

DISEASES AND DEVELOPMENT OF HEALTH SERVICES

AT ROAN ANTELOPE MINE IN LUANSHYA

DISTRICT OF ZAMBIA, 1928-1964

BY

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**A Dissertation Submitted to the University of Zambia in Partial Fulfilment
of the Requirements for the Degree of Master of Arts in History**

THE UNIVERSITY OF ZAMBIA

LUSAKA

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DECLARATION

I, **Mwanza Robert**, declare that this dissertation

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APPROVAL

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ABSTRACT

This study examines diseases and development of health services at Roan Antelope Mine which emerged on the swamps of Luanshya River in Luanshya and recorded high rates of morbidity and mortality, especially in its early years 1920s and early 1930s. The analysis shows that in the first two decades of mining, Roan witnessed diseases such as malaria, blackwater fever, pneumonia, typhoid and dysentery because of ecology, poor living and working conditions as well as mining operations. The study demonstrates that by the end of the 1930s, the disease landscape at Roan Antelope Mine had changed drastically with the emergence of industrial diseases such as silicosis and tuberculosis stimulated by phenomenal expansion in copper production during the Second World War. In the Federal era between 1953 and 1963, diseases of poverty such as smallpox, bilharzia, tuberculosis and Asiatic influenza became common in the African compounds at Roan Mine due to rapid migration and a rising number of unvaccinated people.

The study, therefore, concludes that the development of medical services at Roan Antelope Mine was conditioned by the transformation in disease patterns on the mine. It demonstrates that the ant-malarial campaign of 1929-1932 was the first scientific measure to be taken at Roan to combat ecologically-determined diseases. Having controlled malaria, the RST channelled health measures to controlling diseases of poverty. The study shows that during the Second World War, additional medical services emerged on the mine to combat industrial diseases with emphasis on preventive measures. This study observes that medical services at Roan became so modernised and effective that it was easy to combat infectious diseases like smallpox, bilharzia, typhoid and tuberculosis. The overall conclusion of this study is that by the time of Zambia's independence in 1964, the Roan Antelope Mine had developed effective medical services capable of treating and preventing diseases among African miners.

DEDICATION

I dedicate this work to my late parents, Grunny Mwanza and Martha Miti. I also dedicate it to my two beloved sons Robert Jr. and Benjamin.

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ABBREVIATIONS

BOMA	British Overseas Military Administration
DC	District Commissioner
DSW	Department of Social Welfare
MIA.....	Mining Industry Archives
NAZ	National Archives of Zambia
RST.....	Rhodesian Selection Trust
SRN.....	State Registered Nurse

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LIST OF PLACES

A. Names of Towns

Old	New
Broken Hill	Kabwe
Nkana	Kitwe
Salisbury	Harare

B. Names of Countries

Old	New
Congo Leopoldville/Congo Kinsansha/Zaire.....	Democratic Republic of Congo (DRC)
Northern Rhodesia	Zambia
Nyasaland.....	Malawi
Southern Rhodesia.....	Zimbabwe
Tanganyika.....	United Republic of Tanzania

CHAPTER ONE

INTRODUCTION

Historical Background

The mining industry on the Copperbelt Province of Zambia has for many years been the target of scholarly analysis because of its central position in the country's economy since the early 1920s. Scholars have documented the history of mining in terms of mobilisation of capital, African and European labour, the relationship between mining companies and the State and the influence of the mining industry on Zambian politics.¹ Some studies have further explored health challenges of African labour in terms of the cost minimisation and profit maximisation policies of mining companies on the Copperbelt and beyond.² However, these studies seldom investigate the evolution of medical services which mining companies developed in response to health challenges that threatened African miners' health on the Copperbelt.

Mining on the Copperbelt started long before the arrival of Europeans. The copper deposits in this area were probably first worked on when the Bantu arrived about 2000 years ago.³ These Africans brought with them the secrets of copper-smelting, an art that captured the attention of explorers and traders in the nineteenth Century. The Lamba people who occupied this area mined and smelted copper and cast it in bark mold. According to Bradley, "part of the copper was paid as tribute to chiefs and part of it was used as a form of exchange and ornaments like anklets, bracelets, tools like hoes, axes and ceremonial items."⁴

¹ Walima T. Kalusa, "Aspect of African Health in the Mining Industry in Colonial Zambia: A Case Study of Roan Antelope Mine, 1920-1964," MA Thesis: University of Zambia, 1993, p.7.

² Chipasha Chilufya Luchembe, "Finance Capital and Mine Labour. A Comparative Study of Copper Mines in Zambia and Peru, 1870-1980," PhD Thesis: University of California, 1982, p. 20.

³ Kenneth Bradley, *Copper Venture: The Discovery and Development of Roan Antelope and Mufulira*. (London: Company Publication, 1952), p. 64.

⁴ Bradley, *Copper Venture*, p. 64.

The copper deposits undoubtedly attracted Arab slave traders who traded with Chief Chiwala in the area before the coming of European administration at the beginning of the twentieth Century. Apparently, the focal point of the slave trade was a large tree in Ndola and now preserved as a national monument. Under this tree, the caravans were gathered before their arduous march to the coast. It is very clear that slaves were burdened with either smelted copper or malachite on the journey to the coast.⁵ However, between 1870 and 1890, pre-colonial mining on the Copperbelt was abandoned because of increased slave trading.⁶

The Copperbelt Province in Northern Rhodesia (now Zambia) lies 13° south of the equator and borders Katanga region of Democratic Republic of Congo. The province has a tropical climate and the vegetation is generally that of savannah shrubs and closed miombo woodlands with swampy evergreen patches near rivers. In general, the entire Copperbelt lies on high latitude of 1,219 metres above sea level and the heat of the sun, tempered by this latitude, is never extreme.⁷ The temperate climate of Ilamba-land features three distinct seasons. The rainy season marks the beginning of the field crop cycle between mid-November and mid-March. During the day time, temperatures range between 27° to 32° Celsius. The cultivating period with daily downpours is in December to February. Rain soaks the treeless dambo plains and floods the Luanshya, Kafubu, Kafulafuta and other rivers which run into the Kafue River.⁸ The cold season follows the rains sometimes in mid-March and lasts until August. Temperature warms up again by September when the leaves of miombo trees turn from red to green.

Given the windy clouds of the cold season and the dusty haze of the dry season, the most common physical complaints on the Copperbelt were respiratory infections, pneumonia and

⁵ Francis L. Coleman, *The Northern Rhodesia Copperbelt 1899-1962*. (Manchester University Press, 1971), p. 15.

⁶ Austine Bancroft, *Mining in Northern Rhodesia*. (London: British South African Company, 1961), p. 27.

⁷ Victor Brian Siegel, "Farmers or Gardens: Ethnicity and Enter and Enterprise on the Rural Zambia Copperbelt," PhD Thesis: The University of Wisconsin-Madison, 1983, p. 29.

⁸ Siegel, "Farmers or Gardens," p. 30.

malaria.⁹ Another environmentally-related disease was trypanosomiasis, carried by tsetse-flies. Earlier in the eighteenth Century, sleeping sickness killed domestic animals and even children in fly infested areas. This kind of ecology partly explains why some modern mines like Roan Antelope in Luanshya District experienced high morbidity and mortality rates in the formative years. The ecology stood as an obstacle to the development of modern mining which emerged in the twentieth Century precisely after the First World War.

Although this period witnessed the development of four major mines on the Copperbelt, namely Roan Antelope, Mufulira, Nchanga and Nkana, their development was critically hindered because of ecologically-determined diseases. The rising demand for production of cars, electrical infrastructure and the use of copper for conducting electricity after the Second World War spurred British and American investors to take keen interest in the Copperbelt mineral deposits.¹⁰ Elena Berger states that the rising copper prices induced Edmund Davis to look for more capital for his struggling Bwana Mkubwa Mine.¹¹ This prompted Alfred Chester Beatty, an American mining financier to acquire the Luanshya claims for his newly-floated Rhodesian Selection Trust (RST) in 1920 into which he incorporated Mufulira mine in 1927.¹² In 1924, Sir Ernest Oppenheimer, who founded the Anglo-American Corporation of South Africa in 1917, established the Nchanga Consolidated Copper Mines in 1931.¹³ Beatty and Oppenheimer pumped huge sums of money into their newly-acquired mines. For example, between 1923 and

⁹ Kenneth Bradley, *Copper Venture: The Discovery and Development of Roan Antelope and Mufulira* (London: Company Publication, 1952), p. 64.

¹⁰ Bancroft, *Mining in Northern Rhodesia*, p. 28.

¹¹ Elena L. Berger, *Labour, Race, and Colonial Rule: The Copperbelt from 1924 to Independence* (Oxford: Clarendon Press, 1974), p. 4.

¹² Epstein, *Politics in an Urban African Community*, p. 13.

¹³ J.F. Holleman, *White Mine Workers in Northern Rhodesia 1959-1960*. (Cambridge: African Studies Centre, 1973), p. 46.

1926, Beatty financed the initial exploration, prospecting and drilling programme at Roan Antelope Mine at a cost between £600,000 and £3,250,000.¹⁴

Among the four big copper mines on the Copperbelt, Roan Antelope, the richest, experienced serious health challenges that impeded the recruitment of miners in the formative years. The mine was discovered in an interesting way on the swamps of Lwayanshya River corrupted as Luanshya in 1902 by William Collier, a former prison warder, farmer and gold miner who was working for the Bechuanaland Exploration Company.¹⁵ William crossed the Zambezi River and reached a Lamba village in Luanshya where he met Nkonde the hunter who escorted him to the bush.¹⁶

While hunting along the wooded banks of the Luanshya River one evening, Collier saw roan antelopes grazing in a clearing in the forest. He stalked and shot one of the bucks. The animal fell across a rock stained green with copper.¹⁷ When Collier approached his kill, he found the curved horns of the antelope lying on a rock stained green with oxidised copper. Nearby, he found depressions from which malachite had been dug many years before.¹⁸ The reason for the clearing was that the outcrop of a copper ore body at this place prevented the growth of the trees. This site later became Roan Antelope Mine.

Sometimes referred to as the “garden town”, Luanshya’s environment was in the early years not healthy for both European and African miners’ settlement due to ecologically-determined diseases. Lyn Schumaker asserts that when the development of Roan Mine began in the early

¹⁴ Lewis Gann, “The Northern Rhodesia Copper Industry and the World 1923-1952,” *Rhodes- Livingstone Journal* 18 (1955), p. 4.

¹⁵ Bradley, *Copper Venture*, p. 65.

¹⁶ Bancroft, *Mining in Northern Rhodesia*, p. 27.

¹⁷ A.L. Epstein, *Politics in an Urban African Community*. Manchester: University of Manchester Press, 1958, 13.

¹⁸ Bradley, *Copper Venture*, p. 65.

1920s, health challenges threatened the recruitment of European and African labour. She argues that from 1927 to 1930, the mine experienced high morbidity and mortality rates which affected the recruitment of both European and African miners.¹⁹ In its first decade, Roan Antelope was affected by malaria and blackwater fever because it stood on the swamps of the Luanshya River which was infested with malarial mosquitoes. As the mine population grew, diseases of poverty such as typhus, dysentery, pneumonia and infectious diseases became common among African miners due to poor living and working conditions.²⁰ These afflictions were responsible for the constant shortage of labour and daily desertions of African workers in the developmental years of the mine. Due to high rates of morbidity and mortality, the mine was nicknamed the “Death Valley”. In 1928, the death rate for European miners alone was 22.4 per thousand and that for Africans 30.9 per thousand.²¹

With the outbreak of the Second World War, the disease pattern at Roan Antelope Mine changed. The increase in copper production stimulated by its demand during the war led to the rising of dust on the mine which in turn resulted in the emergence of industrial-related diseases.²² With African workers exposed to long working hours of work to increase productivity, fatal accidents similarly reached an alarming level at Roan Antelope Mine during the war. In the post-Second World War, diseases of poverty continued to affect African miners and their families because of overcrowding in the mine compounds.

During the Federal period 1953-1963, the mine experienced serious outbreaks of infectious diseases such as polio, smallpox, bilharzia and tuberculosis because of over population and

¹⁹ Lyn Schumaker, “Slimes and Death-Dealing Dambos: Water, Industry and the Garden City on Zambia’s Copperbelt.” *Journal of Southern African Studies* 34, 4 (2008), p. 823.

²⁰ Harold K. Hochschild, “Labour Relations in Northern Rhodesia,” *American Academy of Political and Social Science* 306 (1956), p. 43.

²¹ Schumaker, “Slimes and Death-Dealing Dambos,” p. 824.

²² D. D. Irwin, “Early Days on the Copperbelt,” *Northern Journal of History* 1, 6 (1965), p. 110.

increase in migration of people to Roan Mine.²³ The increased number of Africans who were not employed by RST in the compounds became a source of diseases because they were not vaccinated. Over population also led to increased vending in the African compounds. Thus, sometimes compromised in sanitation and caused diseases of alimentary canal. Tuberculosis alone affected many people on the Copperbelt and rural areas due to repatriation of miners who contracted the disease on the mine. In response to these diseases, RST found it necessary to invest in medical services for African miners, as demonstrated in subsequent chapters.

This study, therefore, focuses on the development of health services at Roan Antelope Mine which recorded the highest rates of morbidity and mortality in the first two decades of industrial mining in colonial Zambia.²⁴ The study argues that the development of medical services at Roan Antelope was influenced by fluctuations in disease patterns on the mine. The study reveals that the Rhodesian Selection Trust, the group that owned the mine, initially adopted curative measures as part of their cost minimisation strategies towards African labour. The RST initially tried to deal with the high incidence of diseases at Roan Antelope Mine by exploiting African beliefs about disease and medicine. To this end, the mine owners undertook the exorcism of the Luanshya River which Africans believed harboured a mythical snake which they credited for the high mortality and morbidity in the first years of the mine.²⁵

However, the exorcism of *sanguni* proved to be a sheer waste of time because diseases kept on afflicting miners at Roan. This prompted the mine owners to search for modern and expensive medical solutions against malaria and other diseases towards the end of the 1920s. The mine instituted a vigorous anti-malaria campaign between 1929 and 1932. During this period, there was a serious transformation in the mine's land and water which brought malaria under control.

²³ Schumaker, "Slimes and Death-Dealing Dambos," p. 824.

²⁴ Schumaker, "Slimes and Death-Dealing Dambos," p. 824.

²⁵ Schumaker, "Slimes and Death-Dealing Dambos," p. 824.

With the defeat of malaria in the early 1930s, the RST channelled health services to preventing and curing diseases caused by poor living and working conditions among African miners. The study demonstrates that through such measures, the RST succeeded in improving the health of African miners at Roan Mine.

During the Second World War, additional health services emerged at Roan Antelope Mine to combat industrial diseases which became common due to intensification of dust caused by increased copper production. The study also argues that during the war, the RST began to provide preventive measures through the inauguration of clinics in sections, provision of health education, feeding programme and training of African nurses to increase the muscle of health personnel. The rise of industrial diseases forced the colonial government also to take keen interest in the health of both African and European miners.²⁶

In the Federal era, clinics in compound sections and the African hospital were instrumental in combating infectious diseases such as smallpox, polio, bilharzia, Asiatic influenza and typhoid. The study reveals that the rising African politicians and trade unions during the Federation forced RST to expand and modernise medical services for African miners.²⁷ The study therefore documents the evolution of medical services at Roan Antelope Mine that developed following the transformation in disease patterns.

Study Area

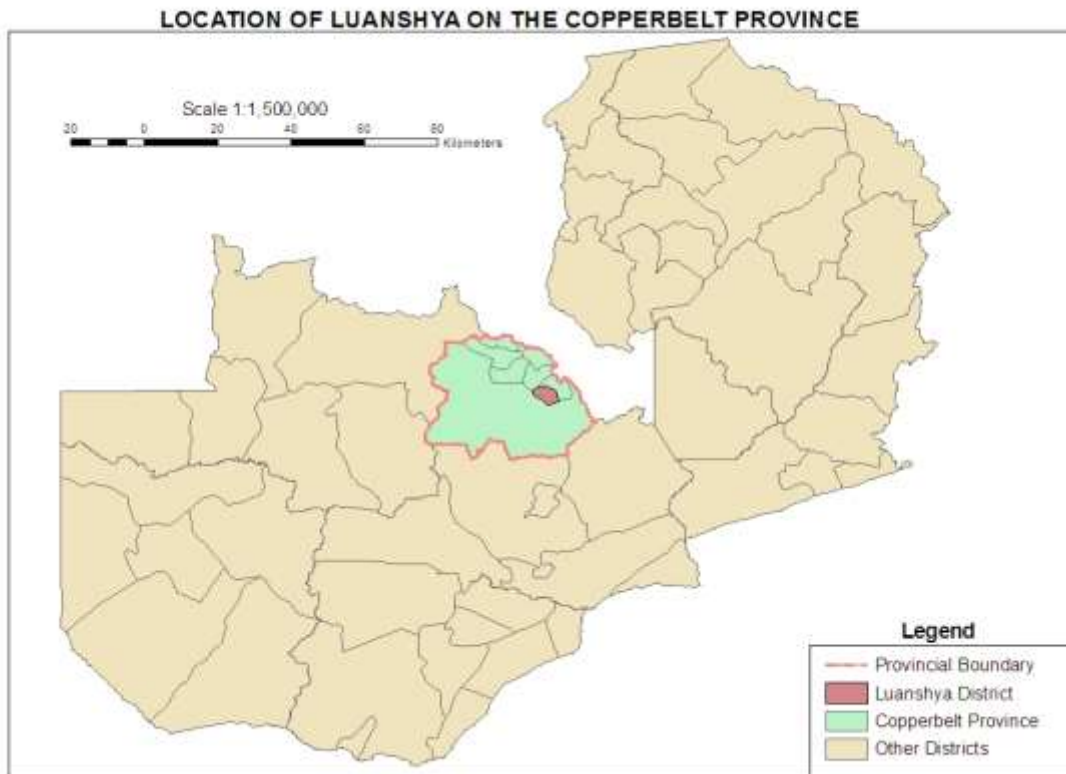
This study focused on Roan Antelope Mine in Luanshya District on the Copperbelt Province of Zambia. During the period from 1928 to 1964, the Copperbelt Province had five districts: Ndola, Kitwe, Luanshya, Chingola and Chililabombwe. Map I shows the Copperbelt Province and the location of Luanshya District. Map II shows the Roan Antelope Mine and surrounding areas such

²⁶ Hochschild, *Labour Relations in Northern Rhodesia*, p. 44.

²⁷ Hochschild, *Labour Relations in Northern Rhodesia*, p. 44.

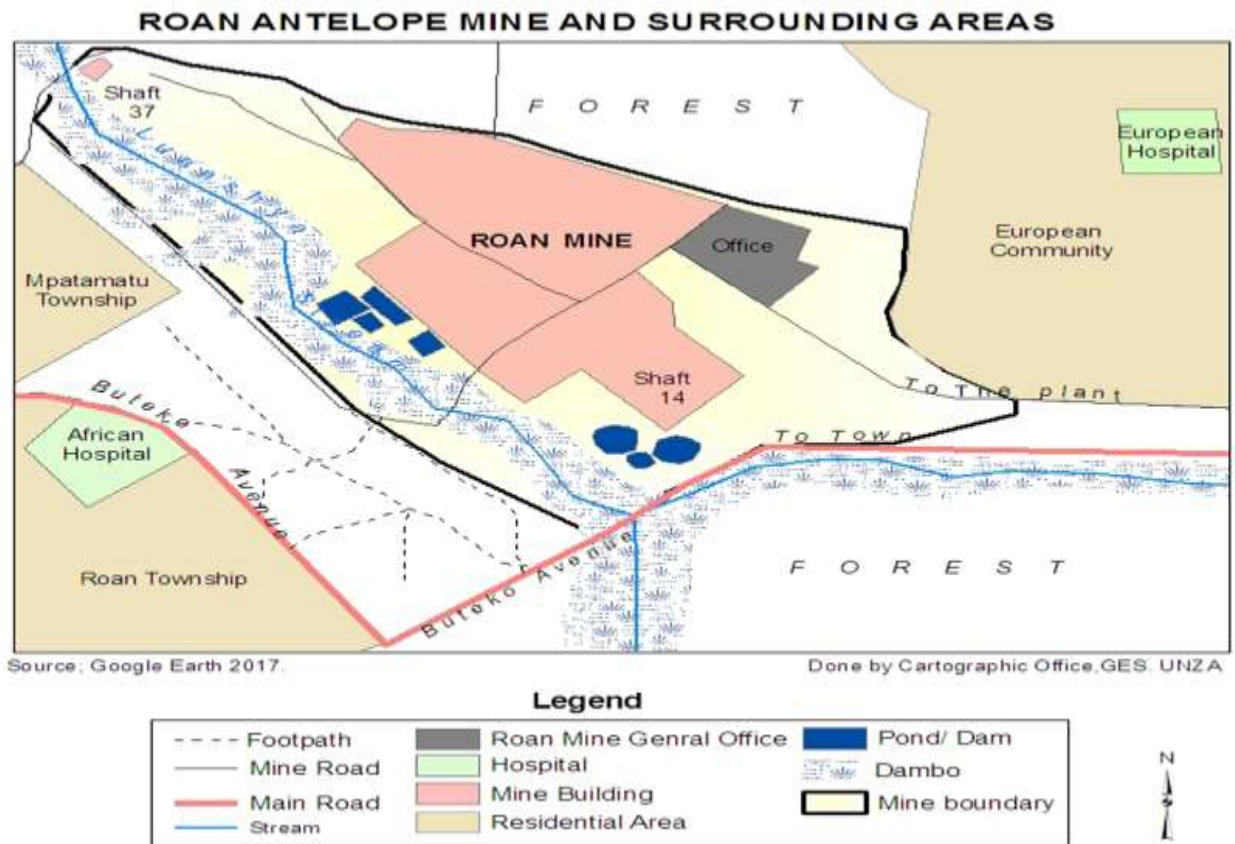
as the Luanshya River, dambo, European houses, Roan Hospital, Mpatamatu Township, Roan Township and European Hospital.

Map I



Source: Google Earth 2017

Map II



Source: Google Earth 2017

Statement of the Problem

A large body of literature on the Copperbelt deals with discovery of copper deposits, the development of mines, the influence of the mining industry on Zambian politics and the mobilisation of capital and labour that led to the opening up of the mines in the area. There is also a small body of literature notably Walima Kalusa, Chipasha Chilufya Luchembe, Charles van Onsleen, Robert Ian Phimister, Randall Packard, among others, that explores health challenges of African labour in terms of cost minimisation and profit maximisation policies pursued by mining companies on the Copperbelt and beyond. However, hardly does this literature explore in detail the miners' health problems and how the mines on the Copperbelt

confronted them to protect workers' health. There is thus insufficient scholarly work on the Copperbelt on how health services developed in response to diseases that afflicted African miners.

This study sought to bridge this gap in Zambia's mining history by analysing the medical services that the RST established to overcome diseases and afflictions in the African mining community between 1928 and 1964.

Objectives

The main objective of the study is to analyse the development of medical services at Roan Antelope Mine from 1928 to 1964. The specific objectives of the study are:

1. To identify major diseases and health challenges at Roan Antelope Mine, 1928 -1964
2. To discuss how health services developed at Roan Antelope Mine overtime
3. To explore the impact of the colonial politics on the development of health services at Roan Antelope Mine.

Rationale

This study sought to bridge the historical gap on mining in Zambia by analysing health measures established at Roan to overcome diseases that threatened the wellbeing of the mine. In this way, the study sought to stimulate scholarly research and interest in mine medical services that have long been neglected by historians on the Zambian Copperbelt.

Literature Review

There is abundant literature on the Copperbelt because of the important role mining has played in the economic sector of the country since 1920. Some of these studies have documented the history of mining in terms of mobilisation of mining capital and African and European labour.

Other studies have focused more on the relationship between mining companies and the colonial government.²⁸ In addition, other studies have tended to pay much attention to the influence of the mining industry on Zambian politics.²⁹ Despite the fact that these studies are useful in documenting the history of mines, they seldom shade light on the health challenges that afflicted African and European miners on the Copperbelt.

Although there is a small body of enquiries that explore health challenges of African labour on the Copperbelt and central Africa at large, scholars hardly shade light on the evolution of medical services that emerged in the mining area. This study, therefore, bridges the gap in Zambia's mining history by discussing the evolution of health services at Roan Antelope in the context of changing disease patterns in the African community at Roan Mine between 1928 and 1964.

The earliest studies on copper mines and diseases in central Africa were done by colonial anthropologists, administrators, historians and medical doctors. These scholars collectively insist that medical services provided by mining companies in southern and central Africa were superior and there by insulated Africans from diseases. Their works show that before colonial rule, no modern health facilities existed in the region. They contend that mining companies inaugurated modern townships, provided health services, cleared the mining areas of malaria and constructed hospitals and trained medical personnel.³⁰ Their arguments clearly illuminate the present study by documenting medical services provided by mine owners in response to the diseases that threatened the development of mines on the Copperbelt. The studies in question argue that

²⁸ Hochschild, "Labour Relations in Northern Rhodesia," p. 44.

²⁹ David Cole, "Role and Labour Relations Mix-Up," *Africa Today* 4, 4 (1957), p.3;

³⁰ Hochschild, "Labour Relations in Northern Rhodesia," p. 44; Lewis Gann and Peter Guignan, *Burden of Empire*. (London: Pall Mall Press, 1968)

mining companies changed the face of the Copperbelt, in particular Luanshya, from an ancient to a modern town with excellent health facilities.³¹

L. Prain argues that mining companies created amenities and facilities for both European and African employees unequalled in the mining industry elsewhere.³² Holleman similarly argues that the mines provided good houses which were equipped with water-borne sewerage, electric lighting and adequate medical facilities not unlike those provided for workers in Britain.³³ This point is reinforced by Davis Merle who asserts that it was in the interest of mining owners to provide conditions and medical facilities that insulated African workers from diseases. Mining industrialists, medical experts and government officials worked hard to improve the health and welfare of their workers.³⁴ Merle further argues that although Africans were susceptible to pneumonia, bronchitis, influenza and spinal meningitis, the mines put in medical measures to protect the workers from these diseases.³⁵

Michael Gelfand, another scholar writing from imperial point of view, places emphasis on the efforts of colonial authorities in combating ecologically-determined diseases, notably malaria.³⁶ He asserts that the central African ecology gave frontier doctors a tough problem although quinine was a treatment for the malaria. Gelfand attributes the control of malaria as a whole to European medical science and efficient colonial administration.

³¹ Hochschild, "Labour Relations in Northern Rhodesia," p. 45; Lewis Gann, *Central Africa: The Former British States* (Eaglewood Cliffs: Prentice Hall, 1971); Lewis Gann, *A History of Northern Rhodesia Early Days to 1953*. (London: Ghatto, 1964)

³² Prain, L.R. "The Copperbelt of Northern Rhodesia", *Journal of the Royal Society of Arts* 103, 4945 (1955), p. 197.

³³ Holleman, J.F. *White Mine Workers in Northern Rhodesia 1959-1960*. (Cambridge: African Studies Centre, 1973), 7.

³⁴ Davis Merle, J. *Modern Industry and the African*. (London: Frank Cass & CO. Ltd), 23.

³⁵ Merle, *Modern Industry and the African*, 23.

³⁶ Michael Gelfand, *Lakeside Pioneers, Socio-Medical Study of Nyasaland 1875-1920*. (Oxford: Basil Blackwell, 1964), 17.

Lewis Gann, likewise, maintains that colonialism brought with it improved health for Africans.³⁷ According to Gann, the British government and mining companies ensured that African employees in the empire enjoyed good health in order to maximise the production of raw material.³⁸ To this end, Gann and Guignan attempt to demonstrate that mining companies in southern Africa introduced superior medical knowledge and technology which improved the health of Africans in general and labour in particular. They conclude that colonialism's best gift to Africans lay in the provision of medical services to the colonised.³⁹

Although colonial scholars' studies give the present study a foundation on which to understand the development of medical services in Africa, their arguments have a lot of shortcomings. The scholars praise colonial administration on the provision of health services without discussing the causes of diseases within the African community. Even though malaria, which claimed thousands of both Europeans and Africans, has received much medical attention, the scholars rarely investigate diseases caused by poor living and working conditions at the mines and what medical services were developed to counter such diseases.

Colonial scholars avoid associating diseases of poverty with poor living and working conditions inflicted on the miners. Instead, they blame Africans for having weak immune systems and accused them of shunning medical services provided by mining companies. In eulogising mining companies as having provided good medical care to African workers, these writers fall short of demonstrating that medical services were chiefly provided to Africans because companies saw them as a source of diseases that threatened the Europeans and that mining capital needed labour.

Colonial writers were apologists of colonial rule who hardly explored the interface between capitalist policies of cost minimisation on the one hand, and profit maximisation on the other

³⁷ Lewis Gann, *Central Africa: The Former British States* (Eaglewood Cliffs: Prentice Hall, 1971), p. 23; Lewis Gann, *A History of Northern Rhodesia Early Days to 1953*. (London: Ghatto, 1964).

³⁸ Gann, "The Northern Rhodesia Copper Industry and the World 1923-1952," p. 5; Gann, *Central Africa*, p. 24.

³⁹ Lewis Gann and Peter Guignan, *Burden of Empire*. (London: Pall Mall Press, 1968), 230.

hand, and diseases that afflicted African miners. Their arguments portray imperial rule as having brought civilisation to Africa. This study avoids this limitation by showing how mining conditions at Roan Mine were at the centre of diseases of poverty that were rampant in the African community.

Scholars operating within the paradigms of political economy such as Chipasha Chilufya Luchembe, Charles Van Onselen, Randall Packard, Walima Kalusa and Ian Robert Phimister challenge colonial historians. Unlike the latter, these academics maintain that poor health within the mining industry in colonial southern Africa was the consequence of the policy of cost minimisation and profit maximisation under which mine owners invested little in African housing, diet, sanitation and working conditions.⁴⁰

Writing about Luanshya Mine, Kalusa for example, insists that the provision of poor housing and diet to African workers and inadequate sanitation resulted in high morbidity and mortality rates in the African mine community.⁴¹ Kalusa argues that disease patterns were profoundly influenced by the ecology and environment in which the Roan Antelope Mine stood and by bad conditions to which African workers and their families were subjected.⁴² The argument is that the RST provided African workers with poor medical services, inadequate accommodation, and poor diet to reduce cost on labour.⁴³

This approach to diseases and medical services in the mining industry is useful to the study because it illuminates health challenges that menaced African health in central and southern Africa. Kalusa's study at Roan Antelope Mine in Luanshya is useful to the present study because

⁴⁰ Walima T. Kalusa, "Aspect of African Health in the Mining Industry in Colonial Zambia: A Case Study of Roan Antelope Mine, 1920-1964," MA Thesis: University of Zambia, 1993, p.21.

⁴¹ Kalusa, "Aspect of African Health in the Mining Industry in Colonial Zambia," p.21; George Chauncey, "The Focus of Reproduction: Women's Labour in the Zambian Copperbelt, 1927-1953," *Journal of Southern African Studies* 7, 2 (1981), p. 135.

⁴² Kalusa, "Aspect of African Health in the Mining Industry in Colonial Zambia," p.21.

⁴³ Kalusa, "Aspect of African Health in the Mining Industry in Colonial Zambia," p. 23.

it provides the health background behind which RST provided medical services to African labour. However, Kalusa's study hardly investigates the dynamics that underlined the development of health services at Roan Antelope Mine, a short coming that the present study seeks to re-address.

Kalusa's views are shared by Randall Packard who asserts that the development of the gold mining industry in South Africa at the end of nineteenth century had a dramatic impact on patterns of sickness and health challenges within southern Africa as a whole.⁴⁴ Packard argues that the mining industry had a serious impact on the health of African labour because mine owners avoided huge expenditure on medical services. On the contrary, they saw African ill-health as a product of inexperience with the conditions of mine employment and accused them of general ignorance of basic sanitation and health practices.⁴⁵ Packard's contention is that tuberculosis spread fast in the compounds because the mine owners did not provide preventive measures against the diseases. To avoid huge expenditure, mine owners repatriated tuberculous Africans to their home villages. This situation led to the spread of the disease in rural areas.

Packard's work is useful to this study because it explores the curative measures that mines undertook to reduce cases of tuberculosis among Africans. However, Packard pays little attention to preventive measures employed by the mine owners in South Africa. This study avoids this limitation by discussing the preventive measures that the RST enacted against industrial diseases at Roan Mine.

Other scholars writing from the paradigm of political economy are Samuel Takarinda Agere, Phimister and van Onselen who collectively insist that health services were provided to African

⁴⁴ Packard M. Randall, "Tuberculosis and the Development of Industrial Health Policies on the Witwatersrand 1902-1932." *Journal of Southern African Studies* 13, 1 (1986), p. 187; Packard M. Randall, *White Plague, Black Labour: Tuberculosis and the Political Economy of Health and Disease in South Africa*. (Pietermaritzbury: University of Natal Press, 1990), p. 3.

⁴⁵ Randall, "Tuberculosis and the Development of Industrial Health Policies", p. 188.

miners because diseases threatened both the security of labour supplies and the health of European workers and their families.⁴⁶ Agere argues that public health preventive measures had to be extended to Africans around European settlement for fear of the diseases spreading to these colonial agents.⁴⁷

Phimister points out that the mine owners did not want to incur much expenditure on African labour in Southern Rhodesia.⁴⁸ As long as cheap labour was guaranteed, the mining industry did not see need for large scale expenditure on medical care. Health services were only improved as conditions became worse and as deaths were rising.⁴⁹ Thus, the fundamental reason for the provision of health services was to keep workers at work and protect Europeans. This was because there was a danger of epidemic diseases like smallpox and infectious diseases spreading to the European community.⁵⁰ Van Onsleen postulates that poor living and working conditions among African miners were the reasons for high morbidity and mortality rates in the mines.⁵¹ He also emphasises that health services were extended to African miners because mine owners wanted to maintain a healthy labour force for production and to protect the European community from infectious diseases.⁵²

The works by Phimister, Agere and Van Onsleen are very important to the present study because they discuss the policies that escalated diseases in African compounds. They also give reasons why medical services were extended to African miners and their families. However, these

⁴⁶ Samuel Takarinda Agere, *Political Economy of the Health Care Delivery System in Zimbabwe*, PhD Thesis: Saint Louis University, 1980, p. 67; Ian Robert Phimister, "History of Mining in Southern Rhodesia to 1953," PhD Thesis: University of Rhodesia, 1975; Charles Van Onselen, *Chibaro: African Mine Labour in Southern Rhodesia 1900-1933* (London: Pluto Press, 1976)

⁴⁷ Agere, *Political Economy of the Health Care Delivery System in Zimbabwe*, p. 68; Charles Van Onselen, "Black Workers in Central African Industry: A Critical Essay on the Historiography and Sociology of Rhodesia." *Journal of Southern African Studies* 1, 2 (1975).

⁴⁸ Ian Robert Phimister, "History of Mining in Southern Rhodesia to 1953," PhD Thesis: University of Rhodesia, 1975, p. 35.

⁴⁹ Phimister, "History of Mining in Southern Rhodesia to 1953," p. 36.

⁵⁰ Phimister, "History of Mining in Southern Rhodesia to 1953," p. 36.

⁵¹ Charles Van Onselen, *Chibaro: African Mine Labour in Southern Rhodesia 1900-1933* (London: Pluto Press, 1976), p. 86.

⁵² Van Onselen, "Chibaro," p. 86.

scholars fail to discuss in detail the medical services mine owners provided to combat diseases which initially hampered the development of the mines in Central Africa.

Luchembe argues that at Roan Antelope Mine, health facilities were geared towards mine production. In the formative years of the mine, children and women received virtually no medical attention.⁵³ Luchembe shows that out of all the diseases that afflicted African miners, silicosis received greater attention because it was immediately traceable to the working conditions.⁵⁴ Other diseases like pneumonia, tuberculosis, diarrhoea, typhoid and dysentery were usually blamed on the miners' lack of immunity or living habits.

However, Luchembe hardly investigates shifts in the disease land-scape and the evolution of health services at Roan Antelope Mine. He does not show how medical services developed at the mine from the early years to 1964. His study does not discuss how the mine instituted medical services against diseases and built a modern medical care system for Africans at Roan Antelope Mine.

In the same fashion, Chibesa Ng'ambi writing on Kabwe Mine asserts that the prevalence of malaria, pneumonia, dysentery, influenza, venereal diseases and other health challenges was precipitated by different dynamics such as ecology, labour migration and poor working and living conditions. Ng'ambi further argues that the presences of industrial diseases such as tuberculosis and zinc poisoning at the mine were induced by increased production of zinc and lead during the Second World War and Korean War in 1950s.⁵⁵

⁵³ Chipasha C. Luchembe, "Finance Capital and Mine Labour: A Comparative Study of Copper Mines in Zambia and Peru, 1870-1980," PhD Thesis: University of California, 1982, p. 267.

⁵⁴ Luchembe, "Finance Capital and Mine Labour," p. 268; Jane Barbara Parpart, "Labour and Capital on the Copperbelt: African Labour Strategy and Corporate Labour Strategy in the Northern Rhodesian Copper Mines 1924-1964," PhD, Thesis: University of Microfilms International, 1981; Karen Jochelson, "Women Migrancy and Morality: A Problem of Perspective," *Journal of Southern African Studies* 21, 2 (1995), p. 324; Karen Tranberg Hansen, "Negotiating Sex and Gender in Urban Zambia," *Journal of Southern African Studies* 10, 2 (1984).

⁵⁵ Chibesa Ng'ambi, "A Medical History of African Mine Workers at Kabwe Mine, 1904-1964". MA Thesis: University of Zambia, 2016, p. 98; Julia Ann Laite, "Historical Perspectives on Industrial Development, Mining and

Ng'ambi's arguments are useful to the current study because they bring out different dynamics which caused diseases at Kabwe Mine. However, the study fails to show how the mine owners developed health services to overcome diseases. The scholar mentions the medical services in passing without going into detail.

The present study, therefore, seeks to rectify this omission by documenting how shifts in the disease pattern at Roan Antelope conditioned the development of health services at the mine. The study shows that the first medical services at Roan were channelled to dealing with ecological diseases, notably malaria. This was followed by health services that were intended to combating diseases of poverty such as pneumonia, typhoid, dysentery and infectious diseases. The study reveals that during the Second World War from 1939 to 1945, there were major improvements in the health department to increase the efficiency of mining labour. The RST erected clinics in the African compounds and trained African nurses to increase the number of health personnel as a way of putting preventive measures in place. In the post-war and federal periods, medical services were further developed to deal with diseases of poverty notably bilharzia, small pox, polio, typhoid and tuberculosis caused by over-crowding in the compounds and migration. The study shows that in the Federal era, the RST established modern health facilities unequalled by other mining companies on the Copperbelt.

Methodology

The data which forms this study is derived from published and unpublished works as well as oral evidence. The data was collected in three phases between August 2016 and May 2017. The initial phase involved consultation of primary and secondary sources in the University of Zambia Main Library. These ranged from published to unpublished annual reports of various government

Prostitution," *The Historical Journal* 52, 3 (2009); Andrew Chiponde Seleman Mushingeh, "A History of Disease and Medicine in Botswana, 1820-1945," PhD Thesis: University of Cambridge, 1984.

departments, parliamentary debates and testimonies of African miners. The information obtained from these documents was collaborated by data from secondary sources which included both published and unpublished articles, books, seminar papers and dissertations stocked in the Special Collection of the University of Zambia Library.

Phase Two of the research constituted archival research at the National Archives of Zambia, Lusaka. There, I examined government documents including letters between government officials and mine managers, newspapers, annual medical reports and relevant books. These helped in understanding government's stance on matters that affected miners' health at large in the mining industry.

The third phase of the research took place on the Copperbelt itself. This involved extensive reading of mine documents at the Mining Industry Archives (MIA), formerly known as Zambia Consolidated Copper Mines (ZCCM) Group Archives in Ndola. The files of the former Rhodesian Selection Trust and those of the Chamber of Mines were consulted. The target was to collect information on company policies on labour, activities of African clinics and hospital, training of nurses, the health of the labour force and its dependent population.

In addition, oral data was gathered. The process of oral data collection involved recording formal interviews and unrecorded informal discussions with interviewees connected to mining at Roan in the past. The informants were retired miners or those who were dismissed, ex- mine policemen, ex-medical orderlies and ex-nurses. Oral data was also collected from the offspring of ex-miners, mine orderlies, and Dr. Charles Fisher, the most celebrated colonial medical doctor on the Copperbelt who worked at Roan Mine for 22 years. The interviews with these informants were conducted in Roan and Mpatamatu townships in Luanshya. The information obtained sheds light on the medical services that clinics at Roan offered to Africans. The data collected from the interviews was cross-checked with that obtained from secondary sources.

Organisation of the Study

The study consists of six chapters. Chapter One is the introduction to the study. Chapter Two is an overview of the diseases at Roan Antelope Mine from 1928-1964. Chapter Three investigates medical services provided by the RST in the first decade of the mine to combat ecologically determined and diseases of poverty from 1928 to 1939. Chapter Four discusses medical services geared to deal with industrial diseases which became common due to increased copper production during the Second World War. Chapter Five documents health services in the Federal era, which were directed to combat infectious diseases such as small pox, polio, bilharzia, Asiatic influenza, tuberculosis and typhoid. Chapter Six is the conclusion of the study.

CHAPTER TWO

DISEASES AND HEALTH PROBLEMS AT ROAN ANTELOPE MINE: AN OVERVIEW, 1928-1964.

Introduction

This chapter attempts to investigate major health challenges that affected both African and European miners in order to provide a background against which the development of health services is discussed in subsequent chapters. The chapter shows that ecologically-determined diseases, especially malaria and blackwater fever, exacted a heavy toll on miners' health in the early years of the mine. The chapter further reveals that pneumonia, dysentery, typhoid and other diseases of poverty were rampant during the same period because of poor living and working conditions to which African workers were subjected.

The chapter argues that during the Second World War, the disease landscape at Roan Antelope Mine changed drastically with the emergence of industrial diseases, namely silicosis and tuberculosis, due to increased dust in mine operations. The chapter reveals that after the Second World War, diseases of poverty continued to affect African miners and their families because of overcrowding and other poor conditions in the mine compounds. Finally, the chapter demonstrates that infectious diseases such as polio, small pox, bilharzia and tuberculosis continued to affect Africans at Roan Antelope Mine in the Federal period because of the increased number of unvaccinated people and increase in migration to the mine.

Diseases of Ecology (Malaria and Blackwater Fever)

Roan Antelope Mine developed on the swamps of the Luanshya River. The ecology of this area did not support the settlement of people, both Europeans and Africans as it was infested with malarial carrying-mosquitoes. As shown in Map II in Chapter One, the Luanshya River passed

through the mine. This area, together with African and European townships, was covered with dambo.¹ In the early years of the mine, the area was a serious breeding ground for malarial mosquitoes giving early doctors a tough time although quinine was used as treatment for the disease.² The mine became a dangerous place to visit or work at for both European and African miners. The recruitment of miners in the formative years was always threatened because of high death rate caused by malaria.³

Malaria was a chief determinant of high mortality and morbidity rates in the Central African region as a whole. At Roan Antelope Mine in particular, it killed a good number of early African workers and Europeans in the late 1920s and early 1930s.⁴ The high cases of malaria in both European and African miners seriously threatened the development of the mine. In general, the mine's ecology posed serious health challenges to people.⁵

Malaria is a preventable disease, but the amount of protection against infection which can be secured for an individual or a community depends on the habits and prosperity of the individual or the community and the nature of the area in which they reside.⁶ The disease is carried only by the bite of a particular kind of mosquito which has previously bitten a person infected with the disease. Therefore, the preclusion of malaria depends on the protection of human beings from the bites of this mosquito.⁷

¹Victor Brian Siegel, "Farms or Gardens: Ethnicity and Enterprise on the Rural Zambian Copperbelt," PhD Thesis: University of Wisconsin-Madison, 1983, p. 29.

² Michael Gelfand, *Lakeside Pioneers, Socio-Medical Study of Nyasaland 1875-1920* (Oxford: Basil Blackwell, 1964), p. 232.

³ Lyn Schumaker, "Slimes and Death-Dealing Dambos: Water, Industry and The Garden City on Zambia's Copperbelt." *Journal of Southern African Studies* 34, 4 (2008), p. 824.

⁴ Charles A. Fisher, "40 Years of on the Copperbelt," *Horizon* 11, 12 (1969), p. 4; L. M. Rodger, "The Development of Medical and Health Services at the Roan Antelope," *Northern Rhodesian Journal* 5 (1962-1964), p. 135; Kenneth Bradley, *Copper Venture: The Discovery and Development of Roan Antelope and Mufulira* (London: Company Publication, 1952).

⁵ Schumaker, "Slimes and Death-Dealing Dambos," p. 824;

⁶ Malcolm Watson, "Malaria and Nutrition in Africa," *Journal of the Royal African Society* 36, 145 (1937), p. 405.

⁷ National Archives of Zambia/MH1/4/1/3215, Mosquito Control General, 1929-1953.

In Central Africa, two species of anopheles mosquitoes recognised as the chief carriers of malaria are *A. Funestus* and *A. Gambiae*.⁸ At Roan Antelope Mine, the breeding places of *A. Gambiae* mosquitoes were African wells which were overgrown with grass, open unshaded pools in brick fields, pools in a rock outcrop near the Kafue River and in water tanks. The breeding places for *A. Funestus* mosquitoes were the shaded banks of streams and swamps, such as dambos and neglected African wells during the dry season.⁹

Malaria was the greatest enemy which threatened the lives of both African and European miners at Roan Antelope Mine.¹⁰ The disease impeded the development of the mine as it was difficult to obtain both skilled and unskilled labour. Lyn Schumaker argues that “from 1927 to 1930, Roan Antelope Mine suffered a high death rate, which affected the recruitment of both European and African miners.”¹¹ Malaria was thus one of the major reasons responsible for the constant shortage of labour and daily desertions of African workers at the mine. The death rate for Europeans was 22.4 per thousand and 30.9 for Africans in 1928.¹² This was a big challenge to the mine management as their injection of huge sums of money needed both European experts and African workers.¹³

To protect European employees, the RST installed in their houses mosquito-proof windows. This single measure was probably instrumental in enabling the settlement of Europeans in Luanshya to take a firm root though almost half of the European population suffered from malaria in the wet season of 1929-1930.¹⁴ Across the Luanshya River next to the plant site, there were African

⁸ MIA/Box 13/ 15.1.5A, Report on Anti-Malarial Work, November 1929 to January 1931.

⁹ Malcolm Watson, *African Highway: The Battle for Health in Central Africa* (London: John Murray, 1953), p. 4.

¹⁰ Mining Industry Archives/Box 12/10.8.2A, Malaria Control, Prevention and Treatment, 1929-1953. F. Spearpoint, “The African Native and the Rhodesian Copper Mines,” *The Royal African Society* 36, 144 (1937), pp. 3; Austine Bancraft, *Mining in Northern Rhodesia* (London: British South African Company, 1961).

¹¹ Lyn Schumaker, “Slimes and Death-Dealing Dambos: Water, Industry and The Garden City on Zambia’s Copperbelt,” *Journal of Southern African Studies* 34, 4 (2008), p. 824.

¹² Schumaker, “Slimes and Death-Dealing Dambos,” p. 824; Davis J. Merle, *Modern Industry and the African* (London: Frank Cass &Co Ltd, 1967), p. 17.

¹³ D. D. Irwin, “Early Days on the Copperbelt,” *Northern Rhodesia Journal of History* 1, 6 (1965), p. 110.

¹⁴ MIA/Box 90/16.2.6F, Publicity, Copper Mining Industry, February 1930-June 1947.

townships with small houses close to communal wash slabs and sanitary facilities. The location of African miners' compound explains why African workers and their families were more vulnerable to malaria than Europeans.¹⁵

Africans associated the high rates of mortality and morbidity to a monstrous mythical snake which they believed dwelt in the Luanshya River. This caused fear in African miners that desertion became the order of the day at the mine. Francis Spearpoint, the Roan Compound Manager, points out that the Lamba people contributed to the desertion problem by circulating stories about the *fuukwe*, or *sanguni*, the monstrous mythical snake which according to the legends it inhabited the Luanshya River. The Lamba people held the *sanguni* accountable for the deaths on the site.¹⁶ The story about this legendary snake was first recorded in 1902 when prospector William Collier was searching the area for copper.¹⁷

The *sanguni* rumour had a sombre impact on the recruitment of African labour in the 1920s when the operations on the mine began.¹⁸ In 1928, recruitment nearly came to a standstill when a survey assistant Joseph Zyambo from Northern Nyasaland drowned in the Luanshya River.¹⁹ Africans began to avoid the mine, attributing the death to a snake spirit inhabiting the river. This became a serious matter to handle because Africans did not associate any deaths at Roan to malaria, typhoid or pneumonia, but the snake. Although the mine owners knew the causes of diseases at Roan Antelope, they tried to exploit African beliefs about diseases as a strategy to avoid huge expenditure on medical services as shown in Chapter Three.

¹⁵ "Rhodesia Selection Trust Looks Back on 40 Years," *Horizon* 6 (1964), p. 18; A.L. Epstein, *Politics in an Urban African Community* (Manchester: University of Manchester Press, 1958).

¹⁶ Irwin, "Early Days on the Copperbelt," p. 110; Spearpoint, "The African Native and the Rhodesian Copper Mines," p. 5.

¹⁷ MIA/Box 90/16.2.6F, Publicity, Copper Mining Industry.

¹⁸ MIA/Box 90/16.2.6F, Publicity, Copper Mining Industry.

¹⁹ Schumaker, "Slimes and Deaths-Dealing Dambos," p. 824.

According to Spearpoint:

Most remarkable stories were told of *sanguni* throughout the districts and the shape of the snake, its colour, activities, methods of killing, frequency of visits at various points of the Luanshya River and the reasons for its visits. The killings took as many forms as the changeable imaginations of the Africans could conjure up.²⁰

Any death, whether through accidents or sickness, was counted as another victim of the snake and each fresh story would result in desertions. The Roan Antelope Mine certainly started off with a very serious handicap right at the beginning, as it took several years to get rid of the snake myth and during that time, it was next to impossible to induce Africans to work.²¹

On the contrary, the table below clearly shows that the proclaimed snake had nothing to do with the health problems at the mine. The table shows that malaria was the greatest killer of miners at Roan Antelope Mine in the 1920s. When malaria was medically controlled, the death rates drastically reduced in the subsequent years as shown in the table. The table shows that in the late 1920s and early 1930s, malarial cases at Roan Antelope Mine were very high for both European and African miners because the swamps near the mine were still a breeding ground for mosquitoes. After 1934, malarial cases started reducing although the mine was confirmed to be affected by diseases of poverty because of poor living and working conditions among African miners.

²⁰ Spearpoint, "The African Native and the Rhodesian Copper Mines," p. 8.

²¹ Spearpoint, "The African Native and the Rhodesian Copper Mines," p. 9.

Table I **Malarial Death Rate per 1000, 1929-1948**

Year April 1929 to March 1930	Europeans	Africans
1930	22.4	32.3
1931	6.4	15.8
1932	12.5	8.5
1934	10.4	12.9
1935	1.7	5.3
1936	5.7	4.6
1937	5.7	6.4
1938	6.1	4.9
1939	6.2	3.4
1940	NIL	2.2
1941	3.2	3.6
1942	7.7	3.1
1943	3.5	4.2
1944	5.5	5.4
1945	4.1	4.2
1946	1.98	2.01
1947	4.45	3.9
1948	4.84	3.45

Source: Watson Malcolm, *African Highway: The Battle for Health in Central African Society*. (London: John Murray, 1953), p. 16.

Diseases Linked to Working and Living Conditions at Roan Antelope Mine

In addition to ecological diseases, workers at Roan Antelope Mine suffered from other epidemiological setbacks because of the poor working and living conditions of African miners. In the early years of the mine, miners were subjected to living in mud huts without proper floor. The huts were overcrowded and miners lacked protective clothes, lived on poor diet and were exposed to poor sanitation. This situation resulted in high incidences of pneumonia, cerebral

spinal meningitis, bacillary dysentery, typhoid and diarrhoea which contributed to high rates of mortality and morbidity amongst Africans.²²

For example, in 1927, pneumonia was more than 63 cases per thousand in African miners and claimed 40 lives.²³ Causes of pneumonia among Africans were sharp and rapid changes in temperatures and inadequate clothing during the cold season. In 1930, there were 272 cases of pneumonia of which 70 were fatal, giving a case mortality rate of 25.7%. In 1931, pneumonia was responsible for 53.9% of the total deaths.²⁴ In the same year, there were 234 cases of the disease, of which 48 were fatal, giving a case mortality of 20.5%. In 1932, there were 23 cases of the disease of which 3 were fatal, giving a case mortality rate of 13%.²⁵

In addition to pneumonia, typhoid, dysentery and diarrhoea were rampant in African compounds because of lack of purified water, good sanitation and hospital and clinical facilities especially in the initial years of the mine.²⁶ These diseases of poverty claimed the lives of many African miners as they were more susceptible because of poor living and working conditions than Europeans. As population increased at Roan Antelope Mine in the 1930s, infectious diseases such as flu, tick fever, whooping cough, among others, became common.²⁷ It is very clear that overcrowding in the houses, lack of health education, poor sanitation and lack of well-built houses with proper materials in the African mine compounds contributed to poor health among Africans. For instance, in the early years of the mine, there was no organised system of garbage disposal in the African compounds. According to Kalusa, “the State lacked an effective sanitary service as its sanitary inspectors were unqualified and too few to enforce sanitation regulations in

²² MIA/Box 1/12.6.8A, Annual Medical Services Report on Roan Antelope Copper Mine, 1932.

²³ MIA/Box 13/ 15.1.5A, Hospital and Medical Services-Roan, General Manager’s Report, 1931-1954.

²⁴ MIA/Box 1/12.6.8A, Annual Medical Services Report on Roan Antelope Copper Mine, 1932.

²⁵ MIA/Box 90/16.2.6F, Publicity, Copper Mining Industry.

²⁶ MIA/Box 1/12.6.8A, Annual Medical Services Report on Roan Antelope, p. 7; Walima T. Kalusa, “Aspect of African Health in the Mining Industry in Colonial Zambia: A Case Study of Roan Antelope Mine 1920-1964,” MA Thesis: University of Zambia, 1993.

²⁷ NAZ/MH1/4/1/3215, Mosquito Control General, 1929-1953.

the mining towns.”²⁸ As Sir Watson further observed in 1930, the garbage from the African compounds multiplied the flies which also increased cases of typhoid and diarrhoea.²⁹

Among African miners, the diseases of poverty were very high in the bachelors’ section. It was observed that unmarried employees had no time to sweep away refuse as they were usually too tired after work.³⁰ Further, it is alleged that it was difficult for unmarried miners to prepare hygienic and decent food for themselves making their immune system weak. Spearpoint argues that the majority of Africans had no conception of the meaning of sanitation in relation to health. Swarms of flies, settling on refuse which they deposited a few feet from the door of the hut, did not convey to them any thought of danger. They looked upon the fly as a necessary nuisance, but failed to realise the seriousness of these pests as diseases purveyors.³¹ However, the situation was not the same with married miners. The married section was comparatively cleaner as women swept, washed plates and thus kept flies away.

It is evident that lack of health education interposed the increase of alimentary canal diseases at Roan Antelope Mine. From the health point of view, Africans lacked guidance and proper health education on the benefits of using of latrines. Spearpoint concludes that no serious attempts were made to see that African children made use of latrines.³² Besides, latrines accommodation in the late 1920s was not of very good type and consisted of the simple Arab pit with a shelter around. This was followed by smoke pit latrines which originated from the Belgian Congo. However, both of these types had their drawbacks, the former in that there was no means of keeping down the flies and the latter, unless there was a continuous fire, was just as bad as there was no check

²⁸ Walima T. Kalusa, “Aspect of African Health in the Mining Industry in Colonial Zambia: A Case Study of Roan Antelope Mine 1920-1964,” MA Thesis: University of Zambia, 1993, p. 67.

²⁹ Watson, “Malaria and Nutrition in Africa,” p. 405.

³⁰ Kalusa, “Aspect of African Health in the Mining Industry in Colonial Zambia,” p. 68.

³¹ Spearpoint, “The African Native and the Rhodesian Copper Mines,” p. 12.

³² Spearpoint, “The African Native and the Rhodesian Copper Mines,” p. 13.

on fly breeding.³³ In 1930, the first water-borne type of latrines was tried out and after various alterations were effected, they proved to be good.³⁴ Although the water-borne type of latrines proved to be better than earlier latrines, they did not reduce the cases of alimentary canal diseases because they were not enough to cater for the large number of Africans in the compounds.

The other factor that escalated morbidity at Roan Antelope Mine in the early 1930s was the policy of not providing health services to the wives and children of miners.³⁵ The presence of numerous unvaccinated African children and women on the mine posed a danger to the health of the European community and African miners at large. It was because of this that in the late 1930s, the management initiated a welfare scheme half of whose cost was met by the colonial State and the other half by the mine itself.³⁶ Under this arrangement, the latter agreed to render health services not only to miners' wives and children but also to African government employees and their families living in Luanshya.³⁷ The reason behind the scheme was to preclude and alleviate diseases in the African compounds in order to have a disease-free labour force for maximum copper production.

To Roan Antelope Mine, and of course at other mines on the Copperbelt, the success of disease control measures were crucial to the survival of the copper mining industry.³⁸ The mortality rate for African community is patently shown in the Roan medical report of December, 1933. The table below evidently shows that diseases of poverty affected many Africans because of poor living and working conditions. The table demonstrates that pneumonia was the most serious disease among African miners. The high cases of diseases of poverty in the African community

³³ Spearpoint, "The African Native and the Rhodesian Copper Mines," p. 16.

³⁴ MIA/Box 13/ 15.1.5A, Hospital and Medical Services-Roan, General Manager's Report, 1931-1954.

³⁵ Kalusa, "Aspect of African Health in the Mining Industry in Colonial Zambia," p. 68.

³⁶ MIA/Box 13/ 15.1.5A, Hospital and Medical Services-Roan, General Manager's Report, 1931-1954.

³⁷ MIA/Box 13/ 15.1.5A, Hospital and Medical Services-Roan, General Manager's Report, 1931-1954.

³⁸ Irwin, "Early Days on the Copperbelt," p. 111.

at Roan stemmed from lack of proper medical and other social services. After 1930, the Roan Antelope Mine experienced rapid increase in African population because the RST allowed miners to live with their wives and children as a way of stabilising labour.³⁹

Table II African Disease Pattern

Year	1930	1931	1932	1933
Accidents	6.53	15.73	13.63	43.33
Pneumonia	50.72	53.93	13.63	30.0
Other Diseases	34.05	23.59	68.18	20.0
Typhoid	8.70	6.75		3.33

Source: MIA/Roan Antelope Medical Services Fourth Annual Report, 1933

Although Roan Mine had started providing medical services to wives and children of African miners in the late 1930s, the allowing of unmarried women in the compounds posed serious danger to the lives of miners. In their desire to bolster labour stabilisation at Roan Antelope Mine, the RST allowed unmarried women in the compounds to provide both domestic and sexual services to unmarried miners as a way of keeping the former at work.⁴⁰ These women kept *bankhungulume* busy that the later did not think of going back to their villages. The situation manifested itself as far as 1930s because of competition of labour. Prostitution became an easy way of making money in which some of the married women took part too. The rise in the number of sex workers at Roan Antelope Mine in 1930s was accompanied by a high prevalence of cases of venereal diseases such as syphilis and gonorrhoea.⁴¹

³⁹ MIA/Box 13/ 15.1.5A, Hospital and Medical Services-Roan, General Manager's Report, 1931-1954.

⁴⁰ Northern Rhodesia, *African Affairs, Annual Report for the Year 1935* (Lusaka: Government Printer, 1936), p. 12.

⁴¹ NAZ/MHI/4/31/3219, Occupation Diseases General, 1940-1957.

Venereal and Industrial Diseases

Besides diseases of poverty, Roan Mine saw an increase in venereal diseases. Promiscuous lifestyle at the mine became common because it provided income to both married and unmarried women.⁴² Jane Parpart points out that adultery was so common in the 1930s that Roan elders rebuffed the suggestion for a compound dance (Kalela) because it promoted immorality by wives whose husbands worked at night.⁴³ Illicit sex, or 'playing' as it was known, provided married women with bits of cash and presents. From the 1920s to early 1930s, there was no sensitisation on the dangers of the sexually transmitted diseases and how to prevent them.⁴⁴

Syphilis and gonorrhoea became serious diseases in the African community at Roan Antelope Mine. Most Africans treated venereal diseases as a joke and did not realise what deadly serious killers such diseases were.⁴⁵ In 1934, the RST asked Dr. Rodger to examine Africans in the compounds in which 1,907 Africans were tested against gonorrhoea. Of these, 50 were found to have urethral discharge, 8 produced bacteriological evidence of gonorrhoea infection, 8 were completely negative and 39 showed evidence of mixed infections of non-gonorrhoea organisms.⁴⁶ Syphilis presented greater difficulties than gonorrhoea. Dr. Rodger tested 138 Africans using Kahn's test which was recommended by Health Organisation of the League of Nations in August 1930. Out of these tested for syphilis, 42 were found positive.⁴⁷ Ignorance played a big role in the increase of venereal diseases because the majority of Africans did not want to go to hospital in its early stages when it was curable, but did so after it was too late.

⁴² Julia Ann Laite, "Historical Perspectives on Industry Development, Mining and Prostitution," *The Historical Journal* 52, 3 (2009), P. 740.

⁴³ MIA/Box 1/12.6.8A, Annual Medical Report on Roan Antelope, p. 11 and Jane L. Parpart, "Class and Gender on the Copperbelt: Women in Northern Rhodesia Copper Mining Communities 1926-1964,"

⁴⁴ Parpart, "Class and Gender on the Copperbelt," p. 35. Northern Rhodesia, African Affairs, Annual Report for the Year 1935, p. 23; Kaonga Walya Mazala, "For Pleasure and Profit: Sex Work in Zambia, 1890-1964," MA Thesis: University of Zambia, 2013, p. 37.

⁴⁵ Northern Rhodesia, African Affairs, Annual Report for the Year 1935, p. 23,

⁴⁶ Northern Rhodesia, African Affairs, Annual Report for the Year 1935, p. 33.

⁴⁷ Northern Rhodesia, African Affairs, Annual Report for the Year 1935, p. 34.

Being infected, they passed syphilis on to others and so it spread, infecting many people. In addition to this, miners who left their wives back home indulged into serious promiscuous lifestyle. Those who contracted either syphilis or gonorrhoea spread it to rural areas when they visited their families.

It was difficult to put in place preventive measures against venereal diseases because the population at Roan Mine kept increasing especially after 1939. The population of Roan increased during the Second World War because of the expansion of copper production. The increase in copper production played an instrumental role in the rise of pneumoconiotic ailments at Roan Antelope Mine in particular and other mines on the Copperbelt. The most dangerous of such pathological diseases was silicosis. In general terms, silicosis is a pathological condition of the lungs caused by breathing in tiny bits of silica, a mineral that is part of sand, rock and ores such as quartz.⁴⁸ Silicosis is defined as a pathological condition of the lungs caused by inhalation of combined silicon dioxide.

During the Second World War, copper was the most eminent mineral in the British Empire. To have enough supply of copper, the British government emphasised maximum production of the mineral in Northern Rhodesia.⁴⁹ In response to the directive from the British government, the governor of Northern Rhodesia, John Maybin, issued an appeal immediately after the outbreak of the war that mine employees had to remain in their employment. At the same time, regulations were introduced by the government not to permit any male British subjects in employment in the mining industry to go on leave without a special permit.⁵⁰ The pressure to produce enough

⁴⁸MIA/Box88/16.2.6D, General Manager's Report for the War Period (1939-1945), 1944-1946.

⁴⁹ MIA/Box9/15.1.7B, Roan Antelope Annual Medical Report, 1952, p. 8; NAZ/WP1/1/20/5208, Local Government, Luanshya Management Board Minutes of Board Meetings, 1950-1952.

⁵⁰ MIA/Box88/16.2.6D, General Manager's Report for the War Period (1939-1945), 1944-1946.

copper was so serious that women, when available, were engaged wherever they could fill positions previously held by men.⁵¹

The British Ministry of Supply entered into agreement with the Rhodesian Selection Trust for Roan Antelope Mine to supply long blister copper to Britain alone. Table Five below shows the tons of blister copper exported from Roan Antelope Mine to Britain via Beira in Mozambique during the Second World War.

Table III Production of blister copper for the six years ended 30th June 1945, was as follows

YEAR ENDED 30 TH JUNE	LONG TONS OF BLISTER COPPER	COST OF PRODUCTION F.O.B BEIRA
1940	75,195	21.3.9
1941	67,745	25.15.10
1942	65,665	29.17.11
1943	69,188	33.16.8
1944	64,184	38.13.11
1945	54,895	
	TOTAL: 396,872	

Source: MIA/Box88/16.2.6D, General Manager's Report 1944-1945

This increased copper production played an instrumental role in the emergence of pneumoconiotic ailments at Roan Antelope Mine.⁵² The Second World War was thus accompanied by serious industrial health challenges such as silicosis, tuberculosis and mine accidents due to overworking miners to meet the target. The most dangerous of such pathological diseases which also drew much attention from both mining companies and the colonial

⁵¹ MIA/Box88/16.2.6D, Roan Antelope Report by Manager 13th April, 1939.

⁵² Kalusa, "Aspect of African Health in the Mining Industry in Colonial Zambia," p. 74.

government was silicosis. Silicosis drew much attention because it was directly connected to production and it affected only miners, hence it was nicknamed miner's disease.⁵³ On the Copperbelt and at Roan Antelope Mine in particular, silicosis was first suspected in the early 1930s. The early cases of the disease were, however, traced to South Africa where those found with the ailment worked prior to their engagement at Roan.⁵⁴

The intensification in lashing, drilling and crushing of ore which heightened the level of dust on the mine during the Second World War raised miners' risk of succumbing to silicosis.⁵⁵ In addition, Kalusa reveals other sources of silicosis as primary and secondary blasting which increased partly because of the higher demand for copper and the nature of the ore body at Luanshya.⁵⁶ Further, miners could contract the disease in surface occupation in the smelter, concentrator, crusher stations and the coal pulverising plant as the level of dust there was quite high. Furthermore, poor ventilation and failure to effectively remove dust from underground increased the risk of contracting silicosis.⁵⁷

By 1944, several Africans were suffering from silicosis at Roan Antelope Mine. Out of the examined 853 Africans who had no mining experience outside colonial Zambia, a good number had succumbed to silicosis and tuberculosis by 1945.⁵⁸ Silicosis is an incurable disease. The best way of confronting it is from a preventive point of view. Although silicosis was commonly known as a disease for miners, it was very dangerous to the entire community because miners who contracted it easily succumbed to infection by tubercle bacillus, the bacteria that cause tuberculosis. Tuberculosis was not confined to miners alone, like silicosis. It was an infectious

⁵³ MIA/Box88/16.2.6D, General Manager's Report for the War Period (1939-1945).

⁵⁴ Kalusa, "Aspect of African Health in the Mining Industry in Colonial Zambia," p. 74.

⁵⁵ MIA/Box88/16.2.6D, Roan Antelope Report by Manager 13th April, 1939; Kalusa, "Aspect of African Health in the Mining Industry in Colonial Zambia," p. 75.

⁵⁶ Kalusa, "Aspect of African Health in the Mining Industry in Colonial Zambia," p. 76.

⁵⁷ MIA/Box88/16.2.6D, Roan Antelope Report by Manager 13th April, 1939.

⁵⁸ Kalusa, "Aspect of African Health in the Mining Industry in Colonial Zambia," p. 77.

disease.⁵⁹ Thus, after Second World War, tuberculosis became common and miners who contracted it did not live for more than two years.⁶⁰ Surprisingly though, the need to prevent or cure tuberculosis extracted little attention from the government. Mining companies also argued that it was government's responsibility to provide health facilities for tuberculous miners and their families, not mine hospitals which had few beds. At Roan Antelope Mine, there was no control measure or organised treatment for African tuberculous.⁶¹ During and in the post war period, the State in collaboration with the mining companies ensured that European tuberculous were sent to South Africa, and later during the Federation, to Southern Rhodesia for treatment. Africans were sent to a government hospital in Ndola which had only eighty beds for tuberculous for treatment only for a few days and there after repatriated to their villages.⁶²

According to Kalusa, the failure by both government and mining companies to foil and alleviate tuberculosis affected many people in both rural and urban areas of colonial Zambia. In the absence of medical measures against this scourge (tuberculosis), such as good nourishing diet, properly ventilated houses and avoidance of overcrowding, the disease rapidly spread to miners' children and wives.⁶³ Those who were repatriated to their villages spread the disease to people in rural areas.

Kalusa argues that:

...apart from silicosis and tuberculosis, there were other health disabilities which the expansion in mining activities at Roan Antelope Mine promoted during the Second World War. These included cases of conjunctivitis generally caused by lack of safety devices for eyes, paralysis in legs and arms engendered by heavy lashing and drilling and loss of voice and hearing as a result of high level of noise

⁵⁹ Kalusa, "Aspect of African Health in the Mining Industry in Colonial Zambia," p. 77.

⁶⁰ MIA/Box13/10.8.2B, Industrial Diseases-Silicosis.

⁶¹ MIA/Box13/10.8.2B, Industrial Diseases-Silicosis.

⁶² Kalusa, "Aspect of African Health in the Mining Industry in Colonial Zambia," p. 76.

⁶³ Kalusa, "Aspect of African Health in the Mining Industry in Colonial Zambia," p. 76; NAZ/SEC1/1323, Native Labour Desertion and Absenteeism, 1923-1948.

in areas like the smelter and concentrators.⁶⁴ There were also several cases of dermatitis and respiratory irritations caused by massive handling of chemicals. Bronchitis was induced in Africans by the increase in fumes from the plant area. The rise in cases related to bronchitis was facilitated by the proximity of African compounds to the plant area.⁶⁵

Furthermore, increased pressure on production of copper at Roan Antelope Mine promoted mining accidents and European-on-African violence. Many accidents were caused by Europeans who impatiently urged Africans to hurry up and meet the target.⁶⁶ Assaults were caused by two main factors, communication and vigorous manual work. There was no effective communication between European and Africans. Many Africans failed to carry out instructions given in *chikabanga* which resulted into beatings. *Chikabanga* was a pidgin language that developed on the Copperbelt for communication between Europeans and Africans because they did not have a language in common. On the other hand, vigorous manual work caused assaults because of muttering, loafing, malingering, refusal to work in fume-ridden places, among others, by Africans.⁶⁷

Vigorous work, accidents and assaults left Africans with no choice but to desert the mine for their lives. It was observed that among surface miners, desertion rose from about 166 in 1939 to 252 in 1944 and from 257 in 1942 to 272 in 1945. For underground employees, desertion rose from 305 in 1939 to 549 in 1940 and from 493 in 1941 to 931 in 1944.⁶⁸ African miners deserted the mine in spite of the regulation enacted by the Northern Rhodesian Government to keep them at work during the war.⁶⁹ Africans worked for many hours without resting and newly recruited employees were made to work without proper orientation and first aid training. New miners were

⁶⁴ Kalusa, "Aspect of African Health in the Mining Industry in Colonial Zambia," p. 78.

⁶⁵ Kalusa, "Aspect of African Health in the Mining Industry in Colonial Zambia," p. 76; NAZ/MH1/4/31/3219, Occupational Diseases General, 1940-1957.

⁶⁶ NAZ/MH1/4/31/3219, Occupational Diseases General, 1940-1957.

⁶⁷ NAZ/SEC1/1323, Native Labour Desertion and Absenteeism, 1923-1948.

⁶⁸ Kalusa, "Aspect of African Health in the Mining Industry in Colonial Zambia," p. 76; NAZ/MH1/4/31/3219, Occupational Diseases General, 1940-1957.

⁶⁹ NAZ/SEC1/1323, Native Labour Desertion and Absenteeism, 1923-1948.

particularly prone to accidents. This was aggravated by the fact that these people lacked mining experience.⁷⁰

Besides health challenges during the Second World War, Roan Mine attracted many people from different parts of central Africa who went to search for employment, business ventures, prostitution, to mention a few. This resulted into over population in the compounds and increased number of loafers who ended up becoming street vendors. Overcrowding in the houses, vending and migration of people led to the outbreak of diseases of poverty such as typhoid, small pox, bilharzia, polio, Asiatic influenza and tuberculosis in the post war and Federation periods.

Infectious Diseases in the Post War and Federation Period

Infectious diseases during post-war period were as a result of overcrowding in the compounds, vending due to increased number of loafers and migration of people. Overcrowding and vending reduced the levels of sanitation in the compounds and towns at large.⁷¹ For example, on 19 June 1954, fifteen Europeans were admitted in the hospital suffering from typhoid. Most of the cases came from the mine mess. After investigation, it was revealed that the mess proprietor bought an infected batch of salad vegetables from a vendor at the market. The general manager called for immediate closure of the mine mess.⁷² Further in 1953, there was an outbreak of serious bilharzia in Luanshya. After a thorough investigation, it was discovered that children used to bath in the Luanshya River which was infested by snails that harboured the bilharzia parasite.⁷³

In 1955, there was a serious outbreak of smallpox on the Copperbelt. The table below shows cases of small pox in the districts on the Copperbelt. The table demonstrates that smallpox was a

⁷⁰ MIA/Box88/16.2.6D, General Manager's Report for the War Period (1939-1945), 1944-1946.

⁷¹ MIA/Box9/15.1.7B, Roan Antelope Annual Medical Report, 1952, p. 8

⁷² NAZ/MH1/4/31/3219, Occupational Diseases General, 1940-1957.

⁷³ NAZ/MH1/4/31/3219, Occupational Diseases General, 1940-1957.

serious disease in the province which needed serious intervention from both Federal government and mining companies.

Table IV Small Pox Cases on the Copperbelt

District	Cases Reported	Deaths
Ndola	369	100
Mufulira	907	117
Kitwe	1017	176
Chingola	231	39
Luashya	460	78
Chililabombwe	89	16

Source: Annual Report African Affairs 1956

At Roan Antelope Mine, Dr. Fisher advised the general manager on 19 April, 1955 to stop all movements of people in the African Township. This move was meant to reduce the spread of the disease.⁷⁴ This was a serious concern because European and African communities were so bound together that any deterioration in the latter's health was to rebound unfavourably on the former. The large population which was approximately more than 50,000 after 1950 made it difficult for RST to deal with the problem adequately because some people were not under the control of the Roan Mine and thus were not vaccinated. According to Dr. Fisher, the smallpox at Roan was more serious amongst non-mine Africans and 80% to 90% of the cases were confined to the loafers' category.⁷⁵

In addition to diseases of overcrowding, Roan Mine witnessed an increase in tuberculosis in the 1950s. The increase in tuberculosis in this period was due to silicosis which made Africans

⁷⁴ NAZ/MH1/4/31/3219, Occupational Diseases General, 1954.

⁷⁵ NAZ/MH1/4/31/3219, Occupational Diseases General, 1954.

susceptible to the disease. The Chamber of Mines wrote to the Director of Medical Services on 21 May, 1951 to complain about the lamentable state of affairs with regard to European and African tuberculotics in the territory as a whole.⁷⁶ The Chamber requested the government to inaugurate a settlement sanatorium at some central point on the Copperbelt for African tuberculotics. The mining companies stated clearly that the cost of treatment in respect of tuberculosis was a full responsibility of the government.

According to the Chamber of Mines, tuberculosis was an infectious disease and it was the duty of government to ensure that proper facilities existed for the isolation of cases to safeguard public health.⁷⁷ The medication was usually of a long term nature and the average person found it hard to meet the high and continuing cost of the treatment, especially if the patient was the wage earner of the family. Most of the tuberculosis cases encountered were hospitalised for over three months and the prolonged occupation of beds was an inconvenience because mine hospitals had only a few wards for isolating infectious cases. During the period 1953-1964, there was only one government hospital in Ndola which had eighty (80) beds for tuberculous Africans in the entire province.⁷⁸

Mining companies requested government to erect adequate facilities in the territory for the treatment of tuberculotics and also to take some steps towards preventive measures. In the 1950s, the mines spent a lot of money sending tuberculous Europeans outside the country for medication. Unfortunately, tuberculous Africans were allowed to wander around, sowing the tubercle bacillus amongst the susceptible inhabitants either in rural or urban slum dwellers.⁷⁹ Africans were treated at Ndola Central Hospital for only two weeks and later repatriated to their

⁷⁶NAZ/ML8/1199, Mine Department Accidents and Diseases Dust Inhalation, 1954-1956; NAZ/ML8/11/99, Letter from Chamber of Mines to the Director of Medical Services, 21st May, 1951.

⁷⁷ NAZ/MH1/4/31/3219, Occupational Diseases General, 1940-1957.

⁷⁸NAZ/MH1/4/31/3219, Occupational Diseases General, 1940-1957

⁷⁹ NAZ/MH1/4/31/3219, Occupational Diseases General, 1940-1957.

villages. The negligence by both government and mining companies in treating tuberculous Africans led to the increase of the disease in the territory as a whole.⁸⁰

The Chamber of Mines clearly stated that the treatment of tuberculosis was a full responsibility of the government. Tuberculosis is an infectious disease which needs proper and isolated facilities in order to safeguard public health.⁸¹ The companies were forced to accommodate and treat patients in the mine hospitals because of lack of government facilities on the Copperbelt. However, the prolonged occupation of beds by tuberculous Africans inconvenienced the services of mine hospitals because they had only a few wards for isolating infectious cases.⁸² In 1952, the incidence of tuberculosis in both European and African employees on the mines was about 2.5 per thousand a year, a figure higher than in England.⁸³

Conclusion

The chapter has identified major health challenges that affected both African and European miners at Roan Antelope Mine. It has shown that in the formative years of the mine, ecologically-determined diseases killed a good number of miners because the mine developed close to the swamps of Luanshya River which was infested with malaria-carrying mosquitoes. The chapter has demonstrated that when malaria was controlled in the 1930s, diseases of poverty such as pneumonia, dysentery, typhoid, syphilis and gonorrhoea remained rampant at the mine because of poor living and working conditions.

The chapter further argues that during the Second World War, the disease landscape at Roan Antelope Mine changed drastically with the emergence of industrial diseases, notably silicosis and tuberculosis, due to increased dust in mining operations. The chapter reveals that after the

⁸⁰ NAZ/MH1/4/31/3219, Occupational Diseases General, 1940-1957

⁸¹ NAZ/MH1/4/31/3219, Occupational Diseases General, 1940-1957

⁸² Interview, Susan Mary Fisher Daughter of Dr. Charles Fisher, Kitwe, 4th February, 2017.

⁸³ Interview, Dr. Stewart Fisher Son of Dr. Charles Fisher, Kitwe, 4th February, 2017.

Second World War, diseases of poverty continued to affect African miners and their families because of overcrowding and other poor conditions in the mine compounds. Finally, during the period of the Federation, infectious diseases such as polio, smallpox, bilharzia and tuberculosis affected Africans at Roan Antelope Mine because of poor living and working conditions which persisted in the African community.

CHAPTER THREE

EARLY MEDICAL SERVICES AT ROAN ANTELOPE MINE, 1928-1938

Introduction

This chapter discusses the earliest remedial measures that the Roan Antelope Mine undertook to solve major health problems and diseases that afflicted African miners from 1928 to 1938. The chapter demonstrates that medical services at Roan developed in tandem with changing disease patterns at the mine. It shows that the earliest medical services at Roan Antelope Mine were inadequate because the Rhodesian Selection Trust (RST) avoided expenditure on medical services for African labour. The chapter also reveals that to circumvent expenditure on African labour in the early days, the RST tried to exploit African beliefs by exorcising the Luanshya River which Africans believed was inhabited by *sanguni* believed to cause diseases and death. The chapter argues that the failure of exorcism of *sanguni* as a cheaper way of dealing with diseases on the mine prompted the RST to look for modern and expensive medical solutions. Finally, the chapter discusses safety measures inaugurated by the RST to prevent accidents on the mine. It ends with a discussion on the construction of Roan modern hospital as part of the RST's measures to improve the health of miners.

Exorcism of the Mythical Snake (Fuukwe or Sanguni), 1928

The exorcism of the mythical snake was conducted to erase fear from African miners who believed diseases at Roan Antelope Mine were not as a result of unhealthy ecology and poor living and working conditions.¹ Africans held that high morbidity and mortality rates at the mine were caused by the *fuukwe, or sanguni*, a mythical monstrous snake which they believed dwelt in

¹ F. Spearpoint, "The African Native and the Rhodesian Copper Mines," *The Royal African Society* 36, 144 (1937), pp. 3. For further reading; Austine Bancraft, *Mining in Northern Rhodesia* (London: British South African Company, 1961).

Luanshya River.² Rumours about this snake became so strong that even in rural areas Africans refused to go to work at Roan Antelope Mine.

In 1928, David D. Irwin, Roan Antelope Mine's General Manager, arranged for an exorcism of *sanguni*.³ This happened when Chirupula Stephenson, a former Assistant District Commissioner who had married Mwape, a daughter of the Lala chief Chiwala, went to the mine to negotiate for the selling of bricks made from porcelain clay deposits at his farm at Kashitu, fifty miles east of Kapiri Mposhi. Irwin did not want the bricks, but he requested Chirupula to help him get rid of the mythical snake. Chirupula got together some of his influential African friends to hold a ceremony to exorcise the snake. The ceremony was a colourful affair conducted by Lamba Ritualist.⁴

During the ceremony, white flour, a white cockerel, a white handkerchief and a string of white beads from a local policeman's wife,⁵ were collected and taken to a site where a miner had drowned. A conical thatched shrine was built on the spot, with entrances to the east and west. Near the hut, Katanga, a senior member of the Lamba clan, opened the proceedings with prayers to his ancestors. He was helped by his sister and watched by thirteen clan members.⁶ After the ceremony, Chirupula was flooded with requests for blankets, beef and beer from the celebrants and he transmitted the demands to the mine management. Each member of the clan at the ceremony was given a blanket with the blessings of the general manager.

The RST opted to exorcise the *sanguni* as a way of trying to avoid spending a lot of money on the provision of medical services to Africans. The RST wanted to use a cheaper way of dealing

² Dobney, "Myths and Monsters," *Horizon* 6 (1964), p. 33.

³ Dobney, "Myths and Monsters," p. 34.

⁴ *Zambia's Mining Industry the First 50 Years* (Ndola: Roan Consolidated Mines Limited, 1978), p. 34; Victor Brian Siegel, "Farms and Gardens: Ethnicity and Enterprise on the Rural Zambian Copperbelt," PhD Thesis: University of Wisconsin-Madison, 1983, p. 69.

⁵ Mining Industry Archives/Box 90/16.2.6F, Publicity, Copper Mining Industry, February 1930-June 1947; Schumaker, "Slimes and Deaths-Dealing Dambo: Water, Industry and the Garden City on Zambia's Copperbelt," p. 824.

⁶ Spearpoint, "The African Native and the Rhodesian Copper Mines," p. 5.

with diseases that affected African miners and their families. The calling of African experts to conduct the ceremony was a cheap way of squashing fear in the Africans.

Besides the exorcism being a colourful ceremony, some tribes were not convinced that exorcising the Luanshya River would end health problems at the mine. Bemba miners at Roan believed that instead of preventing diseases, the exorcism provoked their spirits because it was conducted by none-Bemba clans who called upon their own ancestors.⁷ The ceremony thus was not effective and proved futile because morbidity and mortality rates remained high until November, 1929, when an anti-malarial campaign was instituted at the mine. The failure of the exorcism of *sanguni* to reduce mortality prompted the RST to look for a modern medical solution to deal with malaria. To this end, the company invited Sir Melcom Watson of the London School of Tropical Medicine to combat the disease at the mine.⁸ The campaign proved effective and reduced malaria at the mine.

Anti-Malarial Campaign, 1929 to 1932

The first step taken was to clear the misunderstanding among the medical experts in terms of the association of malaria and blackwater fever. According to Dr. J.G. Thomson, blackwater fever occurred in persons living in unprotected houses and carelessness about use of mosquito nets.⁹ Some authorities believed that excessive use of quinine taken to combat malaria was responsible for blackwater fever. However, the modern school of tropical parasitology rejected both theories and regarded blackwater fever as a specific disease due to a protozoal parasite akin to that which caused red fever in cattle.¹⁰

⁷ Spearpoint, "The African Native and the Rhodesian Copper Mines," p. 5.

⁸ MIA/Box 90/16.2.6F, Publicity, Copper Mining Industry, February 1930-June 1947

⁹ Rodger, "The Development of Medical and Health Services at the Roan Antelope," p. 136.

¹⁰ Charles A. Fisher, "40 Years of Medicine on the Copperbelt," *Horizon* 11, 12 (1969), p. 5.

At Roan Antelope Mine the confusion about the causes of malaria and blackwater fever was cleared by Dr. Lovel Rodger who joined Roan Antelope Mine Medical Department in 1929. When Dr. Rodger came to Roan as a junior medical officer in March of that year, four months in advance of his Chief Medical Doctor J. W. Phillips who was appointed from a post in India, he found that the only measures in use against malaria were mosquito boots, nets and five-grain tablet of quinine a day.¹¹ Regular quinine dosage was adopted routinely by government officials with whom it became a ritual and they remained malaria-free. Non-government officials, less disciplined and much less settled in its ways, took quinine only sporadically and whenever fever attacked them.¹² However, Africans were not part of this kind of arrangement thus leaving them a vulnerable community to malaria at Roan Antelope Mine.

Dr. Rodger, who learned tropical medicine from an American text book and an American lecturer, was convinced that intermittent and irregular quinine-taking by persons suffering from chronic malaria over a year or more was very strongly predisposed to blackwater fever.¹³ He was determined to put a stop altogether to the issuing and taking of prophylactic quinine which his predecessor had tried to enforce by holding the threat of instant dismissal to defaulters. Reinforced by an assurance from Dr. Orenstein, a former Panama expert then living in Johannesburg to whom he appealed for confirmation of his views, Rodger carried this through though faced opposition from other medical men in Northern Rhodesia, including the Governor himself, who had been a doctor in West Africa years before.¹⁴ The custom of taking daily quinine thereupon ceased amongst employees at Roan, though it persisted for another decade elsewhere and very few blackwater fever cases were encountered from that time onwards in mining patients.

¹¹ Rodger, "The Development of Medical and Health Services at the Roan Antelope," p. 137.

¹² Rodger, "The Development of Medical and Health Services at the Roan Antelope," p. 137.

¹³ MIA/Box 12/10.8.2A, Malaria Control, Prevention and Treatment, 1929-1953.

¹⁴ Fisher, "40 Years of Medicine on the Copperbelt," p. 5.

To combat malaria, the RST invited Sir Malcolm Watson, the Director of the Ross Institute of Tropical Hygiene in London. This centre was instituted to honour Sir Ronald Ross, who discovered in 1898 that malaria was transmitted from man to man by the mosquito.¹⁵ In 1929, Sir Malcolm Watson, Dr. Dalzell and C.B. Harrison arrived at Roan Antelope Mine to conduct ant-malarial campaign. In November 1929, anti-malarial work under the direction of Sir Watson began at Roan Antelope Mine.¹⁶ Before November 1929, there were no organised deterrent and therapeutic measures against malaria for African miners at Roan thus making them vulnerable to malaria.¹⁷

The anti-malarial work at Roan Antelope Mine commenced with a general survey of anopheline breeding places in the areas to be controlled.¹⁸ The rainfall in this part of Northern Rhodesia averaged between 40 and 60 inches a year, with the wet season commencing in November and ending in April. These conditions of rains and high temperature caused the breeding of mosquitoes to have a considerable seasonal variation.¹⁹ At Roan, the anopheles mosquitoes, recognised as being the chief carriers of the malaria, were *A. Funestus* and *A. Gambiae*. Watson instructed Dr. Dalzell and C. B. Harrison to identify breeding places for these mosquitoes and attack them by appropriate measures.²⁰

Having identified the breeding places for malarial-carrying mosquitoes, the next step was to clear the area to stop them from breeding. Among the areas to be cleared was the Luanshya River which ran along the north and west sides of the mine. All trees and bush shading the water were

¹⁵ Malcom Watson, "Malaria and Nutrition in Africa," *Journal of the Royal African Society* 36, 145 (1937), p. 405.

¹⁶ L. M. Rodger, "The Development of Medical and Health Services at the Roan Antelope," *Northern Rhodesian Journal* 5 (1962-1964), p. 135; Kenneth Bradley, *Copper Venture: The Discovery and Development of Roan Antelope and Mufulira* (London: Company Publication, 1952).

¹⁷ Watson, *Malaria and Nutrition in Africa*, p. 405

¹⁸ MIA/Box 13/ 15.1.5A, Report on Anti-Malarial Work, November 1929 to January 1931.

¹⁹ National Archives of Zambia/MH1/4/1/3215, Mosquito Control General, 1929-1953. For further reading on Malaria; Emilio Pampana, *Malaria Eradication* (London: Oxford University Press, 1969) and Augustin Fosu and Germano Mwabu, *Malaria and Poverty in Africa* (Nairobi: University of Nairobi Press, 2007).

²⁰ NAZ/MH1/4/1/3215, Mosquito Control General, 1929-1953; Malcolm Watson, *African Highway: The Battle for Health in Central Africa* (London: John Murray, 1953), p. 4.

cut and removed from the banks of the river.²¹ The channels of the river were deepened, banks built and all the obstruction which held up water were removed. This was done to increase the velocity of water so that there was no stagnant water in the area that could turn into a breeding place for mosquitoes.²² The figure below shows how Luanshya River was cleared and canalised to increase the velocity of water.

Figure 1 The Canalised Luanshya River



Source: Watson Malcolm, *African Highway: The Battle for Health in Central African Society*. (London: John Murray, 1953), p. 18.

In addition to clearing of the area, there was weekly oiling of water within controlled area starting in November 1929. The first mixture used was one of crude oil obtained at the mine and paraffin.²³ The spraying of oil on water within the controlled area continued to be the most

²¹ MIA/Box 12/10.8.2A, Malaria Control, Prevention and Treatment; MIA/Box 24/10.3.10B, Report by Sir Malcolm Watson on his Visit to the Roan Antelope Mine, 1930; MIA/Box 13/ 15.1.5A, Report on Anti-Malarial Work, November 1929 to January 1931.

²² MIA/Box 12/10.8.2A, Malaria Control, Prevention and Treatment.

²³ MIA/Box 13/ 15.1.5A, Report on Anti-Malarial Work; "Rhodesian Selection Trust Looks Back on 40 Years," p. 22.

important feature of anti-larval measures. The oil used was a special mixture put up by the Shell Oil Company to the prescribed order of Sir Malcolm Watson.²⁴ The search for adult mosquitoes was carried out throughout the year. There were twenty catching stations, covering the whole controlled areas, each of which comprised six African quarters and searched at regular weekly intervals.²⁵

These measures were so successful that Roan Antelope Mine saw a prodigious improvement in which the malaria incidence showed a dramatic drop in African employees from 105 in 1929 to 34.3 in 1930, 19.2 in 1931 and 14.6 in 1932 per thousand respectively.²⁶ The Roan Mine's General Manager, in his report of 1931, points out that a new chapter of Watson's life work opened with his appointment, in 1929, as advisor to the Rhodesian Copper Mining Companies under the leadership of Chester Beatty, the chairman.²⁷ Beatty and his colleagues were determined to deal with health problems at the mine.²⁸ The table below summarises the dropping of malaria incidence in African miners from 105 in 1929 to a comfortable 14.6 per thousand in 1932.

Table V Reduction in Incidence of Malaria

YEAR	MALARIAL RATE PER 1000
1929	105
1930	34.3
1931	19.2
1932	14.6

Source: MIA/Roan Annual Medical Report, 1932

²⁴ MIA/Box 24/10.3.10B, Report by Sir Malcolm Watson on his Visit to the Roan Antelope Mine, 1930.

²⁵ NAZ/MH1/4/1/3215, Mosquito Control General, 1929-1953.

²⁶ Rodger, "The Development of Medical and Health Services at the Roan Antelope," p. 137.

²⁷ Watson, *African Highway*, p. 5.

²⁸ MIA/Box 13/ 15.1.5A, Hospital and Medical Services-Roan, General Manager's Report, 1931-1954; MIA/Box 1/12.6.8A, Annual Medical Services Report on Roan Antelope Copper Mine, 1932, p. 4.

The control of malaria at Roan did not mean the eradication of all diseases there. Diseases associated with poor living and working conditions continued attacking African labour at the mine. To this end, in the early 1930s, the RST started looking at ways to deal with diseases of poverty.

Medical Services against Diseases of Poverty

Pneumonia, cerebro spinal meningitis, bacillary dysentery, typhoid and diarrhoea contributed to high rates of mortality and morbidity amongst Africans. In 1927, pneumonia was so serious that it claimed 40 lives of Africans.²⁹ In 1931, the disease was responsible for 53.9% of the total deaths at Roan Antelope Mine.³⁰ In response, the RST decided to start full prophylactic inoculation in 1931.³¹ The RST invited Dr. Ordman of the South Africa Institute for Medical Research who agreed to come to the mine to give it the benefit of his valuable experience.³² His report on the incidences of pneumonia remained an eloquent testimony to the detailed care of his investigation and to his wide knowledge of the factors that possibly affected the situation at Roan Antelope Mine.

Dr. Ordman's first step was to look at the climate of Roan in relation to pneumonia, investigate the conditions under which African labour lived and examine their diet and housing.³³ Ordman concluded that the conditions under which Africans lived and worked underground were the major cause of pneumonia at Roan Antelope Mine.³⁴ However, the mine dismissed Ordman's advice to improve such conditions as expensive. To avoid spending large sums of money on African miners' health, the RST opted to import a specific vaccine containing representative organisms of the disease as a cheaper way of dealing with pneumonia. On 1st August 1931, the

²⁹ MIA/Box 1/12.6.8A, Second Annual Medical Report on Roan Antelope, p. 10.

³⁰ MIA/Box 1/12.6.8A, Annual Medical Report on Roan Antelope, p. 8.

³¹ MIA/Box 1/12.6.8A, Annual Medical Report on Roan Antelope Mine, 1931, p. 5.

³² MIA/Box 1/12.6.8A, Annual Medical Report on Roan Antelope, p. 6.

³³ MIA/Box 1/12.6.8A, Annual Medical Report on Roan Antelope, p. 7.

³⁴ MIA/Box 1/12.6.8A, Annual Medical Report on Roan Antelope, p. 7.

inoculation campaign against pneumonia began in which 1c.c. of the vaccine was inoculated subcutaneously into new Africans at the time of their engagement by the mine and before working their first shift.³⁵ Two further injections were subsequently given to each miner with a week's interval between each inoculation.³⁶ Unfortunately, the inoculation campaign proved futile. Pneumonia cases at the mine reached 234 in 1931 because Africans conditions of working and living were still very poor.

It is surprising that RST expected to reduce cases of pneumonia by vaccinating workers whose houses, diet, sanitation and medical facilities were poor. Thus, high cases of pneumonia in African workers forced the RST to employ Dr. Ordman's advice of improving sanitation, diet, warm clothing, medical facilities and houses to accommodate miners and their wives and selective recruitments for Africans. The RST realised that the inoculation campaign against pneumonia was supposed to be a supplement to the improved working and living conditions for African miners.³⁷ To this end, the company invited Dr. Orenstein to advise them on how to build houses for African miners at Roan Antelope Mine.

Upon his arrival, Dr Orenstein raised a point on the danger of tick fever invading mine compounds at Roan.³⁸ According to his observation, relapsing fever carried by ticks existed endemically in certain areas from which Africans were recruited for the mines. It was also known that Africans who came from areas, in which tick-fever was not endemic, were very susceptible to the disease.³⁹ During a visit to Elizabethville, Sir Watson learned from Dr. Van Nitsen, Chief Medical Officer of the Union Miniere that a Kimberly Brick hut with a cement

³⁵ NAZ/MI/04/2/3215, Diseases Typhoid Fevers, 1930-1958.

³⁶ MIA/Box 1/12.6.8A, Annual Medical Report on Roan Antelope, p. 7.

³⁷ MIA/Box 1/12.6.8A, Second Quarter Annual Medical Report on Roan Antelope, 1931, p. 2.

³⁸ *Northern Rhodesia, African Affairs, Annual Report for the Year 1935* (Lusaka: Government Printer, 1936), p. 12.

³⁹ Pearson and Mouchets, "Practical Hygiene of African Compounds in Tropical Africa," *Journal of the Royal African Society* 7, 34 (1957), p. 178.

floor was practically tick proof. Cases of tick fever in such dwellings did not give rise to epidemics of relapsing fever.⁴⁰

Dr Orenstein advised RST to avoid overcrowding in the huts to prevent the spread of respiratory diseases.⁴¹ He affirmed that the simplest small hut, if accommodating not more than four persons, was hygienically superior to the most elaborate and impressive barrack housing many individuals as it was the case at Roan.⁴² The huts erected at Roan Antelope, and of course other mines in Southern Africa, were built of various materials and in various sizes.⁴³

The mining companies, the RST in particular, were advised to construct bachelors' huts in burnt bricks, with concrete floors, corrugated iron roofs, and door frames of T iron and stable doors of wood. These huts were built in rows of four or more, in order to save building costs.⁴⁴ The recommendation was made with the full appreciation that the capital cost would be higher, but the huts' inhabitants would enjoy better health. There was also a recommendation to build houses for married Africans bigger than those for bachelors to accommodate families of married miners and bolster labour stabilisation.⁴⁵ Dr. Orenstein advised RST to allow African miners to bring their wives. From a medical point of view, a wife kept the hut clean, cooked decent food for her husband and supplemented the issued ration by various plants and vegetables, which she either cultivated or collected in the fields.⁴⁶ These were very important for the proper maintenance of the health of the miners.

⁴⁰ MIA/Box92/16.2.8E, Report by Dr. A.J. Orenstein, 20th December, 1929.

⁴¹ MIA/Box92/16.2.8E, Report by Dr. A.J. Orenstein; MIA/Box14/10.8.2C, Mine Townships Bye-Laws Amendments and Additons, 1930-1948.

⁴² MIA/Box1/12.6.8A, Annual Medical Services on Roan Antelope Copper Mine, 1932; Charles Perrings, *Black Mineworkers in Central Africa: Industry Strategies and Evolution of an African Proletariat on the Copperbelt 1911-1941* (London: Heinemann, 1979).

⁴³ MIA/Box92/16.2.8E, Report by Dr. A.J. Orenstein.

⁴⁴ MIA/Box92/16.2.8E, Report by Dr. A.J. Orenstein.

⁴⁵ MIA/Box13/15.1.5A, Hospital and Medical Services-Roan General Manager's Report; Foster Sakala, "The Role of Women in Labour Stabilisation at Mufulira Mine, 1930-1964," MA Thesis: University of Zambia, 2001.

⁴⁶ MIA/Box13/15.1.5A, Watson's Letter to Mr. D.D. Irwin, General Manager Roan Antelope 31st May 1930.

Accompanied by the 1931 inoculation campaign, the improved living and working conditions effectively reduced the cases of pneumonia from 234 in 1931 to 23 in 1932.⁴⁷ The incidence of pneumonia was further reduced to a low and comforting position of 9 per thousand of the population at Roan Antelope Mine in 1933.⁴⁸ Besides building houses, the RST channelled its effort to improving sanitation, medical facilities, food rations, hygiene and selective recruitment. These were efforts meant to combat diseases of the alimentary canal such as typhoid and dysentery.

The mine's medical department advised Africans to stop washing foods and bathing in the Luanshya River. Instead, in 1932, the mine installed a water system for both Europeans and Africans as advised by Sir Watson.⁴⁹ Before the installation of the water system, there was a bucket system which had many unsatisfactory features, especially in an area of more than 10,000 people like Roan where flies were a danger. The open pits and fuming pits before 1932 proved thoroughly unsatisfactory for African compounds containing three or four thousand people who included women and children.⁵⁰ This was accompanied by intensive health education to Africans. The mine's medical department emphasised on the importance of hygiene and this resulted into reduction of typhoid cases at Roan Antelope Mine.⁵¹

Bacillary dysentery was always expected during the hot months.⁵² Infected milk, vegetables handled by African carriers and particles of food carried this disease. To deal with dysentery effectively, residents were advised to boil all milk as soon as they bought, not to give children uncooked vegetables and not to bath in the Kafubu River.⁵³ The company made sure that there

⁴⁷ MIA/Box 1/12.6.8A, Second Quarter Annual Medical Report on Roan Antelope, p. 4.

⁴⁸ MIA/Box 1/12.6.8A, Annual Medical Report on Roan Antelope, p. 7.

⁴⁹ MIA/Box 1/12.6.8A, Second Quarter Annual Medical Report on Roan Antelope, 1931, p. 2.

⁵⁰ NAZ/MI/04/2/3215, Diseases Typhoid Fevers.

⁵¹ NAZ/MI/04/2/3215, Diseases Typhoid Fevers. For further reading on hygiene; M.B. Davies, Hygiene and Health Education (London: Longman, 1966)

⁵² MIA/Box 1/12.6.8A, Annual Medical Report on Roan Antelope, p. 2.

⁵³ NAZ/MI/04/2/3215, Diseases Typhoid Fevers.

was adequate supply of treated water from its plant.⁵⁴ The cases for alimentary canal diseases in general reduced from 31.8 in 1930 to 16.0 in 1931 in African community.⁵⁵

To make sure that measures put on sanitation, clean water, hygiene, and food were followed, the company trained health inspectors whose duties were divided into two categories of general sanitation and anti-mosquito work.⁵⁶ Those assigned to general sanitation work made sure that garbage was collected on time, fly-breeding places were cleared, food, water supply and latrines regularly inspected.⁵⁷

The mortality rates at Roan Antelope Mine reached a new low record from 23.4 per thousand among Europeans in 1929 to 7.37 per thousand in 1932. Among Africans a mortality rate of 34.35 per thousand in 1930 was reduced to 16 per thousand for 1931, while for 1932 the amazingly low figure of 9.5 per thousand was recorded.⁵⁸ The general sickness figure similarly showed a corresponding improvement. Among European employees and their dependents, the average monthly sickness figure of 86.7 per thousand for 1931 was reduced to 53.6 per thousand for 1932. Among Africans, the monthly incapacity rate of 72.8 per thousand for 1931 was reduced to 39 per thousand in 1932.⁵⁹

With the improved medical services, Roan Antelope Mine was no longer the place people refused to work at or visit. It became one of the most visited places with many social activities on the Copperbelt. Unfortunately, some of the women who visited the mine in 1930s were not married to the miners but were on the mission of making money through prostitution. The mine also tolerated the coming of such kinds of women with a view to keeping unmarried men at

⁵⁴ MIA/Box 1/12.6.8A, Annual Medical Report on Roan Antelope, p. 2.

⁵⁵ MIA/Box 1/12.6.8A, Second Quarter Annual Medical Report on Roan Antelope, p4.

⁵⁶ MIA/Box13/15.1.5A, Watson's Letter to Mr. D.D. Irwin, General Manager Roan Antelope 31st May 1930.

⁵⁷ Rodger, "The Development of Medical and Health Services at the Roan Antelope," p. 137.

⁵⁸ MIA/Box 1/12.6.8A, Annual Medical Services Report on Roan Antelope, p. 13.

⁵⁹ MIA/Box 1/12.6.8A, Annual Medical Services Report on Roan Antelope, p. 14; Walima T. Kalusa, "Aspect of African Health in the Mining Industry in Colonial Zambia: A Case Study of Roan Antelope Mine 1920-1964," MA Thesis: University of Zambia, 1993.

work. The licentious lifestyle therefore, led to the introduction of serious venereal diseases at Roan Antelope Mine.⁶⁰

Measures against Venereal Diseases (Syphilis and Gonorrhoea)

In addition to combating ailments of poverty, the Roan Antelope Mine had to contend with Sexually Transmitted Diseases.⁶¹ The rise in syphilis and gonorrhoea cases became a serious concern at Roan Antelope Mine.⁶² The Chief Medical Officer of Roan Antelope, Dr. Phillips, confirmed that syphilis and gonorrhoea among Africans caused a certain amount of anxiety in the years 1929 to 1932.⁶³

Dr. Phillips, the Chief Medical Officer who had visited the Union Minière (Katanga) in the Belgian Congo, advised the company to espouse the policy practised in that territory. The policy was to encourage marriage among Africans, providing facilities for regular co-habitation, and fostering family life as a substitute for the heterodox promiscuity of licentious living. He stated that whether right or wrong, it was difficult to control a promiscuous lifestyle among the Africans.⁶⁴ The company advised unmarried men to marry young women who were not attached as a way of reducing prostitution in the compounds.⁶⁵

In 1932, the RST called for compulsory testing of Sexually Transmitted Diseases at Roan Antelope Mine. Any person who went to hospital was tested for STIs. This did not spare injured miners who went through First Aid underground. When taken to hospital, they were tested for

⁶⁰ Julia Ann Laite, "Historical Perspectives on Industry Development, Mining and Prostitution," *The Historical Journal* 52, 3 (2009), P. 740.

⁶¹ MIA/Box 1/12.6.8A, Annual Medical Report on Roan Antelope, and Jane L. Parpart, "Class and Gender on the Copperbelt: Women in Northern Rhodesia Copper Mining Communities 1926-1964,"

⁶² *Northern Rhodesia, African Affairs, Annual Report for the Year 1935*, p. 23.

⁶³ *Northern Rhodesia, African Affairs, Annual Report for the Year 1935*, p. 23,

⁶⁴ MIA/Box 27/11.3.3D, Dr. Phillips Report on Venereal Diseases among Africans, 9th December, 1932. For further reading on syphilis; Andrew Chiponde Seleman Mushingel, "A History of Disease and Medicine in Botswana, 1820-1945," PhD Thesis: University of Cambridge, 1984.

⁶⁵ MIA/Box 27/11.3.3D, Dr. Phillips Report on Venereal Diseases among Africans, 9th December, 1932.

STIs as a way of combating venereal diseases.⁶⁶ The company embarked on serious sensitisation of Africans about the dangers of venereal diseases.⁶⁷ In addition, elders in both Roan and Mpatamatu took up a stance to talk against immorality in the compounds which was slowly destroying their culture.⁶⁸

It is prudent to mention here that it was not easy to reduce the cases of STIs at the mine because the number of unmarried women kept on increasing. These loose women were admired by those who were married because the former had money through prostitution and looked modernised. This situation influenced married women to engage themselves in extra marital affairs. To this end, RST realised that the solution to prevent STIs was to encourage marriages among Africans. The mine was slowly realising that employing preventive measures against diseases was the best way than curative. It was from that perspective that RST made sure that African miners who made up almost 80% of labour at the mine were protected, whether working on the surface or underground.

First Aid Department

Before 1930, Africans were deployed without preliminary training on general safety rules. However, after 1930, the mine decided to give Africans preliminary training and information before they worked on the mine to reduce the cases of accidents.⁶⁹ The first training in First Aid at Roan Antelope Mine commenced in 1931.⁷⁰ A class of forty Africans was conducted through a syllabus of twelve lectures which constituted the courses laid down by the South Africa Red Cross Society. There was an overwhelming response as over 5,000 recruits were given a short

⁶⁶ MIA/ Box 27/11.3.3D, Dr. Phillips Report on Venereal Diseases among Africans.

⁶⁷ Jane L. Parpart, "Class and Gender on the Copperbelt: Women in Northern Rhodesia Copper Mining Communities 1926-1964,"

⁶⁸ MIA/ Box 27/11.3.3D, Dr. Phillips Report on Venereal Diseases among Africans.

⁶⁹ MIA/Box 1/12.6.8A, Fourth Annual Medical Report on Roan Antelope, 1933, p. 12.

⁷⁰ MIA/Box 27/11.3.3D, Medical Services and Hospital Charges-Africans.

course of preliminary instruction, which included two lectures on safety practices, discipline and personal hygiene.⁷¹

All underground workers were given what was termed an advance course, which included general rescue work, the treatment of gassing and electrocution cases as well as the usual methods of dealing with general injuries.⁷² New Africans were given a course of lectures on discipline, general safety practice, sanitation and personal hygiene, prior to their being allotted to different departments for work. Rubber leggings, boots and coats for underground Africans and safety chains were supplied.⁷³ The wearing of boots was largely responsible for reducing the number of foot injuries. In general, better feeding, better housing conditions, good sanitation and improved health services were important factors that increased the stamina of the labour force.

As part of its efforts to improve health of Africans at Roan Antelope Mine, the RST decided to build a modern and well-equipped African hospital in 1936. The hospital replaced a grass thatched one which lacked modern technologies such as an operating theatre and other equipment.⁷⁴ Figure II below shows the first Roan African Hospital which was replaced because it lacked equipment. Watson emphasised that it was important to build a modern and well equipped African hospital to provide facilities of good clinical work with trained staff for both Africans and Europeans.⁷⁵

⁷¹ MIA/Box 27/11.3.3D, Medical Services and Hospital Charges-Africans.

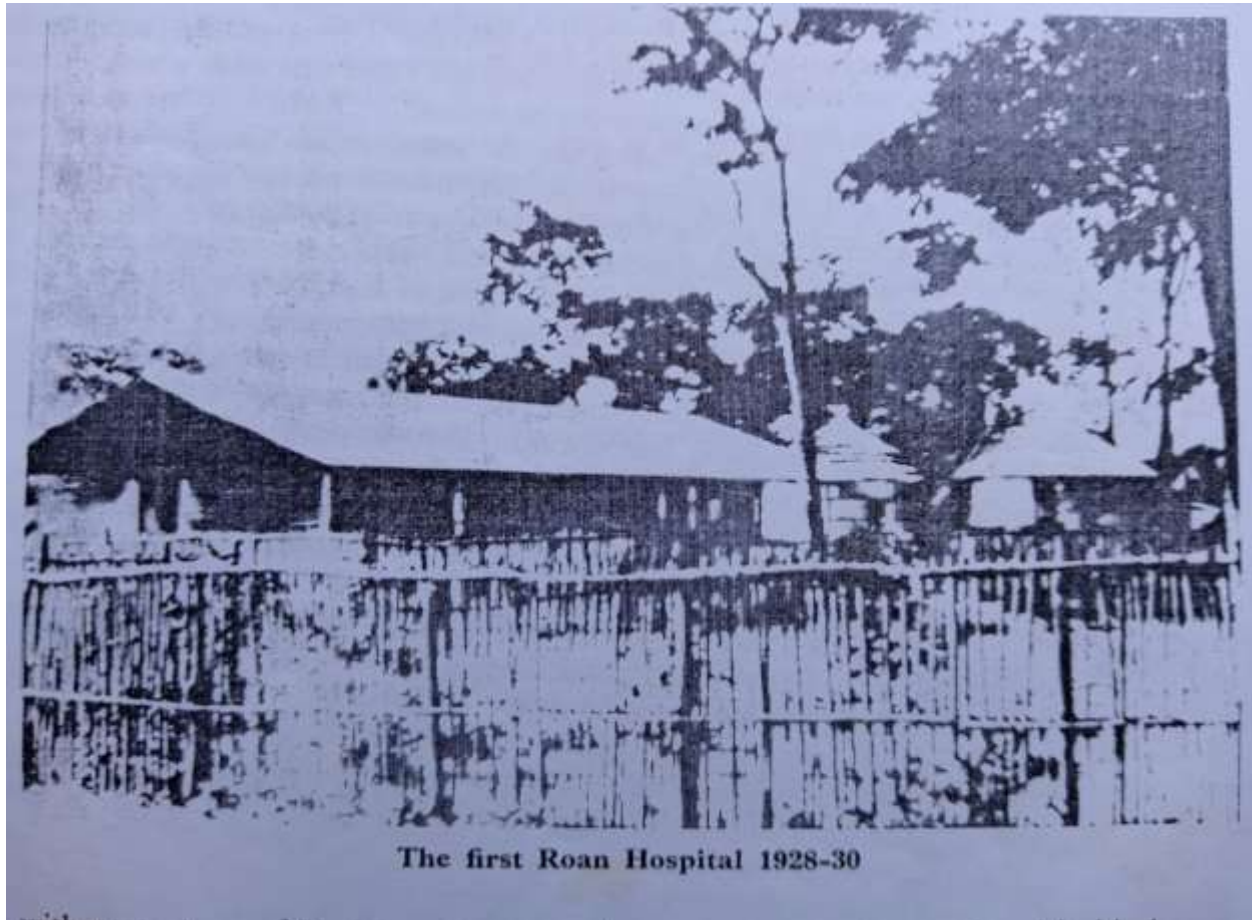
⁷² MIA/Box 27/11.3.3D, Medical Services and Hospital Charges –Africans.

⁷³ MIA/Box 1/12.6.8A, Fourth Annual Medical Report on Roan Antelope, 1933, p. 12.

⁷⁴ MIA/Box 1/12.6.8A, Third Annual Medical Report on Roan Antelope, p. 8.

⁷⁵ “Rhodesian Selection Trust Looks on 40 Years,” p. 20.

Figure II The First Roan Hospital 1928-1930



Source: L. M. Rodger, "The Development of Medical and Health Services at the Roan Antelope," *Northern Rhodesian Journal* 5 (1962-1964).

Modern Roan African Hospital

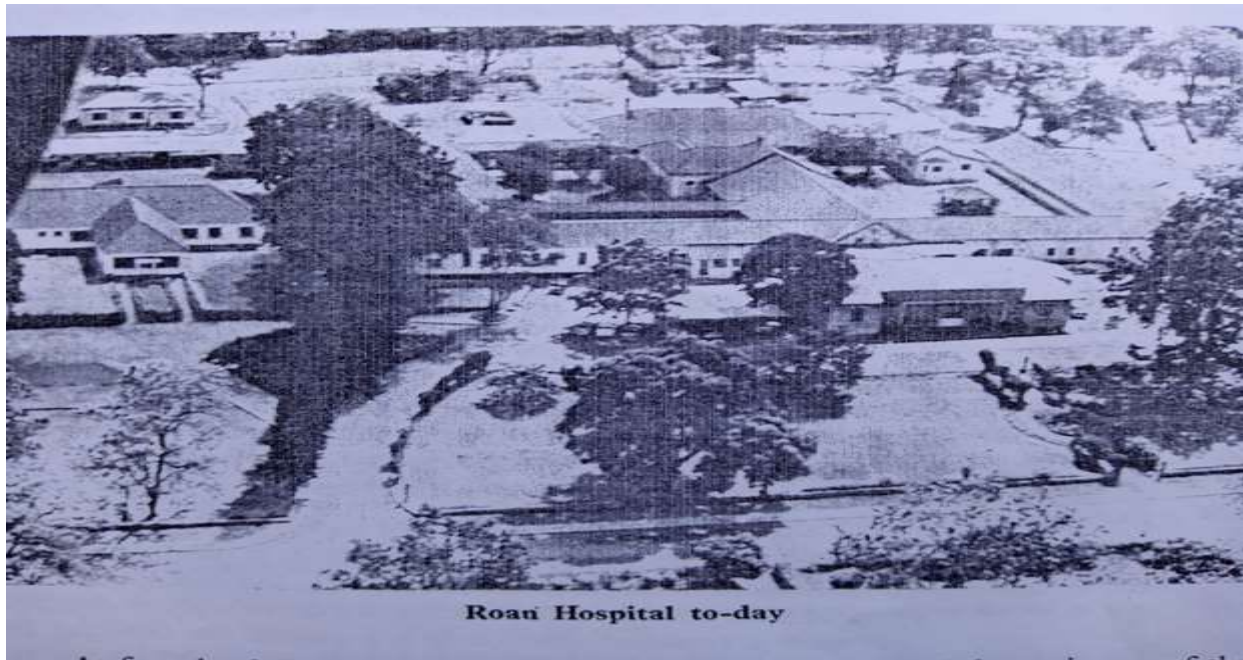
After the Economic Depression of 1929 -1933, the company increased its expenditure on preventive measures run by its health department from £543.3.9 in 1934 to £749.2.9 in 1935 and to £1.241.8.0 in 1938.⁷⁶ By 1935, the RST erected a hundred and eighty beds modern hospital in the African compound equipped with both diagnostic and therapeutic aids like x-ray and ultraviolet plants, a diathermy machine, microscopes and surgical equipment.⁷⁷ The expenditure

⁷⁶ MIA/Box 2/11.2.2F, African Medical, Welfare General, 1933-1952.

⁷⁷ MIA/Box 2/11.2.2F, African Medical, Welfare General, 1933-1952.

on hospital drugs, food for patients and health departmental services also increased. The general improvement in health delivery was intended to benefit African miners whose labour was of direct value to copper production.

Figure III The Modern Roan Hospital in 1936



Source: L. M. Rodger, "The Development of Medical and Health Services at the Roan Antelope," *Northern Rhodesian Journal* 5 (1962-1964).

In addition to equipment, the hospital was rich in human resource as it consisted of the Chief Medical Officer Dr. John M Phillips, his assistants Dr. L.M. Rodger, Dr. J.H. Symington, and Matron Miss M. F. Harris, nursing sisters Miss K. Hill, S. Morrell, Miss D. Thorne and Miss. E. Williams. Others were Laboratory Technician R. B. English, Hospital Secretary and dispenser C. Stubbs, African hospital superintendent P. F. Steele and his assistant H. Spencer.⁷⁸ The invitation of different medical experts from all over the world to help in dealing with afflictions laid down a solid foundation for medical services in Luanshya. The employment of medical experts from

⁷⁸ MIA/Box 2/12.6.8A, Annual Medical Services Report on Roan Antelope, p. 13

other countries was the greatest strategy the RST used to institute preventive and curative measures that challenged health problems at Roan.

In March 1936, Dr Charles Fisher joined Roan Medical Department as Chief Medical Officer replacing Dr Phillips. Charles Fisher, the youngest of eight children of Dr. Walter Fisher, was born in Northern Ireland, in 1905, while his parents were home on leave.⁷⁹ Dr. Fisher grew and spent most of his time in Africa, hence his knowledge of African diseases. Before settling on the mine, Dr. Fisher did a research on bilharzia in the Congo in 1933 to 1934.⁸⁰

In 1934, Dr. Fisher became Assistant Senior Medical officer at Nkana mine, but in March, 1936, he was offered and accepted the post of Chief Medical Officer at Roan Antelope Mine where he lived for twenty two years.⁸¹ As the only senior surgeon on the Copperbelt for a long time, his daily round was hectic; he carried the burden of most of the major surgery of the whole Copperbelt. According to his first born son who is today a medical doctor in England, Stewart Fisher, Dr. Charles Fisher built up the Roan medical department with services that were second to none in Northern Rhodesia.⁸² On the figure below from left seated are Dr Jack Dowds, Dr Lovel Rodger and Dr Charles Fisher the Chief Medical Officer.

⁷⁹ MIA/Box 27/11.3.3D, Medical Services and Hospital Charges-Africans.

⁸⁰ Dr. Charles Fisher, "Research on Bilharzia in the Belgian Congo 1933-1934," *Transactions of the Royal Society of Tropical Medicine and Hygiene* 38, 3 (1934), p. 345.

⁸¹ Monica Fisher, *Nswana-The Heir: The Life and Times of Charles Fisher a Surgeon in Central Africa* (Ndola: Mission Press, 1991), 57.

⁸² "Profile of Charles Fisher," *Horizon* 6 (1964), p. 32.

Figure IV

The Medical Staff at Roan Antelope Mine in 1936



Source: L. M. Rodger, "The Development of Medical and Health Services at the Roan Antelope," *Northern Rhodesian Journal* 5 (1962-1964).

Dr. Charles Fisher pioneered outpatient clinic services at Roan so successfully that they were adopted by other mines and became a feature of Copperbelt medicine.⁸³ He also played a leading role in the forming of the Northern Rhodesian Branch of the British Medical Association and for many years, he served as its president. His wife Dr. Monica Fisher in her book the *Nswana- the Heir* points out that throughout his life, Charles Fisher devoted himself to working for African

⁸³ MIA/Box 2/11.2.2F, African Medical Welfare, General.

welfare and in 1945 was considered to be a natural choice for the position of nominated member representing African interests in the Legislative Council.⁸⁴

In general, Roan Antelope Mine, a place once nicknamed a ‘death valley’ became one of the most and exciting places on the Copperbelt by the end of the 1930s. The company managed to control health challenges by instituting medical services that were second to none in the province. The reduced mortality and morbidity rates around 1938 were clear testimony that diseases had been brought under control. Although unwilling to spend large sums of money on medical services before 1930, RST’s effort to deal with diseases paid off so handsomely that Roan Antelope became renowned for its best health records. The hospital was so well-equipped that it handled all cases at the mine.

Conclusion

The chapter has analysed the earliest medical measures that Roan Antelope Mine undertook from 1928 to 1938 to solve major health problems and diseases that afflicted European and African miners. The chapter demonstrated that medical services at Roan Antelope Mine developed in tandem with changing disease patterns, the earliest being the anti-malarial campaign of 1929 to 1932. With the defeat of malaria in the early 1930s, the chapter indicated that RST turned attention to providing medical services to combat diseases of poverty. It further revealed that RST inaugurated safety measures to prevent accidents on the mine. The chapter demonstrated that the early health measures at Roan Antelope Mine proved to be effective because RST built a modern and well equipped Roan hospital. Accompanied by improved living and working conditions, Roan hospital played a pivotal role during the Second World War which broke out in 1939.

⁸⁴ Interview, Dr. Stewart Fisher son of Dr. Charles Fisher former Chief Medical Officer Roan Antelope, 5th February, 2017.

CHAPTER FOUR

AFRICAN HEALTH SERVICES DURING AND AFTER THE SECOND WORLD WAR, 1939-1952.

Introduction

The chapter discusses the provision of health services at Roan Antelope Mine between 1939 and 1952. The chapter argues that the emergence of industrial diseases, notably silicosis and tuberculosis during the Second World War created an impetus to provide preventive health measures to protect miners. The chapter reveals that as part of making African labour healthy at Roan Antelope Mine, RST recognised the value of preventive medicine by erecting clinics in the African compounds to provide services such as health education, a feeding programme, maternity services, vaccination and immunisation to prevent diseases. The chapter shows that in 1943, RST started training African nurses to work in the newly built clinics and the hospital at Roan. The chapter further discusses the colonial government's role in forming the Chamber of Mines to deliberate all mine issues, Silicosis Medical Bureau to carry out medical and radiological examinations and Workmen's Compensation Board to compensate both Europeans and African miners.

Measures against Industrial Diseases (Silicosis and Tuberculosis)

On 7 February, 1939, the Director of Medical Services, Industrial Diseases Committee Chairperson Frank Ayer, and the general managers of the Northern Rhodesian Mining Companies met in Ndola to discuss the problem of industrial diseases.¹ The purpose of the meeting was to investigate whether the composition of rocks on the Copperbelt was on the position to cause silicosis or silicotic miners contracted the disease before getting to Northern

¹National Archives of Zambia/MH1/9/1/3275, Industrial Diseases Committee Minutes, 1939.

Rhodesian Mines. In the meeting, each mine was requested to submit average composition of rocks with special reference to the percentage of free silica.² The mines were also requested to submit dust prevention and control measures, miners' chest x-rays and their clinical history.³

On 12 June 1939, Roan Antelope Mine submitted a comprehensive report to the Industrial Diseases Committee in which free silica content of the rock in the ore bed was 15 per cent as compared to 70-75 per cent on the Witwatersrand Reef.⁴ The ventilation at Roan Antelope Mine was 130 cubic feet per minute per person as compared to 30 cubic feet per minute per person which was the standard required on the Reef.⁵ Mr. Peterson, the General Manager, explained that the methods employed at Roan Antelope Mine were in accordance with Mr. Fawdry's notes (Chief Inspector) and the precautions taken were adequate.⁶ The cases of silicosis and pulmonary tuberculosis recorded at Roan were those of persons who contracted either the former or later before going to Luanshya.⁷

Under ventilation, the volume of air circulating through the production areas of the mine was 425,000 cubic feet per minute or 170 C.F.M per person.⁸ This very large volume of air from two to three times the requirements per person was provided purely to ensure maximum dilution of dust in the mine atmosphere. On drilling, it was reported that water was piped to all working places and an adequate supply was available for wetting down the walls, drilling and wetting

² Mining Industry Archives/Box13/10.8.2B, Industrial Diseases-Silicosis, 1940

³ NAZ/MH1/9/1/3275, Industrial Diseases Committee, 1943.

⁴ NAZ/MH1/9/1/3275, Industrial Diseases Committee, 1943; MIA/Box24/10.3.10B, Roan Antelope Copper Miner, Report on Ventilation and Dust Control for Prof. J.A.S Ritson, 1947.

⁵ MIA/Box13/10.8.2B, Industrial Diseases-Silicosis, 1933-1940; MIA/Box13/10.8.2B, Roan Antelope Report by Manager 13th April, 1939

⁶ MIA/Box13/10.8.2B, Roan Antelope Report by Manager, 13th April, 1939; MIA/Box10/15.1.3B, Northern Rhodesian Government, Mines Departmental Annual Reports, 1948-1953, p. 13.

⁷ MIA/Box13/10.8.2B, Industrial Diseases-Silicosis; MIA/Box24/10.3.10B, Roan Antelope Copper Miner, Report on Ventilation and Dust Control for Prof. J.A.S Ritson, 1947.

⁸ NAZ/MH1/9/1/3275, Industrial Diseases Committee; NAZ/ML8/1/2/6163, Silicosis Bureau and Compensation Board Staff, 1949-1955.

down the rock pole before and during lashing operations.⁹ The rock drills were all of the water-fed type and no miner was allowed to drill in the dry places. The ventilation was under the direct control of a qualified ventilation engineer with previous experience on the Rand mines and in America.¹⁰

After receiving reports from four mines, the Industrial Diseases Committee published a report On 13 May 1940 revealing that working in the geological formations found in the copper mines of Northern Rhodesia did contain the potential risk of silicosis, given sufficient length of exposure to dust.¹¹ Following this report by the Industrial Diseases Committee, the Northern Rhodesia Chamber of Mines was formed at the end of 1940.¹² In July, 1942, Dr. L.G. Irvine, a silicotic expert from South Africa advised the Chamber of Mines to compensate miners who contracted silicosis within Northern Rhodesia pending introduction of any legislation in the country.¹³

In November, 1943, a commission was appointed by the colonial government to examine certain aspects of the silicosis in connection with temporary and permanent legislation.¹⁴ The main purpose of the commission was to investigate silicosis conditions in Northern Rhodesia in relation to other countries and industries. The commission contained legal, medical and mining experts with experience of silicosis conditions and legislation in South Africa and overseas countries who took evidence and did recommendations for a permanent legislation for Northern

⁹ NAZ/MH1/9/1/3275, Industrial Diseases Committee; NAZ/ML8/1/4/6163, Pneumoconiosis Medical and Research Bureau Appointment of Actuary, 1950-1948.

¹⁰ MIA/Box13/10.8.2B, Roan Antelope Report by Manager, 13th April, 1939; NAZ/BOX57D/11, Northern Rhodesian Commission of Inquiry.

¹¹ MIA/Box13/10.8.2B, Industrial Diseases-Silicosis, 1943.

¹² MIA/Box13/10.8.2B, Industrial Diseases-Silicosis, 1944.

¹³ MIA/Box13/10.8.2B, Industrial Diseases-Silicosis; NAZ/SEC1/1323, Native Labour Desertion and Absenteeism, 1923-1948.

¹⁴ NAZ/MH1/4/31/3219, Occupational Diseases General, 1943; NAZ/Box57G/11, Northern Rhodesian Commission of Inquiry.

Rhodesia. The commission was also mandated to compensate miners who contracted silicosis in Northern Rhodesian mines before the establishment of the Silicosis Medical Bureau.¹⁵

In May, 1944, the commission advised government to form a Northern Rhodesian Silicosis Medical Bureau.¹⁶ In the same year, 1944, the colonial government invited J. de V. Lambrechts to carry out a comprehensive silicosis dust and ventilation survey.¹⁷ Lambrechts' report on silicosis was so powerful that it guided Roan Antelope's ventilation and dust control beyond reproach. On 12 December, 1944, the colonial government, following the commission and Lambrechts' recommendation, established the Silicosis Medical Bureau to carry out medical and radiological examinations.¹⁸ In addition to the Silicosis Medical Bureau, a new Workmen's Compensation Ordinance covering both European and Africans was formed on 1 March, 1945.¹⁹ The Ordinance amended the previous provisions in respect of workmen's compensation and greatly increased the compensation rates for both European and African miners.²⁰

The silicosis legislation introduced in 1945 was based on the practice in the Union of South Africa. Under Northern Rhodesian regulations, a miner was entitled to compensation either in the form of a pension or in form of a lump sum paid in monthly instalments.²¹ The miner had the right to refuse benefits in the first or second stages of silicosis and continue working, but ceased underground employment when the third stage was contracted.²² On the other hand, tuberculosis, with or without silicosis, was a compensatory disease and it was a complete bar to underground employment.

¹⁵ NAZ/MH1/4/31/3219, Occupational Diseases General, 1944.

¹⁶ MIA/Box10/15.1.3B, Industrial Diseases-Proposal Commission, 1945.

¹⁷ NAZ/MH1/4/31/3219, Occupational Diseases General, 1945.

¹⁸ MIA/Box11/10.8.1B, Industrial Diseases Silicosis, 1945; NAZ/MH1/4/31/3219, Occupational Diseases General.

¹⁹ MIA/Box90/16.2.6F, Silicosis Prevention Regulations, 1945-1956; MIA/Box13/10.8.2B, Roan Antelope Report by Manager, 13th April, 1939.

²⁰ MIA/Box10/15.1.3B, Industrial Diseases-Proposal Commission; MIA/Box11/10.8.1B, Industrial Diseases-Silicosis, 1949-1956.

²¹ MIA/Box11/10.8.1B, Industrial Diseases Silicosis, 1945.

²² NAZ/MH1/5/16/3237, Silicosis: The Mining (Silicosis Prevention) Regulations, 1945.

At Roan Antelope Mine, regular examinations of all miners became compulsory. The mine issued the red ticket similar to the one they used in South Africa to miners who qualified to work underground. Both African and European miners were thoroughly scanned before taking an underground job.²³ For the first five years, an African miner was tested by weighing as was the case on the Rand mines but thereafter he received a twice yearly x-ray examination. The RST took this policy so seriously that certificates were issued to miners after undergoing thorough examinations. Initial certificates in Northern Rhodesia were certified by the Director of Medical Services. This was after the candidate underwent clinical and radiological examination and found free from any diseases of the respiratory organs and in all respects fit for work as a miner.²⁴

The company also increased the volume of air circulating through the production areas of the mine from 130 cubic feet per minute per person to 170 C.F.M per person.²⁵ The increased ventilation was purely provided to ensure maximum dilution of dust in the mine atmosphere. The company made sure that water was piped to all working places to adequately wet down the walls. The rock drills were all of the water- fed type and no miner was allowed to drill in dry places. In addition to this, the RST employed qualified ventilation engineers with previous experience on the Rand mines and in America.²⁶

To ensure close monitoring of silicosis, the Silicosis Medical Bureau advised mining companies to conduct a post-mortem for any death of either European or African miner to establish the cause. If a medical officer suspected the presence of silicosis or tuberculosis when doing a post-mortem on a deceased miner, heart and lungs were to be sent to South Africa for examination.²⁷

²³ MIA/Box11/10.8.1B, Industrial Diseases Silicosis, 1945; MIA/Box20/10.8.4C, Ventilation and Dust Control Reports on Roan, 1945.

²⁴ MIA/Box90/16.2.6F, Silicosis Prevention Regulations 1943; NAZ/ML8/1/5, Pneumoconiosis Medical and Research Equipment, 1951; MIA/ Box7/11.2.10A, Directors Annual Meetings, 1947.

²⁵ MIA/Box90/16.2.6F, Silicosis Prevention Regulations 1943.

²⁶ MIA/Box90/16.2.6F, Silicosis Prevention Regulations 1943.

²⁷ MIA/ Box7/11.2.10A, Directors Annual Meetings 1948; MIA/Box11/15.2.5A, Industrial Diseases Commission, 1949.

However, due to superstition, the post mortem was only done with permission from the family of the deceased.

It is also prudent to mention here that during the Second World War period, the colonial government supported mining companies to ensure that there was maximum production of copper as demanded by the mother country. For example, the government increased funding to the health department at Roan Antelope Mine from £172,544 to £218,692 to pay medical personnel and capital expenditure.²⁸ On January, 1947, the Legislative Council appointed Dr. J.F.G. Haslam, the Director of Medical Services, to take up the position of Director of the Medical Silicosis Bureau.²⁹ The government appointed Dr. Haslam because of his experience in research, planning and legislation.³⁰

Although measures to control industrial diseases were put in place, the number of miners suffering and dying from silicosis and tuberculosis was high in the post war period. This was confirmed by the Governor Sir Gilbert McCall Rennie in the Legislative Council meeting in 1948. The governor expressed concern at the high rate of mortality from silicosis and tuberculosis among African miners after certification and payment of compensation.³¹ In the year 1948, ninety Africans were certified as suffering from silicosis, tuberculosis or both by the Silicosis Medical Bureau.³² Dr. Haslam asserted that silicotic Africans were very liable to get

²⁸ MIA/Box11/10.8.1B, Industrial Disease Silicosis, 1945-1946; NAZ/LGH/6/6/2/3668, Roan Antelope Copper Mines Limited African Labour Inclusive Wage and Better Housing Scheme, 1950-1959.

²⁹ MIA/ Box7/11.2.10A, Directors Annual Meetings 1928-1950; NAZ/MH1/5/16/3237, Silicosis: The Mining (Silicosis Prevention) Regulations.

³⁰ NAZ/SEC1/1375, Establishment of Silicosis Bureau Staff, 1944-1949; MIA/Box95/16.2.7E, African Labour, Fingerprint Identification, 1953; NAZ/SEC 1/1463, African Labour, Fingerprint Identification, 1944-1947.

³¹ MIA/Box11/10.8.1B, Industrial Diseases-Silicosis Medical Examinations, 1952.

³² NAZ/ML8/1/3/6163, Pneumoconiosis Medical and Research Bureau after Care of Africans and Miners, 1950.

tuberculosis and the reduced standard of living in their home villages was a contributory factor to their early deaths.³³

In general, the formation of Silicosis Medical Bureau brought the whole underground mining labour force under regular radiological and medical surveillance.³⁴ At Roan, the RST made sure that preventive health measures were provided at all costs to the families of miners to prevent diseases. The colonial government supported RST in inaugurating clinics in African compounds to prevent diseases that would have impeded the production of copper during the war period.

Hospital and Outpatient Clinics, 1939

Although the erection of clinics in the African townships was a continuation of preventive and curative measures against diseases, the outbreak of the Second World War in 1939 forced the colonial government and Rhodesian Selection Trust to pump in huge sums of money to increase the stamina of the labour force. The clinics were meant to extend health services to African women and children in the compounds with a view to foiling diseases and safeguarding miners' health.³⁵ Health services for both African miners and their families were drastically improved to keep them at work for a long period. It is also prudent to mention the provision of medical services to the children of miners in the compounds to preserve future miners at Roan Antelope Mine.

Although enticing African women and children to go to the clinics or hospital for medical care was not an easy task, RST kept on following them to their huts.³⁶ Sometimes African women went to the hospital very weak as a result of ailments which could have been easily cured in the

³³ NAZ/ML8/1/3/6163, Silicosis Bureau and Compensation Board Staff, 1949-1955; NAZ/ML8/1/3/6163, Pneumoconiosis Medical and Research Bureau after Care of Africans and Miners, 1950; NAZ/ML8/4/6, Silicosis Compensation Board Annual Reports, 1948-1955, p. 24

³⁴ NAZ/ML8/4/6, Silicosis Compensation Board Annual Reports, 1948-1955, p. 24; MIA/Box6/12.7.5C, Medical Research, 1948.

³⁵ Rodger, "The Development of Medical and Health Services at the Roan Antelope," *Northern Rhodesian Journal* 5 (1962-1964), p. 137; MIA/Box10/15.1.3B, Roan Antelope Medical Annual Report, p. 6.

³⁶ Mining Industry Archives/Box95/16.2.7E, Average Service of Europeans and Africans in Service, 1939-1956.

initial stages, or, very often, childbirth complications which could have been corrected or prevented if discovered earlier. It is very clear that around 1939, fear of the hospital was still evident particularly amongst the wives of African miners. Some of these superstitious spouses persuaded many employees to go out of the compound looking for herbal medicine when illness occurred instead of going to hospital.³⁷

In 1939, RST established the first maternity centre by equipping a standard miner's house with sanitation and taking over two neighbouring rooms to house midwives.³⁸ Dr. Charles Fisher, the man behind this scheme, made sure that all African babies were born under the supervision of health personnel in the clinics. To accomplish this, untrained African women had to be taught a little and carefully supervised by a trained nurse.³⁹ The sister-in-charge, Miss Trotter, explained that greatest progress was made in ante-natal work although she admitted that expectant mothers came up merely to obtain the presents of food-stuffs which were offered to them as inducements.⁴⁰ However, the habit was slowly inculcated and African women went to clinics for routine examinations. For example, in 1939 a total of 6,743 attendances were made at the welfare centre.⁴¹

The scheme of building clinics was well supported by the company in that a permanent outpatient clinic was constructed in 1939 in Section Five, and further a similar building was erected in Section Two in 1940.⁴² At that time, the African staff which originally consisted of one helper, increased to seven; three clerks/orderlies and four African nurses. The total annual

³⁷ MIA/Box95/16.2.7E, Average Service of Europeans and Africans in Service; MIA/Box10/15.1.3B, Roan Antelope Medical Annual Report, 1939, p. 10.

³⁸ Rodger, "The Development of Medical and Health Services at the Roan Antelope," p. 138.

³⁹ MIA/Box10/15.1.3B, Roan Antelope Annual Medical Report, 1940, p. 8.

⁴⁰ Charles A. Fisher, "40 Years of Medicine on the Copperbelt," *Horizon* 11, 12 (1969), p. 6; Tony Howard, "The Efficient World of the Mine Hospitals," *Horizon* 3, (1961), p. 4. MIA/Box10/15.1.3B, Northern Rhodesian Government, Mines Departmental Annual Reports, 1931-1949.

⁴¹ Fisher, "40 Years of Medicine on the Copperbelt," p. 7.

⁴² MIA/Box2/11.2.2F, African Medical Welfare General, 1939. MIA/Box10/15.1.5B, Northern Rhodesian Government, Mines Departmental Annual Reports, p. 56. MIA/Box11/12.7.9A, Stabilisation of African Labour, 1946-1958.

attendances increased from 32,377 in 1939 to 56,148 in 1940.⁴³ The policy of giving food to Africans continued as pregnant women were encouraged to go for examinations by getting tickets for meat from the food distribution centre in the compound. All these were done to prevent diseases and keep miners at work during the war period.

From 1939, there was a good liaison between the colonial government and the RST in terms of health service delivery. The government agreed to bear half of the expenses, both in capital and running costs of the welfare centres and of the outpatient clinics as they developed.⁴⁴ In return for this assistance, the RST declared itself willing to treat all African women and children in clinics, whether dependents of employees or non-employees. The agreement meant that non-mine employees could access medical services from the clinics in African compounds but for hospital services, they went to a government hospital in Ndola.⁴⁵

In 1940, Mine Chief Medical Officers met the Director of Medical Services in Kitwe to give statistics of the work in clinics and converse on how to improve health services for African women and children.⁴⁶ In the meeting, the Director of Medical Services assured the companies that the government had a direct responsibility on health services in mine compounds.⁴⁷ Following the Director's declaration, on 20 November, 1940, the colonial government approved a grant of £600 per annum from beer-hall funds to Roan Antelope Mine to cover the salaries of two welfare sisters plus £50 per annum motor car allowance for one of the sisters. In addition, a grant of £300 was approved from beer hall funds for the salary of a third welfare sister, making a total annual grant for recurrent expenditure of £950 in respect of three welfare sisters. There was

⁴³ Fisher, "40 Years of Medicine on the Copperbelt," p. 7; MIA/Box1/22.1.10C, Consecutive General RST Ltd, 1933-1946.

⁴⁴ MIA/Box2/ 11.2.2F, African Medical Welfare General; MIA/Box10/15.1.3B, Northern Rhodesia Government, Mines Departmental Annual Reports, p. 23.

⁴⁵ MIA/Box2/ 11.2.2F, African Medical Welfare General, 1940.

⁴⁶ MIA/Box2/11.2.2F, African Medical Welfare General, 1941; MIA/Box10/5.1.3B, Northern Rhodesian Government, Mines Departmental Annual Reports, 1931-1949, p. 11.

⁴⁷ MIA/Box10/15.1.3B, Roan Antelope Annual Medical Report, 1940, p. 7.

also a grant of £350 for non-recurrent or capital expenditure authorised to cover the cost of building a third clinic in Roan compound.⁴⁸

Both the colonial government and RST wanted to keep the labour force healthy for maximum production of copper.⁴⁹ Collectively, they instituted regular infant-feeding in all clinics at Roan and Mpatamatu compounds. They made sure that there was enough supplement of food, notably skimmed milk, minced meat and beans to children in the one to two year age group to keep them in normal health.⁵⁰ This scheme helped many Africans at Roan and in the 1940s, there were five large and fully-equipped clinics in the mine compounds. The staff increased to five European nursing sisters, each of whom had from twelve to fourteen fully trained and partially-trained Africans to assist her.⁵¹ The services of the clinics followed the pace at which the population grew as in 1939 only twenty five deliveries were recorded compared to 2,273 babies born in Roan clinics in 1962.⁵²

The enormous value of the work carried out in these clinics was quickly seen by many people that within a year or two, similar clinics were launched on other mines. Similarly, the pattern of government clinics was greatly influenced by the Roan prototype, particularly with regard to arrangements for maternity work. Certainly, one of the first clinics, the Luanshya Government Clinic, was built to a design prepared by Dr. Fisher and Roan's idea of attaching a maternity annex to each outpatient centre was generally adopted.⁵³

The colonial government continued rendering support to the clinics and inspecting the health of the miners to ensure that they remained healthy. On 12 February, 1941, the Director of Medical

⁴⁸ NAZ/MH1/2/42, Luanshya Public Township-African Clinic, 1942.

⁴⁹ NAZ/MH1/2/42, Luanshya Public Township-African Clinic, 1942; MIA/Box90/16.2.6F, Publicity, Copper Mining Industry, February 1930-June 1947.

⁵⁰ MIA/Box27/11.3.3D, Medical Services and Hospital Charges-Africans, 1941.

⁵¹ MIA/Box27/11.3.3D, Medical Services and Hospital Charges-Africans, 1942.

⁵² MIA/Box27/11.3.3D, Medical Services and Hospital Charges-Africans, 1942.

⁵³ Rodger, "The Development of Medical and Health Services at the Roan Antelope," p. 138.

Services Dr. J.F.C. Haslam approved a grant-in-aid of £400 to provide and equip an additional clinic in a section of the mine compound at Roan Antelope Mine.⁵⁴ The government made another payment to the RST, a grand-in-aid of £300 in 1941 to employ an additional nursing sister.⁵⁵

The 50% fees from government were meant for non-mine employees who were its responsibility in terms of social services. Although government contributed to in-patient capital expenditure, the jurisdiction and operation of the hospital remained entirely with the company. However, government had the right of entry to inspect the health facilities and the services. The colonial government's task, therefore, was to see that the mining companies provided adequate hospital and medical facilities for the dependents of their African employees as stated in the Employment of Africans Ordinance of 1931.⁵⁶

On 6 January, 1947, an agreement was made between Roan Antelope Copper Mine and Samuel Rodney Malcomson, a Dental Surgeon. The company set aside and equipped a room in its hospital at Roan Antelope Mine for use as a dental surgery.⁵⁷ The dentist attended to Africans who had dental problems without any charges. The company made sure that quality precautionary and restorative health measures were provided to African miners and their families to enhance effective production.

On 21 November, 1947, Roan Hospital Management advised RST to build a separate ward for children as a way of improving health delivery.⁵⁸ A new ward was built specifically for children and extra European sisters with female African assistants were put in charge of this ward. A

⁵⁴ MIA/Box27/11.3.3D, Medical Services and Hospital Charges-Africans; MIA/Box27/11.3.3D, Letter from the Director of Health Services, 12th February, 1941.

⁵⁵ MIA/Box27/11.3.3D, Medical Services and Hospital Charges-Africans; NAZ/MH1/2/42, Luanshya Public Township-African Clinic.

⁵⁶ MIA/Box28/12.3.6B, Medical Services Africans Operation of African Hospital, 1941-1959; MIA/Box6/12.7.5C, Health and Sanitation Regulations, 1948.

⁵⁷ MIA/Box12/10.8.2A, Dentistry Correspondence, 1948; MIA/Box28/12.3.6B, Dentistry, 1948.

⁵⁸ MIA/Box28/12.3.6B, Medical Services Africans Operation of African Hospital, 1948.

European sister was put in charge and was always on duty including night time.⁵⁹ Any mother with a very young baby who was ill was allowed to stay in a room near the child. The mother was permitted to feed the child at the right times during the day and at night time when the sister called her to feed the baby. However, the mother was not allowed to take her child out to bath. Strict deterrent measures were prioritised to prevent outbreaks of diseases that could have disrupted operations on the mine during the war period. The good preventive measures at Roan were quickly admired in the province by other mines who were still struggling.

A good example was on 29 February, 1948, when Mary Bentley of Mufulira wrote to Hammond of Roan Antelope to inquire how she managed the social welfare department.⁶⁰ In her letter, she explained that Mufulira clinic had quite a number of starved babies and they only gave them milk and cod liver oil. She wanted information on how they managed to run a soup kitchen at the clinics in Roan townships and where they got the money to buy the meat.

In her reply, Hammond⁶¹ explained that mothers got breast massage, cocoa and one good square meal daily at the welfare centre to encourage them to feed babies. The mothers were instructed to commence giving porridge to babies at six months and at seven months, bone and vegetable soup. For children who were one and a half years or two, their mothers got a card signed by Hammond and on showing it, the child got one meal a day at the welfare centre. The meal consisted of a special soup called Sun Rho Dehydrated Soup Mix containing meat and vegetables.⁶²

Hammond further explained that the management board gave her £180 a year for the soup programme. She mentioned that her work was successful because of Dr. Charles Fisher, the

⁵⁹ MIA/Box2/11.2.2F, African Medical Welfare General, 1949.

⁶⁰ MIA/Box27/11.2.2F, Mary Bentley Letter to Mrs. Hammond Roan Antelope, 29 February, 1948.

⁶¹ MIA/Box27/11.2.2F, Hammond Letter to Mrs. Mary Bentley, Mufulira, 2nd March, 1948.

⁶² MIA/Box27/11.2.2F, Letter to Mrs. Mary Bentley.

Chief Medical Officer who had interest and influenced the board to fund the scheme.⁶³ She also thanked Mr. Stevens, the District Commissioner, who assigned a messenger for two or three days in a week to go round the compound to check ante-natal cards for pregnant women and weigh card for babies. The messenger further checked the mothers to ascertain if they were examined for malaria, hookworm and bilharzia because vaccination was encouraged at all costs in the compound.

The company made sure that there was regular inspection in the compounds and those found to be diseased were treated. Extra meals for school children were given at the welfare hall. There was also inspection of food handlers such as store-boys, beer hall workers, and those found sick were treated. As per company policy of routine check-ups, the huts were inspected frequently and the women advised on general cleanliness.⁶⁴

By early 1950s, there were six clinics situated in sections Two, Five, Seven, Nine, Ten of Roan Township and one in Mpatamatu Township.⁶⁵ These clinics operated 24 hours a day. Their function, as already alluded to, was to deal with all dependents of mine employees residing in the townships, provide general treatment for different sicknesses or minor accidents and, more importantly, attend to maternity cases. According to Barnabas Lengwe, a former houseboy in the European community, all clinics, other than that in Section Ten, had a labour room where babies were born and lying-in room where mothers could rest after giving birth. Similarly, antenatal and post-natal services were provided and the medical officer visited each clinic daily to examine serious cases.⁶⁶ Those that required hospitalisation were sent to the hospital by ambulance. There were approximately two thousand babies delivered in the clinics each year. The company made

⁶³ MIA/Box27/11.2.2F, Letter to Mrs. Mary Bentley; MIA/Box28/12.3.6B, Report on Luanshya Public Township Clinic Supervised from 18th January to 27th April, 1946 by Dr. M. Fisher.

⁶⁴ MIA/Box28/12.3.6B, Report on Luanshya Public Township Clinic Supervised from 18th January to 27th April, 1946 by Dr. M. Fisher.

⁶⁵ MIA/Box28/12.3.6B, Medical Services Africans Operation of African Hospital, 1949.

⁶⁶ Interview, Barnabas Lengwe, Former Houseboy in European Compound, Born 1937, Ndola, 5th February, 2017.

sure that extra food for cases of children suffering from malnutrition were provided and fruit was distributed weekly to mothers and babies.

Patients who failed to attend the clinics when on treatment were called on by hut visitors who ascertained the reason for non-attendance and made necessary arrangements to correct the situation.⁶⁷ The close liaison among the clinics, the hospital and the welfare section was maintained at all times. In some cases, where a father worked all day and the wife required hospitalisation, children were cared for by the welfare staff.⁶⁸ In addition, mothers who were ignorant of the correct methods of feeding babies received instruction from the welfare staff in order to correct the situation. They were helped in their difficulties. It was necessary to educate people to the point where they appreciated the fact that hospitals were for their benefit. In other words, the fight against ignorance and superstition was maintained at a high level so that people would come to look upon hospitals and clinics as places where they could receive help, health and in hundreds of cases, their lives were saved.⁶⁹

Due to population increase in the mine compounds and rising African appreciation of medical services, on 5 February, 1951, the Chief Medical Officer complained that the number of non-mine patients treated in the African hospital increased steadily for a number of years.⁷⁰ Dr. Fisher requested the general manager to approach the colonial government to finance the building of two additional wards similar to those already in existence, to accommodate more patients from fifty to sixty. The request was in line with the commitment made by colonial

⁶⁷ Interview, Dr. Stewart Fisher, Son of Dr. Charles Fisher Former Chief Medical Officer Roan Antelope, Kitwe, 5th February, 2017.

⁶⁸ NAZ/WP1/2/15/5240, Annual Reports African Affairs, 1948-1956; Fisher, "40 Years of Medicine on the Copperbelt," p. 7.

⁶⁹ MIA/Box13/15.1.5A, Health and Sanitation, 1950; MIA/Box9/15.1.7B, African Welfare General Luanshya.

⁷⁰ MIA/Box28/12.3.6B, Medical Services Africans Operation of African Hospital; MIA/Box2/11.8.5F, Citizens Handbook, Roan and Mpatamatu Townships.

government to provide 100% capital cost of extensions required to the company hospitals for non-mine patients in centres where there was no government hospital.⁷¹

The government supported the project and during the opening of a new clinic on 7 August, 1952, in Section Nine in Roan Township, Dr. Fisher pointed out that 2,000 African babies were born in clinics in the Roan Antelope Mine compound in 1951. He said that there were 20,000 attendances by women and 200,000 by children, who not only received attention, but were issued with special food.⁷² The opening ceremony was graced by S. Thomson, wife of the General Manager. In her eloquent speech, she congratulated the large gathering of Africans on their use of medical facilities. Similarly, the African hut visitors made a total of 152,985 visits and were instrumental in bringing many sick African females to the clinics that stayed away.⁷³ The table below shows women and children who were examined and vaccinated in 1951.

Table VI 1951 Examination and Vaccination

Newly arrived women examined	2,007
Newly arrived children examined	2,367
Vaccination of women	2,774
Vaccination of children	6,139

Source: Annual Medical Report Roan Antelope 1952

Mine clinics were inaugurated specifically for African women and children to prevent diseases in the compounds that could have spread to miners. The hospital and clinics in the compounds played a pivotal role in bringing the diseases under control during the Second World War era. However, the increased number of clinics in the compounds and that of African women and

⁷¹ MIA/Box9/15.1.7B, African Welfare General Luanshya, 1950.

⁷² Northern News, Luanshya, Wednesday, 7th August, 1952.

⁷³ MIA/Box9/15.1.7B, Roan Antelope Annual Medical Report, 1952, p. 8; NAZ/WP1/1/20/5208, Local Government, Luanshya Management Board Minutes of Board Meetings, 1950-1952.

children seeking medical attention led to critical shortage of trained health personnel. This prompted the RST to open a Nursing School at Roan hospital to train African nurses.

Training of African Nurses at Roan Hospital, 1943

Having instituted clinics in compounds at Roan Antelope, the RST began training Africans in nursing and other health fields to help European nurses. Previously, these people were partially or not trained and worked under the close supervision of European nurses. Their job description was to carry trays of medicines and injections and clean wards. However, the establishment of outpatient clinics and welfare centres demanded a good number of trained health personnel. This forced RST to raise the status of African orderlies by training them as nurses in order to meet the demand for health personnel in clinics and hospital. Other factors that pushed the management to train Africans were population increase, the growing value of the hospital and clinics to African women and children and above all the increasing cases of injuries due to intensification of copper production during and after the Second World War.

Africans were first trained in sanitary work in January 1943 using a scheme compiled by a government Health Inspector.⁷⁴ These helped the Health Inspector to go round African compounds inspecting sources of water supply, markets and African latrines.⁷⁵ They also went round teaching African women about the dangers of lice, fleas, ticks, hookworms and water-borne diseases.⁷⁶ The required educational standard for these inspectors was the junior secondary school certificate, but at first, candidates with Standard Six qualifications were also accepted.⁷⁷ Africans with junior secondary school qualifications were suitable and able after three to four

⁷⁴ Dr. Fisher's Diary, January 1943.

⁷⁵ NAZ/MH1/11/5/3287, African Medical Training School Proposed Sanitary Inspectors Course, 1943.

⁷⁶ NAZ/MH1/11/5/3287, African Medical Training School Proposed Sanitary Inspectors Course, 1943; MIA/Box11/15.2.5A, African Hospital Training Staff, 1943.

⁷⁷ NAZ/MH1/11/5/3287, African Medical Training School Proposed Sanitary Inspectors Course, 1943.

year's study and practice to sit for the examination of the joint East African Examination Board of the Royal Sanitary Institute.⁷⁸

The training of African nurses laid a foundation of nursing schools on the Copperbelt. The first people to be trained were African male orderlies using a handbook for African nursing orderlies manual.⁷⁹ According to the manual, nursing orderlies were in three grades; A, B and C. The nursing orderlies in the C grade wrote and passed an examination on the syllabus before promotion to the B grade. A further examination was conducted for orderlies in the B grade, the orderlies were to be promoted to the A grade. The syllabus of African Male Nursing Orderlies' was simplified because of the level of education. It only consisted of courses like introduction to the skeleton, blood, heart, lungs, food, digestion, excretion and cleanliness. They were also trained in ward management, surgical work, fractures, splints, bandaging, operating theatre, medical nursing, duties in medical wards, diseases and symptoms, practical bed making, temperatures, pulses and laying out trays and types of injections and methods of giving.⁸⁰

The management employed only Africans from the A grade category that could produce written proof and show sufficient practical knowledge to qualify for this grade.⁸¹ It was seldom that a B grade nurse was promoted for an A grade ward work. It was felt that the standard of education of the untrained Africans was too low for them to be taught anything higher than the standard of a first aid worker. In this view, lack of education blocked many Africans who wanted to train as African nursing orderlies because the highest they could go was the position of the first aid worker.

The idea of training African nurses at Roan Antelope Mine impressed the Chamber of Mines so much that on 9 May, 1949, its executive committee met in Kitwe to institute the scheme for the

⁷⁸ MIA/Box11/15.2.5A, African Hospital Training Staff, 1943.

⁷⁹ MIA/Box11/15.2.5A, African Hospital Training Staff, 1945.

⁸⁰ NAZ/MH1/11/5/3287, African Medical Training School Proposed Sanitary Inspectors Course, 1947.

⁸¹ Interview, Ireen Musonda Daughter of former African Male Nurse Orderly, Luanshya, 7th February, 2017.

training of African nurses on the Copperbelt. The chamber approved to train male nurses as the training of female nurses was treated as a domestic matter for each company.⁸² The training consisted of a course of lectures and the syllabus was taken from the Transvaal Mine Medical Officers Association based on Dr. H. T. H. Butti's Handbook for African Nursing Orderlies.⁸³

On obtaining a pass, the candidate was promoted to Group Five, as a qualified male nurse by examination (African hospital) and only maintained his promotion by the renewal of his certificate every two years.⁸⁴ All certificates were stamped with the date of expiry. In addition, the examination was based on examination papers prepared by the local chief medical officers, but all examinations beyond Group Five were based on examination papers prepared by the mine medical officers' committee.

After twelve tickets satisfactory service in Group Five as a nurse-male-qualified by examination (African hospital) and satisfactory attendance at lectures, the employee was entitled to sit for a further examination. To secure a pass, the candidate was required to obtain not less than 70% marks for the examination and not less than 70% marks for previous conduct and record. For this examination, the syllabus was broadened to introduce teaching from the Manual of Instruction for the Royal Naval Sick Staff.⁸⁵ On obtaining a pass, the candidate was promoted to group six as a nurse-male-in charge of a ward; outpatients, mortuary or physiotherapy (African hospital) when there was a vacancy. When the candidate obtained the pass and no vacancy existed, he was entitled to a special increment of five shillings per ticket provided that the increment given did not bring his rate of pay above the maximum rate laid down for group five. The certificate for this examination was renewed after three years.

⁸² MIA/Box2/6.5.5E, Industrial Relations, 1949.

⁸³ NAZ/MH1/11/5/3287, African Medical Training School Proposed Sanitary Inspectors Course, 1947.

⁸⁴ MIA/Box11/15.2.5A, African Hospital Training Staff, 1948.

⁸⁵ MIA/Box11/15.2.5A, African Hospital Training Staff; Interview, Ireen Musonda.

The Chamber of Mines⁸⁶ notified the government about the introduction of the above scheme and asked for co-operation and comments on the proposal. The chamber also requested the Transvaal Mine Medical Officers Association to equip the chamber with some specimen copies of past examination papers set by that association for the examination of African Hospital Orderlies. This training was meant for male nurses alone.

However, the idea of training young girls as African nurses was deliberated in the Mine Medical Officers Committee in April 1950.⁸⁷ It was agreed that African female nurses in group one to receive bedside training along the lines of a form which was based on a more complicated syllabus used for training male African orderlies.⁸⁸ After satisfying the tutor, by oral examination, the female nurse was supposed to be promoted to group two. The nurse was further subjected to an oral examination which permitted her to be promoted to group three after a period of work and training. With the above qualifications, the female orderly was eligible for promotion to group four when a vacancy occurred.

The syllabus and examination for female nurses were very much simplified owing to the fact that English could not be used and interpretation from the vernacular was the only medium of communication. As stated above, African female orderlies did not attend the course of lectures taken by the male orderlies when they were preparing for the examination for promotion from group three to five on account, again, of the language difficulty.⁸⁹ The training of both male and female African nurses continued and reached advanced level in the Federation era as elaborated in the next chapter.⁹⁰

⁸⁶ MIA/Box2/6.5.5E, Industrial Relations, 1948.

⁸⁷ Interview, Dr. Stewart Fisher.

⁸⁸ Dr. Fisher's Diary, 1950.

⁸⁹ MIA/Box2/6.5.5E, Industrial Relations, 1948.

⁹⁰ Rodger, "The Development of Medical and Health Services at the Roan Antelope," p. 139; MIA/Box2/11.8.5F, Roan Antelope Copper Mines Assaults, 1950. NAZ/MH1/5/18/3238, Mining Regulation First Aid Certificate, 1948;

Conclusion

In conclusion, it has been noted that the value placed on copper and the emergence of industrial diseases during the Second World War created an impetus to provide preventive health measures to shield miners. The chapter revealed that as part of making African labour healthy at Roan Antelope Mine, RST recognised the value of preventive medicine by building clinics in the African compounds to provide services such as health education, a feeding programme, maternity services, vaccination and immunisation to prevent diseases. To match with works in the clinics and reduced a number of untrained nurses, the chapter has shown that RST started training African nurses at Roan Hospital in 1943. The chapter further revealed the role played by the colonial government in forming the Chamber of Mines to deliberate all mine issues, the Silicosis Medical Bureau to carry out medical and radiological examinations, and Workmen's Compensation Board to compensate both Europeans and African miners.

CHAPTER FIVE

HEALTH SERVICES DURING THE CENTRAL AFRICAN FEDERATION, 1953-1963

Introduction

The chapter attempts to discuss the provision of health services at Roan Antelope Mine during the Central African Federation from 1953 to 1963. It provides an indication that the Rhodesian Selection Trust (RST) expanded and modernised medical services that extended to non-mine employees to prevent diseases from spreading to miners. The chapter shows that to avoid tension with rising African politicians and trade unions, RST provided modern prophylactic health measures against diseases of poverty such as polio, small pox, bilharzia, typhoid and tuberculosis without help from the Federal government. The chapter argues that the modern and advanced health facilities at Roan induced RST to train State Registered Nurses who were recognised in the three territories of the Federation and their qualification was equivalent to white nurses.

Roan Hospital and Clinics in Federal Era

In September, 1953, the Central African Federation of Rhodesia and Nyasaland was inaugurated. It was dissolved in mid-1963.¹ During this period, many changes were instituted in different departments of government. The idea dismayed both Africans and European workers in Northern Rhodesia because many projects were taken to Southern Rhodesia, all financed by copper mines to the tune of millions of pounds a year. Salisbury, the capital of Southern Rhodesia, earned the nickname “Bomba Zonke”, meaning “grab all”.² This lop-sided development pushed Africans to rise against the formation of the Federation. Hastings Kamuzu Banda began to agitate in Nyasaland, and in Northern Rhodesia, Kenneth David Kaunda and

¹ Monica Fisher, *Nswana –the Heir: The Life and Times of Charles Fisher a Surgeon in Central Africa*. (Ndola: Mission Press, 1990), p. 123.

² Fisher, *Nswana –the Heir*, p. 123.

friends arose. Kaunda gave up teaching and embarked on an energetic countrywide campaign to wake political consciousness among Africans of all tribes. To put much pressure, the move was supported by various influences from outside the country; Nkwame Nkrumah's rise in Ghana, Mahatma Gandhi, Nehru and Jina in India contributed to the idea of young nationalists in Northern Rhodesia.³

In addition, mining companies on the Copperbelt were disappointed with the Federal government because it had stopped subsidizing medical services for non-mine employees to have access in the mine hospitals and clinics. Thus to avoid tension with the African politicians and mine unions who were then up against any maltreatment on African miners, the RST decided to expand and modernise medical facilities at Roan Antelope Mine with or without government's contribution.⁴

To this end, the Roan hospital was expanded to accommodate two hundred beds in the male ward and eighty beds in the female ward against the population of 9,951 mine employees, 6,170 dependents and 9,896 children which made a total of 26,517.⁵ The company beefed up the medical staff in the hospital to five male nurses and two nursing sisters in the male ward, five nursing sisters in the female ward and four nursing sisters in charge of clinics.

The hospital's operating theatre handled approximately 430 major operations each year and practically any operation, no matter how complicated, was performed by the hospital staff.⁶ The hospital's x-ray department was well equipped with modern x-ray apparatus and handled all aspects of x-ray diagnoses.⁷ As per rule, all underground employees were examined and x-rayed at the Pneumoconiosis or Silicosis Bureau in Kitwe. All surface recruits were chest x-rayed at Roan hospital and anyone found unsuitable for employment was rejected. Such people were

³ Fisher, *Nswana –the Heir*, p. 123.

⁴ MIA/Box28/12.3.6B, Health and Medical Services on the Copperbelt, 1954.

⁵ Mining Industry Archives/Box27/11.3.3D, Roan Medical Annual Report, 1951-1959; Interview, Evelyn Musonda Daughter of former Nursing Orderly Roan, Luanshya, 6th February, 2017.

⁶ NAZ/WP1/2/43/5247, Annual Reports African Affairs, 1952, p. 6.

⁷ Interview, Adamson Thawete; MIA/Box28/12.3.6B, Health and Medical Services on the Copperbelt, 1952.

given letters by the medical officer and told to report to a government hospital for treatment. In 1961, 3500 x-rays were taken by this section. The Physiotherapy Department was equipped with the most modern machines. It dealt with cases requiring special therapy following accidents and diseases which affected the muscular make-up of the body.⁸

The clinics in the African townships were busy places rendering services to Africans for 24 hours. The work of the clinics consisted of treating of all females and boys up to the age of about twelve years. The clinics also gave instructions in general hygiene and rendering maternity services through ante-natal, conducting confinements and post-natal care. There was also infant and child welfare work which consisted of providing instructions on feeding and child hygiene, special clinics for weighing babies at regular intervals and generally checking the progress, feeding children showing signs of malnutrition, vaccination and immunisation against infectious diseases and all newly registered dependents.⁹

In addition to the clinics, on 14 February, 1953, the first dental clinic for Africans on the Copperbelt was opened at the Roan Antelope African Hospital to cater for the needs of Africans in the mine compounds.¹⁰ The clinic was equipped with modern devices and handled all kinds of dental work. Patients were charged reduced rates and the rest of the cost was borne by the RST. The employers established the clinic to stimulate mouth hygiene in addition to other health services.¹¹

Indeed, “smooth seas do not make skilful sailors”, Roan Antelope’s medical services were second to none in the province because of the diseases that confronted the mine in the early years. The rough beginning of the mine was the reason behind successful medical services. The hut visits and health education were instrumental in bringing Africans closer to the hospital and

⁸ MIA/Box28/12.3.6B, Health and Medical Services on the Copperbelt, 1954.

⁹ MIA/Box28/12.3.6B, Medical Services African Operation of African Hospital, 1954; Interview, Evelyn Musonda

¹⁰ Northern News, Luanshya, Saturday, 14th February, 1953, p. 4.

¹¹ MIA/Box 28/12.3.6B, Dentistry, 1948-1959; MIA/Box9/Dentistry, 1960.

clinics at Roan Antelope Mine. The expansion of health facilities followed the pace at which the population was growing and the change in disease patterns at Roan Antelope Mine.

On 28 August, 1954, the RST decided to construct additional health structures to accommodate all people living in both Roan and Mpatamatu compounds.¹² The breakdown of the additional health structures is clearly shown in the table below.

Table VII Cost of Additional Structures

BUILDING	ESTIMATED COST
Additional women's ward African hospital	£8,500
Isolation ward-African hospital	£10,500
Nurses home for female trainees	£2,000
Additional clinic section one	£6,000

Source: MIA/Box 28/12.3.6B, Medical Services African Operation of African Hospital, 1941-1959.

The Roan Antelope Mine was determined to construct the above units to add to the medical facilities at a total estimated cost of £27,000.00 to cater for all Africans whether mine employees or not. Besides planning to expand the facilities to help all Africans at Roan regardless of work place, the Federal government decided not to pay the 50% towards the construction. The RST wanted government to pay 50% for non-mine employees to access medical services at Roan because there was neither government hospital nor clinic. This caused serious concern especially after the outbreak of infectious diseases such as bilharzia, smallpox, polio and typhoid because all people in the area were supposed to be vaccinated.

¹² MIA/Box28/12.3.6B, Letter from Mine Secretary to the Director of Medical Services, 28th August, 1954.

Inoculations against Polio, Smallpox, Bilharzia and Typhoid

Having realised that the formation of the Federation was to reduce the expenditure on the three territories, the RST took a big step towards providing preventive measures against infectious diseases although it was government's responsibility. For example, when bilharzia broke out in 1953, the Roan Antelope Mine conducted vaccination and immunisation campaigns against the disease without help from the government.¹³ The company observed that children used to bath in Luanshya River which was infested by snails that harboured the bilharzia parasite.¹⁴

The Chamber of Mines officially informed the Federal government about the outbreak of bilharzia in the Northern territory. On 1 June, 1953, a Bilharzia Committee was formed at the Federal level by the Health Consultative Committee in Salisbury. Although the Director Medical Services for Northern Rhodesia was a member, the committee proved to be non-functional as cases of bilharzia kept on increasing at Roan Antelope and of course other mines. In response to this, the Chamber of Mines decided to form a sub-committee specifically for Northern Rhodesia.¹⁵ The sub-committee consisted of Dr. W. Harrison, Medical Officer of Health, Kitwe, Dr. L. M. Rodger, the Medical Officer of Health Luanshya, Dr. Wilson Taylor, Northern Rhodesia Chamber of Mines Representative and two Health Inspectors.¹⁶

The Roan Antelope Mine conducted a series of surveys to assist in determining the extent of the problem and collection of incidence rate statistics.¹⁷ These consisted of an actual programme of case finding in a section of the population, like in school going children. There was also serious vaccination and immunisation in all clinics in Roan and Mpatamatu compounds. Having

¹³ Luanshya, *The Northern News*, 16th December, 1953, p. 3. Interview, Susan Mary Fisher Daughter of Dr. Charles Fisher, Kitwe, 4th February, 2017; MIA/Box27/11.3.3D, Roan Medical Annual Report, 1954, p. 12.

¹⁴ Luanshya, *The Northern News*, Friday, 19th June, 1954, p. 4.

¹⁵ Luanshya, *The Northern News*, Friday, 19th June, 1954, p. 4.

¹⁶ MIA/Box27/11.3.3D, Roan Medical Annual Report, 1954, p. 12.

¹⁷ Luanshya, *The Northern News*, Thursday, 19th June, 1954, p. 3; MIA/Box28/12.3.6B, Medical Services African Operation of African Hospital, 1941-1959.

successfully put measures to prevent bilharzia, on 18 June, 1954, it was reported in the Northern News that about fifteen Europeans were in Roan Antelope European Hospital suffering from what was suspected to be typhoid.¹⁸ Most of these cases came from the mine mess. This led to the closure of the mess to prevent the disease from spreading.¹⁹

Mr. J. Thomson, the General Manager of Roan Antelope Mine explained that the closure of the mess was meant to find the source of infection and put eradicated measures in place.²⁰ After a thorough investigation which included carrying out 400 separate tests on 75 persons including staff at the mess, Dr. Rodger reported that the mess proprietor bought an infected batch of salad vegetables from a vendor at the market.²¹ To this end, the public was warned not to purchase salad vegetables either at the market or from itinerant vendors. To combat the disease effectively, RST decided to inoculate the entire African population in the mine township (excluding employees) against typhoid.²²

Table VIII below indicates the numbers of women and children who were inoculated at Roan in 1956. The company took this exercise so seriously that the Health Inspector went round the compounds to fish out those who did not avail themselves to the clinics. In addition to the inoculation campaign, the company put serious measures on street vending in both Roan and Mpatamatu compounds.²³

¹⁸ Luanshya, *The Northern News*, Friday, 19th June, 1954, p. 4.

¹⁹ MIA/ Box28/12.3.6B, Roan Antelope Medical Department Public Health Report, 1955, p.3.

²⁰ MIA/ Box28/12.3.6B, Roan Antelope Medical Department Public Health Report, p. 3.

²¹ MIA/Box27/11.3.3D, Roan Medical Annual Report, 1951-1959, p. 78; Interview, Michael Fisher Son of Dr. Charles Fisher, Kitwe, 4th February, 2017.

²² MIA/ Box28/12.3.6B, Roan Antelope Medical Department Public Health Report, 1956, p. 4.

²³ MIA/ Box28/12.3.6B, Roan Antelope Medical Department Public Health Report, 1956, p. 4.

Table VIII Typhoid Inoculation

SECTION	WOMEN	CHILDREN
Section 2 clinic	1,994	3,725
Section 5 clinic	2,173	3,857
Section 7 clinic	3,707	7,137
Section 9 clinic	4,934	12,483
New arrivals	183	551
TOTAL	12,991	27,753

Source: Roan Antelope Mine Annual Medical Report 1956

It is prudent to assert that during the Federation, the Copperbelt in general experienced different infectious diseases because of population increase and migration of people. The outbreak of smallpox on the Copperbelt was another serious issue that gave the mine a huge task. On 20 May, 1955, Mine Medical Officers met in Kitwe to discuss the position of the disease at each mine and to suggest measures on how to combat it.²⁴ The Chamber of Mines clearly indicated that it was government's immediate obligation to provide more adequate facilities for the regular vaccination.²⁵

However, the response from the Federal government was so discouraging that it took the efforts of the mining companies to contain the disease. At Roan Antelope Mine, Dr. Fisher advised the general manager on 19 April, 1955, to stop all movements of people in the African compounds. The move was to reduce the spread of the smallpox.²⁶ The large population made it difficult for

²⁴ National Archives of Zambia/MH1/03/84/3199, Luanshya Mine Township Annual Medical Reports, 1956, p. 23; MIA/Box28/12.3.6B, Diseases-Diagnosis, Treatment and Prevention, 1956.

²⁵ NAZ/WP1/2/43/5247, Annual Reports African Affairs, 1957, p. 67.

²⁶ NAZ/MH1/03/84/3199, Luanshya Mine Township Annual Medical Reports, p. 23.

RST to deal with the problem adequately because some people were not under their control and not vaccinated.²⁷

According to Dr. Fisher, smallpox at Roan was more serious amongst non-mine Africans and 80% to 90% of the cases were confined to the loafers' category.²⁸ The decision was made to vaccinate all people in Roan and Mpatamatu townships. Clinics were busy as they targeted to inoculate approximately 2,000 people per day.²⁹ It was noted that the Health Department at Roan vaccinated 50,000 people instead of the 25,000 that was supposed to be living there. The overcrowding caused anxiety and deterioration in the health of African wards. The vaccination continued for three years as a way to effectively control the disease.³⁰

It was during the campaign against smallpox that polio broke out. The decision was made to immunise all children in both European and African communities.³¹ There was also serious inoculation of all new employees and their dependents against poliomyelitis. This was done upon their arrival on the mine. In addition, the immunisation continued in all out-patient departments every morning between eleven and twelve o'clock.³² The RST decided to give a twelve-monthly booster to all children of employees whose names were registered.³³

It is important to mention here that the inoculations against smallpox, typhoid, polio and bilharzia were successful because of modern health facilities at Roan Antelope Mine. The outpatient clinics took health services closer to people and Africans realised the benefit of

²⁷ MIA/Box10/15.1.3B, Diseases, Diagnosis, Treatment and Prevention, 1937-1956; NAZ/MH1/03/84/3199, Luanshya Mine Township Annual Medical Reports, p. 23.

²⁸ MIA/Box54/11.6.6B, Roan Medical Report, 1957, p. 14.

²⁹ MIA/Box10/15.1.3B, Diseases, Diagnosis, Treatment and Prevention.

³⁰ MIA/Box54/11.6.6B, Roan Medical Report, 1956, p. 3.

³¹ MIA/Box54/11.6.6B, Roan Antelope Medical Reports, 1958-1964, p. 56; Interview, Adamson Yalulani Thawete former Safety Officer Roan Antelope Mine, Chipata, 25th February, 2017.

³² MIA/Box28/28.3.6B, Medical Services African Operation of African Hospital, p. 67.

³³ MIA/Box54/12.3.6B, Annual Medical Report for Clinics Services, 1961, p. 6; Interview, Sidney Kabubala Son of Former Miner Jackson Kakubala, Luanshya, 6th February, 2017.

making use of clinical facilities.³⁴ The inoculation against infectious diseases in the clinics of Roan is clearly shown in the table below.

Table IX Women and Children Inoculated Against Infectious Diseases

Disease	Women	Children
Smallpox vaccinations	4,788	13,705
Typhoid inoculations	2,146	7,846
Poliomyelitis oral inoculations	2,830	10,328
Whooping cough, diphtheria	2,186	4,780
Tetanus Inoculation	7,916	

Source: Annual Medical Report Roan Antelope Mine 1958

The RST extended health services to non-mine employees to prevent diseases from spreading to miners because the unvaccinated became the reservoir of diseases in the compounds.³⁵ Although the Director of Medical Services put it clearly that the Federal government did not continue subsidising health services as per agreement, the company tried to provide adequate health services to its employees and non-miners.³⁶ It extended health services to non-mine employees to control the spread of diseases to miners.³⁷

Roan hospital, which was initially built to care and treat African employees and their dependents, was compelled by force of circumstances to leave some bed spaces for tuberculous Africans.³⁸

The government became reluctant even to provide health services in case of the outbreak of

³⁴ NAZ/MH1/02/122/3174, Roan Antelope Copper Mines-African Clinics-General, 1959, p. 45; Interview, Evelyn Musonda.

³⁵ NAZ/MH1/03/84/3199, Luanshya Mine Township Annual Medical Reports, p. 34; NAZ/MH1/03/84/3199, Letter from Roan Antelope to the Director Medical Services Lusaka, 7th June, 58.

³⁶ NAZ/MH1/03/84/3199, Luanshya Mine Township Annual Medical Reports, p. 34.

³⁷ NAZ/MH1/02/122/3174, Roan Antelope Copper Mines-African Clinics-General, p.47; Interview, Julius Lukwesa Son of Former Miner, Luanshya, 6th February, 2017.

³⁸ Luanshya, *The Northern News*, 28th October, 1960; Interview, Julius Lukwesa.

infectious diseases, such as tuberculosis, which became common after the Second World War. The huge responsibility of dealing with this dangerous disease, which spread so fast within and outside Copperbelt because of massive migration of people, was left entirely in the hands of RST.³⁹

Treating of Tuberculosic Africans

Looking at the number of tuberculosic Africans in the mines on the Copperbelt, on 21 May, 1951, the Chamber of Mines requested the government to inaugurate a settlement sanatorium at some central point on the Copperbelt.⁴⁰ When the Chamber of Mines saw that there was no positive response from the government, they decided to invite a forty-three old medical doctor Lyn C. Greening specialist in tuberculosis from England.⁴¹ Dr. Lyn C. Greening arrived on the Copperbelt from England in August, 1952, to prepare for a six-year fight against tuberculosis.⁴² Dr. Greening was invited to Northern Rhodesia to direct a steep immunisation campaign with a British vaccine then being used on thousands of school children in England. The campaign was carried out under the auspices of the Tuberculosis Research Unit, Kitwe Branch, and a special laboratory was built for him and his trained staff in the African hospital at Nkana.⁴³

The actual crusade started after three months when his equipment and assistants arrived from England. When Dr. Greening arrived on the Copperbelt, the incidence of tuberculosis in both European and African employees on the mines was about 2.5 per thousand a year, a figure higher than in England.⁴⁴ Dr. J.F.C. Haslam, a former Director of Medical Services and Silicosis

³⁹ MIA/Box28/12.3.6B, Health and Medical Services on the Copperbelt, 1960.

⁴⁰ NAZ/MH1/03/69/3196, Silicosis Annual Reports, 1954, p. 8.

⁴¹ NAZ/ML8/11/99, Mine Department Accidents and Diseases Dust Inhalation, 1954-1956; NAZ/ML8/11/99, Letter from Chamber of Mines to the Director of Medical Services, 21st May, 1951; Interview, Dr. Stewart Fisher Son OF Dr. Charles Fisher, Kitwe, 4th February, 2017.

⁴² *Central African Post News*, 21st August, 1952, p. 5.

⁴³ *Central African Post News*, 21st August, 1952, p. 5.

⁴⁴ NAZ/MH1/4/31/3219, Occupational Diseases General.

Commissioner, was chosen to act as administrator for the campaign.⁴⁵ The vaccine used was made from the vole bacillus and was discovered in 1937. At that time, about 8,000 people were vaccinated in England and the vaccine was used in hospitals for the protection of nurses and medical workers. Dr. Greening who worked in England during the Second World War was Director of the Public Health Laboratory at Hull prior to coming to Northern Rhodesia.⁴⁶

For a start, a building at the African mine hospital in Wusakile compound near Nkana, was built and became the Central African Headquarters of a campaign against what was called ‘the scourge’ of the continent, among Africans. The building, called Kitwe Branch Laboratory of the Tuberculosis Research Association, was constructed and paid for by South African mining groups; the Transvaal Chamber of Mines and Northern Rhodesian Mines.⁴⁷ The main principle of this building was to reduce the incidence of tuberculosis among Africans to zero by inoculations with bacillus culture. Although not supported by the Federal government, the mining companies were determined to fight tuberculosis and safeguard their employees. The first task of the branch was to make the whole African population immune from tuberculosis before the scheme was extended to Europeans because the former were more susceptible to the disease.⁴⁸

The Tuberculosis Research Association campaign was first carried out at Nkana Mine in Kitwe and spread to other mines in the province. The association commenced its campaign at Roan Antelope on 12 April, 1954, and ended on 17 July, 1954.⁴⁹ They targeted to examine approximately 10,000 males, 6,400 females and 13,000 children in Luanshya.⁵⁰ They also

⁴⁵ Dr. Charles Fisher’s Diary August, 1952.

⁴⁶ The Northern News Luanshya, Saturday, 31st January, 1953; R. Paul, “The Effects of Vole Bacillus Vaccination of African Mine Workers in the Northern Rhodesia Copper Mines,” *British Journal of Industrial Medicine* 18, 2 (1961), p. 148.

⁴⁷ *The Northern News Luanshya*, Saturday, 31st January, 1953.

⁴⁸ Dr. Charles Fisher’s Diary, January, 1953; *The Northern News Luanshya*, Saturday, 31st January, 1953.

⁴⁹ NAZ/MH1/03/69/3196, Silicosis Annual Reports, 1954, p. 7.

⁵⁰ NAZ/MH1/7/19/3253, Tuberculosis Research Association 1957.

planned to investigate and examine all new entrants to the mine and their families. To avoid interference with production, it was planned to call up miners off shift and pay them an incentive bonus possibly equivalent to the overtime rate for the time they attended Tuberculosis Research Association Clinics.⁵¹ Five hundred surface and underground miners were called up daily out of shift hours to report at the weighing centre in the African compound.⁵²

Families of African mine employees, women and children were examined at the weighing centre which was more convenient from the Tuberculosis Research Association's point of view or at one of the six clinics established in the African compounds.⁵³ The clinics were invaded daily by hundreds of additional patients.⁵⁴ Families arriving at the clinics on specified days were called up in a systematic order of houses starting at the Northern (Luanshya River side) of each section as shown in the table below.⁵⁵

Table X Summary of the African women and children who were tested in Sections Eight, Nine and Ten.

Date 1956	House Numbers	Total Houses	Action at Clinic
Tue 27 th November	1 to 575 Section 8	575	Tests
Wed 28 th November	576 to 1125 Section 8	550	Tests
Thu 29 th November	1 to 535 Section 9	535	Tests
Fri 30 th November	1 to 575 Section 8		Reading 1 st Day Tests
Mon 3 rd December	576 to 1125 Section 8		Reading 2 nd Day Tests
Tue 4 th December	1 to 335 Section 9		Reading 3 rd Day Tests
Wed 5 th December	536 to 1071 Section 9	536	Tests

⁵¹ NAZ/MH1/7/19/3253, Tuberculosis Research Association, 1957.

⁵² NAZ/MH1/7/19/3253, Tuberculosis Research Association, 1958.

⁵³ NAZ/MH1/4/31/3219, Occupation Diseases General, 1958.

⁵⁴ MIA/Box2/12.7.3B, African Welfare Copperbelt, 1961.

⁵⁵ MIA/Box2/12.7.3B, African Welfare Copperbelt, 1961.

Thu 6 th December	1 to 601 Section 10	601	Tests
Mon 10 th December	536 to 1071 Section 9		Reading 4 th Day Tests
Tue 11 th December	1 to 601 Section 10		Reading 5 th Day Tests

Source: Roan Annual Medical Report 1956

Having carried out the campaign in all the four mines on the Copperbelt, in 1956, the Tuberculosis Research Association made a recommendation to the Executive Committee of Chief Medical Officers to take seriously the matter of the inadequacy of accommodation for tuberculosics in hospitals.⁵⁶ On the basis of this view, the Chamber of Mines wrote to the Federal Minister of Health requesting urgent attention in the provision of accommodation and financial responsibility for the treatment of tuberculosics.⁵⁷ Prolonged treatment and lack of accommodation forced mining companies to repatriate Africans with tuberculosis to their villages.

The Federal government, even though not willing to spend on tuberculosic Africans, did not like the idea of repatriating patients. On 19 September, 1957, the government intervened by circulating a letter to all mining companies disapproving the repatriation of any Africans with active pulmonary tuberculosis.⁵⁸ The government reminded mining companies to pay attention to section 22 of the Public Health Ordinance regarding the exposure of infected persons in public places.⁵⁹ It advised the mining companies to find beds for the patients and provide adequate treatment under satisfactory control.

At Roan Antelope Mine there were twenty-five tuberculosic Africans who needed treatment in 1954. Dr. Fisher requested the Chamber of Mines to take the matter urgently and find possible

⁵⁶ MIA/Box2/6.5.5E, Industrial Relation, 1956.

⁵⁷ MIA/Box29/11.3.4F, Training of Staff-African Hospitals, 1956.

⁵⁸ MIA/Box55/11.6.6C, Pneumoconiosis-Industrial Diseases, 1962.

⁵⁹ NAZ/Box57G/11, Commission of Inquiring in Northern Rhodesia: Report of the Commission Appointed to Inquire into the Mining Industry in Northern Rhodesia 1962.

ways of handling the problem by providing special ward facilities for the patients.⁶⁰ According to Dr. Fisher, the company was ready to make a ward available and engage extra staff. However, he warned that in the absence of government's participation, it would be difficult to handle the situation because the treatment needed additional cost. After a discussion with the Chamber of Mines, it was agreed to have a short term policy. Under this policy, each mine was to treat tuberculous patients immediately with the domestic facilities available.⁶¹ However, in a letter to government, it was pointed out that the policy was based on humanitarian grounds.⁶²

In line with a short term policy, the Mine Medical Officers' Committee made recommendation regarding the immediate measures to be taken at Roan Antelope to deal with cases of tuberculosis disclosed by the Tuberculosis Research Association Investigation.⁶³ Roan was advised to go ahead and treat tuberculous Africans using domestic facilities available with an estimated budget of £600 per month.

In 1957, the Chamber of Mines sent a letter to Federal government reminding it that it was their responsibility to treat and provide health facilities for infectious diseases. The treatment of tuberculous Africans without participation of government angered the RST so much that non-mine employees at Roan Antelope were told to seek medical services in the government hospital in Ndola. The mine indicated that the African mine hospital was built to cater for miners and their families.

⁶⁰ MIA/Box46/12.3.1A, Mine Medical Officers' Committee Minutes of Meeting, Kitwe, 23 August, 1957.

⁶¹ MIA/Box46/12.3.1A, Mine Medical Officers' Committee Minutes of Meeting, Kitwe, 23 August, 1957.

⁶² MIA/Box46/12.3.1A, Mine Medical Officers' Committee Minutes of Meeting, Kitwe, 23 August, 1957.

⁶³ MIA/Box2/12.7.3B, African Welfare Copperbelt, 1960.

Provision of Medical Services to Non-Mine Employees and Opening of Llewelin Hospital (Kitwe Central Hospital), 1958

The Northern Rhodesian government recognised at least part of their obligation regarding medical services for African women and children by continuing to defray half the cost of operating clinics in the mine African townships.⁶⁴ However, after 1953, the Federal government distanced itself from paying 50% of the fees towards the provision of health services for non-mine patients. The government avoided to spend large sums of money on the other two territories apart from Southern Rhodesia, a situation that angered both Africans and Europeans in Northern Rhodesia. On 7 November, 1955, the Chamber of Mines explained to the Federal Minister of Health that the Northern Rhodesian government gave mining companies 50% of the capital cost and 50% of the operating expenses to the companies' African clinics.⁶⁵ By 1955, the second government hospital in the province, Llewelin, (the current Kitwe Central), was under construction.⁶⁶

In October 1958, government opened Llewelin hospital (the current Kitwe Central). After opening its second hospital in the province, the Federal government completely declined to accept the responsibility for in-patient charges for any non-mine patients.⁶⁷ It at least recognised its responsibility to the Copperbelt community by building a large hospital in Kitwe which was opened to the public in October, 1958.⁶⁸ The Federal Ministry of Health requested Roan Antelope Mine to continue providing ancillary services for non-mine patients in Luanshya. However, the company was indisposed to accede to this request because government was not

⁶⁴ MIA/Box29/11.3.4F, Medical Services-African Operation of Roan Antelope Hospital Staff General, 1959; *The Northern News, Luanshya*, Monday 16th February, 1953.

⁶⁵ MIA/Box19/15.3.5B, Mine Medical Officers' Committee Minutes Kitwe, 28th October, 1958.

⁶⁶ MIA/Box19/15.3.5B, Mine Medical Officers' Committee Minutes Kitwe, 28th October, 1958.

⁶⁷ MIA/Box29/11.3.4F, Medical Services-African Operation of Roan Antelope Hospital Staff General.

⁶⁸ MIA/Box19/15.3.5B, Health and Medical Services on the Copperbelt, 1959; MIA/Box19/15.3.5B, Circular from Director of Medical Services, 26th October, 1956.

primed to accept financial responsibility for other things other than emergency cases of non-miners.

The request from the ministry did not please the RST because the clinics helped many people at Roan whether miners' families or non-miners. The disagreement between the Federal government and RST angered non-mine employees because they travelled long distances from Luanshya to either Kitwe or Ndola to enter government hospitals except in cases of emergency.⁶⁹

The government decision caused consternation on ordinary people in Luanshya that they disliked the earlier decision of amalgamating the Rhodesia and Nyasaland.

At Roan Antelope Mine measures were put in place to make sure that only accepted persons received medical attention. Under the company's scheme for medical services for European employees' personal servants, only those covered and not their dependents were allowed.⁷⁰ If personal servants admitted to the mine African hospital were in possession of a Green Medical Pass, no hospital fees were charged against the employee. However, if the personal servant was not in possession of a Green Medical Pass, a sum of 6/-per day was charged against the employee.

The company was disillusioned with the Federal government's refusal to pay fees for non-mine patients. Before 1958, mine hospitals provided medical attention to the non-mine population in order to maintain a disease free labour force.⁷¹ This started in 1931, when companies were required by law to provide medical services to their African employees. This request did not bother them because they wanted to establish the industry with a healthy labour force. Although interested in profit, mining companies realised that quality medical services led to maximum

⁶⁹ MIA/Box19/15/3.5B, Northern Rhodesian Copper Mining Companies Report on the Future of the Mine Hospital, 1958.

⁷⁰ MIA/Box19/15/3.5B, Northern Rhodesian Copper Mining Companies Report on the Future of the Mine Hospital, 1958.

⁷¹ MIA/Box19/15.3.5B, Health and Medical Services on the Copperbelt, 1959.

production. They enthusiastically shouldered the burden of building hospitals to accommodate their employees and their dependents.

Lack of government hospital facilities obliged RST to permit non-mine patients to use mine hospitals with a view to preventing diseases in the compounds.⁷² They blamed the Federal government for trying to lower standards of health services compared to the time of the Northern Rhodesia. The responsibility for an efficient medical service voluntarily shouldered by the mining companies to African employees was legally bound by the Employment of African Regulations promulgated in 1931.⁷³ Until 1958 when the Llewellyn Hospital in Kitwe was completed and commenced admitting patients, no other hospital facilities existed in any of the mining towns. This coerced the mining companies throughout the whole of this period to provide hospital accommodation for the whole non-mine population as well as for employees of the companies and their dependents.⁷⁴

The travelling of personal servants to either Kitwe or Ndola for hospitalisation caused domestic difficulties in the household of the European employer.⁷⁵ Looking at the distance from Luanshya to either Kitwe or Ndola, many patients opted to stay away from hospital. The increased number of unvaccinated people or those who had no access to medical services endangered lives of both European and African miners because the former became the source of diseases.⁷⁶

Although not ready to accept what was essentially a responsibility for government, RST prepared a voluntary scheme for the medical treatment of personal servants and their dependents to protect

⁷² MIA/Box27/11.3.3D, Medical Services and Hospital Charges- Africans, 1932-1960; *The Northern News, Luanshya*, 17th October, 1959.

⁷³ MIA/Box27/11.3.3D, Medical Services and Hospital Charges- Africans. Interview, Julius Mumena Son of Miner, Luanshya, 6th February, 2017.

⁷⁴ MIA/Box19/15.3.5B, Health and Medical Services on the Copperbelt, 1960; MIA/Box29/11.3.4F, Medical Services-African Operation of Roan Antelope Hospital Staff General, 1960.

⁷⁵ MIA/Box1/12.4.4B, Health and Medical Services in the Federation, 1960.

⁷⁶ MIA/Box54/11.6.6B, Report of the Health and Medical Services of the Federation 1959, Salisbury: Government Printer, 1960, p. 13.

European employees.⁷⁷ In the scheme, a European employee paid by deduction from his pay cheque the sum of four shillings per month for all medical treatment of all his personal servants and their approved dependents.⁷⁸ This caused serious criticism against the Federal Health Administration.⁷⁹ The criticism became so tense that it went to Federal Parliament to discuss the way forward on the Copperbelt. Copperbelt Members of Parliament accused the government of running away from its responsibility of providing medical services.⁸⁰

On 28 October 1960, the Federal Minister of Health Mr. B. D. Goldberg announced in the Federal Parliament that negotiations between government and mining companies were completed and non-mine patients were allowed to use mine hospitals on the Copperbelt.⁸¹ This ended a two-year battle by Copperbelt Members of Parliament to save non-mine patients from making long trips in some cases of more than 107 miles for treatment. The agreement was that mine hospitals were to accommodate non-mine patients in Mufulira, Chingola, Luanshya and Bancroft (Chililabombwe) because there were no government hospitals. The charges to be paid were generally somehow higher than those in government hospitals.

It was, therefore, entirely in the hands of the people whether to use the nearby mine hospital and pay a higher cost for health services or go to a government hospital, probably at some distance, but at a lower cost.⁸² The Federal government paid hospital fees initially and collected the full amount from the patients later. Willing to protect their employees, mining companies allowed the admission of non-mine persons in the hospital provided an arrangement was reached and a scale of charges was paid by government.⁸³ With the arrangement, the number of people seeking medical attention increased so drastically that there was need to train more African nurses. The

⁷⁷ *The Northern News, Luanshya*, 28th October, 1960.

⁷⁸ MIA/Box27/11.3.3D, Health and Medication Services on the Copperbelt, 1960.

⁷⁹ MIA/Box1/12.4.4B, Health and Medical Services in the Federation, 1960.

⁸⁰ MIA/Box28/12.3.6B, Health and Medical Services on the Copperbelt, 1961.

⁸¹ *The Northern News, Luanshya*, 28th December, 1963.

⁸² MIA/Box28/12.3.6B, Health and Medical Services on the Copperbelt, 1951.

⁸³ MIA/Box1/12.4.4B, Health and Medical Services in the Federation, 1951.

modern health facilities at Roan also influenced RST to train African nurses who could work in the absence of European nurses.

Training of African State Registered Nurses

Although the decision to train African nurses came up in 1943, the nurses were still under qualified and could not work without the presence of European nurses. To accomplish this, Dr. Fisher sent two sister tutors to the African Medical Training School in Lusaka to investigate the position with regard to nursing training.⁸⁴ African nurses trained at Roan were underqualified and could only work in the mine hospitals in Northern Rhodesia not in any government hospitals.

Dr. Fisher proposed to the Executive Committee of Mine Medical Officers in Kitwe to enhance the training of African nurses by following the new government syllabus.⁸⁵ After considerations, the committee agreed to introduce the scheme of training African nurses outside the framework of the Mine Workers Union to avoid confusion. The mines wanted nursing trainees to be handled as students to begin with and subjected to discipline and various rules and regulations which could not be enforced if the Mine Workers Union Committee had a finger in the pie.⁸⁶

According to Federal government's regulations for the training of nursing assistants, the courses lasted for three and half years and, as in normal nursing training, covered a mixture of directed practical training and academic studies.⁸⁷ The minimum entry requirement for girls was standard six and that of boys was form two. Examinations were set and supervised by government authorities. On 26 October, 1956, the Mine Medical Officers' Committee in Kitwe requested

⁸⁴ MIA/Box1/23.8.6A, Township Assistants Course, 1962; MIA/Box46/12.3.1A, Mine Medical Officers' Committee Minutes of Meeting, 1952.

⁸⁵ MIA/Box46/12.3.1A, Mine Medical Officers' Committee Minutes of Meeting, Kitwe, 1953.

⁸⁶ Dr. Charles Fisher Diary August, 1951.

⁸⁷ MIA/Box11/15.2.5D, African Hospital Training Staff, 1954.

government to recognise Mine Hospitals as training hospitals for African Nursing Assistants under the government syllabus.⁸⁸

In response, the Director of Medical Services requested the mines to submit the details of the staff that would be responsible for the training of nursing assistants.⁸⁹ After submitting the list of tutors, Mufulira, Nchanga and Roan were formally recognised by the Director of Medical Services as training centres for African Nursing Assistants. In the beginning, Roan Antelope enrolled seventy two trainees; twenty eight boys and forty four girls.⁹⁰ The three-and-half-year training in nursing ultimately produced an individual who was called a nursing assistant.⁹¹ The nurse was capable of doing ordinary nursing procedures other than the most complex ones.

To accommodate the trainees, a new hostel block at Roan was constructed for young African women with the purpose of maintaining a high standard of nursing in the African hospital. They agreed to enrol girls of good character and high educational standard for the course which was recognised by government. Preference was always given to local girls, especially children of employees, provided they had the necessary qualifications.⁹² However, it was not always possible to make up an intake class with local girls because the level of education in Northern Rhodesia was still lower than Southern Rhodesia. Thus, applicants from outside the territory, especially Southern Rhodesia, were accepted to make a full class. This course superseded the previous method of training African girls who did not necessarily have the qualifications. It was a prodigious achievement to the management because the scheme reduced the number of untrained nurses in the hospital.

⁸⁸ MIA/Box11/15.2.5D, African Hospital Training Staff; Dr. Charles Fisher Diary, March, 1953.

⁸⁹ MIA/Box11/15.2.5D, African Hospital Training Staff, 1953.

⁹⁰ MIA/Box11/15.2.5D, African Hospital Training Staff, 1956.

⁹¹ MIA/Box2/6.5.5E, Industrial Relation, 1964.

⁹² NAZ/MH1/03/84/3199, Luanshya Mine Township Annual Medical Reports, p. 87.

The Nursing School and hostels for both male and female trainees were attached to Roan hospital. Students were provided with accommodation, food, indoor and outdoor uniforms and all requirements for their well-being.⁹³ They received 15/-per month for the first year, 20/- for the second year and 25/- for the third year. The last six months, they earned £8 per month.⁹⁴ The African women were trained under a sister or tutor for three and half years and after passing examinations, were given a certificate by the Federal government.⁹⁵ After a successful completion of the course, nurses were considered to be well qualified to work anywhere in the Federation.

The mining companies requested for the syllabus undertaking in Harare and Mpilo Hospital for training African Maternity Assistant. The syllabus consisted of different components, General Nursing, Maternity Nursing and Midwifery.⁹⁶ The training in midwifery was open to only African women who qualified as Hospital Assistants at a recognised training institution and were registered.⁹⁷ A training institution was recognised for Midwifery Training, on application only if the Director of Medical Services was satisfied that the volume of maternity work done was sufficient for training purposes, bearing in mind the number to be trained in each course.⁹⁸ The duration of the course was twelve months.⁹⁹

To cement the standards for nursing schools on the Copperbelt, on 1 April 1958, the Federal government introduced Hospital Assistants Training Regulations as a requirement for training institutions to be recognised by the Federal Ministry of Health.¹⁰⁰ In the regulations, no institution was recognised as a training centre unless it contained a minimum daily average of

⁹³ NAZ/WP1/2/43/5247, Annual Reports Africa Affairs, p. 103.

⁹⁴ NAZ/WP1/2/43/5247, Annual Reports Africa Affairs, p. 103.

⁹⁵ Luanshya, *The Northern News*, Tuesday, 14th August, 1957 and Luanshya, *The Northern News*, 20th March, 1958.

⁹⁶ MIA/Box29/11.3.4F, Training of Staff-African Hospitals, 1957.

⁹⁷ MIA/Box29/11.3.4F, Training of Staff-African Hospitals, 1957.

⁹⁸ MIA/Box46/12.3.1A, Mine Medical Officers' Committee Minutes of Meeting, 1957.

⁹⁹ MIA/Box46/12.3.1A, Mine Medical Officers' Committee Minutes of Meeting, 1958.

¹⁰⁰ MIA/Box27/11.3.3D, Roan Medical Annual Reports, p. 134.

fifty beds occupied by African patients, a medical superintendent or one or more resident medical officers.¹⁰¹ Its nursing staff included a number of trained nurses which in the opinion of the director was adequate. In terms of admission, no African was admitted to a training institution unless proof was produced to the satisfaction of the director that a male applicant had reached the age of eighteen years and a female applicant sixteen years.¹⁰²

Roan Antelope hospital met the above regulations and in 1958, fifty-two African girls were enrolled for the nursing profession. In the same year, new African nursing assistants' hostel was opened by N.M. Kenny, wife of the General Manager of the Roan Antelope Mine. In her eloquent speech, she said that students at Roan not only had every possible facility for learning nursing but for the first time on the Copperbelt, they had delightfully comfortable and attractive accommodation.¹⁰³ The fully equipped lecture and demonstration rooms ensured that the girls had every opportunity to learn during their three-year work at the training centre.

The regulations of 1958 brought reciprocity among the three territories and facilitated anyone completing the recognised course in any territory to become eligible for registration in the Federation. Before the regulations, any Southern Rhodesian training in Northern Rhodesia and receiving the government certificate was not officially recognised when returned to Southern Rhodesian hospitals to practice.¹⁰⁴

Having successfully qualified to training nursing assistants who were recognised in the Federation, the Roan Antelope Chief Medical Officer felt that it was time to raise the standard of African nursing to that of the State Registered Nurse level.¹⁰⁵ Although lack of educational qualifications in the territory was the main problem, Dr. Rodger did not expect any objection to

¹⁰¹ MIA/Box29/11.3.4F, Training of Staff-African Hospitals, 1958.

¹⁰² *The Northern News, Luanshya*, 28th March, 1958; *The Northern News, Luanshya*, 29th March, 1958.

¹⁰³ MIA/Box29/11.3.4F, Mrs. N.M. Kenny's Speech, 20th March, 1958 and Luanshya, *The Northern News*, 20th March, 1958.

¹⁰⁴ MIA/Box46/12.3.1A, Mine Medical Officers' Committee Minutes of Meeting.

¹⁰⁵ MIA/Box27/11.3.3D, Roan Medical Annual Reports, p. 136.

the proposal. In 1959, Northern Rhodesian territory had only 624 African students that passed form two in 1958.¹⁰⁶

Following the proposal, the Medical Officers' Committee appointed a Sub-Committee in 1959 to consider the question of training African girls to State Registered Nurses and make recommendations.¹⁰⁷ The committee was again tasked to review the original objectives of the Nursing Assistants' Training Scheme. The committee reviewed the objectives as to provide employment for young girls, to make nursing a vocation for African women, to eliminate unqualified male nurses and female midwives and to train the minimum number of males compatible with efficient running of the hospital.¹⁰⁸ The aim was to train nurses who could handle modern clinical equipment and work efficiently in the absence of European nurses.

The sub-committee reported that the number of females failing at Roan was high because of lack of education and comparative immaturity of the girls. They requested the mine to improve the selection methods by considering a screening test for both male and female candidates. It was also recommended to consider the level of education for male and female applicants in order to obtain a sufficient number of local girls. The results of examinations at Roan showed that males were more successful than the females probably due to the better standard of education of the male trainees.¹⁰⁹ The statistics showed that from July 1955 when the scheme started to 1959, fifty one out of one hundred and sixteen recruits failed the course and twelve successfully passed the final examination and of these nine remained at Roan hospital.¹¹⁰ The committee recommended to the mine to give chance to girls outside Northern Rhodesia with education above standard six to join the scheme.¹¹¹ During this period, South Africa and Southern Rhodesia

¹⁰⁶ NAZ/WP1/2/15/1540, Annual Reports African Affairs, p. 95.

¹⁰⁷ MIA/Box46/12.3.1A, Mine Medical Officers' Committee Minutes of Meeting, 1958.

¹⁰⁸ MIA/Box29/11.3.4F, Training of Staff-African Hospitals.

¹⁰⁹ MIA/Box27/11.3.3D, Roan Medical Annual Reports, 1951-1959, p. 136.

¹¹⁰ MIA/Box27/11.3.3D, Roan Medical Annual Reports, p. 137.

¹¹¹ MIA/Box46/12.3.1A, Mine Medical Officers' Committee Minutes of Meeting, 1960.

were flooded with State Registered Nurses (SRN) who were looking for employment in Northern Rhodesia.

In the late 1959, Roan Antelope Hospital received seven applications for employment from African females who were qualified State Registered Nurses. Four of these were from Southern Rhodesia and three the Republic of South Africa.¹¹² This came as a challenge to Roan hospital management as no other mine employed African State Registered Nurses. It was felt that suitable accommodation would be a major problem as these nurses were too advanced to share accommodation with existing staff. However, the mine hospital failed to reject the applications because pressure mounted in 1959 and 1960 when questions on the failure to employ African State Registered Nurses in the mine hospitals were asked in the Federal and United Kingdom legislatures.¹¹³

The Mine Medical Officers' Committee advised Roan Antelope Health Department to employ African State Registered Nurses on conditions of full equality with European Nursing Sisters.¹¹⁴ An African State Registered Nurse held a qualification equivalent to European Nursing Sister (General Certificate) in which the difference between the two was a matter of experience and responsibility rather than of medical qualification. The coming of SRN from Southern Rhodesia and South Africa was a motivation to the Chamber of Mine to improve the training on the Copperbelt.

In February 1960, the sub-committee made recommendation to the executive to train SRN. According to the committee, a State Registered Nurse was one who passed the examination required by a Nursing Council in which the composition of such council and the syllabus

¹¹² The Northern News, Luanshya, 16th June, 1959, p. 3.

¹¹³ The Northern News, Luanshya, 16th November, 1959, p. 3.

¹¹⁴ MIA/Box2/6.5.5E, Industrial Relations, 1960.

required were both prescribed by law.¹¹⁵ Such an Ordinance was enacted in Southern Rhodesia but no similar Act was passed by the Northern Rhodesia Legislature.¹¹⁶ The training of SRN was also influenced by the increase of secondary schools in Northern Rhodesia after 1960 that improved girls' education.

The committee recommended that the legislation was obliged and the companies were advised to recruit sister tutors with higher qualifications to handle such classes.¹¹⁷ The Medical Officers' Committee advised the Chamber of Mines that some of the training would need to be carried out in the Llewellyn (Kitwe Central) or Ndola hospitals so as to obtain adequate experience on a variety of cases. The formation of the General Nursing Council was an essential pre-requisite to any training scheme for State Registered Nurses. The companies were guided to push government for the early establishment of such a body which would be responsible for the maintenance of common standards of training throughout the territory and for setting of the registration examinations.¹¹⁸

After thorough investigations and consideration, in 1960, the Chamber of Mines agreed that the mine hospitals were not suitable centres for the training of State Registered Nurses because of the qualification of the sister tutors and lack of variety of clinical materials. The sister tutors had qualifications equivalent to State Registered Nurses and that was why they only qualified to tutor the nursing assistants. In this view, it was agreed to centralise the training of SRN initially at the Llewellyn Hospital (Kitwe Central Hospital) which had the necessary medical staff and also a greater variety of clinical material than the mine hospitals.¹¹⁹ Roan Antelope hospital was given a responsibility to train Midwifery nurses. This was the genesis of the current midwifery school at Roan General and Registered Nursing School at Kitwe Central Hospital. The companies'

¹¹⁵ MIA/Box29/11.3.4F, Training of Staff-African Hospitals, 1960.

¹¹⁶ MIA/Box29/11.3.4F, Training of Staff-African Hospitals, 1962.

¹¹⁷ MIA/Box27/11.3.3D, Roan Medical Annual Reports, p. 137.

¹¹⁸ MIA/Box2/6.5.5E, Industrial Relation, 1960.

¹¹⁹ MIA/Box29/11.3.4F, Training of Staff-African Hospitals.

desire was to be at par with other territories and conform to the terms of the Federal Public Services Act (1960). The companies were determined to train nurses who could work efficiently in Northern Rhodesia and other territories.

Conclusion

The chapter has concluded that the improved and modernised medical services for African miners and their families were influenced by the rise of African politicians who were against the formation of the Federation and intensified the campaign for its dissolution. The chapter showed that to avoid tension with rising African Politicians and unions, RST provided modern prophylactic health measures against diseases of poverty such as polio, small pox, bilharzia, typhoid and tuberculosis without help from the Federal government. The chapter revealed that RST working together with other mines started training State Registered Nurses (SRN) who had same qualifications with Europeans and were recognised in the three territories of the Federation. The chapter demonstrated that even though not supported by the Federal government, Roan Antelope Mine provided medical services that formed the backbone in Luanshya District and were emulated by other mines in the province.

CHAPTER SIX

CONCLUSION

The conditions that caused diseases and health problems at Roan Antelope Mine were dynamic. In its first decade, Roan Antelope experienced high morbidity and mortality rates due to ecologically-determined diseases such as malaria and blackwater fever because the mine stood on the swamps of the Luanshya River which was infested with malarial mosquitoes. When malaria was medically controlled in the 1930s, diseases of poverty such as pneumonia, dysentery and typhoid remained rampant at Roan Antelope Mine because of poor living and working conditions among African miners.

This study argues that during the Second World War, the disease landscape at Roan Antelope Mine changed drastically with the emergence of industrial diseases, notably silicosis and tuberculosis, due to increased dust in mining operations. The study reveals that after the Second World War, diseases of poverty continued to affect African miners and their families because of overcrowding and other poor conditions in the mine compounds. It also demonstrates that during the Federation, infectious diseases such as polio, small pox, bilharzia and tuberculosis became common in the African compounds at Roan Antelope Mine because of overcrowding.

The study concludes that the development of medical services at Roan Antelope Mine from 1928 to 1964 was conditioned by the transformation in disease patterns. The study shows that in the first decade, that is 1928 to 1938, the Rhodesian Selection Trust (RST) undertook health measures to deal with ecologically-determined diseases and those of poverty. The study argues that to avoid huge expenditure on medical services, the RST tried to exploit African beliefs about diseases. Instead of providing scientific medical services, in 1928, the RST undertook the

exorcism of the Luanshya River to erase fear in Africans who believed that the river harboured a disease-causing snake.

The study observes that the exorcism of *sanguni* was a waste of resources and time because it failed to reduce the cases of diseases at the mine. Its failure, therefore, prompted the RST to look for a scientific medical solution, the ant-malarial campaign of 1929-1932. The study demonstrates that with the defeat of malaria in the early 1930s, the RST turned attention to combatting diseases caused by poor living and working conditions. To combat pneumonia, typhoid and dysentery, the company improved houses for African miners, diet, and sanitation, clothes for miners, vaccination, and health education to improve on hygiene. The study reveals that the RST successfully controlled health challenges at Roan Antelope Mine because it built a modern and well equipped Roan African Hospital in 1936 which handled serious cases.

Between 1939 and 1945, medical services at Roan Antelope Mine were geared to support the increased copper production to satisfy demand for copper in Britain during the Second World War. The study argues that the emergence of industrial diseases, notably silicosis and tuberculosis during the Second World War, created an impetus to provide preventive health measures to shield miners. As part of making African labour healthy at Roan Antelope Mine, the RST recognised the value of preventive medicine. Thus it built clinics in the African compounds to provide services such as health education, feeding programmes, maternity services and vaccination and immunisation of miners and their families to prevent diseases. The study argues that in 1943, RST started training African nurses to work in the newly built clinics and the hospital at Roan. It demonstrates that the outbreak of industrial diseases forced the colonial government to play a key role in forming the Chamber of Mines and the Silicosis Medical Bureau to carry out medical and radiological examinations, as well as the Workmen's Compensation Board to compensate both Europeans and African miners.

During the Federal era, the RST expanded and modernised medical services for African miners and their families to stem tension rising from African politicians who were against the formation of the Federation and intensified the campaign for its dissolution. The study shows that to minimise tension, the RST provided modern prophylactic health measures against diseases of poverty such as polio, smallpox, bilharzia, typhoid and tuberculosis without help from the Federal government. Although the formation of the Federation reduced expenditure on the territories, the RST shouldered the huge responsibility of providing modern and advanced health facilities at Roan. The company, working together with other mines, trained State Registered Nurses (SRN) who were recognised in the three territories of the Federation. The qualifications of the SRN were equivalent to European nurses. The Roan Antelope Mine provided medical services that formed the backbone of the medical services that Zambia inherited in Luanshya at independence in 1964 and were emulated by other mines in the province.

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