend to our ploughs, and we must labour, that our wives may have food. Do not allow them to complain in this respect. Many of you are poor, others are strong (rich). They have exerted themselves and got out of their poverty. I was also poor, but I can now live; formerly I used to hunt duarses and other wild animals in the mountains, but I have a better living now. When did we eat such bread before? When did we buy so many clothes of the merchant before? Who could hunt better than I? Yet I live much better now than I did then (WMMS(c), 1832-1834, 270).

The Namaqua related here is espousing labour as a moral virtue and congratulating missionary achievements. This is one case where we hear the voice of the Namaqua directly. However, what actually occurs here is that the voice of the Namaqua is employed in the scripting process as an echo and reinforcement of missionary sentiments. There is no independent Namaqua voice in these sources.

8.3.2.4. The African Landscape

Within the Namaqualand sources, Africa is denoted in the way that Pratt (1992) describes in her book *Imperial Eyes*. Africa is indeed a "dark and degraded continent" (WMMSa,

1820,148). This, in contrast with the "light of Christianity ... [which] is gradually diffusing itself among the neighbouring tribes" (WMMSb, 1819, 34).

The first missionary to Namaqualand, Barnabas Shaw described his mission as

> ... mediating and attempting new conquests over the powers of darkness and endeavouring to enclose and cultivate an additional portion of the usurped territory of the Prince (WMMSa, 1820, 951).

This is a fascinating piece of colonial scripting, as it gives the enclosure of land and the introduction of agriculture eternal significance. Evangelical discourse is employed stating that land enclosure and cultivation tames the land to an extent that even god might want to re-inhabit it!

Another of Pratt's assertions is reinforced in the Namaqualand sources as many of them from as early as the 1680s, represent the northern Cape region, or Little Namaqualand as "thinly inhabited" (van der Stel, 1932 (1685-6); WMMSb, 1826, 31; 32; WMMSa, 1817, 70). They regularly give the impression of empty land, most especially after the smallpox epidemic as discussed in Chapter 4.

8.3.2.5. Moralising Climate

Missionary writing attributes the dry, variable, unreliable climate is to lack of Christianity among the Namaqua. Drought is "divine wrath" (Shaw, 1970, 156). Interestingly, the Namaqua themselves initially associate the drier years with the arrival of the missionaries (LMS(a), 1807-1812, 210). This illustrates a strong tendency among both the missionaries and the local people to find moralistic and religious justifications for poor climatic conditions, similar to that identified by Endfield and Nash in the Kalahari (2002b). This shows the importance of climate as a central concern in this semi-arid area where people rely directly on their environment for survival.

Many papers examine the links of climatic conditions to morality and religious beliefs, but the findings of the Namaqualand research illustrate that the same can be done for

other behavioural and livelihood attributes, particularly livelihoods. Transhumance or "wandering" is, quite simply morally wrong. Living in dwellings which could be moved "matjieshuise" is an indication of backwardness, and given Darwinian implications. The corollary of this being that religious conversion brought with it not simply eternal life and freedom from damnation, but the fantastic advancements of permanent dwellings, agriculture, freedom from the need for movement with livestock and later opportunities for hard labour on the mines.

Moralistic language is employed regularly by the missionaries, but not exclusively by them, it is found in many travel and scientific sources too. This has the effect of elevating the role of the missionaries from exclusively religious conversion, to moral upliftment and civilisation of local people. Lifestyle and livelihood changes are depicted as forming a part of religious conversion and these are elevated, moralised and depicted not only in written sources for colonial audiences. Missionaries parallel agriculture with godliness, hard labour with advancement and permanent dwellings with civilisation.

Counter-narratives emerging within mission sources

Missionary representations of the Namaqua Khoikhoi and later the Namaqua coloured population are not static for the whole of the 19th century and certain changes should be noted particularly in relation to their perception of Namaqua land use and the need for transhumant grazing. When, towards the end of the 19th century, a colonial government debate over the creation of private lots of land on the Leleifontein settlement arises, it is the missionaries who oppose it on the grounds that neither the land nor the climate are suitable to be broken into small lots and that no-one can make a living on an individual plot of land. This will be discussed in more detail below as it predominantly relates to colonial government representations of land use but it is worth mentioning here that the missionaries, who spend the most time in the Namaqua settlement and get to know the Namaqua Khoikhoi and their land use patterns, are the ones who ultimately defend this as the best land management strategy for the conditions. Other instances too stand out where the missionaries act in the interests of the Namaqua assisting them in acquiring more land and lobbying the government for the ticket of occupation. These have been

discussed in preceding chapters and it makes no sense to repeat them here, suffice is to say that these might link to the type of contrary aspects of certain colonial narratives that Beinart and Hughes (2007) are at pains to stress.

8.3.4. Namaqualand – Cape Government Writings

Colonial government sources are somewhat different to mission sources in their representations of the Namaqua. Certainly their interests and intentions are different. Judgemental descriptors are tempered less with visions of the Namaqua's improvement and there is, as expected, less use of religious language. Again, there is a list of derogatory and racist descriptors employed for the Namaqua Khoikhoi peoples. They speak of the "wild," "uncivilised," "lazy," idle," "ignorant," "indolent," "dissolute," "improvident" and "untrustworthy"(CT, 1/SBK, 5/1/10, Namaqualand, 11/12/1891; C.T., AMPT PUBS CCP 1/2/1/74, Eustace, Namaqualand, 1889; CT, 1/SBK 5/1/9, Eustace, Namaqualand 24/2/1887; CT, 1/SBK 5/1/1, Jos Rivers, Namaqualand, 8 October 1856). Overall descriptors tend to be racist although there are some counter narratives. For example, it would be hard to underestimate the racism implicit in:

> I do not think the present breed should be continued, I think a better class of people should, if possible, be got on the land ...,

or a simple

> ... we do not want to perpetuate the breed (C.T., CCP 1/2/2/1/46, Thompson, Cape Town, 1/6/1896).

Racism is also thinly veiled in referring to the Leliefontein people as

> the lowest type of humanity (C.T., PWD 2/5/288, Namaqualand Distress, Cape Times, 6 September 1895).

Colonial authorities state directly that the Namaqua are not fit to be their own masters, a direct justification for colonial control, not acknowledging the fact that they somehow managed as their own masters prior to the arrival of the Europeans (C.T., CCP 1/2/2/1/46, Robson, Cape Town, 12/6/1896). Directly suggesting that it would be preferable to get

white people on the land and thereby assist in reducing the poor white problem in Namaqualand (C.T., PWD 2/5/288, James, Namaqualand, 18/10/1897).

Three clear motivations for these racist and derogatory representations emerge in colonial government sources. Firstly, to gain labour for employment on the mines or on white-owned farms; secondly, to extract surplus agricultural production from the region and thirdly, to alienate the land from the coloured population. The interests in all of these motivations are those of the colonising population, however there are differing views amongst the colonial government as to how these goals should be achieved. Some government officials propose that these goals could be achieved through the creation of individually held private lots of land on the mission stations and this is debated in detail at a colonial house of assembly debate in the latter half of the 19th century.

8.3.4.1. Labour

Government sources make frequent reference to the Namaqua population as lazy. These references are generally associated with the need for labour on the copper mines, or with the applications of the Namaqua for seed wheat during droughts (C.T., PWD 2/5/288, Namaqualand Distress, Cape Times, 6/9/1895). As discussed in previous chapters the Leliefontein population actively resisted wage labour on the mines preferring subsistence pastoral livelihoods or seasonal wage labour on surrounding farms.

Successive Civil Commissioners of Namaqualand make repeated statements regarding the lack of willingness on the part of the mission station inhabitants to work on the mines, especially during periods of growth in the copper mining industry. As demonstrated in the following quotation:

> Whilst the copper mining industry is often crippled for want of labour, whilst the crops of the farmers often stand unreaped until the grain drops out of the ears, the Leliefontein tract abounds in lazy, idle scamps who lead a life of disreputable loots eating, and keep body and soul together by the exercise of the least possible exertion, until, a season of scarcity sends them whining to the surrounding farmers who, with more charity than discrimination lend them grain, which is seldom paid back. The population is composed of the thriftless, the improvident and the untrustworthy, who make no improvements, and who never lay by the produce of a good season against the inevitable years of drought (C.T., CCP 1/2/2/1/46, Civil Commissioner, Namaqualand, 6/1/1892).

The cost to the Colonial government of supplying seed wheat and support to the mission stations during drought periods particularly results in references to lack of industry on the part of the Namaqua.

> Of the natives I can only say they belong, to the lowest type of humanity I have ever come across. They are too lazy to work, and quite careless of the future, just managing to exist in some mysterious way on the bare margin of subsistence. I cannot help thinking that Government should make these men work in return for the food which they are receiving. The country stands in need of new roads, and I think these Hottentots and half-breeds should be got to work at wage below the market rate, and the balance could be paid to them in corn (C.T., PWD 2/5/288, Namaqualand Distress, Cape Times, 6/9/1895).

Hut tax is introduced in order to coerce people into labour on the copper mines. There are huge difficulties in both applying this and collecting it in Namaqualand.

> … the Native when he moves, which he constantly does, like a snail takes his hut with him (C.T., 1/SBK, 5/1/7, Eustace, Namaqualand, 24/2/1889).

Labour is espoused as a moral virtue and almost annually the blue book report of the Civil Commissioner of Namaqualand to the Cape High Commissioner states the need for labour on the mines or public works, juxtaposed with varying descriptions of the population of the Namaqualand mission stations as lazy and disinterested in employment.

> With regard to the Natives, I think the time has arrived for breaking of the Mission Stations in Namaqualand. I cannot see the utility of having such an enormous tract of country, and that the flower of Namaqualand as it is said occupied by *these people*, they pay no taxes, are unable to support themselves, and do not supply the labour market and the sooner the men and the scores of women and grown up daughters – who do absolutely nothing – are forced to work the better it would be for the country and themselves and real benefit and enormous aid to the wealth and progress of the land, and the acereage of the Mission Stations might be reduced and the Glen Grey Act applied to the remaining extent as the conditions under which the natives occupy the land at present do not in any way tend to the improvement of the land or people, the lazy and indolent benefitting by the improvements made by the progressive and industrious [emphasis added] (CT, CO7373, Hugo, Special Relief Commissioner, Worcester, 8 June 1898).

Is there a silent voice?

The Namaqua however are striving to maintain their pastoral livelihoods:

> ... the difficulty with the natives in this division has been to *secure* their permanent services in well paid mining work for no sooner do they acquire sufficient funds to purchase half a dozen goats, or does a promising season encourage them to cultivate a bit of their extensive lands – than they abandon their mining labours, and *return gladly* to that pastoral life of innocence, or indolence ... [emphasis added] (C.T, 1/SBK 5/1/8, Eustace, Civil Commissioner Namaqualand, 23/02/1883)

The preceeding chapters of this thesis show that pastoral livelihoods are the most successful and reliable as long as widespread transhumance is possible. This quotation gives an indication of the silent voice of the Namaqua illustrated in their actions, such as their attempt to preserve pastoral livelihoods and use wage labour only when necessary to re-establish pastoralism. The Namaqua are attempt to preserve the sustainable and reliable livelihoods that have served them over previous decades and centuries and to embrace only changes which compliment this. There is little record of their direct voice in the sources, but a silent voice emerges gauged through actions such as resistance.

Emerging from these multiple colonial sources is a two-fold motivation operating in the colonial interest, first, the extraction of labour from the mission institutions and second, the alienation of land from the local people. These aims become more explicit in the colonial house of assembly debate over the privatisation of land.

8.3.4.2. Individual Ownership / Privatisation

Government sources repeatedly suggest the promotion of individual land ownership on the Namaqualand communal reserves. The proponents of this move cite communal tenure as responsible for the struggles of the population during drought, their regular need for assistance from the Colonial government and their poverty (C.T., 1/SBK, 5/1/1, Anthing, Namaqualand, 29/3/1860). The debate concerning this reaches the House of Assembly in the Cape Colonial Government in 1896 when a select committee is appointed to investigate the Namaqualand Mission Lands and Reserves (C.T., CCP 1/2/2/1/46, 1896). A report was compiled by the surveyor-general, Mr. Melville, and this proposed the sub-division of the mission stations into individual private lots as a solution

to the poverty of the population. In addition, private land holding is proposed as a solution to the spread of lung sickness which occurs most commonly at watering points (C.T., 1/SBK, 5/1/3, Webley, Namaqualand, 19/12/1866).

The motivation put forward here is that this will provide incentive to increased productivity but closer analysis of arguments like the following:

> I do not thing the present breed should be continued, I think a better class of people should, if possible, be got on to the land, either white, or black, or bastard, as long as they are hard working, respectable people let them take possession and have power to alienate. (C.T., CCP 1/2/2/1/46, Melville, Assistant Surveyor-General, 1/6/1896).

... make it questionable whether these debates were operating instead as a justification of alienation of land from the non-white population.

Discussions over privatisation occur at the time when the enclosure movement is taking place elsewhere in the Cape, whereby farms are being fenced off to demarcate private land ownership mostly around white farms (van Stittert, 2002). An attempt is being made to extend this privatisation to Namaqualand, with the suggestion of extending the Glen Grey Act to Namaqualand. The reasons put forward for this are three-fold. First, the notion that privatising lots of land will encourage the inhabitants to become more responsible for their land and to produce more from it, the second is that where they were not producing sufficiently they will seek out wage labour instead, and third should they not increase surplus production it will be justification for alienating people from the land (C.T., CCP 1/2/2/1/46, 1896).

Glen Grey Act

During the 1890s, debates concerning the transition of the communal mission lands into lots of individually held land follow the conventional wisdom of the Cape Colonial government of the time. They are eager to have more white farmers producing surplus agricultural produce to service the growing urban centres and they were eager to have more labour on the Namaqualand copper mines. The house of assembly discussed implementing the Glen Grey Act in the Namaqualand mission stations in order to force

the populations to find employment either as mine labourers or as labourers on private farms (C.T., CCP 1/2/2/1/46, Scully, Resident Magistrate, Namaqualand, 12/6/1896).

The Glen Grey Act was an act of the Cape Colonial Parliament which was originally propagated only for the Glen Grey region of the Colony. It was intended to address the issue of labour shortage and provide a supply of labour to white owned farms, and in some cases, mines. In addition it included a labour tax for all blacks who had not spent time in white employment (Thompson and Nicholls, 1993). This act stipulated that reserve inhabitants should pay tax, meaning that they either had to be earning sufficient cash surplus from their current pastoral and agricultural activities or that they had to seek out wage work elsewhere (Thompson and Nicholls, 1993). It was intended to get rid of communal tenure and replace it with individual tenure. Through this act, five morgen plots (just over ten acres) would be allocated for individual ownership to black household heads, but no-one was allowed to acquire more than one lot of land. This meant that it maintained the reserves which supported the self-sufficiency of the black population while not allowing any individual black land holder to acquire enough land to compete with the white farmers and compelling others into wage labour (Bundy, 1979).

The Glen Grey Act became law in 1894 and

> " ... was eagerly welcomed by many who discerned a precise coincidence of interests in its workings: the institution of individual tenure would offer to 'barbarians' those very habits of industry and civilization long praised by the liberal tradition; sober and energetic blacks would be the agents of their own uplifting; at the same time, their less hard-working or talented kinsmen would be emitted from the locations, in accordance with impersonal economic laws, in gratifying large numbers as wage labourers." (Bundy, 1979, 135).

It was later extended to apply to other regions of the Colony, and although it was never extended to the mission lands of Namaqualand, the debates around it highlight the interests of the colonial population. The motivation to extend it being to make the mission stations expense free for the colonial government and to extract labour from them.

Counter Narratives

What is interesting about this debate is that the missionaries and the resident magistrate who had each lived in Namaqualand for more than three years completely oppose the implementation of a system of individual tenure, whereas the government officials and surveyors who have spent little time there supported it. This illustrates that the proposal of this system was based on common conventional wisdom and not on an understanding of the factors related to the land. It also shows how the missionaries with their prolonged stay in Namaqualand develop sympathy with the local population, local climatic conditions and the constraints on pastoral livelihoods in this region.

A missionary who was in charge of the Leliefontein station for five years states that it cannot be broken up into individual lots of land:

> you have perhaps 2000 people to provide for, and have a very small water supply, the places are so far between ... if you divide up the ground in the way you suggest you might give me an excellent piece of ground, but someone else might get a lot that is worthless, you cannot help doing it, the value of the ground is most unequal (C.T., CCP 1/2/2/1/46, Robson, ex-missionary, Namaqualand, 12/6/1896).

Even the resident magistrate that has resided in Namaqualand for a period of time states that the notion of private lots of land is totally unsustainable.

> ... as a matter of fact I am quite sure that no man can understand Namaqualand without spending two or three summers there. The rains are so local. It may rain in one part for two or three years in succession and then cease. Or, perhaps, three miles away not a drop of rain will fall. I am thinking of Leliefontein. On one side you have the regular rains and on the Norap side you have none (C.T., CCP 1/2/2/1/46, Scully, Resident Magistrate, Namaqualand, 12/6/1896).

It seems then that the notion of privatising lots of land had more to do with the conventional wisdom in the Cape colonial government at the time and more to do with furthering colonial interests than in a sustainable solution to poverty in Namaqualand.

Another report states that should the land be privatised it would be seized for debt repayments.

> My objection to this is that no sooner would individual title be issued than it would be found either that many of the allotments would be seized for debt as the natives were heavily in debt or that they would be sold and the sellers would squat on the commonage

> when it will be a difficult matter to dislodge them (P., LDE 3952, 5977/1, Vos, Namaqualand, 9 February 1928).

This suggestion seems to find favour with the colonial interests, as perhaps alienation and labour extraction was the central motivation in proposing privatisation.

The land of the Leliefontein station was never broken into private lots. The downturn in the profitability of the copper mining industry and the South African war meant that this debate was not immediately concluded. When the station became a coloured rural area in 1909 the land was held communally and communal patterns of livestock management persisted. This arguably also served white interests as it allowed for the greatest number of African population to be sustained on the smallest amount of land (Jacobs, 2003). In the late 1980s, attempts were again made to privatise individual land holding, but this was severely resisted by the local population (for an interesting discussion of this see Kröhne and Steyn, 1991).

8.3.4.3. Discussion

What is fascinating about these debates is that despite the representations in the sources it is evident that the pastoral livelihoods that the Namaqua are defending are the most sustainable livelihoods in the region. Interrogating representations has aided in identifying how it is consistently the interests of the authors that are scripted, no matter what the stated intentions. It also aided in hearing the silent voice of the Namaqua actively involved in defending their livelihoods against what is propagated as improvement and development.

The preceding chapters of this thesis have shown that communal farming suited the environment, and that transhumance was the most effective livelihood strategy in the highly erratic Namaqua climate. The restriction of transhumance and the diversity of livelihoods the Namaqua undertook is what caused their eventual decline to impoverishment. Thus what was being justified through these various discourses, whether missionary, traveller or colonial government, contributed to their eventual decline.

8.4. CONCLUSION

This chapter examines the representations of the Namaqua Khoikhoi population in the archival sources consulted for this research. It shows how the ideologies and interests of the authors are reflected in their use of certain vocabularies whether religious, scientific or imperial. Power dynamics implicit in the colonial representations of the land and its people are presented. Mission sources tend to employ religious and evangelical discourse to describe the extent to which the colonised population are in need of redemption, but also of changes in their material circumstances. Travel writing scripts Africa as a dark and degraded continent and its population as uncivilised. The missionaries represent the changes which they implement in the livelihoods of the Namaqua Khoikhoi population as improvement and progress, thereby justifying their presence in Namaqualand and their role in altering what earlier chapters of this research have shown to be sustainable livelihoods. The introduction of agriculture and the decrease in transhumance are represented in religious terms as the will, and indeed the work, of god in the region. Colonial authorities tend more towards criticising the 'laziness' of the local population, particularly in the context of lack of available labour for the mines which the Leliefontein population reject in favour of pastoral and agricultural livelihoods. In addition, they script the population as incapable of managing their land effectively and target communal land holding specifically as the cause of the increasing poverty of the population. In this way, this chapter exposes how colonial scripting operates to justify colonial interests, colonial expansion and colonial expropriation within the Namaqualand area.

SUMMARY

This chapter involves a deeper interrogation of the representations of the colonised Namaqua Khoikhoi population within the various colonial sources used for the research. Constant confrontation with racist and derogatory representations of the local people in the sources made this examination a fascinating additional interrogation of the use of historical documentary sources for research. Each of the categories of sources was examined individually exploring how mission sources tend to utilise religious and evangelical discourse to denote the need for the conversion of the local people. Colonial government sources were more directly critical, but what is examined in this chapter is the direct correlation between the racist signifiers used by these sources and the need to extract labour from the mission stations and free up more land for settlement by the colonists. Thus chapter this examines the way in which each of these representations functioned in the interests of the colonising population and functioned to justify colonial activities. This analysis shows how the ideologies operate in the interests of those who construct them.

CHAPTER 9

CONCLUSION

DROUGHT AND THE DECLINE OF A SUSTAINABLE LIVELIHOOD

> I also hope that those with expertise, resources, and commitment will work to encourage and improve the environmental innovations of poor people to avert the trend of displacing them with commercial production by a few (Jacobs, 2003, 31).

The Leliefontein community of Namaqualand, that inhabit a marginal landscape on the edge of the desert with highly erratic rainfall, became the site of rapid decline of a rural community during the late 1800s. During this time droughts with which the community had formerly coped became devastating. Livestock died in large numbers, particularly large stock, and agriculture became an unreliable source of livelihood. Hugely indebted to hawkers and devastated by the South African war, the Leliefontein inhabitants found themselves dependant on the colonial government for aid. What had been a sustainable and indeed, fairly prosperous group of Namaqua Khoikhoi during the earlier part of the 1700s became a dependent, poverty stricken group on the edge of survival. The central question for this thesis was what factors drove this decline.

Unravelling complex change over time

This research aimed to achieve an integrated multi-disciplinary local-level environmental history of the Namaqua Khoikhoi group who inhabited the Leliefontein area. The central aim was to identify the extent to which climate and socio-economic changes respectively resulted in the decline and impoverishment of the community. Most studies do not integrate these two aspects and as a result this was a unique contribution of this research. This research demonstrates that an understanding of livelihood change, vulnerability and decline needs to include a study of both the physical environment and socio-economic conditions. Thus it is made up of two parts: a reconstruction of the climate of Namaqualand during the 19th century (Chapter 5) and a comprehensive study of livelihood changes during this period using a vulnerability perspective (Chapters 6 and

7). This inter-disciplinary, integrated perspective was appropriate to analyse the complex interaction between humans and their environment.

The main contributions made by this thesis are varied. Separately, both the climatic history and the social history are extremely valuable, together they illustrate the vital need for integrated research. The historical precipitation record alone helps extend climatic information back in time within a region severely lacking in historical climatic data. This lack of historical information is a constraint to current climate change research and was identified as such in the most recent IPCC publication (IPCC, 2007). The climate section of the thesis on its own resulted in a publication the contributions of which have been used and built upon recently by other similar studies (Grab and Nash, 2009; Nash and Grab, 2009), and a further study linking all of these historical precipitation data sets for the southern African region is currently proposed.

Additional contributions of this thesis include the analysis of the physical and human drivers of change and adaptations to climatic stresses, and an assessment of which of those increased and which decrease vulnerability. Thus, this study contributes to a deeper understanding of the stresses on a rural community in a harsh environment and possible successful adaptations. The long term historical perspective which this study brings to vulnerability assessment is unique and important. It allows multiple stressors to be traced through history as opposed to within a static timeframe. Applying these analytical perspectives to history makes it more than simply a descriptive study and allows for reassessment of theoretical perspectives like equilibrium and disequilibrium grazing dynamics. The 100 year perspective allows for distinction to be made between effective adaptation and simple coping. This part of the study also makes a unique contribution to vulnerability studies and some of the findings will be useful in the context of adaptations to current stresses produced by climate change.

Contributions of the historical precipitation record

The climatic reconstruction extends the rainfall record of Namaqualand through creating a proxy precipitation data set presenting droughts and wet spells in Namaqualand for the whole of the 19th century (Chapter 5). This record is, on its own, a unique contribution of the thesis. As there were no rainfall records available for this period historical documentary sources were employed and confirmed against rainfall data for Springbok 1878-1900. This research also made the first attempt to identify widespread droughts affecting the southern and eastern Cape, Namaqualand and the Kalahari through combining findings with other similar studies done in surrounding regions. Those identified included 1820-1821; 1825-1827; 1834; 1861-1862; 1874-1875; 1880-1883 and 1894-1896. In addition possible links to El Niño Southern Oscillation, low phase events were made (Kelso and Vogel, 2007). This has led to an exciting recent proposal to combine the findings of all historical precipitation studies into a single paper and relate them to ENSO teleconnections (Nash, pers. comm. 2009). The historical climate of Namaqualand has not been researched before, so this comprises a unique contribution of this research and expands on a growing body of historical climate research (Nash and Grab, 2009; Grab and Nash, 2009; Endfield, 2007; Enfield and Fernández Tejedo, 2006; Nash and Endfield, 2002a; 2002b; Pfister *et. al.,* 2002; Therell, *et. al.*, 2006; Nicholson, 2001). An improved understanding of past climates is vital to identifying the variations in rainfall and temperature associated with past and possible future climate change (IPCC, 2007).

This climatic history formed the backdrop for the historical livelihoods study (included in Chapters 6 and 7), while the drought periods identified in the climatological research were used to assess the degree to which climate was a contributing factor in the decline of this community. In this way this study aims to redress the imbalance which results from purely historical, anthropological or sociological studies that neglect the effects of the environment.

Socio-economic 'drivers' of decline

The history of this group was not one of linear deterioration to poverty. Chapter 4 examines the setbacks suffered by the Namaqua Khoikhoi during the 18th century which include *settler encroachment, livestock theft* and *exploitative livestock trade*. *Smallpox* too had a devastating effect on the Namaqua Khoikhoi population, although the exact extent of its effects is debated. Despite these setbacks, some initial effects of colonialism and stock trade were kept at bay by various methods of resistance employed by the Namaqua Khoikhoi population. Trading parties were led off track, livestock were hidden in the mountains, and livestock numbers were falsified by scouting parties sent out to divert the traders. Tracing these strategies opens up a narrative of active resistance. By the end of the 18th century one group of Little Namaqua Khoikhoi remained south of the Orange River under the leadership of Jantjie Wildschut. They were centred around the Leliefontein area of the Kamiesberg, this group is the focus of this research.

Chapters 6 and 7 involve a detailed historical study of the Leliefontein population during the 19th century. The focus of this is mainly on the changes in the livelihoods of this group. Colonialism brought many threats to the sustainability of the traditional livelihoods of the Leliefontein Namaqua whose nomadic pastoral lives had been well adapted to the variable climatic conditions of Namaqualand. Traditionally vulnerability to drought was lowered through transhumance between winter and summer grazing areas and extensive transhumant journeys, when drought seasons were particularly severe. These included journeys to the coast and the use of fishing as an alternative source of food. Evidence shows that this adaptive capacity declined markedly during the latter half of the 19th century.

Use was made of the vulnerability perspective in order to analyse the decline of this community from the 1700s to 1909. The social, economic and political changes affecting the population were examined in order to identify those that brought greater resilience and lowered risk and those which increased vulnerability. A clear distinction emerges between the livelihood strategies of the population during the first half of the 19th century, which brought a period of increased prosperity and reduced vulnerability and

those of the second half of the 19th century which bring increased exposure causing a rapid increase in vulnerability.

Facing and adapting to change – a mixed success story!

Chapter 6 examines the actions taken by the Namaqua Khoikhoi in an attempt to recover their sustainable nomadic pastoral livelihoods. From 1816 to 1853 livestock numbers did in fact increase and with the addition of agriculture and some good yields the community became a relative success story. The *agency of the population*, attempting to defend their sustainable livelihoods is explored showing that they were not inactive recipients of external change (Beinart, 2002; Jacobs, 2002; Kimambo, 1996; Comaroff and Comaroff, 1991).

The changes in livelihoods during this period included actively constituting themselves as a *mission station* in 1816, allowing for greater control over their land. In addition, they embraced agriculture introduced by the missionary. Missionaries provided a link between the Namaqua and the colonial government and particular cases were reported in which the missionaries represented the interests of the Leliefontein population to the colonial government. Furthermore, widespread transhumant journeys were documented during this period, despite attempts by missionaries to encourage a sedentary lifestyle. Livestock figures and agricultural yields increased during this period and worth noting was the surprising increase in the number of cattle at the station. Despite these improvements *settlement by freehold farmers and trekboers* on the borders of the Leliefontein station continued to increase as did *competition over land*. Certain of these changes, particularly the *introduction of agriculture*, were eventually to contribute to their increased vulnerability in the second half of the 19th century.

Multiple changes made to livelihoods had the effect of increasing risk, exposure and ultimately vulnerability to climatic stresses. The first half of the century showed prosperity and improvement with short recovery periods from droughts. The second however demonstrates rapid decline. This results directly from the addition of transport riding and wage labour to the bundle of livelihood activities of the Leliefontein Namaqua,

the key difference being the increased *external economic exposure* which accompanied these activities.

Chapter 7 traces the livelihood adaptations of the second half of the 19th century. During this period increased reliance on agriculture shows itself to be an unreliable livelihood strategy as successive drought periods compounds the effects of harvest failures. This exposes the population to greater risk, increases vulnerability to droughts and restricts transhumance, previously their main coping mechanism during periods of climatic stress.

Copper mining in Namaqualand began during the 1850s. The Leliefontein inhabitants began the initially lucrative business of *transport riding* copper ore to Hondeklip Bay. This exposed them to *livestock illness*, particularly lung sickness and this caused a decline in cattle numbers. In addition, transport riding put them on fixed routes during droughts as opposed to the previously flexible transhumant routes. Despite initial resistance some of the inhabitants took on *wage labour* on the mines, which exposed Namaqua livelihoods to fluctuations in the copper price in Europe. The cost of transporting ore was high and mining in Namaqualand declined as quickly as it had boomed, with many *mines closing* in the 1880s and 1890s. *Hawking* offered new consumer items on credit at the station and repayment with interest was extracted immediately after harvests. Cattle numbers decreased dramatically and the community deteriorated into a state of poverty. To compound these effects the Leliefontein settlement was affected by the *South African War* in 1902 when Boer occupation forced the community to evacuate to O'okiep and Port Nolloth for three months resulting in the loss of their agricultural crop and many of their livestock.

The increased vulnerability of this community is thus evident. Analysis of drought periods shows recovery periods following droughts increased in length, showing that they could no longer cope with their exposure. By the end of the 19th century the Leliefontein Namaqua were described as experiencing impoverishment and famine.

Lessons for adaptation?

The vulnerability perspective provides a useful distinction between coping strategies and adaptations, where adaptations are those changes which decrease vulnerability over the long term. Using this distinction it can be seen that *widespread transhumance* was an effective adaptation for the Leleifontein Namaqua sustaining them even through drought periods. In addition, *securing better access to land* and securing *access to a greater area of land*, especially that spanning different climatic and vegetation zones enhances livelihood sustainability in adverse climatic seasons. Greater *choice and control* over where to move with livestock also enhanced adaptation, facilitated by local environmental knowledge. Seasonal agriculture as an additional livelihood strategy only in years of favourable climatic conditions also improved conditions.

Coping strategies, on the other hand, are those that aid only aid short term survival, and these included wage income, transport riding and credit arrangements. The greatest driver of decline is increased external economic exposure through transport riding and wage labour on copper mines, coupled with ecological exposure.

Where to disequilibrium grazing dynamics?

Historical analysis of grazing practise demonstrates that Namaqualand is a system with physical properties similar to a disequilibrium environment (Chapter 2). The associated grazing strategy, known as opportunistic grazing, is a successful one maintaining both livestock numbers and livelihoods in the first half of the 19th century. This is however dependent on transhumance using large areas of land in different climatic zones, thus preventing degradation. As soon as the area of land available to the Namaqua became restricted due to increased settlement and competing land uses the effects of this grazing strategy begun to cause negative environmental impacts and negative impacts on livestock numbers. Therefore, the conclusion on the applicability of disequilibrium dynamics to this region is that one should employ caution in using only this theory exclusively. The work of Richardson *et al.* (2007) and Hahn *et al.* (2005) that warn of possible thresholds past which the landscape might struggle to recover have strong

validity for modern conditions where such extensive transhumance is no longer a possibility. Current land reform initiatives should perhaps take these lessons into account.

Drought – from coping to collapse

Chapters 6 and 7 examine the impacts of droughts in the first and second half of the 19th century respectively. The droughts of 1820-1827, 1834-1836 and 1844-1845 are compared to those of 1860-1862, 1881-1883 and 1893-1896. The recovery from the earlier droughts is much more rapid than from those in the later period, indicating that livelihood changes increased the vulnerability of the community while exposure to climatic stress remained similar. Drought alone was not the driving factor in the decline, as the community was adapted to the climatic conditions prior to the changes of the 1700s and 1800s. Only an understanding of the economic and social changes experienced by this community and the livelihood changes they undergo can account for the transition from a sustainable community to an impoverished one.

The historical climatic reconstruction does not indicate any change in the frequency or duration of drought periods during the 1800s. The analysis of the livelihoods of the Leliefontein inhabitants lends insight into human responses to droughts and how these change over time. This historical analysis of human responses to climatic stress forms a vital source of information in light of current predictions of future increase in climatic extremes resulting from climate change.

The Written Word – Representations and Expropriation

Racist and derogatory representations of the Leliefontein population in colonial sources, both missionary and government, function to legitimate colonialism and the expropriation of South African resources. The local Namaqua Khoikhoi population and later the Namaqua coloured population are scripted as poor stewards of land and livestock. This scripting contributes to arguments in favour of breaking communal lands into privately

held plots of land, completely unviable as units of production, and yet debates around this persisted for over 10 years and recur throughout the 20th century. Actual, as opposed to stated, motivation for this is therefore, colonial interest in extracting surplus produce, labour and where that does not succeed in alienating land from local people.

Some final reflections – where to environmental history?

This research makes use of and expands upon various bodies of literature relating to environmental history, vulnerability, the agency of local communities and myths and misrepresentations of African environments. The study falls into a new and growing field known as environmental history (Endfield, 2009; Beinart and McGreggor, 2003; Beinart, 2002b, Jacobs, 2003; Maddox, 2002; Leach and Mearns, 1996). In a situation, such as this, where people's livelihoods are intimately tied to their environment, understanding the relationship between the two is essential (Jacobs, 2003).

An attempt is made to overcome some of the shortcomings of earlier literature which failed to acknowledge the *agency of populations in defining their own histories* by focussing on local initiative. Their experiences were traced through the stories which emerge from the use of multiple sources. This research identifies cases in which the Namaqua resist change, cases in which they actively embrace change and cases in which they are forced to change by external factors. The Leliefontein population attempt to resist exploitative livestock trade, resist wage labour on mines, secure control over their land and adopt agriculture while maintaining their pastoral lifestyle. Thus, an attempt is made to narrate the situation of the Namaqua Khoikhoi placing emphasis on their agency. The Namaqua story is not simply a straightforward history of dispossession and compliance it is a history of agency, resistance and improvement before eventual decline.

An attempt is also made to *expose the misunderstandings and misrepresentations* of the Leliefontein population presented in historical sources, many of which advance the notion that they were responsible for mismanaging their environment (Endfield and Nash, 2002a; 2002b; Pratt, 1992). This study shows that the traditional livelihood of the

Namaqua Khoi – nomadic pastoralism, hunting and gathering – was in fact the most appropriate and successful livelihood strategy for the semi-arid highly variable climate. The decline in sustainability came with changes to this livelihood. In addition, this study examines the ideologies of the missionaries who encouraged sedentary living and promoted agriculture: both of which made the Namaqua population more vulnerable to droughts. These misrepresentations emerge throughout the sources and necessitate further investigation.

Further research into past human-environment links are necessary in the light of current climate change predictions, as others have also urged (Endfield and Tejedo; 2006; Nash and Endfield, 2002a; 2002b). More detailed, local level studies will provide increasing insights into the effects of climate fluctuations on people groups. An understanding of the aspects of historical livelihoods that provided resilience to climatic fluctuations could be used to develop policies to promote sustainable livelihoods in marginal rural communities.

Finally, the research tells a story of the decline of the Namaqua Khoikhoi population of Leliefontein and the story it tells is one which illustrates the necessity of understanding both environmental and the socio-economic factors in causing this decline. Socio-economic changes and challenges imposed on this group through colonialism and increased competition for scarce resources, the introduction of new material needs and new opportunities for greater wealth creation, new religious and cultural influences and pressure on land which had previously been abundant, all necessitated rapid adaptation. The importance of human agency is illustrated as this group make certain choices that enhance and others that inhibit, their ability to survive in this harsh region. In identifying these responses and their long term impacts on the sustainability of the livelihoods of the Leliefontein community, it is hoped that useful insight has been gained into what constitutes a sustainable livelihood in a marginal area and what, may then, in future, aid in improving the sustainability of livelihoods during the increased variability predicted to result from climate change.

APPENDIX A

NAMAQUA MEASURES EMPLOYED TO RESIST LIVESTOCK TRADE

Extracts from the Journal of Rhenius

(Rhenius (1724), 1947, 135-145)

… to-day it chanced that some of our Hottentots who accompanied us were out in the veld to search for edibles for themselves. They saw four strange Hottentots who, when they spied these our Hottentots, would have taken to flight, but at the call of ours, "We mean you no harm," stood still. They brought these Hottentots into our camp at 3 o'clock in the afternoon. I questioned them whence came they and whither going, whereat one of them, who had served as a guide to us in the year 1721, gave answer that they come from the kraals of the Amaquas and were going to the Dutch at the Picquetbergen, relating further that among the Amaquas there was a sickness to which they gave the name of (small) pocks. Of this many had died, it was brought to them by a Hottentot who had visited some friends among the Briquas and all the kraals had been smitten with this sickness except the one to which he belonged. He, the speaker, in order to escape it, had set out to the Dutch with the companions who accompanied him.

I believed that statement and treated him to a tot of arack and a pipe of tobacco and questioned him further if there were many cattle. I received for answer that there were few, they had much dwindled owing to the internal warfare among themselves, and that in all the kraals hardly five "gisjes" * sheep were to be found, that is to say fifty in number. This was confirmed by one of the Grigriqua Hottentots who said that he had seen 100 sheep and even 20 oxen consumed as by wild dogs in a single day. I further caused these four lads to be kept in camp telling them in a friendly manner that they must turn back with us to give me directions where lay their kraals, to which, so it seemed they had little inclination.

I caused the 4 Amaqua Hottentots to come to me to find out where they lay their kraals. They pointed out to me that they lay dispersed here and there among high mountains and that it was not possible to arrive there with the wagons. I spoke to them in a very friendly manner and promised to give them fine presents if they gave me proven directions and thereon treated them to arack, tobacco and dagga so that they waxed somewhat merry. One of them, through a Grigriqua Hottentot who spoke Dutch, asked to speak to me alone, since I was so worthy a Master he had something to tell me. In the presence of the Sergeant as well as the said Gregriqua Hottentot I permitted him to come into the tent with me. Thereupon he told me that they, the 4 Amaquas, were not going to the Dutch living at the Picquetberg but had been sent by their kraal folk to see if Company's folk were approaching, for they understood from a Bushman that a musket-shot had been heard but knew not if it were a shot or a thunder clap. If they saw us they were to hide and at the first opportunity return to the kraal to warn them, when they would drive their cattle into the high mountain range and come with their fighting men to see if by night they could surprise and kill us, making themselves master of our goods. He added that for two successive years we had cleared them out of all their cattle; that they were no

more inclined to trade with the Company and if all their cattle were gone from them then they would come and fetch cattle from the Dutch. I believed this statement so far as it went but nevertheless I gave strict orders, doubled the night watch and requested the said Hottentots to keep quiet about it, promising them I would give them handsome presents. I sent to-day four of the Hottentots we had with us to the nearest kraals with Greeting gifts consisting of 5 spans of Tobacco, so many pipes, a vessel with dagga and a can of arack, sending a great Greeting to the people of the kraal, asking them to come and barter with us and saying I would give them handsome payments in all kinds of fine goods which I had brought with me.

Friday 13th. My Hottentots who were sent out returned bringing a headman with his servants, wives and daughters besides 3 head of cattle as a Greeting Gift. These included a yearling calf and 2 old cows. They further told us that they had found most of the kraal folk sick and with no other cattle except a few milch cows. In all the kraal they had not found 10 sheep or goats which on my former journey were in great numbers. They said also that not one of the other headmen would accept Greeting Gifts because they had not the least cattle to barter. I paid the headman who came with them for the 3 Tabeties cattle and stood him a great treat with a request at the same time to him that he persuade his other kraal people to barter. He agreed to do so, but said there were few cattle and that I ought to send some of my people to see it for themselves, and at this he took his leave and went off. To-day I sent also 4 more Hottentots to the other kraals which had sent the 4 spies to us, letting them too take Greeting Goods with a request to come and barter with me and feigning that I knew nought of their designs. These kraals lay 2 days journey away in the mountains.

Saturday 14th. Sent a Sergeant, a Corporal and 12 men to the first kraal to see if cattle could not yet be obtained, ordering him, the Sergeant, to picket above wind from the kraal and allow none to enter so they might not be infected by the sickness. The said Sergeant returned at 7 o'clock to-night to our camp bringing 4 old cows in poor condition, an old bull and 2 meagre calves, relating further that it took them some time to trade even these 7 poor animals and confirming that in greater part the people were smitten by a foul stinking sickness very like the Lazaretto sickness and some were dying daily, also that considering the size of the kraal they had few cattle and of goats and sheep not 25 were to be seen.

Sunday 15th. Our 4 Hottentots sent to the 2nd kraal returned bringing 3 lean cows with a calf, in company with them were 3 men and 4 women from the said kraal. These said that the Bushmen had carried off one of their cattle-kraals and therefore they were now in no condition to trade with us. I held this statement to be an invented tale and quietly questioned one of our Hottentots if it was true. The said Hottentot confirmed that Bushnmen had really taken off some of their cattle but said the people of this kraal, as soon as they were aware of our coming, had taken the best of their cattle afar in the mountains and were disinclined to barter with us, and the headmen of this kraal were very angry with the Hottentots they had sent out because they had not better carried out their orders.

Monday 16th. Again sent 3 of our Hottentots to a different kraal with Goods of Greeting. It was said of this kraal that most of the people in it had died. I charged them to perform their errand with all speed and to bring news of their experiences, this they promised to do.

Friday 20th. The Hottentots sent out returned again. Accompanying them were 3 Amaquas, women of the headmen of the kraal whose husbands had died of the raging sickness. They too brought tidings that a large portion of their cattle had been captured by Bushmen and that they were wholly impoverished and in no condition to barter with the Company, having none other than a few milch cows to nourish themselves and their children. Nevertheless they brought 3 head of cattle as Greetings Goods, these were 2 old cows and a yearling calf and they could send no more.

I asked one of our Hottentots who spoke Dutch well, if this were true. He confirmed that he found the women's assertion to be true, adding that a year ago a Bushman had come to the Amaquas who told them that the Dutch people would come and take all their cattle and on that rumour they had slaughtered and eaten from time to time all their best oxen and sheep, saying it was better to eat them than that they should be booty for others. This agreed with a statement made to me on the 9th of this month by a Grigriqua Hottentot that on a single day they had slaughtered and eaten as though wild dogs up to 10 "*gisjes*" sheep (which according to their reckoning amounts to one hundred) and 2 "*gissies*" oxen.

Seeing that no bartering could be done with these people I resolved to go in some other direction.

APPENDIX B

NAMAQUALAND TREKBOER FARMS MENTIONED IN PRE-1800 SOURCES

DATE	NAME OF LOAN FARM AND/OR FARMER	REFERENCE
1744	'Bosjemans Kloof' Jancobus Coetse Jans	
1761	Uitkomst below the Camiesberg Son of Hendrik Beuke(r)s Wolvepoort also occupied by Hendrik Beuke(r)s	Mossop, 1947, ix
1771	Uitkomst between the Kousse and Groene River with several other farms in the Kamiesberg Hermanus Engelbrecht	Mossop, 1947, ix
1777	De Cammas Fonteijn on the Great River the present site of Pella Coenraad Hendrik Feijt	Mossop, 1947, ix
1779	At least three cattle stations had been granted by the Company on the banks of the Orange River.	Mossop, 1935, 3
1779	Kamusbergh Pieter van den Heever	Wikar, 1935, 199 (Travel 8)
1779	Ellenboogfontein (5kms west of present day Kamieskroon) Hermanus Englebrecht	Gordon, 1988, 247
1779	Carrie Coetse	Gordon, 1988, 248
1779	Vyemond se Berg (12 km south of present day Kamieskroon) Van den Hever (field cornet)	Gordon, 1988, 249
1779	Gerit Beukes (South-east of present Soebatsfontein)	Gordon, 1988, 257
1779	Pieter van den Hever Rhinoster Fontein (Renoster Kop Font) – near the Coussi / Great Sand River	Gordon, 1988, 257, 288
1779	Engelbrecht's, cloete's and Beuke's farms all near each other and near present day Kamieskroon.	Gordon, 1988, 286
1779	Beukes farm extending into Bushmanland	Gordon, 1988, 294
1779	Gordon states that there are 19 stock farms in Namaqualand north of the Groene River.	Gordon, 1988, 291

1779	Pinar Sand Fontein	Gordon, 1988, 298
1780	Hermanus Englebrecht's numerous farms	Mossop, 1947, 113
1790	Hermanus Englebrecht Vredelust in Pedro Cloof in the Camiesberg and it was the abandoned farm of Pieter van den Heever Younger. Engelbrecht had rights over Liliefontein, Uitkomst, Englesfontein Hieuwplaats and other farms in the Kamiesberg	Jansz, 1935, 321
1791	Ezelsfontein Berend Freyn	van Reenen, 1935, 297-299
1792	Trekboer Berend Freijn assists Jansz by giving him oxen.	Jansz, 1935, 319
1804	Jancobus Coetse Jansz's daughter had married her cousin Johaness Cloete who had settled in the Kamiesberg	Mossop, 1947, 95

APPENDIX C

LELIEFONTEIN TICKET OF OCCUPATION

C.T. AG, 1538, 1905

By His Excellency Lieutenant General The Honourable Sir George Cathcart K.C.B. Governor and Commander-in-Chief of Her Majesty's Castle Town and Settlement of the Cape of Good Hope in South Africa, and of the Territories and Dependencies thereof, and Vice Admiral of the same &c. &c. &c.

In the Name and on Behalf of Her Majesty Victoria by the Grace of God, of the United Kingdom of Great Britain and Ireland Queen, Defender of the Faith.

This is to certify that the Land represented by the annexed sketch framed by Mr. Land Surveyor Cloete and supposed to contain about 219500 (Two Hundred and Nineteen Thousand Five hundred) Morgen more or less, situated in the division of Clan William, partly in the Field Cornetcy of Kamiesberg and known by the name of "Lelie Fontein" shall not for the present be alienated but shall be held for the use of those families of the Tribe of Little Namaqua Hottentots and Basters of Aboriginal descent who are in the occupation thereof at this date, and of others of the same description who, having left the said Land, may return thereto, and may be admitted as residents upon showing that they are entitled to such admission:-

All disputed claims to such admission to be referred for decision to the Civil Commissioner of Clan William,-
Also that the Resident Householders, Heads of Families or Church Communicants shall each be entitled to one vote in the appointment of a Committee to prepare regulations for pasture Lands and distribution, and superintendence of building Lots, garden ground, and arable Lands, and also in the annual appointment of Corporals or Overseers to carry into effect and enforce the same after they shall have been approved of or amended from time to time by Government, provided always that nothing in the said Regulations nor in the enforcement of the same shall directly or indirectly extend to the expulsion of any Resident except under the express sanction of the Government, and also that nothing therein or herein contained shall affect the occupation by the Wesleyan or other Missionary Society of those Churches, Schools, or other Buildings which may have been or may hereafter be by them built on the said Land with consent of a Majority of the aforesaid persons entitled to vote, - nor occupation of such Gardens and Cornlands as may now be in their possession, or those which may hereafter be permanently or temporarily allotted to them with consent of the said Majority, nor such share of the right of Commonage pasturage as may be actually and bona fide necessary for the Households of the Missionaries now resident or who may hereafter be permitted by Government to reside on the said land – nor with free thoroughfares and Outspans as heretofore used by the Public;- nor the rights and claims of the actual and bona fide subscribers of the

purchase Money of the Opstal of the Old Loan Places Hoorngat, and Twee Riveren both situated within the limits of this Land.

I further certify that the aforesaid persons entitled to vote are fully authorised, and they are hereby authorised accordingly;- either Individually or by their Corporals or Overseers as shall hereafter be from time to time decided by their regulations, to impound and claim damages for all trespasses committed on this Land by Non-Residents or their cattle or their other stock, and on allotted or regularly and properly occupied portions thereof by Residents contrary to the Regulations in like manner as in the case of private property.

Given under my Hand and the Public Seal of the Settlement, at Cape Town this Twenty second Day of May 1854,
By His Excellency's Command
(sgd) Charles Bell
Surveyor-General

(sgd) GEO. CATHCART
Governor

This Ticket of Occupation was drafted and submitted to His Excellency who approved of it and signed it. - Authority to issue it was received by Government letter of 31st May 1854.

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