

HEALTH IN PIETERMARITZBURG (1838–2008)

A HISTORY OF URBANISATION AND DISEASE IN AN AFRICAN CITY



Julie Dyer

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THIS IS A HISTORY of the health of the people of Pietermaritzburg, a developing city in Africa and capital of the province of KwaZulu Natal in South Africa.

The book covers a period of about 170 years: from a time when a few explorers of European extraction started to settle themselves in a rural southern African valley, through the process of building and establishing a colonial town, followed by an apartheid city, and then a large multiracial and democratically governed metropolis of over 600 000 people.

It shows how this process of creating and inhabiting a city changed people's health, for better or worse; and looks at the impact of the built environment, the physical environment, the social and economic environment, and the policy and legal environment on health status.

The book examines the history of public health as affected by the process of urbanisation, combined with the peculiar form of social engineering that took place in South Africa, particularly during the Apartheid years.

Dr Julie Dyer was Medical Officer of Health for Pietermaritzburg from 1994 until 2005, during which she began her exhaustive study of the history of public health in the city and its environs.



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The Natal Society Foundation.
PIETERMARITZBURG



(Cover photograph from "Souvenir of Maritzburg",
photographs by L. B. Jensen, S.A.P. & Co. [circa 1910])

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ABBREVIATIONS

AEMS	ambulance and emergency medical services
ANC	African National Congress
APT	artificial pneumothorax
ARV	anti-retroviral
ATICC	AIDS Training, Information and Counselling Centre
CINDI	Children in Distress Network
CNS	Central Nervous System
COAD	Chronic Obstructive Airways Disease
COSATU	Congress of South African Trade Unions
CPSA	Communist Party of South Africa
CSIR	Council for Scientific and Industrial Research
CVA	Cerebrovascular Accident
DBAB	Drakensberg Bantu Administration Board
DHS	District Health System
DOTS	Directly Observed Treatment: Short course
DSB	Development and Services Board
DWEP	Domestic Workers and Employers Project
HIV	Human Immunodeficiency Virus
IFP	Inkatha Freedom Party
IMR	infant mortality rate
JOC	Joint Operations Centre
LAC	Local Affairs Committee
LHC	Local Health Commission
MMR	maternal mortality rate
MOH	Medical Officer of Health
MOTT	Mycobacteria Other Than Tuberculosis
NATA	Natal Anti-Tuberculosis Association
NGO	non-governmental organisation
NIC	Natal Indian Congress
NIO	Natal Indian Organisation
NRC	National Reference Centre
PACSA	Pietermaritzburg Agency for Christian Social Awareness
RDP	Reconstruction and Development Programme
SANTA	South African National Tuberculosis Association
STD	sexually-transmitted disease
TRC	Truth and Reconciliation Commission
UDF	United Democratic Front
UNISA	University of South Africa
VDRL	Venereal Disease Research Laboratory
WHO	World Health Organisation
WR	Wassermann Reaction
XDR	extreme drug resistance

FOREWORD

DR JULIE DYER has written a fascinating and important book, and it is an honour for me to make a few introductory remarks about it.

Histories of human societies have many aspects, many layers of interest and significance. Few issues could be more important than that of health, for without a fair degree of health no society can keep going, let alone reproduce itself and grow productively. Histories and analyses of public health and of the prevalence of certain diseases are not uncommon in the First World, but in Africa they are rare.

An intelligent history of health conditions in a city like Pietermaritzburg is bound to tackle the precise circumstances in which diseases occur and are dealt with or not dealt with, and this involves examining the ever-changing social, economic, political and environmental context. All this Dr Dyer has done carefully, knowledgeably and interestingly. The 170 years that she covers are momentous, as they constitute the period of colonialism, apartheid and post-apartheid. As she shows, questions of public health were from the first profoundly affected by the assumptions of the dominant race group; and later, under apartheid, by the legislation in which these assumptions assumed a rigid form. This book offers us a significant and neglected portion of the broader social and political history of South Africa.

But it is also very much more than that. Without in any way underplaying the shameful realities of the race prejudice that operated for most of the 170 years, the book brings out the details which are at times more complex. In the apartheid era, for example, the white municipal medical authorities of Pietermaritzburg were usually somewhat more sympathetic to Africans than the National Party legislators would have wanted them to be.

The book is enriched by two of Dr Dyer's attributes. The first is that she is a medical doctor and thus able to deal with diseases with precision and to divide them up into relevant and significant categories. She was, in fact, for some years in the post-apartheid period the Medical Officer of Health of what is now the enlarged Msunduzi Municipality. She therefore has an insider's feeling for the numerous facts and statistics that she has unearthed. She is of course to be commended for the careful research work which has gone into the making of this book.

Her second attribute is that she was brought up and qualified in Britain. She comes indeed from Sheffield, one of the northern industrial towns from which many people emigrated during the course of the nineteenth century.

The dual perspective offered by her British background and her current South African awareness and commitment has enabled her to make many fruitful and fascinating comparisons. She is able to show for example, by the use of relevant statistics, that in the second half of the nineteenth century life in Pietermaritzburg was considerably easier and healthier for a British immigrant than it would have been if he or she had decided to stay on in smoky and insalubrious industrial Britain. She also makes the point that in later years the descendants of the immigrants allowed conditions quite as bad as those of industrial Britain at its worst to develop among the African population of the area.

It wasn't all plain sailing in Pietermaritzburg, even for whites. Diseases came and went, the socio-economic situation was constantly changing, facilities didn't always keep pace with population growth, and so on. The story that Dr Dyer tells is intriguing and challenging in all its details, and she is often able to put it into a national and international perspective.

When Pietermaritzburg began, all the records tended to focus on whites. Then gradually Africans came onto the scene, together with Coloured people and Indians. In the end the whites were outnumbered. Apartheid was an attempt, for a while largely successful, to cut the population into sections, and to remove Africans from municipal jurisdiction, so that a city like Pietermaritzburg appeared on paper to consist almost entirely of whites and Indians. But of course the Africans were there all the time, living mainly in Edendale, just outside the official city boundary. The ending of apartheid meant the ending of artificial barriers between people. For the first post-apartheid years the authorities struggled to extend health services to everyone, with success: in 2002 Pietermaritzburg was (partly as a result of Dr Dyer's own efforts) the first South African city to achieve equity in the provision of clinics. But it hasn't been an easy task, and it has been made far more difficult by the fact that in these years the HIV/AIDS pandemic has been at its height.

Medical people, historians, sociologists, economists and the general reader should all be interested in this book.

COLIN GARDNER
Former Speaker of Msunduzi Municipality

PREFACE

THIS IS A HISTORY of the health of the people of a developing city in Africa. It covers a period of about 170 years: from a time when a few explorers of European extraction started to settle themselves in a rural southern African valley, through the process of building and establishing a colonial town, followed by an apartheid city, and then a large multiracial and democratically governed metropolis of over 600 000 people.

It shows how this process of creating and inhabiting a city changed peoples' health, for better or worse; and looks at the impact of the built environment, the physical environment, the social and economic environment, and the policy and legal environment on health status. It examines the history of public health as affected by the process of urbanisation, combined with the peculiar form of social engineering that took place in South Africa. The political environment is not considered in great depth as this is covered in many other works. It is only referred to where relevant to developments around people's physical health and well-being.

Due to the historical nature of this book, and the peculiarities of South African history, various terminology that may now be considered by many as antiquated and inappropriate, if not completely insulting, is used to refer to people. Much thought was given whether the original racial descriptions should be used, or whether they should be amended and adapted to present-day standards. As this book relies heavily on historical material, it has been decided to use the original terms where appropriate and, of course, in quotations, although standardisation has been applied in general for the sake of clarity: Whites, Asians, Coloureds and Africans.

For example, the term Coloured appears originally to have meant non-European. Then it appears as the term for mixed race, in line with the apartheid meaning with which people are familiar today, followed in the 1920s by a term not used today – Eurafrican. The original inhabitants are described variously as Bantu, Native, African or indigenous; and those of Indian origin as Asian, Indian or originally the now offensive term Coolie. Under the Population Registration Act of the apartheid era all South Africans were categorised as White (formerly European), Coloured, African or Indian. Whichever term is used it is hoped that no offence will be taken at its usage, as certainly none is intended.

The primary sources used for this work are the annual reports of the Medical Officer of Health of Pietermaritzburg from 1908 to 2002; the *Pietermaritzburg*

Corporation Yearbook, published annually from 1908 to 1991; and the annual reports of the Medical Officer of Health of the Local Health Commission from 1946 to 1974.

I would like to express my gratitude to John Morrison and Kammy Naidoo of the Bessie Head Public Library in Pietermaritzburg for assistance with references, and Ron Hulley for providing a copy of L.B. Jensen's *Souvenir of Maritzburg* published by S.A.P. & Co [circa 1910], the source of many of the photographs in this book. I am grateful to Christopher Merrett for editorial input and compiling the index; to Peter Croeser and Phila Mfundo Msimang for additional editorial work; to Chilli Zwane for redrawing the graphs; to Anesh Roopan for the map of Msunduzi Municipality; and to Jo Marwick for lay-out and typography. Finally, my thanks to the Trustees of the Natal Society Foundation for publishing the book.

Julie Dyer, September 2012

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INTRODUCTION: OVERVIEW OF PIETERMARITZBURG

IN 1936 THE MEDICAL Officer of Health (MOH) for Pietermaritzburg, Dr C.C.P. Anning, made a remarkable statement: ‘the infantile mortality rate is the lowest for any town in the world’. Sixty-five years later most of the measurements of health status for the city, for example life expectancy, were in a state of rapid decline. Behind the ups and downs of the health of Pietermaritzburg lies a fascinating story of urban development and deliberate neglect, of social engineering and deadly epidemics, and of those who sought to influence these in one way or another.

The health of the people of Pietermaritzburg is entwined inextricably with the development of the city, from its beginnings over 170 years ago to the bustling urban metropolis it has become at the start of the twenty-first century. The story of the urbanisation that occurred on a formerly pastoral and nomadic, sub-tropical African landscape goes hand in hand with changes in the health of the people who lived there. However, as with many aspects of South Africa, and indeed most former colonies, it is a story of more than one people – those who were part of the original indigenous population and the people who came to Pietermaritzburg from Europe, India, Mauritius and other parts of the sub-continent. The impacts of urbanisation on these various communities over the years were different in many ways and sometimes diametrically opposed. The story of the urbanisation of the early settlement of Pieter Mauritsburg illustrates the good and the bad, the best and the worst of the effect on the public health of the development of a European-style, racially segregated city in Africa.

It is necessary to start with an overview of the story of Pietermaritzburg – how did it originate and why? A brief sketch of the history of the city, including a summary of the state of health at different periods, provides the background against which to describe specific aspects of public health in the following chapters.

Origins

Since the dawn of humankind various indigenous peoples had populated southern Africa. There is evidence of Stone Age and Iron Age inhabitants dating back several hundred thousand years, but there is no record of a visible, permanent urban settlement in the area which was to become Pietermaritzburg. The earliest recorded history of the city goes back to the beginning of the 1820s when European traders and adventurers came to the eastern part of South Africa now known as KwaZulu-Natal. They arrived from other parts of South Africa and overseas, mainly Europe. Some settlers died at the hands of local tribes and a few survived to establish themselves as members of a new, colonial community. The country had a rich soil and abundant rivers and the area south of the Thukela River appeared to the original explorers to be relatively uninhabited. This was thought by settlers to be due to purges carried out by the Zulu King Shaka that had left the area denuded of population, except where concealed in forests and deep ravines.¹ Shaka led his people to a point where he controlled much of south east Africa, until assassinated by his brothers in 1828.

Dutch-speaking farmers, originally in small numbers, came from the west over the Drakensberg. Larger numbers of Voortrekker settlers arrived from the higher reaches of the country in the west from 1837 to found a community free from what they regarded as the intolerable conditions of life in the Cape Colony, which seemed to disregard differences between people based on colour by abolishing slavery. The manifesto of their leader, Piet Retief, made it clear that, while not in favour of slavery, he would not accept any equality between Black and White.² This large movement of people was known as the Great Trek. Cape colonists came to Port Natal (Durban) by sea, and a small settlement was founded there in 1824, establishing a working relationship with Shaka. He and his successor, Dingane, ceded land to the settlers between the Umgeni River, the Drakensberg and the land of Faku in the south.

Dingane also agreed to cede land to Retief, who was anxious to live in peace with the Zulu king, in 1838. This was to form the basis of the Republic of Natalia, founded in 1840. However, after signing the treaty Retief's entire company was killed in a surprise attack by Dingane's soldiers. This was followed by other attacks against trekker laagers along the upper Thukela River and against the laager of Gert Maritz, another Voortrekker leader. In the war that followed, Dingane's brother, Mpande, revolted and joined the Dutch emigrant farmers. Dingane's army was defeated on 16 December 1838 and the signed treaty was found by Andries Pretorius with the body of Retief at Dingane's settlement,

which he had fled. This formed the basis of the Voortrekker claim to Natal. By 1838 there were several laagers and many small buildings where the future capital of Natal, then known as Bushman's Rand, would be founded.³ One of the first buildings in the town was the Dutch Reformed Church adjoining the market square, built in honour of a pledge made before the battle of 16 December. The town was known as Pieter Mauritsburg, in memory of Pieter Maurits Retief, the fallen leader of the Voortrekkers. In March 1839 the name of the new town was changed to Pietermaritzburg, to honour the memory of Maritz and Retief,⁴ although various documents in the *Natal Blue Book* of 1848 to 1850 refer to it as Pieter Maritzburg.

Water was led down the streets, the erven (plots) were surrounded by turf walls and fruit trees and vegetables planted. In 1839 Pretorius described it as a 'pleasant, well-watered town'.⁵ It was made the capital of the Republic of Natal and its governing body, the Volksraad, consisting of 24 male members chosen annually by the people, met there every three months. On 27 October 1839 Mpande was invested as Prince of the Emigrant Zulus until Dingane was killed on 10 February when Mpande was declared king by Pretorius. The land between the Black Umfolozi and Umzimvubu rivers was declared as belonging to the emigrant farmers.⁶ Pietermaritzburg was known as Umgungundlovu by the Zulu population after the site of Dingane's residence where Retief and his party had been killed.

The Natal Voortrekkers were subject to pressure from the British government, seeking to bring them under its rule. There was much poverty amongst the settlers and life was harsh for the first few years. Major Sam Charters, sent by the Governor from the Cape to occupy the Bay of Natal in December 1838, described the situation of the newcomers thus: 'generally speaking there existed every indication of squalid poverty and wretchedness, and it was deplorable to see many families who, a short time previously, had been living in ease and comfort in the Colony, now reduced to poverty and misery'.⁷ Measles of a virulent type broke out among children and killed many, but the harbour was closed, preventing stores and medical supplies sent by friends in the Cape from reaching the early settlers.

Landdrosts and commandants, instructed by the Raad, had selected the site of Pietermaritzburg, laid out the streets and dug the original water courses. Under the Voortrekker government maintenance of the streets and of the essential water courses, with a sluice to control the flow of water into gardens, was a personal obligation of every erf holder. The Volksraad acted as the early municipal body, its activities financed largely from revenue accruing from the

market and the animal pound. After the overthrow of Dingane, it is estimated that over 100 000 Africans returned to the land from which they had been expelled by the Zulus. As increasing numbers of them entered the Republic, in August 1841 the Volksraad decided to apply a policy of separation by moving thousands to the southern boundary of Natal. This was seen as a threat to the eastern frontier of the Cape and British troops were sent into the Republic.

After much conflict between the British and the Voortrekker settlers, the Volksraad of Natalia submitted to British control in 1842 under terms that precluded discrimination on grounds of colour, origin, language or creed; prevented aggression against Africans living outside the boundaries of the colony; and prohibited slavery.⁸ Natal became a British colony on 10 May 1844 and annexation to the Cape was announced in 1845. At this time there were about 100 000 Africans in Natal and in 1846 a Location Commission was established to consider where they should live. Large locations were set aside for the African population, with one at Zwartkop near Pietermaritzburg. They were generally barren, wild and hilly parts of the country, not well suited to cultivation or even pasturage, and identified as unwanted by the European population. They were to be left rural and undeveloped: it would be a further 150 years before the Zwartkop location had access to treated, piped water supplies; and slightly longer before it was finally incorporated into the municipal area of Pietermaritzburg.

Pietermaritzburg was established as the seat of government of Natal with troops stationed at Fort Napier overlooking the town. The fort had been established by Major Harry Smith in 1843 and until 1914 there was a British garrison permanently in residence.⁹ Land was given to farmers at a nominal fee: 6 000 acres to those present at the time; and 2 000 acres to those who had been forced to leave, but wished to return. Building sites in town were allocated to those farmers who claimed them. However, many Voortrekker farmers left to look for more freedom elsewhere in the country, which reduced the European population significantly.

The total White population of the province was shown by the 1852 census to be 7 629, predominantly British. Of these 1 508, excluding the troops at the garrison, resided in Pietermaritzburg. Immigration from the United Kingdom had been actively encouraged during 1849–51 under the Byrne and other schemes, together with colonists from the Cape and Mauritius, in order to bolster the White population of Natal. Between 1849 and 1850 nearly 1 000 Yorkshire folk came to Natal. Many, however, found their land allocations of between 20 and 50 acres too small or unsuitable for successful farming,

and moved into the towns. There was some feeling amongst farmers that the locations set aside for Africans were too large and this impeded them from getting an adequate supply of Black labour. In addition it was felt that labour in the towns should be encouraged to promote the development of European customs. The African population in the province around 1855 was approximately 120 000, many of whom had fled from Zululand to take refuge in Natal. This large population was seen as a potential threat to the European population and further emigration was encouraged.¹⁰

There was, however, competition for British emigrants from North America, Canada, Australia and New Zealand. In the late 1840s approximately 300 000 people a year left the British Isles, largely driven by the Irish famine, and there was concern that those emigrants coming to Natal were not all of the right type – it was necessary to attract more settlers with a farming background with skills to survive, prosper and develop the emerging colony. By the end of the 1850s the European population of Natal was approaching 10 000. In 1854 Pietermaritzburg became a municipality on the English model, which gave it a town council presided over by a mayor with more power in local affairs and the authority to impose a rate. Originally the only municipal building was the Market House and councillors met in one room that carried the smell of rotting potatoes.¹¹ Pietermaritzburg had actually acquired city status six months earlier on 23 November 1853 when it was proclaimed as such by Queen Victoria. There was still an abundant supply of fresh water, which ran through the town, irrigating most of the erven; while trees were planted, giving the town an air of freshness and variety. The climate was considered exceedingly healthy. By 1855 there were colonial offices, a courthouse and a prison; and a hospital was planned. There were several chapels of all denominations, separated by race, and a government schoolroom. Several stores were doing good business.¹² The first parliamentary elections in Natal took place in February 1857.



In Britain unemployment stood at 11.9% in 1858. Britain was regarded at that time as the richest country in the world, but this disguised enormous disparities between the rich elite and the poor masses. It is useful to be reminded of the environment from which Pietermaritzburg's settlers, many of them from the industrial north of England, had come. Charles Dickens, seeking to bring attention to the plight of the poor, described a typical northern English mill town in the 1840s thus:

It was a town of red brick, or of brick that would have been red if the smoke and ashes had allowed it; but, as matters stood, it was a town of unnatural red and black...of machinery and tall chimneys, out of which interminable serpents of smoke trailed themselves forever and ever...It had a black canal in it, and a river that ran purple with ill-smelling dye, and vast piles of building full of windows where there was a rattling and a trembling all day long.¹³

Conversely Holden described Natal in 1855 as particularly healthy: 'neither foreigners nor natives seem to be subject to any disease peculiar to the climate and many have come out here from Europe with decided gain to their health. The only malignant disease to which Europeans seem exposed is dysentery, which if not speedily checked assumes a fatal character'.¹⁴

In the 1860s the Bergtheil scheme set out to attract people with capital and knowledge of farming from all over England and Scotland, focusing on the agricultural districts.¹⁵ Natal was advertised extensively in Britain. Comments such as this from a traveller, describing the appearance of Pietermaritzburg on arriving from Durban in 1862, would have been helpful: 'pretty and refreshing...with its boulevards of trees before the houses, and streams of water flowing by the footways'.¹⁶ Many arrivals were farmers, but for those coming from an urban environment the rural, market town of Pietermaritzburg must indeed have seemed idyllic by comparison. However, many still preferred to go to America than South Africa at this time, as it was considered more fertile with larger tracts of land allotted to settlers and a low cost of living. By contrast, immigrants to South Africa struggled, particularly those who came looking for employment. By 1861 the population of the city comprised 3 771, of whom 2 336 were White and 1 435 were described as Coloured, which in the terminology of the time would have included the indigenous population. The latter comprised 1 237 males and 198 females, showing an unhealthy gender imbalance – males were generally employed in the town. There were no figures for births, marriages and deaths as there was no system of registration at the time.¹⁷

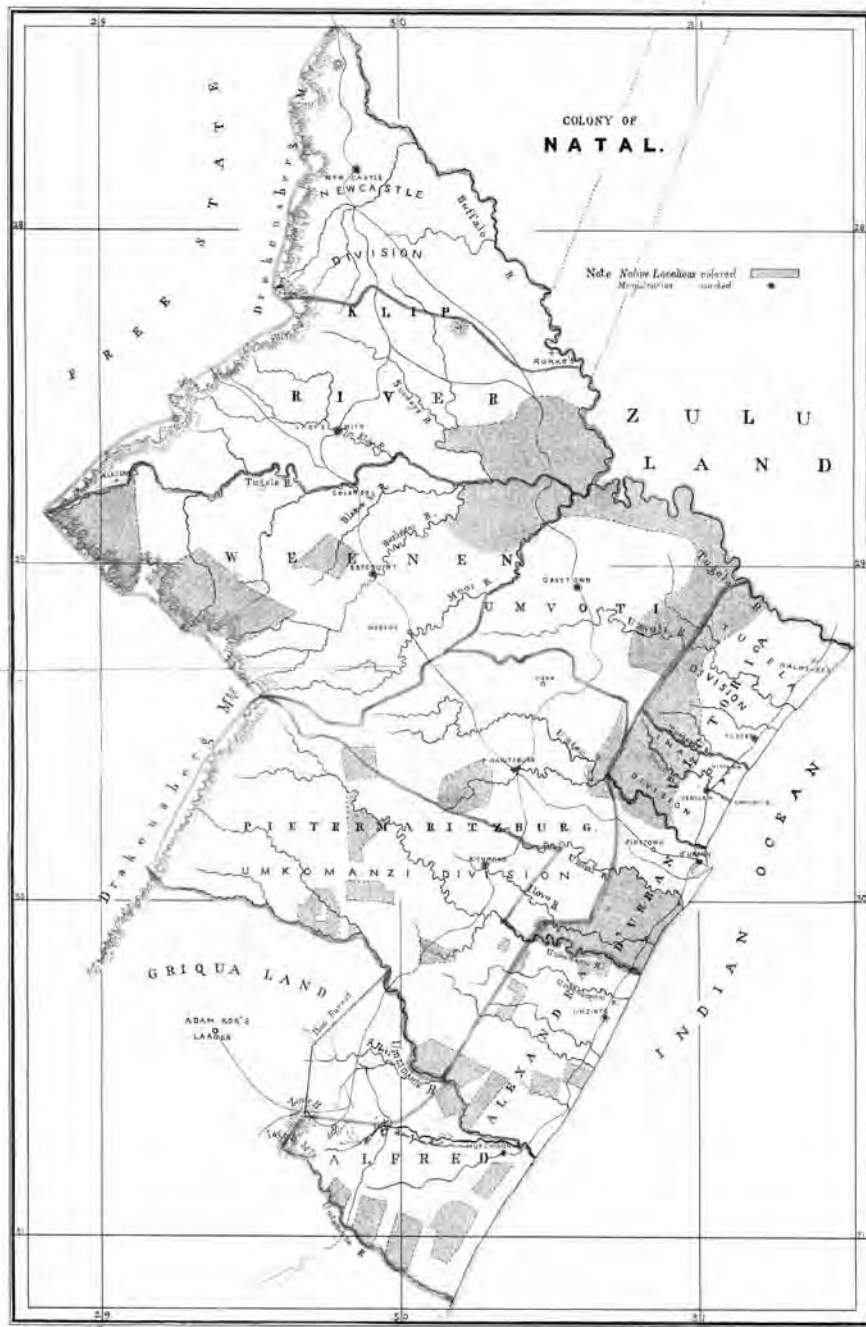
Continued immigration was extensively discussed with consideration given to the establishment of villages and construction of water supplies, roads, school houses, prisons, court houses and magistrates' residences in anticipation of the arrivals.¹⁸ Industrialisation and urbanisation were continuing at great pace in England and previously rural dwellers had become seekers of work in the developing industrial cities. Benevolent British laws required that the poor should be employed or maintained, so it was expedient to enable parishes to borrow money to pay to assist the emigration of surplus labour. However, this

tactic was not unnoticed in Natal. There was some concern that the assisted emigrants to Natal included 'some with no special skills' and some who seemed 'committed to lives of intemperance, sent at cost of connections or friends who thought it a good bargain to pay a small sum for their riddance'.¹⁹

The arrival of a score or so labourers from Java to work for the Umzinto Sugar Company on the south coast of Natal marked the first introduction of Eastern labour for agricultural purposes. In 1860, due largely to the need for labour in the sugar plantations, the immigration of indentured labour from India began. Over the years many more would be brought in, under terms that made them serve a five-year period of service or apprenticeship at wages of not less than ten shillings per month, after which they could either return to India or acquire a piece of land equal in value to the price of the ticket to India. References to the health of these Asian labourers in the early years include a letter from Mr Murdoch, Emigration Office, to Sir F. Rogers dated 5 December 1863. He reported that 'it appears the health of the Coolies is generally good' and the number of deaths over two and a half years had been only 42 of 1 000 or so people.²⁰ The term Coolies was originally from the Hindustani word Kûli, a porter or labourer, and is now considered offensive.²¹

There were 24 births and six deaths amongst Asians in the previous six-month period. It was commented that the difference between life in India and life in Natal strikingly affected their health for the better, with their physical condition being greatly improved some months after arrival.²² However, there was no comment on the effect of the long sea voyage, presumably in poor conditions, on their health upon disembarkation, which may have accounted for at least part of the visible improvement.

By 1864 Pietermaritzburg was starting to take shape. There was a hospital, a post office, hotels, a gentleman's club, a cathedral, and several other places of worship. The foundation stone of the town hall had been laid in 1860, although it was not fully built until 1893, and there was a park and colonial offices. There had been a newspaper since 1844: first, the *Natalier* and then from 1847 *The Natal Witness*, which continues to the present day. Administration of the province was comprehensive as described in the *Natal Blue Book*. Expenditure on different facets of administration was clearly outlined with systems of taxation and tariffs in place. By 1866, discussions were held regarding surveying land between Pietermaritzburg and Durban for a railway line. The population figures for 1870 record two doctors, eighteen shopkeepers and 25 artisans. The city was now divided into administrative wards and at that time it was noted that approximately 2 000, or just over 50% of the White population,



Source: Report of the Commission into the Adequacy of Existing Establishments, Natal, 1871.

had been born overseas. Just outside Pietermaritzburg, a settlement at what would become the township of Edendale had commenced around the Wesleyan Methodist mission station founded by Reverend Alison. By 1864 there were about 600 inhabitants in 48 houses and the concepts of land ownership and commercial agriculture had been introduced with Edendale farmers supplying the Pietermaritzburg market.²³

There are few references to health during the first few years of Natal with records from the early years of the hospital, opened in 1855, showing similar death rates to those of England but the diseases were not classified in the records.²⁴ There is reference to a European death rate in Natal calculated in the 1850s: sixteen per thousand. This was said to be double the African rate, although the latter must have been inaccurate.²⁵

In 1862 it was noted that there was a 4.75% sickness rate amongst prisoners and two deaths out of a population of 127 prisoners during the year in Pietermaritzburg New Gaol, near Fort Napier.²⁶ Medical practitioners found it difficult to make a living in Natal. Dr Stanger remarked that 'there appear to be scarcely any diseases incidental to this country'.²⁷ From 1870 reports from Grey's Hospital (published in the *Natal Blue Book*) started to classify illnesses and indicated that the main causes of 29 deaths were dysentery and enteritis (9), fever (5) and tuberculosis (3). The most common disease was syphilis (15% of 250 admissions), followed by fever and gastroenteritis. There were six cases of tuberculosis. No cases of the serious diseases of plague, typhus, smallpox or typhoid were recorded, although typhoid, typhus and malaria could all have been listed as fever.

The Royal Charter of 15 July 1856 stated that every man over 21 years who possessed immovable property of the value of £50, or who rented property to the yearly value of £10, was allowed to vote. An Exemption Law stated that Africans desiring to be released from Native Law had to produce proof of literacy and take an oath of allegiance. In 1865 the Native Franchise Act stated that Africans needed to have been residents of Natal for twelve years, held letters of exemption from Native Law for seven, and the approval of three Europeans in order to vote. By 1893 only three Africans had obtained this right. Coloured men could vote if they satisfied the normal franchise requirements. Women of all races had no vote and no way to obtain it.

Late nineteenth century city

The discovery of diamonds in South Africa in the late 1860s changed the nature of the country and its economy substantially. The diamond rush started around

1869, with men clamouring to pan for diamonds, initially easily found to the west of the country, in the area which is now Kimberley. Coal was found in northern Natal in the mid-1860s and collieries started large-scale production in the 1880s. Mining activity started to lift Natal communities out of a depression and heralded the start of the migration of labour to the industrial areas. It was also to have immense impact on the health of South African society, in particular in the form of tuberculosis and sexually-transmitted diseases (STDs) amongst others.

By 1875, 6 445 Asians had arrived in Natal over fifteen years. They still appeared generally healthy and had a mortality rate of less than 1.75% per annum. Asians reported that their children had better health than in India. The main ailments were colds, dysentery and fevers of a mild type, but epidemic disease was unknown. If they were ill, their pay was docked – one shilling if illness was proven and 2/6d if the worker simply stayed away. It was felt by employers, mostly farmers in the coastal regions of Natal, that many Asians suffered from humbug or fake sickness to attend to their own affairs. This was a cause of much complaint by Asian workers and debates ensued in the Legislative Council around the issue. It was felt that more frequent medical attention by employers would establish whether or not the ailments were genuine. In 1881 the provincial mortality rate for Asians was given as 1.67% of the population and there were by then 22 990 of them in Natal. Recorded ailments included skin diseases, diarrhoea and dysentery, syphilis, Natal sores and asthma.²⁸ Generally, the health of Asians was noted as much better inland than at the coast, where there was a much larger population also suffering from fevers, possibly malaria.²⁹

In 1888 J.E.C. Bodley described Pietermaritzburg in his journal as having the appearance of an English country town, with parallel streets in a basin of grassy and wooded hills.³⁰ There were churches of every heard-of sect. All the poor people were noted to be Black and many of the shops were run by traders of Arab or Asian extraction from Bombay (Mumbai). Many ships actually came from Madras (Chennai) and Calcutta (Kolkata) and most of the indentured labour arrivals were Hindus. But from the late 1870s many Asians immigrated unaided and free of the indentured labour system. They were often Muslim Gujarati traders, who set up shops and small businesses. The position of Asians was improving by the 1880s, with many setting up as farmers and traders. But a feeling of unease was starting at the increase in their numbers and the permanent footing they were obtaining. As many of the free Asians were increasingly successful, large numbers of them could qualify

for the vote. This led to the passing in 1895 of the Indian Immigration Law. It compelled every Asian migrant either to return to India at the end of their indentured service or pay the government a licence fee of £3 a year. A law disenfranchising Asians was passed in 1896.³¹

King Mpande had died of natural causes in 1872 and his son Cetshwayo was installed as king on 1 September 1873. The disturbances of 1879 caused by the Zulu War checked immigration to South Africa and Natal, but it increased again in 1880 to 874 people. Eligibility was restricted to tradesmen – blacksmiths, stonemasons, carpenters, wheelwrights, tinsmiths, bricklayers, farm labourers, shoemakers and cabinet makers. Female domestic servants also came from England and immigrants could stay at the Immigration Depot in Durban for one week to get settled.³²



An early Pietermaritzburg scene at Camp Drift, circa 1900, showing women and cattle in the Msunduzi River (Souvenir of Maritzburg, photographs by L. B. Jensen, S.A.P. & Co. [circa 1910]).

Up until 1891 state-aided schemes for the immigration of artisans, labourers and domestic servants were still in place. Some reasonably successful special settlements had been tried in the province: 878 settlers had arrived in 1889; and 555 in 1891. It was recommended that the immigrants include stock farmers, agriculturalists, or dairy farmers ‘of a superior class’.³³ Immigrants were checked for disease before embarking and needed either to have had smallpox

or bear a smallpox vaccination scar. European labourers in Pietermaritzburg earned 10–12 shillings a day and artisans 16–18 shillings. The average home rental at that time was £2/5s–£3 per month. Building societies were used for home finance. Two thirds of their shares were owned by the labouring class, who borrowed money to build houses. One of the advantages for the artisan living in the colony was that he could work six days a week all the year round, aided by the good weather, and the cost of living relative to earnings was low.³⁴ In 1887, Pietermaritzburg still had a larger White population than Durban.

By the 1890s subsidised passages from Europe had been discontinued for those looking for work. In the report of the European Immigration Department of 1896, Harry Smith stated that he had received instructions ‘that it is not the policy of the Government to subsidize the introduction of men into this Colony who, on their arrival, would be placed in competition with those already in the colony in search of employment’.³⁵ Immigration was limited to wives, female relatives, intended wives, families and farmers. Socio-economic conditions were worse back in England, where Charles Booth and Seebohm Rowntree concluded that nearly 30% of the populations of London and York lived in poverty, at or below subsistence level, and the early years of the twentieth century were little better. Around 2 883 000 people left the United Kingdom for overseas between 1853 and 1880, seeking a better life.³⁶ By 1905 Canada was seen to have attractions for emigrants superior to those of Natal.

The Resident Magistrate of Pietermaritzburg stated in 1879 that the borough was in such a thriving state that there was a shortage of African labour. Its dark brown soil, tile-covered houses, rose hedges, trees and gardens gave it the appearance of a large English village.³⁷ Natal developed rapidly between 1880 and 1890, with the extension of the railway from Pietermaritzburg to the border with the Transvaal, improved roads and new bridges. Natal was granted self government in July 1893 and a parliament was established. The Zululand Annexation Act was promulgated on 13 December 1897.

The condition of the African population in Pietermaritzburg in 1894 was reported on by Magistrate Charles Barter, who noted that while there was no native village there was a population of 5 359 in the town, mostly employed as servants.³⁸ Of the remainder, 437 were casual or tog labourers, 174 pulled rickshas and 89 were prostitutes. Forty-one Africans owned houses, ten kept beer shops and seven ran eating houses. A vast amount of legislation relating to native locations, native law and native assemblies was passed between 1894 and 1902 in an attempt to exert more control over the African population. The concern was to maintain a source of labour, such as through the Masters and

Servants Act of 1890, but to control their residence. The Identification Passes Act of 1901 required that passes be issued by the Magistrate in the place of residence of Africans before they left to seek employment. Employment of Africans without their identity passes was an offence; and for those already in towns it became very difficult as they had to return to their home locations to obtain passes. James Forder, Acting Magistrate in 1899, noted that there is 'great difficulty in obtaining servants...Natives are, however, often badly treated by their employers'. He went on to comment that they were 'continually obstructing footpaths' such that ladies had to pass by in the road and recommended a by-law forbidding Africans to use footpaths unless with their employers.³⁹

The South African War took place between 1899 and 1902. Following the Boer invasion of Natal, the province north of the Thukela River was proclaimed Dutch territory and Boer forces came within 50 kilometres of Pietermaritzburg.

The original City Hall burned down in 1898. After the replacement was opened in August 1901, a plaque was installed with the names of 111 Natal volunteers who lost their lives during the war. An interesting note on the relative health of the English at that time is provided by 12 000 volunteers from the north of England: 8 000 were rejected outright and only 1 200 (10%) were accepted as completely fit. The same levels of rejection took place at the start of the First World War, a reflection of poverty and malnutrition in the industrialised cities of England.



Original Town Hall of Pietermaritzburg in the late nineteenth century (Souvenir of Maritzburg, photographs by L. B. Jensen, S.A.P. & Co. [circa 1910]).

In 1905, as a measure to counter post-war economic depression, the government introduced a poll tax of £1 for every male adult resident of Natal – White, Coloured, Asian and African. This clearly caused much unhappiness and culminated in the Bhambatha Rebellion of 1906. As a result of a report into native affairs in September 1906, provision was made for African representation in the Legislative Council, a Council for Native Affairs was created, land settlements established and inalienable title to land granted.⁴⁰ It was noted that progress in agriculture in African locations had been considerable, with activities including tree planting and hiring out ploughs, procurement of cattle and growing of grain, maize (corn), pumpkin, sweet potatoes and the indigenous root crop *amadumbe*.

The population of Pietermaritzburg grew rapidly during the 1890s at an average rate of 6.5% per year, and even more rapidly during the South African War, so that between 1895 and 1902 the population approximately doubled. The annual report of the Magistrate for 1897 commented ‘everywhere dwelling houses continue to be erected and business premises added to or improved. Bricks, owing to the scarcity of labour, cannot be made fast enough’.⁴¹ The population for the city’s first 60 years is illustrated in figure 1.1, which shows the acceleration in growth during the end of the nineteenth century, peaking during the South African War in 1901 with the influx of military personnel and refugees.

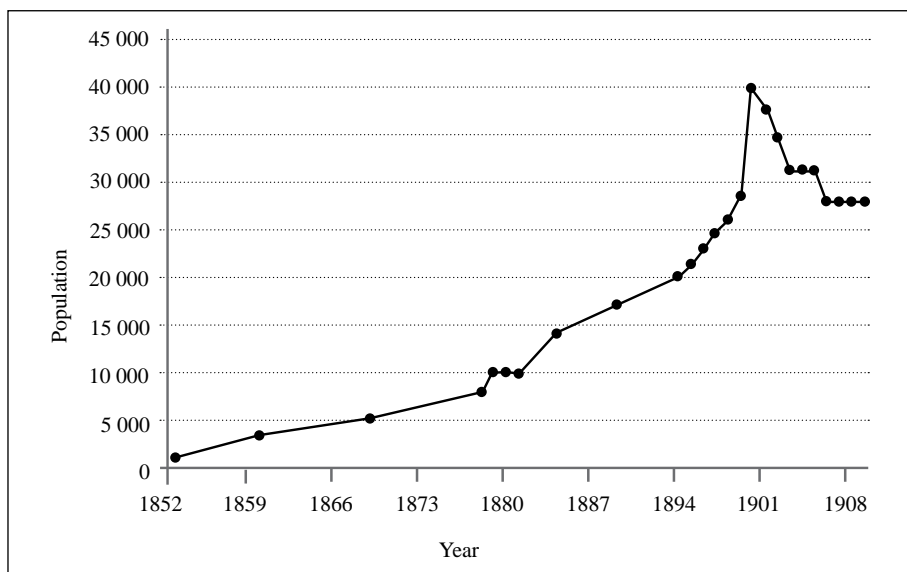


Fig. 1.1 Growth of population of Pietermaritzburg, 1852–1910.

This population growth placed severe strain on the city's infrastructure, including storm water drainage, drinking water and sewerage systems, and led to a period in which the diseases of filth flourished with very high levels of typhoid, dysentery and diarrhoea. In 1893 the District Surgeon had commented of Pietermaritzburg that, but for the want of clean streets, 'few places have more natural advantages or could be made more attractive'. He described it as the 'most naturally favoured town in South Africa', but noted the appearance of some of the main streets in the city as disgraceful. His advice to clean up the city was not heeded, however, and in 1896 he went on to report that 'Enteric fever [typhoid], which though rife in England during the fifties is now, owing to improved sanitation quite a rarity, continues to flourish here to an alarming extent'. He felt the high prevalence was due to the absence of a proper sanitary system, the absence of an Infectious Diseases Notification Act, and the want of compulsory power in the hands of the municipal authorities to isolate cases, disinfect premises and stop milk supply from infected sources.⁴² Regular outbreaks of typhoid forced the city to engage in a process of cleaning up and the implementation of widespread measures to improve sanitation.

Pietermaritzburg in the early twentieth century

Years of commercial depression followed the South African War, restricting capital expenditure. However, much progress was made in macadamising (tarring) roads and paths in the centre of town and in improving the underground drainage and sanitation systems, such that Mayor A.W. Kershaw stated that 'the steady progress in public works during the last few years has told its own tale of increased public comfort and convenience in our well-made roads, and in the lowered death rate due largely to our pure water supply and drainage system'.⁴³ It was considered that the tarring of roads and pavements would not only improve drainage, comfort and appearance, but also increase health and reduce the sickness and death rate from pollution of drinking water. It probably also helped that the population decreased by 30% between the end of the war and 1908. As a method of easing the effects of economic depression on the European population, amongst whom there were 588 unemployed out of a total population of 16 245, Whites had been engaged on tarring the streets at wages of 4s a day, instead of the 1/6d paid to Africans and Asians. However, the Borough Engineer commented on the negative impact on the cost of construction and stated that the measure of work done was approximately 50% of that of native labour.

Measures to improve sanitation were quite successful as it appeared that around 1910 the people of Pietermaritzburg were healthier than those of other areas of the province. This was possibly aided by the fact that the population had declined back to the levels of twelve years earlier. Reports from other areas cited a high prevalence of malaria (in Zululand and northern Natal) with an increasing number of cases of tuberculosis. There were also a fair number of cases of leprosy elsewhere and these were sent to the leper colony at Amatikulu on the north coast. The population density of the province was generally low with an average of 30 people per square mile compared with Britain at 300 and Belgium at 520.⁴⁴ During this time Pietermaritzburg was being marketed as an educational, pleasure and health resort and Mayor Daniel Sanders declared in an annual report that 'Maritzburg compares very favourably indeed with other important towns in South Africa from a sanitary and health point of view, as well as from the natural beauty of its surroundings'.⁴⁵ The city at that time had about 35 miles (56 kilometres) of streets, the main ones having electric lights. The annual mortality rate (deaths per thousand population) calculated by the city's Medical Officer for Europeans and Coloureds showed a decline of over 50% in eight years mainly due to improved sanitation (figure 1.2). At this time statistics were reported for 'Europeans, and Coloured persons enjoying European privileges' and information for other races was not given. After a brief rise to 12.4 in 1913, it then fell again to a low of 7.14 in 1918, at which point it was the lowest in the country. It remained at between eight and ten per thousand for the European population for the next 30 years, indicating that the health gains made were generally maintained.



House of Assembly, Pietermaritzburg in the early 1900s (Souvenir of Maritzburg, photographs by L. B. Jensen, S.A.P. & Co. [circa 1910]).

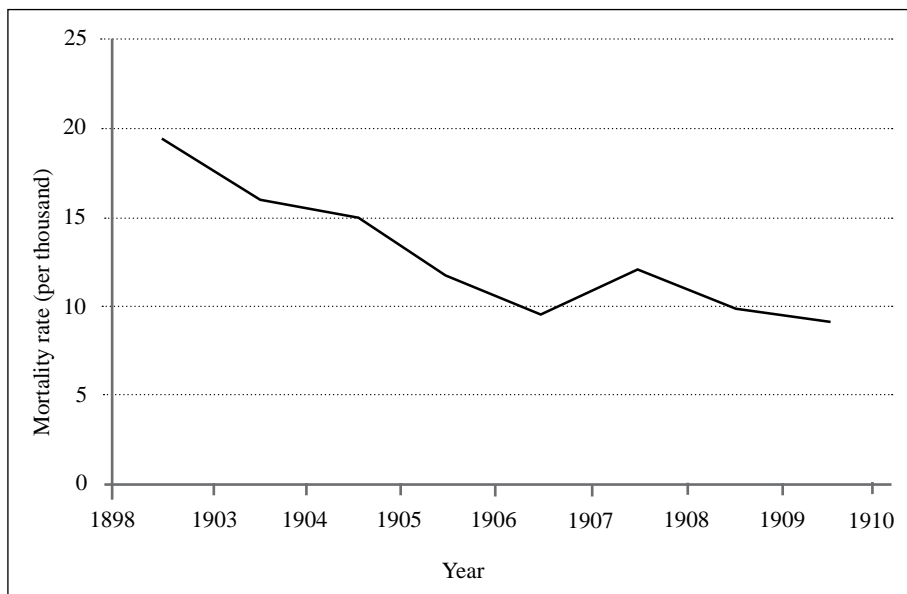


Fig. 1.2 *European mortality rate (deaths per thousand people), 1898–1909.*



*Pietermaritzburg City Hall, rebuilt in the early 1900s after the fire of 1898.
(Souvenir of Maritzburg, photographs by L. B. Jensen, S.A.P. & Co. [circa 1910]).*

The Union of South Africa was established in May 1910. The Natives Land Act was passed in 1913: amongst other things, it severely regulated the purchase and occupation of land by Africans, out of concern that they were prospering as farmers and reducing their availability as labourers. Sol Plaatje summarised the implications of this Act: 'awaking on Friday morning, June 20 1913, the South African Native found himself, not actually a slave, but a pariah in the land of his birth'.⁴⁶ In 1911 the Native Labour Regulations Act, followed in 1923 by the Natives (Urban Areas) Act, was passed by national government. The segregation of races was gradually more heavily imposed by complex legislation, while still allowing for the supply of African labour to Whites in both towns and rural areas. At that time, of the estimated 824 000 Natives in the province, 80 000 were in the service of Whites. The emigration of indentured labourers from India had been stopped by the Indian government from 1 July 1911 under the Indian Act of 1910. Free immigration by Asians was restricted in South Africa by the Union Immigrants Regulation Act of 1913.⁴⁷

In 1914 the Women's Municipal Franchise Ordinance was passed, enabling White women to vote in municipal elections and stand for election. The first female councillor in South Africa, Mrs S.A. Woods, was elected to the Pietermaritzburg Town Council in 1915 and was known, rather quaintly, as Mrs Councillor Woods. During the First World War there was a great deal of troop movement. Prisoners of war were also held in the city. On the departure of imperial troops in 1914, the commander of the South Staffordshire regiment, Lieutenant-Colonel R.M. Ovens, gave a farewell to the mayor and commented on the 'never-to-be forgotten charms of perfect scenery and a sunny, thoroughly healthy climate, assets which the British soldier from his varied experiences in other less-favoured countries has learnt to appreciate and value highly'.⁴⁸ The mortality rate for Whites continued to fall and compared favourably with other cities in South Africa.

In 1918 the City Council was hopeful of attracting the industrial development anticipated after the war and set aside land for the purpose. It was noted by the Mayor that while Europe was being devastated, South Africa was prospering in many ways with production and industrial activity increasing. However, this was accompanied by rapid inflation that left wage earners suffering from a rising cost of living. The same year witnessed the city's first arrival by aeroplane – a Major Miller on 23 April. The development of the city experienced a slight knock in 1919 with the disastrous influenza pandemic. This not only affected 34% of the population, but caused direct expenditure to combat it and loss of

revenue from the closure of canteens and places of entertainment. There was also a tremendous impact on labour and productivity in the city.

By the early 1920s housing construction was starting to meet the needs of the White population. While the Council was busy beautifying the city for them with bowling greens, tennis courts, croquet lawns, street trees and parks⁴⁹ along with continuous upgrading of sanitation and drainage (a film entitled 'Beautiful Maritzburg' was shown at the Wembley Exhibition in London), rapid population growth, now standing at around 40 000, still caused serious housing problems for non-Europeans. The establishment of a Native Location in terms of new national legislation occupied the Council's deliberations and in 1921 a site was recommended by the Bishopstowe road. The close proximity of the sewage farm was thought unlikely to affect the health of the inhabitants. Africans had selected an alternative site, on the western borough boundary near Mason's Mill, an area that was rapidly expanding in population due to inward migration from rural areas, and were vociferous in their objections to the Bishopstowe site. The establishment of the first 'Native Village for the accommodation of married Natives', as defined in the Natives (Urban Areas) Act, was settled by referendum. Of 6 730 burgesses, 1 221 voted and selected the Bishopstowe road site, which was duly approved by the Minister of Native Affairs despite the continuing objections of the African population. The village was later to be called Sobantu and over the years the Council constructed two- and four-roomed brick houses there for the African population, until told to cease by the national government. Africans in town were evicted from shacks, which were immediately demolished through the orders of The Medical Officer of Health (MOH). Some resisted and moved to shack settlements at Hathorn's Hill and Pentrich.⁵⁰ An elected Village Advisory Board represented the Sobantu residents and met monthly with the chairman of the Native Administration Committee of the Council.

The development of suburbs for Whites, particularly Scottsville, was producing what was described by the mayor as 'a very healthy spreading out of the population'.⁵¹ Almost all dwellings were detached, built of brick and stood in spacious plots in excess of one acre. Compare this with the industrial north of England, where Roberts describes cities before and after the First World War as 'rows of two-up two-down houses...With blocks of hovels sharing a single tap, earth closet and open midden'.⁵² The generous plots of land allocated in Pietermaritzburg were later found to place severe pressure on municipal water supplies due to the frequent watering of gardens. They were gradually reduced over the years.

The impact of different socio-economic and housing conditions on health is illustrated by the first mortality rates (per thousand) presented by the MOH for races other than European, in 1922:

Coloureds	18.6
Asians	19.7
Africans	29.0
Whites	9.2

In 1927 the White mortality rate at 7.6 per thousand was one of the lowest since records began and the second lowest in the country after Pretoria. Housing was by then adequate for Whites as the rate of increase of the population was slowing and sufficient new houses were being built. There was some sharing of houses amongst the poorer sections, but overcrowding was not considered a problem. Whites were described by municipal officials as ‘well housed, and in this respect living in conditions which are perhaps exceptionally favourable’.⁵³ The differences in accommodation and socio-economic conditions for the different races were illustrated by the tuberculosis mortality rates for that year, which were two per one thousand for Whites, twelve for Asians and nineteen for Africans. In an effort to improve the lot of Africans, many of whom were living in squalor as tenants of Whites or Asians (of whom many were themselves living in hovels unfit for human habitation), the first hostel for single African men was built.

A city census of 1929 gave the population as 42 117, of whom 13 319 were Africans with a male to female ratio of 3:1. Approximately half of the Africans were described as domestic or other servants. This would have equated to an average of more than one servant per White household. Due to economic depression and as a response to rising unemployment, the national government introduced a “civilised” labour policy that aimed to replace African labour. The Prime Minister outlined this in 1924, saying ‘uncivilised labour is to be regarded as the labour rendered by persons whose aim is restricted to the bare requirements of the necessities of life as understood amongst barbarous and undeveloped peoples’. This set the framework for the increasing impoverishment of the African population, attempting to portray it as something they themselves desired.⁵⁴ Pietermaritzburg framed its own regulations under the Native Labour Regulations and the Natives (Urban Areas) Acts, which were revised in May 1930 for the registration of contracts between masters and Native servants and of *togt* (casual) labourers in the city, and made provision for curfew regulations.⁵⁵ Males had to register if entering the town for work and had six days to find it. Females also had only six days to

find work, failing which they had to depart the area. The regulations governed the working situation of Africans in the city, including their registration as togt labourers, medical examination, vaccination, wearing of identity badges, where they might live, and working conditions such as minimum wages. They were required to stay in reception depots, the male and female hostels, where they were strictly controlled.

By 1931 the population had risen to 42 449, of whom 20 060 were White. The MOH, Dr C.C.P. Anning, reported that although he was presenting statistics relating to Africans in his report, they were of little value owing to the imperfect registration of their births and the unreliable diagnosis of the cause of death in many cases. He quoted the report of the Statistical Bureau stating 'The calculation of death and infantile mortality rates of urban areas [for Africans] is a useless procedure and the sensational conclusions sometimes drawn from the results of such calculations are entirely misleading'.⁵⁶ This does present some problems regarding efforts to evaluate the health of Africans in the country in these early years. However, it does not mean that no effort should be made. Notifications of disease can still indicate trends as can reports of deaths and causation that were made. Certainly where figures were high there is more reason to conclude that these were an understatement rather than overstatement of the situation. However, certain statistics, such as the birth rate (at, for example, 8.7 per thousand for Africans in 1931) look particularly low and would have been skewed not only by imperfect registration of births, but also by the abnormal composition of urban dwellers with a high ratio of males to females.

There were severe outbreaks of malaria in the city in the early 1930s, quite rapidly controlled by preventive anti-mosquito measures, so that in 1935 Anning could state 'Maritzburg can claim the honour of having the lowest death rate for all races of any large town in South Africa'; and 'For Europeans, Maritzburg may well be the Mecca of those who seek healthy surroundings'.⁵⁷ As noted in his second statement, the amalgamated figures for all races disguised the inequalities between them. While the death rate for Whites was 8.22 per thousand (comparing well with England and Wales where the rate was 11.6) that of the other races was significantly higher at 14.8, although it was on the decline. It was also noted that there was a decrease in the proportion of deaths occurring in the earlier years of life, although for non-Europeans the majority of deaths still occurred before 45 years of age. In 1938, 72% of the non-European population died before the age of 45, compared with 30% of Europeans (and this dropped to 24% in 1939.) Still, it was observed that fewer

people were dying from common, preventable causes. Fifty per cent of White deaths occurred over the age of 65.

The area of the municipality stood at 27 591 acres in the 1930s and the total value of property in 1936 was £8 897 880. The European population in 1938 was 21 500 with a decrease of 1 000 in the African population from the previous year ascribed to a movement out to Edendale, a few miles to the south west of the city. Here Africans were able to construct their own houses, it being one of the few urban areas in the country where they could own land. The problems of uncontrolled housing, inadequate water and sanitation and the growth of the Edendale–Plessislaer area continued without the intervention of a governmental or local authority and a government commission of enquiry was appointed to investigate. The commission released its report in 1940:

In view of the opposition of the City Council, and the reluctance of the City Council to adopt coercive measures against the Borough, your Committee has no hesitation in recommending that the whole of the peri-urban area within a radius of five miles of Pietermaritzburg should be placed under the jurisdiction of a health committee constituted under the general law of the Province...assistance from the City Council [to the health committee] need not be on a cash basis, but it should rather be in the direction of placing its technical officers at the disposal of the Committee free of charge as 'advisers' when required. This, the Mayor of Pietermaritzburg considered the Council would be prepared to do. Unless such assistance is provided and unless full cooperation between the two local authorities is secured your Committee believes that it will be necessary in the interests of public health for legislation to be introduced into the Provincial Council providing for the incorporation of the peri-urban areas within the Borough of Pietermaritzburg.⁵⁸

So the Local Health Commission (LHC) was born. The City Council granted £10 000 to the Commission towards the cost of capital works, contingent upon grants of £10 000 and £30 000 also being given by the Provincial Administration and Native Trust Fund. In giving the grant the Council 'made it clear that it does not admit any responsibility for the conditions which have arisen at Edendale'.⁵⁹ Edendale and Plessislaer would not be incorporated into the city, or its statistics, for almost 60 years. Figures given for the African population in Pietermaritzburg are therefore only meaningful in terms of percentages and trends rather than absolute numbers; although the LHC returned its own statistics and reports, which can be read in conjunction with the Pietermaritzburg reports.

Although an improvement in hygiene and sanitation in the city was critically necessary in the first decades of the century, Epprecht describes the period 1900 to 1942 in respect of the African population of the city as one of 'development of underdevelopment, during which period racial politics consolidated the most

harmful health impacts of ecological transformation in African communities'. He refers in particular to soil erosion, water pollution and overcrowded housing and the 'whitening' of the city proper by the imposition of controls over water pollution, animal husbandry and the removal of Africans to the fringes of the city. This in turn led to economic decline, social breakdown and health problems.⁶⁰ By the end of the period this is reflected dramatically in infant mortality: an astounding 26% of non-European deaths occurred before the age of twelve months compared with 9% of Europeans. The MOH in 1940, Dr M. Maister, noted that the mortality figures confirmed how much better the expectation of life was for Whites than for other races and that the diseases generally associated with later life – for instance, cancer, cerebral haemorrhage and cardiac disease – were a much more common cause of death among Europeans than non-Europeans. Tuberculosis, bowel infections and diseases of early infancy were much more frequently the cause of death among non-Europeans. The difference in age at death between the various sectors of society is graphically illustrated in figure 1.3, which shows the situation in 1943. While the mortality data for Africans was clearly incomplete, there is no reason to suppose that the deaths that were recorded were not a representative sample. They would suggest that 50% of deaths occurred before the fifth

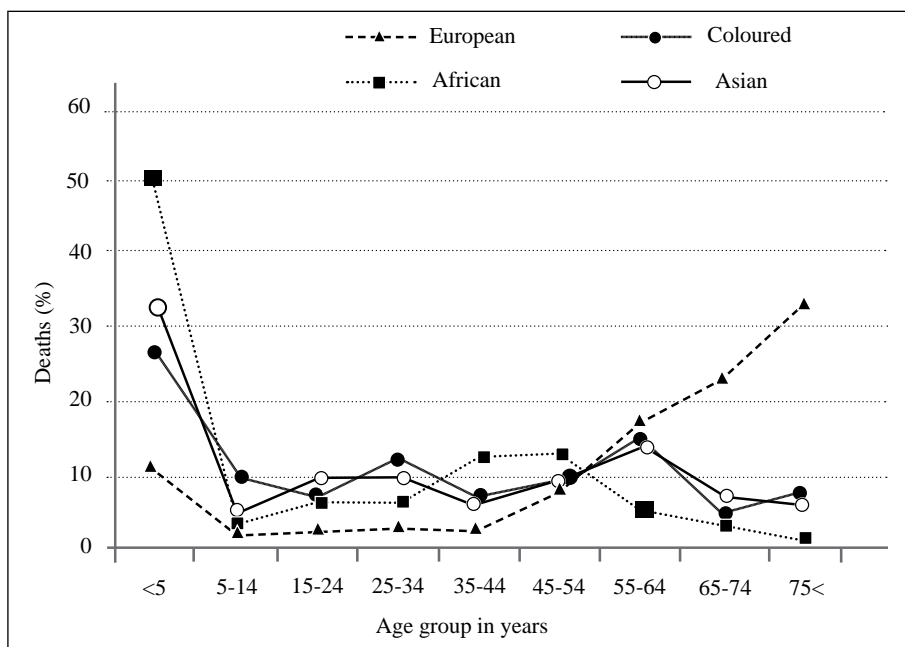


Fig. 1.3 Mortality in Pietermaritzburg by race and age group, 1943.

birthday. Those who survived that period of childhood illness generally lived until about 45 or 50, compared with the White population of whom more than half survived until over 70 years of age.

The Asian and Coloured population were nearer to the African population in life expectancy than Whites. Still, W.J. O'Brien, a former mayor, on being given the freedom of the city in 1945 felt able to say that 'with its equable and genial climate, Maritzburg is a pleasant place of residence and vital statistics show that it is one of the healthiest towns in South Africa with its wide streets, good roads, sewerage, good lighting and excellent water supply'.⁶¹

Reports of the Pietermaritzburg MOH were also, however, commented upon in the British journal *The Medical Officer* whose attention was drawn to the fact that the city's health statistics were presented by race and that these showed great diversity:

The time has come for a full exploration of the factors which cause such widely different rates in the four sections of the population of South Africa. In the nineteenth century, the high disease and death-rates of native races was attributed to their iniquity in not being Europeans, but there was always some uneasiness that this explanation of original sin was an excuse to smother reasons for which the Europeans themselves were largely responsible.⁶²

These differences are also illustrated in figure 1.4, which shows causes of death in 1948. While the absolute numbers for Africans are an underestimate, as most of them lived outside the borough, the relative numbers clearly illustrate that for Europeans only 17% of deaths were due to infective causes compared to about 50% for non-Europeans. Changes in population from Union in 1910 to the coming to power of the National Party in 1948 are shown in Figure 1.5.

Cause	Europeans	Non-Europeans
Congenital	4	7
Cancer	12	3
Cardiovascular/stroke	51	21
Pneumonia/bronchitis	8	24
Diarrhoea/dysentery	1	8
Tuberculosis	4	16
Unnatural	3	5
Diphtheria	0	1
Typhoid	0	1
Other	16	14

Fig. 1.4 *Causes of death in 1948 (%)*.

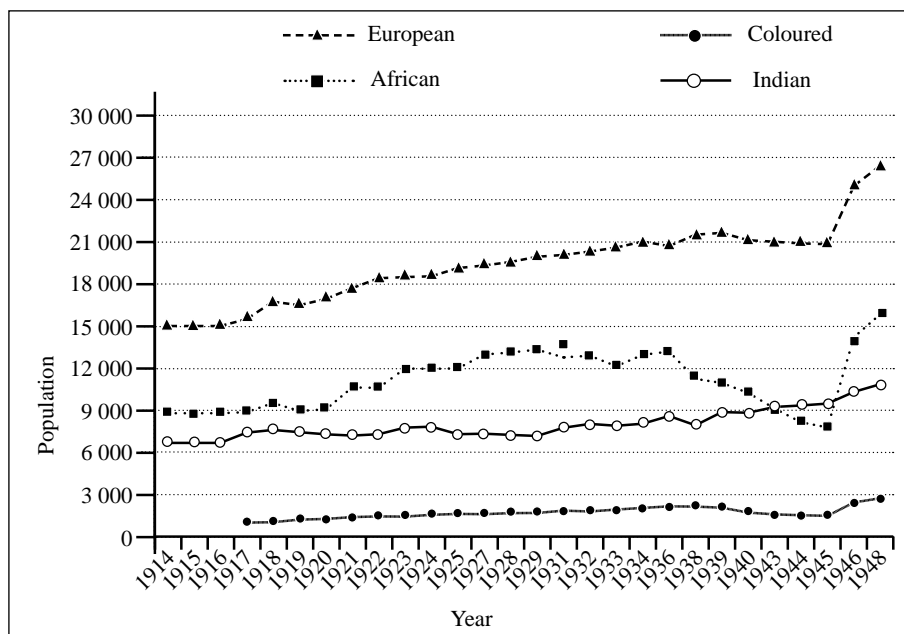


Fig. 1.5 Pietermaritzburg population, 1914–1948.

By this time, the LHC was covering Edendale and district as proclaimed in 1942, the area around Pietermaritzburg where most of the African population lived. Ashdown was added in August 1945 in terms of the Natives (Urban Areas) Consolidation Act (1945) and it was proposed to build 800 houses with shops, schools and recreation amenities. A home was constructed for 30 indigent and crippled Africans. Population figures for the area when the LHC took over in 1943 were 11 143 Africans, 1 923 Asians, 221 Coloureds and 288 Whites. It was noted that there were similar numbers of males and females, which indicated a stable population living as family units, but with continued influx the African population was growing at around 1 000 per year. A multi-racial Advisory Board was established for Edendale and an African Advisory Board for the new housing project of Ashdown. By 1952 many more of the areas surrounding Pietermaritzburg had been brought under the control of the LHC, including Lincoln Meade and Hollingwood to the east of the city and Cleland to its south east.

Apartheid city

Nationally the government had been forging ahead with its plans for racial control and segregation. In May 1940, in response to mounting agitation against

Asians, the first Indian Penetration Commission was appointed to inquire into the extent to which Indians had acquired or occupied sites for trading or residential purposes in predominantly White areas of Natal and the Transvaal. This was followed by the Trading and Occupation of Land (Transvaal and Natal) Restriction Act (the Pegging Act of 1943), which prohibited changes of ownership or occupation between Whites and Indians. The National Party, which came to power in 1948, passed the Population Registration Act in 1950, making provision to register the population by racial group and issue identity cards to everyone. It insisted that all native service contracts between employers and Africans be renewed monthly. This was followed by the Group Areas Act, also in 1950, which established compulsory racial segregation, initially without compensation for persons displaced. This was extended to cover inter-racial contact in, for example, cinemas, restaurants, tea rooms and clubs.⁶³ In response, a campaign was organised by the African National Congress (ANC), the Natal Indian Congress (NIC) and the Communist Party of South Africa (CPSA) that included a stayaway for 26 June.⁶⁴ Over 2 000 prosecutions were made for contraventions of the racial legislation in respect of Africans in 1951 in Pietermaritzburg. Some concern about the direction the country was taking was voiced at a mass meeting of citizens and it was resolved that the city 'views with indignation and alarm the proposal of the Government to diminish the rights of the Coloured voters'.⁶⁵ The Prevention of Illegal Squatters Act followed in 1951 and this formed the basis of much of the resettlement of Africans that took place in the 1960s and 1970s. It empowered the authorities to remove squatters from public and private land and send them elsewhere. The full implications for town planning were worked out and implemented during the 1950s and 1960s. In Pietermaritzburg, the separate suburbs of Northdale and Mountain Rise were created as residential areas for South Africans of Asian descent. Areas formerly outside the borough, such as Allandale, were gradually incorporated for the implementation of the Group Areas Act. The suburb of Woodlands was created for the Coloured community. The impact of racial segregation on health in South Africans continued to be noted:

Dr M Maister, Medical Officer of Health of Pietermaritzburg, and his colleagues in the other cities of South Africa have a task of almost insuperable difficulty owing to the political segregation of the various sections of the community. The housing and general amenities of the Non-Europeans are deplorable and next-to-nothing is done to relieve them. About one fifth of all deaths among Europeans are of persons under 45 years of age, but nearly three quarters of the deaths in other races, mostly due to alimentary and respiratory infections and high incidence of tuberculosis and venereal disease.⁶⁶

Notwithstanding housing conditions, the mortality rates of the Coloured and Asian communities did decline during the late 1940s and 1950s such that by 1954 they were on a par with Whites, at between eight and ten per thousand. This may have been because of the aging European population, meaning that there were now so many elderly Whites that there were quite a large number of deaths. The infant mortality rate (IMR), however, remained much higher than that of Whites. The percentage mortality by age for 1954 is shown in figure 1.6, which illustrates a slight increase in the number of non-Europeans living beyond the 55–64 age range, but still a very high IMR for those groups. The life expectancy figure may have been a useful indicator of relative health, but unfortunately it was not available.

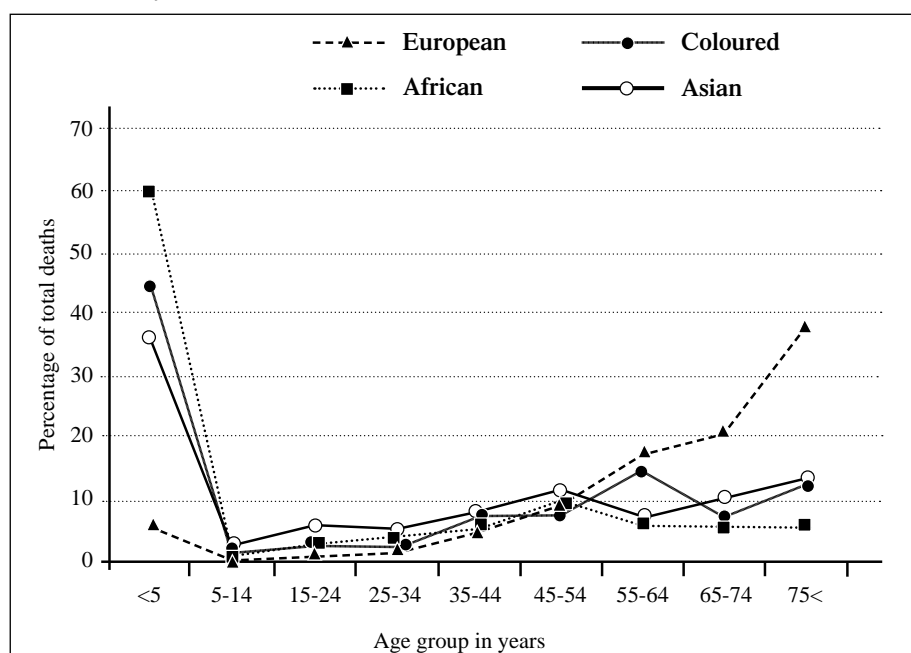


Fig. 1.6 Mortality in Pietermaritzburg by age group and race (percentage of total deaths occurring in each age group), 1954.

By 1958 the city's population was estimated to have passed 100 000, of whom 38% were White, 30% Africans, 30% Asian and 5% Coloured. The total area of the municipality was 47.67 square miles (30 507 acres), but the areas allocated for the residence of each group were vastly different. The backlog of housing development, caused by years of obstruction by national government as it planned the implementation of the Group Areas Act, led to enormous

overcrowding. When permission was sought to extend Sobantu, the Secretary of Native Affairs, W.M. Eiselen, responded in 1956 that 'whilst the Department appreciates the fact that the Sobantu Native Village is a pleasant, well built native residential area, it is felt that it is not ideally situated in relation to the European areas, and that the inhabitants must ultimately be moved to an area specially determined for native occupation in accordance with the Group Areas Act.'⁶⁷

This drew widespread condemnation from many sectors of the city. Approximately 60% of the African population lived on the premises of their employers, most presumably without their families; 10% lived in congested, single-sex hostels; and the remainder were in Sobantu, with an estimated eight people per house. A further 35 000 people, 84% African, lived just outside the city in Edendale where the LHC was making some inroads into slum conditions with an extensive programme of both infrastructure and social development. The tone of the LHC's annual reports, particularly those of the MOH and his Social Work Section, is overwhelmingly sympathetic and indeed quite outspoken regarding the situation of the African population.

Mortality rates across the city had generally decreased, due mainly to progress made in combating some of the infectious diseases during the 1950s with both immunisation and antibiotics. This included the treatment of tuberculosis, along with generally improving sanitation, although the incidence of tuberculosis was increasing notably in the African population in the latter half of the decade. The socio-economic climate for Africans was deteriorating, with increasing unemployment, rapid introduction of progressively more restrictive legislation, low wages and lack of housing. In 1959, 2 180 Africans were convicted in the city in terms of various apartheid laws such as influx control and curfew regulations.

The Golden Jubilee of the Union of South Africa was marked in 1960. Mayor C.B. Downes was reasonably outspoken. He commented that 'the Council has decided that the recent history and contemporary events dictate that the occasion is not one for celebration, not one for spending the ratepayers' money on fripperies which only serve to exemplify the mockery of the occasion'.⁶⁸ However, his reasons related more to the violation of British tradition and increasingly powerful National Party government, than to the human rights violations and discriminatory legislation affecting non-European communities, with consequent poverty and deprivation. In 1960 a national referendum was held amongst the White population regarding the formation of a republic for South Africa. Natal as a province was against the republic and there was an

anti-republican rally of 25 000 people in Pietermaritzburg. The country as a whole, however, voted for it and on 31 May 1961 Natal became part of the Republic of South Africa.⁶⁹

During the early 1960s a large number of houses were constructed for the Asian and Coloured population as required for the implementation of the Group Areas Act, which aimed to separate all races physically into different geographical areas. The distribution of municipal areas by race in Pietermaritzburg was: White, 22 000 acres; Asian, 2 100 acres; Coloured, 436 acres. At the time the White population comprised just 37% of the total. The African population had only Sobantu and there was talk that this could be closed down at some point in the future. After ten years of stalling, largely by national government, a new area was finally created in 1965 for Africans at Imbali near Edendale.⁷⁰ The sod-turning for Imbali was attended by the Minister of Bantu Administration, M.D.C. de Wet Nel, who stated that it had been sited so that it could in due course be 'incorporated in the surrounding Bantu homeland' and that the housing and other amenities 'for Bantu will not be at the expense of the ratepayer of Pietermaritzburg'. He went on to say that 'experience so far has shown that the Bantu who is contentedly established in his own area is a better worker than his counterpart in the Urban Bantu residential area', which would appear to illustrate the national government philosophy of the time.⁷¹

The construction of new housing for the Group Areas Act allowed for some slum clearance and de-concentration of the population of Sobantu. The new housing provided was of quite good quality, but the outcome was extremely disruptive. The loss of large plots previously owned by the Asian community, in particular, meant not only giving up more spacious homes, but also income provided from market gardening and other businesses. It necessitated vast amounts of expenditure on mass housing projects although this coincided with a thriving economy and job creation, albeit at low wages. The municipality allocated 7% of the total municipal budget to the health service in this period, a figure similar to that in the 1920s and 27% of it was for anti-tuberculosis measures. This means that just under 2% of municipal expenditure was allocated to combating tuberculosis. However, notwithstanding the large proportion of the budget allocated to health, the relocation of Africans to Imbali, where there were as yet no health services, resulted in a drop of 30% in their utilisation of the infant welfare clinics.

The impoverishment of the Edendale community was added to by rigid application of influx control regulations by the Pietermaritzburg

municipality. In the words of the LHC MOH in 1965, they ‘virtually exclude all potential workers from Edendale who have never had, or had not worked in Pietermaritzburg urban area for over a year’. In contrast Edendale, where influx control did not apply, was ‘a haven on a free-for-all basis’. The Edendale population appears to have been sustained mainly by its extensive welfare programme, of which he stated ‘there are few communities even in European towns with similar welfare services’.⁷² However, government welfare grants were graded by race: disability grants in 1966 were R14 a week for Asians and Coloureds and only R3.45 for Africans supporting families of two to three children. The development of Imbali made the employment situation in Edendale worse as it meant the city could draw labour from its own townships, excluding potential work seekers from elsewhere. A South African Institute of Race Relations survey showed that of 9 500 African men entering the city looking for work in 1965, 76% were turned back in terms of influx control regulations.

The profile of deaths by age group for 1970 (figure 1.7) shows that child mortality rates were declining across all groups, although deaths under five years of age were still accounting for 45% of the reported African figure. Total numbers were by now completely wrong for the African population – even the population census figures were estimated by the Health Department to have an undercount of some 16 000 (50%) making calculation of any type of rate meaningless except for some use of percentages (for example, percentage of deaths of a particular age group or cause). Greater percentages of Coloureds and Asians were living into their sixties and seventies, and the mortality from diseases such as gastroenteritis, which had continued to be a problem for the Asian community, was starting to decline due probably to improvements in sanitation associated with the new housing developments. Asians and Coloureds at this time had some representation on the Council through the establishment of Local Affairs Committees (LACs). The first elections took place in October 1970 for Asians and in October 1971 for Coloureds. However, the LACs were only advisory and had no decision-making powers. One of the stated intentions of the national government in establishing them was that they should be training grounds in local government for the time when the Asian and Coloured areas would be removed from the city and become independently administered local authorities.

The massive development of social housing projects, with their concomitant mass movements of people by racial group, continued into the early 1970s and by 1974 a drop in the housing waiting list was noted. By this time the

City Council was managing more than 6 000 rental properties for the White, Coloured and Asian populations but, after it had built the vast new housing estates of Imbali the entire administration of the African population and its housing was taken over by the newly-created Drakensberg Bantu Administration Board (DBAB).

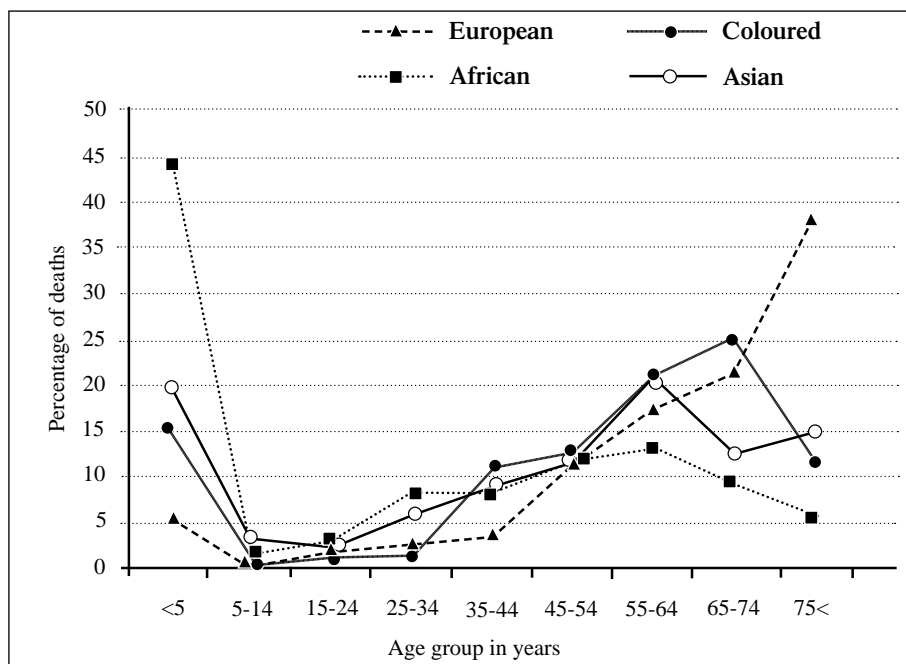


Fig. 1.7 Mortality in Pietermaritzburg by age group and race, 1970.

This added yet another complication to attempts to compile accurate information regarding the state of affairs for Africans. Dr J.P. O'Keefe writes in his 1975 report that:

the accurate compilation of vital statistics continues to be bedevilled by the lack of information concerning the African population. As vital statistics are of international importance and are used by international agencies (World Health Organisation etc) for comparative and other purposes, complete and accurate figures for all race groups should be readily available...from a central source.⁷³

Presumably it was not in the interest of the national government to enable readily accessible statistics that would highlight the gross inequalities between the races. The LHC also had to give up the administration of Edendale to the Department of Bantu Administration and Development, then the South African

Bantu Trust, in terms of the Bantu Affairs Administration Act of 1971. The LHC was changed to the Development and Services Board (DSB) and retained control of Plessislaer and other small areas. The KwaZulu Government came into being in the early 1970s and assumed responsibility for the more rural Vulindlela area. Having lost contact with the African population working in and frequenting the city, an attempt at African representation was started by the City Council with the establishment of an African Liaison Committee in 1977. Nine Africans and five councillors sat on the committee. This was later increased to nineteen Africans and one of them was invited to attend Council meetings, although without a vote. At this time the African population was still subject to a curfew between the hours of 11 pm and 4 am, which had been in place since 1956 when it was raised from 10 pm.

The DBAB started to enforce more severe influx control, limiting entry into the city of work seekers and neglected to build further housing for the African population. By the late 1970s there were on average eleven people to a four-roomed house in Sobantu and 6.5 per house in Imbali. The township of Imbali was excised from the city and placed under the Department of Co-operation and Development in 1980. It failed to construct housing and social disruption increased. Violence and homicide rose dramatically as causes of death for African men and women. The administration of Edendale was moved to the Department of Development Aid and then to the Natal Provincial Administration and it appears that no development took place in the area between 1974 and 1994. At that time a quarter of the workforce in rural KwaZulu was unemployed. The report of the Buthelezi Commission described KwaZulu as a land of 'women without men' as able-bodied men migrated to seek work. Many of these migrated to the shantytowns around Pietermaritzburg and either lived alone in hostels or set up second families. Then from Pietermaritzburg, men migrated to other cities.⁷⁴

Looking at the causes of death in 1980 (figure 1.8) it can be seen that infectious diseases had virtually disappeared, except for tuberculosis in the African community. The Asian, White and Coloured communities were now very similar, due probably to the aging structure of their populations and more advantageous sanitary and social circumstances. People were predominantly dying of diseases of longevity, such as cardiovascular disease and cancer. Respiratory deaths are also of the middle-aged and elderly. The other dramatic difference is the toll taken from murder and violence in the African community, with 27% of deaths in that year.

Violence continued throughout the 1980s due to a combination of factors – rising unemployment; inadequate Bantu education with limited job opportunities; increasing poverty and overcrowding; the migrant labour system; and political struggles, in particular between Africans aligned to the Inkatha Freedom Party (IFP) and the United Democratic Front (UDF). However, underlying it was apartheid, which had laid the foundations for all these causes. In 1983, Africans in South African urban areas had an average annual disposable income per capita of R1 366 compared to R1 630 for Coloureds, R2 289 for Asians and R6 242 for Whites.⁷⁵

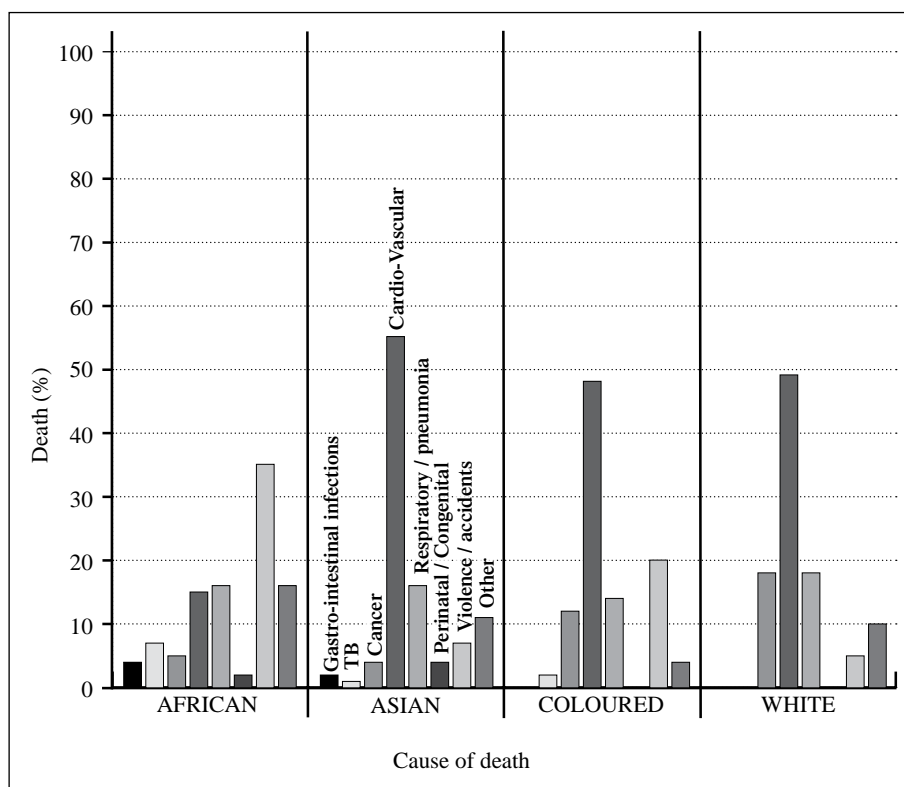


Fig. 1.8 Cause of death within population groups in Pietermaritzburg, 1980.

The major source of employment for African women was domestic service, most of it live-in. This not only removed women from their own children while caring for those of their White employers, thus contributing further to social and family breakdown, but also allowed employers to consider their live-in accommodation and food as wages-in-kind. Their cash wages, used to support

their children left behind with relatives or other carers, were often meagre. Monthly earnings in both cash and kind of African women in domestic service in Pietermaritzburg fell in real terms from R92 in 1970 to R90 in 1981 and the cash-only component in 1981 was R55 per month. The monthly minimum living level was estimated at R180. In households headed by African women, of which there were many due to the migrant labour system, poverty was particularly acute.⁷⁶

The national government attempted to win over some support from the Coloured and Asian populations in 1983 by introducing elected representation through what was known as the tricameral system. The House of Delegates was created as a parliamentary structure to represent the Asian community and the House of Representatives was for the Coloured population. These were generally opposed by the non-European population who did not support further racially divisive policies and tactics. However, their creation went ahead along

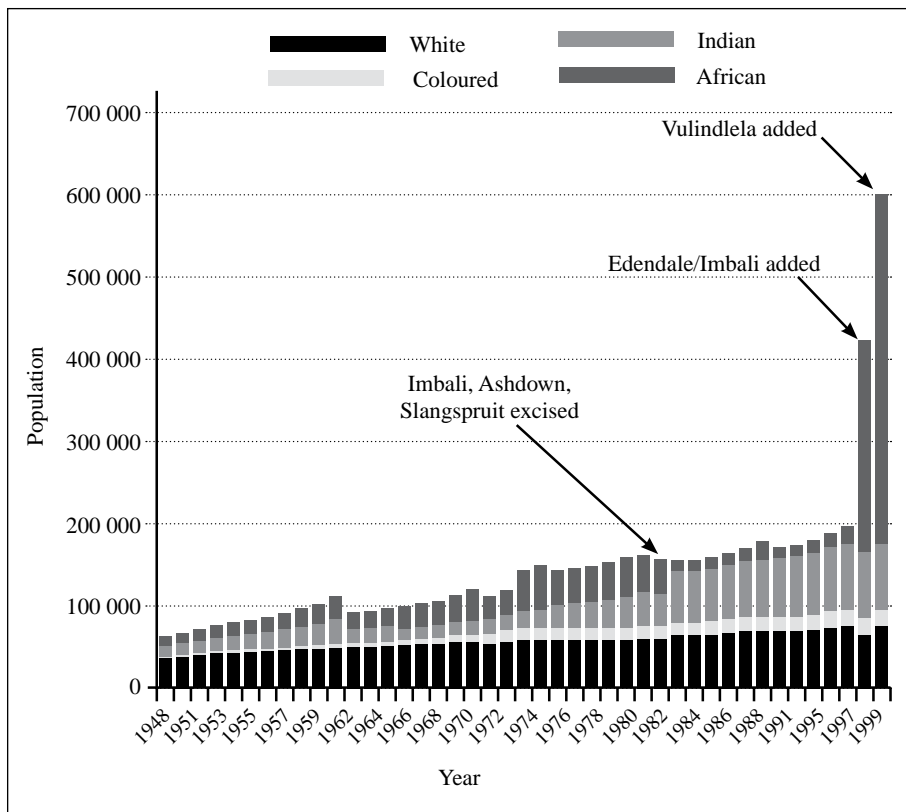


Fig. 1.9 Population growth in Pietermaritzburg, 1948–2000.

with the establishment of departments catering for separate development of certain facilities, such as education, housing, and some health services. Political and social unrest, however, continued to build up during the 1980s, in particular in the African area of Edendale. Society was becoming ever more violent and by 1988 47% of African male deaths were from murders. The surreal image of two separate societies living apparently in different worlds, although in reality only a few minutes apart, becomes ever stronger from municipal reports. The White community continued to worry about vehicle noise on the main through route, overgrowth on land and white ants; while in Edendale a veritable war was taking place in the midst of mass poverty. The violence increased the influx of African residents into the city, with informal settlements mushrooming predominantly in the Asian and Coloured areas where there was greater tolerance and understanding of their plight. Refugees of other violent areas arrived in Edendale and settled on privately-owned land without paying rent. The violence forced the closure of KwaZulu government-run clinics in Edendale, Imbali and Vulindlela and patients streamed into the City Council's clinics (see chapter 6). As the economy worsened, so people took to the streets as informal traders and the third world population started to make their presence felt in the city. The impoverished masses, kept firmly out of sight, suddenly emerged and came in numbers to assert themselves. Unemployment was increasing and mass stayaways and protests on the city's streets became the order of the day. The political and public pressures felt locally were of course multiplied nationally with the unbanning of the ANC and other political movements, the release of Nelson Mandela and the dismantling of apartheid in the early 1990s after the appointment of F.W. de Klerk as president.

The Mayor of Pietermaritzburg, Mark Cornell, commented '1990 will surely go down in history as the most eventful since this country was founded. For Pietermaritzburg, it is also the beginning of the changes for which we have been urging and looking forward for so long'. He continued:

If we once again look at Local Government, the world which I know, our standards are dropping on a daily basis, controls are being lost here and there, in respect of such matters as squatters, kombi [minibus] taxis, informal trading. If we don't tighten up on the laws, which should not be seen as racialistic but rather concerned with health, sound town planning and building control, then we could easily fall into disarray.⁷⁷

Post-liberation city

This perhaps summarises the confusion facing the White community in the face of dramatic changes about to take place. They mostly understood and supported the moral and ethical reasons for change, but were afraid that the world as they knew it would become unrecognisable and alien. Unfortunately, change had come to South Africa so late that complete paradigm shifts would be required to address the almost overwhelming backlog of problems, including the possible lowering of standards so feared by the middle classes.

The first multiracial elections for the new South Africa were held in 1994 and the ANC laid out its plans to transform and develop the country in its Reconstruction and Development Programme (RDP) document. From 1995 the city was governed by a temporary arrangement of councillors, including representatives of the ANC and IFP until the first democratic local government elections were held in June 1996. It is of passing interest to note that while the Council reflected all races and genders from then on – and indeed had for many decades if the advisory LACs were included – only White male senior managers had ever featured in the photographs of the city's administration. The African areas of Sobantu, Imbali and greater Edendale were incorporated into the city in what was then known as the Pietermaritzburg-Msunduzi Transitional Local Council. The more distant area of Vulindlela around and beyond the Henley Dam (the original Sweetwaters location) had a large, more rural population than that of Edendale. It maintained a traditional, agricultural lifestyle and fell under the control of the KwaZulu homeland administration with its associated amakhosi or traditional leaders. Due to Vulindlela's close economic links with Pietermaritzburg, the major source of employment and commerce, it was finally integrated in 2000 into the city, which then became known as the Msunduzi Municipality after the river that is its central feature.

The Pietermaritzburg of its pre-1996 boundaries had the benefit of over 150 years of municipal administration and governance, which had left it generally fully developed to the standard of a European city and in some areas, such as White housing, far beyond. Roads were tarred; treated water, water-borne sewerage and electricity were available to virtually all residences; drainage was in place; rivers were canalised; clinics were accessible and social facilities adequate. The health of the residents was no longer adversely affected in any significant way by their environment. Even in the Coloured and Asian areas, due to the benefits of expenditure by the Houses of Representatives and Delegates, chronic diseases had taken ascendancy over contagious and gastrointestinal infections. However with the expanded boundaries, the major health

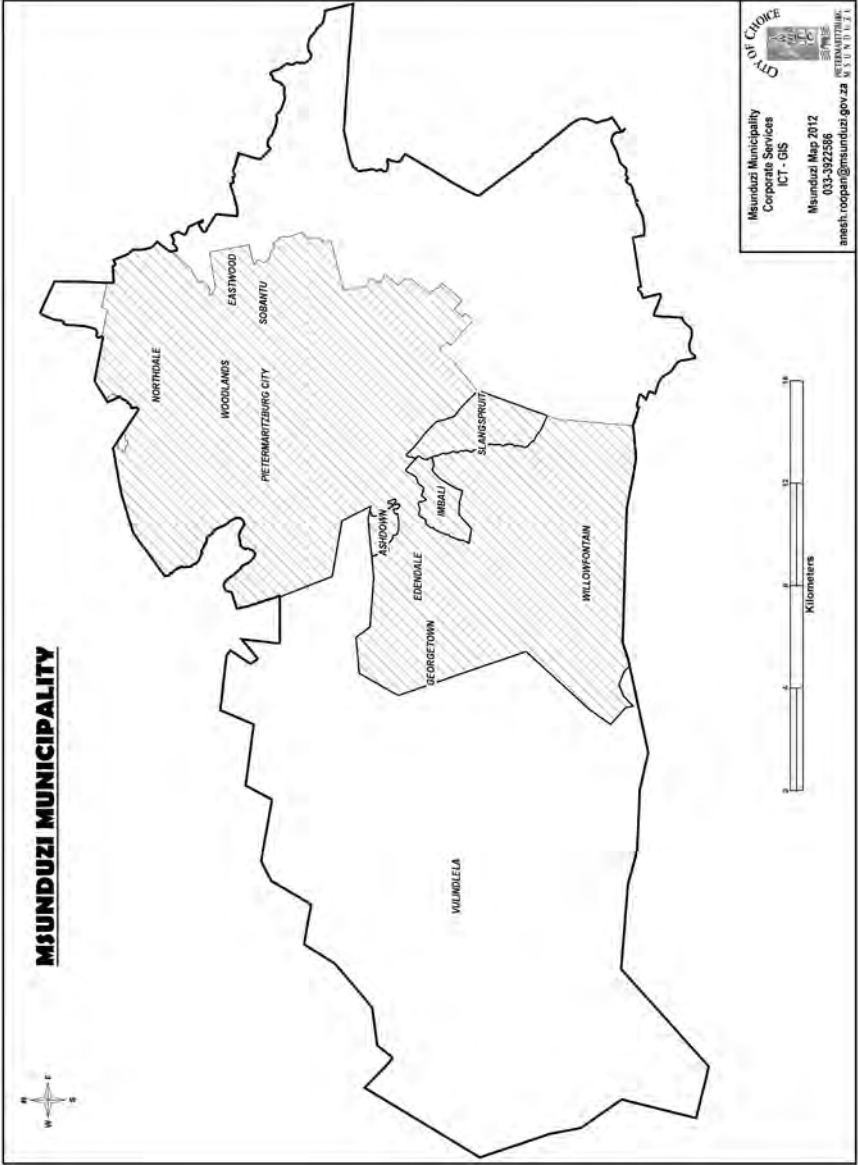


Fig. 1.10 Map of Msunduzi Municipality, 2012 (Courtesy Anesh Roopan, Msunduzi Municipality Corporate Services ICT – GIS).

issues of the new, extended city were found to be gastro-intestinal infections, tuberculosis (which was increasing from a low in the mid 1980s), the interconnected HIV infection and STDs which, although treatable, were fuelling the spread of AIDS. Extensive national and local immunisation campaigns had removed the threat of many of the previously common and fatal infectious diseases and the main thrust of the municipality's development was towards delivery of housing, water, sanitation, clinics, roads, refuse removal and electricity to the newly-incorporated areas. They had not benefited from the positive aspects of local authority structures for 22 years in the case of Imbali and never in the case of Vulindlela. Given that there was virtually no chance of income generation from the new areas due to massive unemployment and poverty, the city's strategy was to divert funds from the old areas together with central government funds through the national RDP. Ward councillors now represented communities from the whole city instead of just the White areas and championed their people's causes.

One of the major challenges they faced in developing Edendale, however, was the problem of land ownership. Edendale had been one of only five townships in the country where land ownership by Africans was permitted. However, this now hindered development: there had been many land invasions, private owners had lost all practical control of much of their land and a large area was sitting in deceased estates with heirs who could not be traced. People produced various kinds of ownership documents, including letters from magistrates and 'permission to occupy' notes: only land owned by the Edendale Landowners and Ratepayers Association was reasonably well organised.⁷⁸ All this meant that there was virtually no income to be had from these areas in respect of municipal rates; and that development of public facilities and infrastructure was far more complicated than it should have been. Notwithstanding these problems, however, there was a highly pressured environment to make change happen and substantial improvements were made in Edendale, particularly during the first eight years of the new administration until 2002.

At the end of the millennium the world had been working for 22 years towards the Alma Ata Declaration of Health For All in the Year 2000. The city's Health Department presented a comprehensive analysis of the state of health at that point, although it was working then as part of the Pietermaritzburg/Mooi River/Lions River/Vulindlela District as established by the KwaZulu-Natal Department of Health. The constantly changing boundaries of both local government and the provincial Health Department did not make the task easy, but at that time there had been a degree of stability for two years and it

was possible to attempt a statistical picture of the situation. The district had won third prize in a national competition for urban district health services, presented by the national Minister for Health. The rationalisation of service provision was in progress, with the remaining nursing staff of the DSB being transferred to the Council. The MOH drew attention to the HIV/AIDS epidemic, which was seen as 'the single most important factor impeding the attainment of Health for All in the year 2000'.⁷⁹ This was reinforced in comment the following year, when it was stated that 'the new millennium remains defined by the AIDS epidemic. All other health issues pale almost into insignificance in relation to the devastation being wreaked by this...it has undone all the good work of the new health services in increasing life expectancy and other human development indicators'.⁸⁰ Unfortunately, unlike many of the diseases of the past and others caused through the legacy of apartheid, this problem was not going to be easily amenable to any kind of external intervention.

While this has given an overview of the history of the city, and touched on various health challenges, these will be considered in more detail in the following chapters. They have been arranged on the basis of the major categories of environmental and external factors that impact on the health of populations with attempts made to correlate these factors to an analysis of health statistics. Most of these have been drawn from the annual reports of the MOH rather than hospital data as the hospitals served not only the population of Pietermaritzburg but drew patients from the entire province. The limitations of this data are acknowledged, particularly with respect to the African population, with comments made as necessary. However, great efforts were clearly made by the Health Department to analyse and present statistics as accurately as possible and they were probably the most reliable figures available for that time. They were certainly the only statistics that attempted to calculate incidence rates relative to population size at a local level.

ENDNOTES

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2

HEALTH SERVICE PROVISION

BEFORE THE ARRIVAL of Europeans, there is reason to believe from various early descriptions that the Zulu population was particularly healthy and free from disease. While malaria and dysentery were periodically prevalent, scarlet fever and whooping cough were unknown, and smallpox must have been uncommon as residual scars were rarely seen by the early European arrivals.¹ Traditional healers were widespread. They employed a range of medicines based on local plants, animals and trees, held by the local population to be effective and whose use continues to some extent to the present day. However, the arrival of new diseases, such as tuberculosis, must have presented serious challenges for traditional remedies. For the immigrant European population, health services in early South Africa were provided by various medical practitioners and apothecaries in the Cape, but it was noted they found it quite hard to make a living. The first district surgeons were appointed by the state in 1713. In Natal, the first medical practitioner was the American missionary Dr Newton Adams, attending White and African patients from 1837 in a wattle and daub hut on the Umlazi River.² The first apothecary recorded in Pietermaritzburg was Ahrens in 1839.³

Early to mid-nineteenth century

Emigrants from England in the late 1840s included medical men, mostly of the general practitioner class described as apothecaries with an additional qualification from the College of Surgeons. Prior to the establishment of the British Medical Association, the Society of Apothecaries possessed authority to license those who had served a five-year apprenticeship. An examination was introduced in 1839. Ships' doctors, some of whom settled in Natal, often belonged to inferior grades of apothecaries and druggists. In the 1860s a medical board chaired by Dr P.C. Sutherland operated for Natal. The qualifications of chemists were scrutinised by Dr Addison, district surgeon for Durban, with a Pietermaritzburg druggist, Mr van Zweel.⁴ It was generally noted that, where they existed, the health profession's services were almost keeping up to their

European counterparts. Vaccine had been introduced in 1803 to try to contain the heavy mortality from successive epidemics of smallpox in the Cape. The first operation using anaesthetic was performed in Grahamstown by Atherstone in 1847 and medical knowledge was later shared in the *South African Medical Journal*, which started publication in 1886.

The first district surgeon mentioned for Pietermaritzburg was Dr D.S. Gower, appointed on 27 August 1853 at a salary of £150 a year.⁵ He also sat on the colony's medical board. While many medical practitioners did not find it easy to make a living in Natal, leaving after a few years, Gower, who had previously practised in Hampstead and Wales during a cholera outbreak, remained in Pietermaritzburg where he was also noted as a poet. The cholera epidemic in England of 1849 so depressed some doctors there that it encouraged many to emigrate to a better climate.⁶ The medicines of that era were described in an advert by the Pietermaritzburg druggist J.W. Akerman in 1855: those most widely used were mercurial and antimonial preparations, morphia, quinine, ammonia, aloes, gallic acid and fresh elderflowers.⁷ The first dentist in Natal was Byron Munro, and the first veterinary surgeon was James Winter, who practised in Pietermaritzburg. Both of them were Byrne immigrants who arrived in 1850.⁸ By 1870 the population census still recorded only two doctors living in Pietermaritzburg.

The need for a hospital to deal with cases of sickness and death, then being handled in the wattle-and-daub building serving as the Pietermaritzburg gaol, was reported in *The Natal Witness* of 1851. Sir George Grey was the governor of the Cape Colony and visited the town in 1855 to plan the building of the hospital, which was to be run by the local government and open equally to Black and White patients.⁹ Grey's Hospital opened in 1855 with Mrs J. O'Hara, the first matron appointed on 8 October 1855. In 1861 the colony spent £852 10s 3d on Grey's Hospital, together with £3 1s 6d for the 'conveyance of Lunatics and Paupers'.¹⁰ It was taken over by the town council in 1863, shortly before the great depression of 1865, when it was also used as a poor house. The council made some improvements to the facilities and in 1870 a separate building for Black patients was provided.¹¹ It had no operating theatre until 1876; and only a pocket case containing a few instruments, described in a mayoral minute of 1873 to be 'in a very bad condition and nearly useless'. Early operations mainly involved amputations and removal of bladder stones.¹² By 1875 the hospital had thirteen wards and 223 admissions were recorded that year. Water was supplied from a stream that served the city and was described as impure.

The hospital also had a cement and brick underground water tank, supplied by a spring and rain water that was of better quality and drinkable..

The 'Coolie Commission' of 1872 submitted a favourable report on the health of Asian immigrants and recommended the provision of medical attention for indentured labourers. Employers were levied 1s 3d per labourer per month to finance this.¹³ Health services for Asians were discussed in the Natal Legislative Council, where it was noted that employers of indentured labour were required to have a doctor on a retainer; and if they had more than twenty employees, access to a hospital. However, a problem reported was that 'most Indians object to take water or food from the hands of any person not of his own, or of a superior, caste' and hence were reluctant to stay in the hospitals.¹⁴ Presumably this applied to the early arrivals from India, due possibly to a preference for their own traditional medicines that gradually faded over the years.

There is a lack of statistical health information for the mid-1800s. In Britain the appointment of medical officers of health from 1847 onwards led to the detailed collection and analysis of public health statistics, conscientious monitoring of progress in health status in comparison to people's living conditions, and pressure for improvements in housing and sanitation. The first Medical Officer of Health (MOH) for Pietermaritzburg was Dr James F. Allen, appointed in 1878. The only records of health for the early years for Pietermaritzburg are found in the Grey's Hospital returns, although these recorded patients from much of the province and not just the city. They showed 523 admissions in 1881. The water supply at the hospital remained impure, but it was filtered. Sewerage was through the bucket system, with collection and disposal of waste by the municipality. The main admissions at that time were for fever, syphilis, dysentery, diarrhoea and alcoholism, together with tuberculosis and pneumonia. They give a sense of the prevalent social and environmentally related ailments of the time.

The earliest references to mental health are in the form of 'caring for lunatics' which was originally a function of Grey's Hospital, then in a building attached to the gaol. A Lunacy Law was passed in 1868 making provision for the examination and admission of patients. The first lunatic asylum was located in the Market Square, then relocated to a brick building in Longmarket Street in the 1870s.¹⁵ In 1875 the lunatic asylum returns cited 26 admissions with conditions described as 'idiot, paralytic, epileptic, dementia'; 'maniacal and dangerous'; and 'melancholy and suicidal'. Patients were segregated by race and kept under different conditions. For example, the daily diet of

European patients included one pound of potatoes, twelve ounces of meat, two ounces of rice and eight ounces of vegetables. Asians received eight ounces of rice, one eighth of an ounce of curry powder, with twelve ounces of meat only three times a week. Africans received one pound of maize meal and twelve ounces of meat three times a week. The 1880 returns of the lunatic asylum showed admissions as follows: maniacal and dangerous, 24; quiet chronic, 25; melancholy and suicidal, 3; and idiotic, paralytic or epileptic, 7. The vast majority of admissions were male.¹⁶ In the 1870s land was granted in the vicinity of Town Hill for asylum purposes. The Natal Government Asylum was formally opened in 1880. Facilities were initially basic, with water for washing and bathing carried in buckets from a stream 350 yards away. Sewage was taken in wooden buckets to a trench sunk in the grounds and light was supplied by oil lamps. Over 2 000 trees were planted to beautify the grounds and separate new quarters were constructed in 1906 for the accommodation of Asian and native patients.¹⁷ Additional land was sold to the government in 1910 in Northern Park and the facility later became known as Town Hill Psychiatric Hospital. It provided psychiatric services for much of the province and has remained in use until the present day.¹⁸

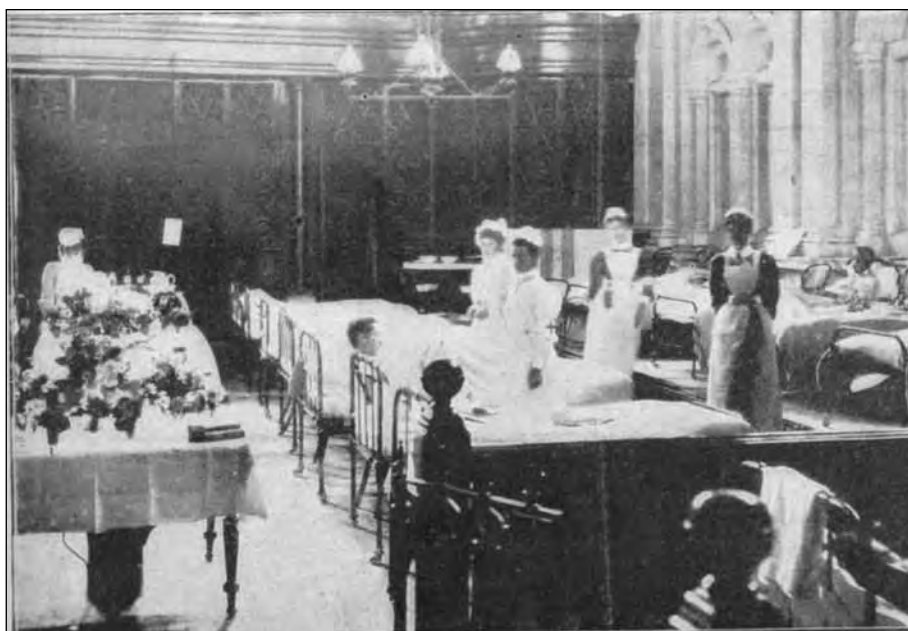
Late nineteenth and early twentieth centuries

In 1883 a Bill for Preventing Nuisances Injurious to Public Health was introduced by the colonial government. It divided Natal into sanitary districts and appointed inspectors for noxious and offensive trades.¹⁹ This was to cover areas outside the boroughs. Municipal by-laws were in place from the 1890s to deal with nuisances, housing and sanitation. These came about in response to the high incidence of diarrhoea, dysentery and typhoid around the turn of the century. They fell originally under the Borough Engineer, who was also known as the Inspector of Nuisances, while the corporation Medical Officer was responsible for hospital patients and infectious diseases.

Legislation of 1884 established the Natal Medical Board to regulate medical practice. The Medicine and Pharmacy Act of Natal was passed in 1896 and replaced the Board with the Natal Medical Council. This regulated the licensing, practice and medicine handling of doctors and pharmacists; and was amended in 1899 to include nurses, mental health ('nurses of the insane') and midwives. The first meeting of the Council took place on 9 October 1896. In 1902 there were seventeen doctors registered in Pietermaritzburg, all of whom had English-sounding names. There was one Asian doctor registered in

the province. Twenty-five chemists and druggists were registered, all of whom had English- or Scottish-sounding names.²⁰

During the South African War of 1899–1902, Grey's Hospital was filled to capacity and the Garrison House, Legislative Assembly Buildings and Maritzburg College were requisitioned and fitted out for the reception of wounded men arriving daily from the front. The interior of the parliament building, which was used wholly for the wounded of the volunteer units,²¹ is illustrated in the photo below.



The main ward of the Auxiliary Military Hospital in the Legislative Assembly Buildings, Pietermaritzburg, 1900.²²

In 1902 the Pietermaritzburg Epidemic Hospital was erected, with six wards accommodating 100 patients, about four miles (seven kilometres) from town in the area to be known as Mountain Rise. The Council advised that the provincial government should take over the administration of Grey's Hospital, appointing its own staff, and allowing private patients to have their own doctors. A hospital for Africans was planned in 1908 at Grey's Hospital with the Council contributing half the cost. The town council voted a sum of £2 500 toward its erection from the Native Administration Fund supported by revenue from the council monopoly on beer sales.

The *Pietermaritzburg Corporation Yearbook*, available from 1908, includes reports from the Medical Officer and other municipal departments. Statistics and information on health became gradually more extensive from this time. They were also more useful for the calculation of incidence and other rates than the records of Grey's Hospital, which took patients from all over the province, but did not accept all races with all types of disease. The Union government introduced a Public Health Bill, which was discussed in its early years. Through the Natal Municipal Association, representations were made to the Union government that the Medical Officer of Health should possess a qualification in public health in order to bring sufficient expertise to bear in this field.



*Grey's Hospital in 1910.*²³

In addition to government institutions there were also private health facilities such as the Roman Catholic Sanatorium in Loop (now Jabu Ndlovu) Street established in the early 1900s, and the Natal Health Institute (describing itself as 'a real home for the suffering, equipped for the successful treatment of the sick' at 126 Longmarket (now Langalibalele) Street. At Sweetwaters, on the outskirts of the city, was the Natural Healing Sanatorium, also known as the Sweetwaters International Establishment of the New Science of Healing, which was investigated for its unorthodox methods following complaints by the medical fraternity in 1907. These methods included therapies such as

cold water hip baths; sunbaths; dieting on vegetables, grains and fruit; and poultices of clay applied to the stomach with no medicines whatsoever, and were thought to have contributed to the death of certain individuals.²⁴

The *Blue Book on Native Affairs* for 1910 mentions 39 African deaths in Pietermaritzburg and a few cases of pneumonia and syphilis. Five to six hundred people had been admitted to Grey's Hospital that year, but still no licences had been issued to 'native' doctors. In 1914 an ambulance was bought by the Public Health Department: it was available free of charge for all street accidents and at a nominal fee for the transport of non-infectious cases of disease. It was initially used about three or four times a month. A district nurse was also appointed. The lack of an infectious diseases hospital with adequate isolation facilities for Europeans was brought to the attention of the Council by a deputation from the Medical Council. This facility had been under consideration since Grey's Hospital had for many years said that it could not accommodate it. The Natal Health Act conferred useful powers in the event of an outbreak of epidemic disease, but required the Corporation to provide for the isolation of serious epidemic diseases such as plague and smallpox, although not for lesser infectious diseases such as measles. It was contended that the government was equally responsible, and the Deputy Mayor had approached the Minister of the Interior. The minister, however, had referred the matter back to the provincial administration, which then sent it back to the municipality! Proposals were then prepared by the Borough Engineer and designs were submitted by two architects in the city. The site chosen in Scottsville was near the tram terminus, and the Mayor considered it 'ideal in every respect'. It was considered sufficiently isolated to prevent spread of infection and had a 'magnificent panoramic view of the City and its surrounds'.²⁵ The hospital was constructed in 1917 at a cost of £2 316 and proved very useful, being almost constantly occupied, initially with a measles epidemic. During the years of the First World War a military ward was opened at Grey's Hospital, along with a convalescent hospital camp for the military, sited at the university's Old Main Building in Scottsville, which received 150 patients upon opening.

Municipal by-laws were regularly updated and those dealing with plague, the market, buildings unfit for human habitation, dairies and laundries were passed in 1916. In 1918 the municipal Health Department was constituted, moving the control of nuisances, public health and the abattoir from the Borough Engineer to the MOH. This included the sanitary inspectors, the control of milk, food and drug supply, the control of infectious and contagious

diseases and the Epidemic Hospital. The first motor ambulance arrived in 1918, donated by a private citizen, Mr G.C. Mackenzie of Cramond.

An improvement in the collection of national data was one of the recommendations of the report of the Tuberculosis Commission in 1914, which suggested a national law to provide for the notification of all births and deaths, including age, sex, race, occupation and cause of death, with a medical certificate from a doctor in urban areas. In 1919 the Public Health Act was passed for the Union of South Africa, following the disastrous influenza pandemic of 1918–19. This established the Union Health Department and provided for the presentation of separate annual reports by municipal medical officers of health: these have given us a rich source of information on public health in cities across South Africa for most of the last century. Extensive statistical analysis, in particular around infectious diseases and mortality, using death certificates, was undertaken by these public health specialists over the years, and use of this information in the development of the city's infrastructure is clearly significant in Pietermaritzburg. Reporting directly to the Town Clerk, the MOH addressed regular reports to the Council's public health standing committee. A provincial ordinance to establish public health committees was published in 1923 in order to exercise power under the Public Health Act in areas where there was no local authority, in particular with respect to housing, sanitation, building regulation, refuse and burials, and the control of milk and water supplies.

A new motor ambulance, built in the city tramways workshops, was commissioned in 1921. It was said to combine 'the utmost comfort for the patient with smooth travelling and the absence of road jar' and had 'coachwork enamelled in pale-yellow, with the City Arms emblazoned on the doors.' It was noted proudly that the interior was lit by electric light.²⁶ At this point the Epidemic Hospital had 70 beds and was being used for formidable infectious diseases, the isolation of Asians and Africans with minor infectious diseases, and the treatment of in-patients with venereal disease. Unlike the ambulance, however, it only received electric lighting in 1924, having previously relied on paraffin. Much of its equipment was replaced and renovated that year. The recently constructed Isolation Hospital in Scottsville was used for minor infectious diseases and was therefore mainly occupied by children suffering from diphtheria, chickenpox, scarlet fever, mumps and measles. Grey's Hospital was transferred back to the provincial authority in 1922 and a second psychiatric facility was started in the garrison at the old Fort Napier by the

provincial government in 1927. This would be further reconstructed in the 1950s.²⁷

By the 1920s there was an extensive system of municipal health visitors, who visited children at home between birth and school age. The need to examine pre-school children was identified following the first inspection of schoolchildren in Natal in 1917, which had detected large numbers of ailments and malnutrition in a significant percentage. The medical officers of health of Durban and Pietermaritzburg were advised to establish child welfare clinics. The health visitors checked health progress and infectious diseases, and examined cases of neglect or destitution. The Health Department moved from its site on Market Square to new premises in Loop (Jabu Ndlovu) Street in order to give accommodation to the police. The new premises were much more spacious. The infant and ante-natal clinics were moved there from a temporary location in the City Hall in 1927 and the clinic was described by the MOH, Dr C.C.P. Anning in his report as 'abundantly worthwhile, with its plentiful windows, its abundant sunshine, its air of cleanliness, of cheerfulness and efficiency'.²⁸ It was felt that the very low infant mortality rate (IMR), lower than most other cities, was due to the health visiting services and the Infants' Clinic. The Epidemic Hospital at this time was used for the treatment of Africans and Asians suffering from venereal disease and for infectious diseases in Coloured patients. The Isolation Hospital was used exclusively for the treatment of Europeans and had two blocks for twenty patients. In 1930 a 'native' midwife was employed to commence ante-natal and maternity services, and an infants' clinic was started at the women's hostel. A second clinic was opened at the market hall in the recently constructed Native Village (later Sobantu). In the 1930s, the municipality also had a laboratory for the diagnosis of infectious disease, where swabs were cultured, mosquito larvae examined, and fleas and rats identified. Organisms were identified by a part-time corporation bacteriologist, Dr Wall-Mesham, in her private laboratory where she covered diphtheria, malaria, enteric organisms, tuberculosis, meningitis, streptococci and gonococci. Maternity services for all races were provided at Grey's Hospital, although the out-patient department had been altered so that 'Europeans and Non-Europeans can now be properly segregated'.²⁹ By 1934 there was serious overcrowding in that hospital, with patients in marquees and wooden huts, and new buildings were erected in 1936 together with a ward for Asians, sponsored in part by Mr Lakhi of Greytown. By 1940 the need for a new hospital specifically for Africans was under consideration, but delayed by the Second World War.

A vast array of municipal by-laws was promulgated from 1929 onwards. These added to the earlier general by-laws, which were revised in 1931, and covered all manner of activities in urban life. The by-laws relating to public health included the abattoir; market; building construction; cemetery; preparation, storage and sale of foodstuffs; control of offensive trades; trade licences; housing drainage; management and use of the municipal public baths; public health; sanitation; and water supply. Some of these will be covered in relevant later chapters. In addition, the Council framed regulations under national laws – for example regulations relating to apartment houses under the Slums Act (53 of 1934) promulgated in 1937. This mass of by-laws and regulations was extensively revised and updated during the following decades.

Mid-twentieth century

In 1934 a tuberculosis clinic opened in Grey's Hospital, as a result of representations made by the Department of Health and the Natal Anti-Tuberculosis Association. The cost was shared between different authorities: 50% government, 25% provincial government and 25% municipality. It had full facilities for clinical examination, X-ray examination and sputum examination, and was staffed by a municipal medical officer. On 22 June 1936 the municipal Department of Health opened a new building at 328 Longmarket Street that included a laboratory, fumigation chamber, disinfecting station and native quarters, as well as offices, garages and storerooms. The department at that time included an assistant MOH, four health inspectors, two health visitors and two native health assistants, together with administrative staff and the staff of the Isolation and Epidemic Hospitals. The training of non-European health assistants had commenced in 1934: it was for the times a bold innovation, the first use of trained non-Europeans for a South African municipal health department. Training included the theory and practice of hygiene and sanitation, and took six months. Daily lectures were given covering a multitude of public health issues and each trainee spent a month as a nurse-orderly at Grey's Hospital. The system was held up as an example to other local authorities. The abattoir also fell under the Health Department.

The Epidemic Hospital now catered for non-European males with sexually-transmitted diseases (STDs) from both the town and the surrounding area, and other infectious diseases. By 1936 the number of patients had increased greatly and plans were being made for the opening of wards for females. Extensive renovations were undertaken in 1938, including a new treatment block, operating theatre, laundry and kitchen. The hospital was on a septic

tank system. The daily average in-patient number was about 60. At that time ambulance services were provided by the Fire Department and in 1936 they dealt with the transport of 1 503 patients, of whom 295 were suffering from infectious diseases. Ambulances were allocated, as with all else, by race. That medical treatment and public health were regarded as serious business is indicated by the fact that in 1938 six people were prosecuted for absconding from the Epidemic Hospital, four of whom were sentenced to either a £2 fine or several weeks hard labour. The Public Health Act and other health legislation continued to be rigorously enforced by the municipal Health Department, with a different emphasis: in earlier years most prosecutions had been for inadequate standards in respect of milk and insanitary stables. From 1938, with a different MOH in charge, the tone of the annual reports changed. Thirty-six prosecutions commenced in 1939, of which eight were for absconding; five for possession of dagga (marijuana) while being a patient; two for conversing with female patients without the permission of Epidemic Hospital authorities; and two for conversing with male patients. Punishments for absconding were now generally a £1 fine or fourteen days imprisonment; possessing marijuana drew a 10s fine or seven days imprisonment; and talking to a female patient attracted a rather severe six cuts.

In 1938 a new clinic opened in Pentrich for the Asian community, the staff including a nurse with knowledge of Indian languages; and a clinic was constructed in the Native Village in 1939. Health education for all communities was considered a priority activity, with much mention in reports of 'health propaganda' undertaken at household level, at the Native Village and in the beer hall. Films were shown during the week as part of the weekly bioscope (cinema) programme for both Africans and Asians. All levels of staff, from native health assistant to health visitors and the MOH, gave talks to communities. An improved, specially-designed clinic was opened in Sobantu in 1946 as a portion of the new general administration block, which gave more adequate accommodation. Home visits were a regular feature of this clinic service with 4 853 visits made that year.

The opening of the King George V Tuberculosis Hospital in Durban assisted with the isolation of Coloured, Asian and European patients. Segregation of patients by race continued unabated, even at the inconvenience of White patients: if needing hospitalisation for venereal disease they continued to be sent to Addington Hospital in Durban, rather than sharing the facility in Pietermaritzburg. This limited analysis of health indicators using hospital data. The isolation of African patients with tuberculosis remained a problem,

particularly in view of their overcrowded homes, although the subsidised rental scheme, in which a larger house was given to families if necessary to ensure the isolation of the infectious member, proved helpful. In 1940 the City Council approved the building of a non-European Tuberculosis and Infectious Disease hospital with the existing Epidemic Hospital at Mountain Rise to provide 24 beds for tuberculosis and 12 beds for other infectious diseases. It was opened in 1942. A review of this hospital after four years of operation showed that patients remained there for long periods. The standard applied was one hospital bed per annual death from pulmonary tuberculosis, which proved adequate for the needs of the city at that time. The need for full X-ray facilities was identified as 8.5% of patients admitted were found to be misdiagnosed. During the war years, a military hospital was set up in the Oribi infantry camp near the railway line from Durban to accommodate 2 200 patients.³⁰ It was thought to be the largest military hospital and convalescent centre in the southern hemisphere.³¹

By 1945 a new epidemic hospital was required, the existing one being over 50 years old and made of wood and iron. There was a suggestion to combine this with a new isolation hospital for Whites. The need for this had been illustrated by the smallpox epidemic of that year on the grounds that the facility was inadequate, but also because investigation during the epidemic had strongly suggested that the disease had spread from the patients in the hospital downwind to the neighbouring population of Scottsville. It is interesting to compare this later view of the Isolation Hospital's location with opinions when it was built 30 years earlier: the site was then considered ideal in every respect. The MOH had applied to the national government a few years before the smallpox epidemic for permission for a quarantine facility for smallpox and dread diseases, but this had been turned down. He proposed to Council that all infectious disease hospitalisation be centralised and a new facility built to serve both the citizens and the surrounding communities. The provincial authorities were also proposing a 1 500 bed hospital in Edendale, just outside the city boundaries, to cater just for African patients and facilitate racial separation. At this time the Local Health Commission (LHC) was in charge of the area and a maternity hospital was opened in Edendale during 1946, together with a clinic that provided for child welfare, treatment of venereal diseases and tuberculosis, and ante-natal and general services. A levy was introduced by the provincial administration on Africans requiring hospitalisation in 1946, but this was revoked in 1948. The ambulance service was now being provided by the municipal Fire Department; it removed 4 375 patients overall, of which

1 569 were infectious diseases cases. The laboratory work, including patient swabs, smears, blood tests, stool examinations and urine samples, together with public health sampling such as milk testing, was still done by the Health Department.

The Council's plan for the expansion of infectious diseases hospitals was finally approved by national government in 1951. The proposals included a 60 bed non-European venereal diseases hospital (reduced from an earlier 120 bed plan due to the introduction of penicillin and more rapid treatment); an additional 24 beds for tuberculosis; two beds at the White Isolation Hospital; extra accommodation at the nurses' home, and the provision of sewerage at the Non-European Hospital, the last of which was only provided in 1956. The proposal for a formidable epidemic diseases hospital was still not approved and instead it was agreed that White cases would be transferred to the Quarantine Station at Fynnlands in the Durban area, while in an emergency the Venereal Diseases Hospital would be cleared of its routine patients. It can be seen that the separation of patients by race greatly complicated the planning process for health facilities and must inevitably have added to costs. The segregation of patients continued through all the health services, with maternity services for non-Europeans, previously provided at Grey's Hospital along with Europeans,



Non-European Infectious Diseases Hospital – View of the new wing, under construction.

removed to a temporary converted hospital at Mayor's Walk. In 1950 the peri-urban area of Raisethorpe was incorporated into the borough and an infant welfare clinic opened. There was also provision for a health visitor and sanitary inspector.

In 1954 a clinic was opened by the provincial administration for Africans at East Street; and it was agreed that it would take over the non-European out-of-borough ambulance services with the city continuing to render ambulance services for borough residents. Also in 1954, hospital services for Africans were removed from Grey's Hospital to the new Edendale Hospital, which had its own ambulance service. This large hospital would go on to be the major health facility for Africans not only in Pietermaritzburg, but in fact covering a significant portion of the province, commencing with 730 beds in 1954 and increasing to 1 650 beds by 1981.³² While providing modern standards of medical care for vast numbers of people, this greatly complicated the collection of accurate information as many patients were described at Edendale Hospital as living in Pietermaritzburg when strictly speaking they were outside the borough. The outcome of this was that while birth, death and illness data may be reported for the area including Edendale, the population used as a denominator was based on census figure for the borough and this meant the final rate calculated could be grossly inaccurate. IMRs, with live births as the denominator, were being under-estimated as live births in Edendale Hospital were recorded as Pietermaritzburg. Put simply, the unnatural boundaries of the population, and artificial divisions due to race, meant that everything was confused and accurate figures were hard to deduce. However the relative trends may still be of use. Health statistics and reports for the Edendale area were also given in the annual report of the LHC. It may be to this that the journal *The Medical Officer* was partly referring in its comment regarding the 'task of almost insuperable difficulty' of South African medical officers of health.³³

The new Asian residential area of Northdale was established in terms of the Group Areas Act in the late 1950s. The municipality provided a clinic, which included free infant welfare and ante-natal services, and another clinic was provided for the Coloured community in its area of Woodlands. The Sobantu clinic continued to provide services both at the clinic, and through home visits by a district nurse, and a new infant welfare clinic worked in the area around the hostels and beer hall, in Boom Street, opposite a clinic provided by the provincial government for treatment of general ailments. The addition of tuberculosis and venereal diseases services to the infant welfare clinic soon followed in the mid-sixties. Separate clinic sessions were held for each race

and sex and it can be seen that the provision of separate facilities for each racial group had significant implications for the cost and logistical arrangement of services.³⁴ It even caused inconvenience for Whites in that they still had to go to Durban for admission if they had tuberculosis or venereal disease requiring hospitalisation. Despite all the problems caused by the legislated separation of the races for health service providers, one of Pietermaritzburg most famous literary sons, Alan Paton (author of *Cry the Beloved Country*) stated at the University of Natal Medical Graduates Dinner in October 1961 that 'You can be proud, when I say that there are few people so little conscious of race in this country, as are the members of the Medical Profession'.³⁵ Certainly a concern for the health of all races comes through in the Pietermaritzburg Health Department reports. An advertisement in 1964 by the City Council for a clinical medical officer made no mention of race, whereas in the same year Durban advertised a similar post for a European clinical medical officer, and an Asian medical practitioner was employed on a part-time basis from the 1970s. However, it was not until 1993 that the Council appointed its first African doctor and 2009 before she became the first non-European doctor to head the department.

By 1965 negotiations were underway to hand over the Isolation Hospital (European infectious diseases) to the provincial administration and for the patients to be accommodated in Grey's Hospital, although this did not take place until 1971. Many Africans had been relocated to the new housing developments in Imbali, near Edendale, during the mid-1960s where there was at first no service, although a district midwife was appointed to do ante-natal and post-natal home visits and conduct home deliveries. In her first year 1 517 home visits and 63 deliveries were recorded, but in 1968 the midwifery service was discontinued due to a poor uptake. Women preferred to go to Edendale Hospital, which was very close. However, the service in Sobantu remained well used. Although closer to Grey's Hospital, the African women living in Sobantu had to go some distance to the other side of the city to Edendale. An infant welfare clinic opened in Imbali in 1967 and a further municipal clinic was opened in a converted house in 1975, but by then it was apparent that the community was now so great as to require a fully comprehensive polyclinic including such services as maternity, X-ray and an overnight ward, with doctors as well as nurses in attendance.

The city Health Department offices moved to the new municipal office building near the central Market Square in 1969. Health education was carried out throughout the city, with all official envelopes carrying messages on

diphtheria vaccination, while the quarterly newsletter put out by the Council to each household in the city contained short paragraphs on subjects such as rabies, bilharzia, immunisation, refuse and so on. A Pap smear service for exfoliative cytology (screening for cervical cancer) commenced in 1968 in a council-provided laboratory. The service was provided free to all women with the smears being submitted by private general practitioners. This service was eventually handed over to the National Cancer Association in 1981. Routine medical examination of all male and female Africans applying for registration at the pass office was still undertaken, with some 26 700 people being compulsorily examined in 1970. Routine smallpox vaccination and mass miniature X-ray screening were done at these examination sessions.

In 1971 the Epidemic Hospital in Mountain Rise was closed. It had been used in later years for the odd case of leprosy, now sent to the facility at Amatikulu on the north coast, and for venereal disease treatment. Discussions were held in that year with the Natal Association for Maternal and Family Welfare with a view to the municipal Health Department taking over the family planning clinics the association had been running, and this occurred in 1974. Community mental nurses were introduced to the child welfare clinics in order to assist with children's psychological problems. With vast housing developments in different parts of the city to accomplish racial segregation, two new infant clinics were opened in Northdale (for Asians) and Grange (for Whites). Hospital services were now firmly established along racial lines with Grey's Hospital for Whites, Edendale Hospital for Africans and Northdale Hospital having been built by the government in 1974 for the Asian and Coloured communities. Home visits continued to be made by municipal health visitors to all newborn registered babies from all communities, along with visits to children with lice or scabies, children at risk, some pregnant women and infectious diseases cases. A sign of further racial fragmentation of services, which would become almost unfathomable in its complexity over the next two decades, was the provision of school health services and immunisation services by the Natal Education Department for White children only.

In May 1977 the new, national Health Act was passed, replacing the previous Public Health Act of 1919. This was a comprehensive piece of legislation covering all aspects of health services in the country and included specific sections on the appointment of medical officers of health and their powers in terms of public health and the functions of local authorities with respect to health services. It specified in section 30 that the national Department of Health was to fulfil those functions where there was no local authority (these

becoming known as section 30 areas.) Health services were broadly divided into public and private, with public services nationally financed from general taxation revenue. Public health services fell broadly into three categories: hospitals staffed by a range of medical, nursing and other health professionals; clinics, which were staffed only by nurses; and environmental health. Rural medical services were supplied on a fee-for-service basis by private general practitioners acting part-time as district surgeons; but the services covered were limited and virtually all general practitioners were completely self-employed or in private group practices. The high rate of private care, with no obligations by the doctors to a higher authority other than their professional registration, is one of the factors that limited the notification of disease to the municipality and the rational collection of statistics. Private medical insurance schemes thrived for those who could afford them and were often subsidised by employers, including government employers of public servants. They covered a range of medical and allied services, including rather luxurious private hospitals.

The last hospital administered by the municipality, the Non-European Infectious Diseases Hospital, was closed in 1979 under the instruction of the national Department of Health for economic reasons with patients admitted to provincial hospitals thereafter. Most of its admissions at that time had been for tuberculosis; plus patients mainly from outside the town with diphtheria, polio or whooping cough. The average cost per patient day was then around R8. The percentage of the municipal budget spent on health services was 5.5%. By this time Edendale Hospital had been handed over to the KwaZulu government, one of the officially independent homelands established by the South African government for African areas. One of many outcomes of this was that the KwaZulu government would not allow its ambulances to take African patients from the city to its hospital. The municipality still ran its own ambulance service from the Fire Department, but in 1981 this was finally handed over to the Natal Provincial Administration operating out of Grey's Hospital. The two clinics at Imbali were taken over by the national Department of Co-operation and Development.

In 1980 a special service for the elderly was introduced by the municipal Health Department, with visits to old age homes throughout the city for all races offering minor treatment, counselling, foot care and general health advice. It was estimated that 9% of the White population, 2.2% of the Coloured, 2.4% of the Asian and 1.8% of the African population fell into the category of elderly. While municipal health services were described as comprehensive, they were

in fact highly fragmented, with separate services for the elderly, tuberculosis, STDs, family planning, ante-natal, minor ailments, and child health. Each of them was divided again by race, which was administratively exceedingly complex. The similar division of staff complicated management further in that each group had to be attended to by a nurse of the same race. However, in 1983 a trial was run at one multi-racial family planning clinic and this seemed to go well. The percentage of the municipal budget spent on health services had declined to 1.8%. The number of patients attending from outside the municipal boundaries was approximately 48% in 1983. Internally, a comprehensive occupational health service for municipal employees was introduced in 1983.

In 1984 the new Grey's Hospital was opened, after thirteen years of planning and eight years of construction. The tri-cameral parliament was introduced in 1984, establishing representation by race for Whites (House of Assembly), Asians (House of Delegates) and Coloureds (House of Representatives). Political issues aside, the effect of this on health services was further fragmentation, confusion and waste of resources. Nationally, including the homeland administrations, there were fourteen ministers of health with their own departments. By the late 1980s health services were rendered in the city area by no less than eight separate government health departments, largely independent of each other; either in different geographical parts of the city, for different races, or for different services. For example, the Development and Services Board (DSB, formerly the LHC) rendered primary health care services in the close suburban areas of Ashburton and Plessislaer, the KwaZulu government rendered full health services in Edendale and Vulindlela, and the municipality rendered primary health care services in the remainder of the city. School health services and community psychiatric services were divided by race, each house of parliament rendering services for its own voter group. The national Department of Health and Population Development also provided what could be considered primary level services, in the form of family planning clinics. The system became so complex that it could take several years for officials working within the system to understand fully who provided what. The public really had no comprehension which authority was responsible for each function.

Within the municipal Health Department, services were still generally run along racial lines and nurse/patient ratios recorded accordingly: nurses of a particular race were allocated to patients of the same race. Interestingly, the ratio for African nurses – 1:6 220 people – was the best. For Asians the figure was 1:15 652 and for Whites it was 1:13 016, although the White population

made far more use of private general practitioners than of public clinics, as did many of the Asian community. The recommended ratios of the national Department of Health were 1:15 000 for the high income group and 1:8 000 for the low income group, with which Pietermaritzburg seemed to comply at that time. However, these ratios did not take account of the fact that 34% of clinic users overall were from outside the borough boundaries, rising to perhaps 70% of the African patients. Hence it could be considered that they were possibly 30% under-staffed, in particular with provision of an adequate service to African attendees.

In 1988 Dr Iain Walters, the ninth MOH, commented in his annual report that there was a very large number of Africans living just outside the city boundary in Edendale with very poor health services, who needed the city's assistance and expertise and were in fact using its clinics daily. At that time city Health Department expenditure was 1.7% of Council expenditure, or R19.31 per head of population. Of this, 34% was subsidised by the national or provincial health departments. Per capita health expenditure nationally at that time varied tremendously by race. In 1987, expenditure was R95 for Africans, R339 for Coloureds, R356 for Asians and R596 for Whites.³⁶ The figures for Pietermaritzburg were possibly not quite so extreme, given that there was an accessible, large hospital for each population and clinics reasonably spaced for each group, albeit inadequate in the Edendale area.

Post-apartheid

The city's first HIV/AIDS centre, known as the AIDS Training, Information and Counselling Centre (ATICC), was established with grant funding by the national Department of Health and Population Development in 1991. It was set up away from the main Health Department on a side of town nearer to Edendale, but on a side street, away from major pedestrian or vehicle routes. It is possible that an unobtrusive and obscure site was sought due to the stigma associated with the disease in those days; although it could be that its obscurity actually contributed to increasing the idea that the disease was something special and secret, and in fact added to stigma. As a condition of the grant funding it was to serve the entire Midlands area and part of northern Natal, several hours drive away, which severely limited its effectiveness. Its purpose was indicated by its name and, being the first such service along with two other similar centres in Richard's Bay and Durban, had to start much of its training material and policy formulation from scratch. Being aware of its physical limitations it tried hard, with some considerable success, to work with non-governmental

organisations in the city, including the Midlands Progressive Primary Health Care Network, an organisation linked closely to the recently unbanned African National Congress (ANC). The political tensions of the time during the last days of the apartheid regime meant that many organisations did not want to be seen to be working closely with a government structure and were indeed suspicious of it. Hence an umbrella body known as the Pietermaritzburg AIDS Action Group was formed and ATICC tried to position itself as an organisation somewhat detached from the Council. Indeed, for many years it was locally largely thought to be a non-governmental organisation rather than a structure of the Council.

The cessation of the apartheid policy of influx control and growing political unrest resulted in rapidly increasing informal settlements around the city: people living in makeshift houses of wattle and daub or corrugated iron and plastic. Most of these were in the northern Asian and Coloured areas, possibly because of greater tolerance and sympathy for the African population than was present in White areas. This resulted in a new clinic being established for the Copesville area, mainly to serve these settlers. By 1991 overall clinic attendance had reached over 200 000 per annum, of which 39% were from outside the city boundaries. From October to December attendances increased by a further 75% at the Boom Street clinic, due to the closure of clinics in Imbali and Edendale by the KwaZulu government following unrest (for further discussion on the unrest see chapter 6.) With a growing problem of street children from disrupted families roaming the city, a clinic was held at their shelter in the town. Pressure on health services increased: Dr Walters lamented the lack of funding from the Council and the struggles he engaged in to secure support. With the changing political landscape, however, following the release of Nelson Mandela in 1990 and the unbanning of the ANC, there were moves to desegregate health services both racially and by type of service. The last National Party Minister of Health, Rina Venter, announced the opening of government hospitals to all races in 1990.

The national Department of Health gave permission for nurses previously restricted to family planning services to assist other patients from 1991, transferring responsibility for primary health care services (treatment of minor conditions) to local authorities. A mobile clinic was purchased to provide services to informal settlements and a new clinic opened in Grange, to the south of the city. True to the spirit of public health nursing, almost 16 000 home visits were made by nurses that year.

Political unrest continued to affect health services in 1992, resulting in the breakdown of community health services provided by the KwaZulu Department of Health in Edendale and Vulindlela. Again 37% of patients (85% at the Boom Street clinic) came from outside the borough boundaries, although it was stated this was an underestimate, many people giving false addresses in town for fear of being turned away from the city's clinics. However, this was unnecessary as Dr Walters stated that 'the service is available for everyone, regardless of race, creed, or the area in which the person resides.'³⁷ It served to confuse the statistics and possibly decreased the state subsidy paid to council for services for the out-of-borough patients. The budget remained at just under 2% of total city expenditure. The effects of increasing patient numbers were noted in the stress and absenteeism experienced in the department. Cuts commenced in certain services, including those for geriatrics, cervical smears and inspections of crèches and child minders, together with many of the home visiting sessions. Talks by nurses to schools, welfare societies and groups of patients had to be drastically reduced. Mobile clinic services were extended to include four new informal settlements within the city boundaries. The impact of the unrest on clinic services is seen in figure 2.1 showing the massive drop in African attendance at the well baby clinics in 1990 due to disruption caused mainly by the Seven Days War, followed by a dramatic increase due to the closure of the outlying KwaZulu health services.

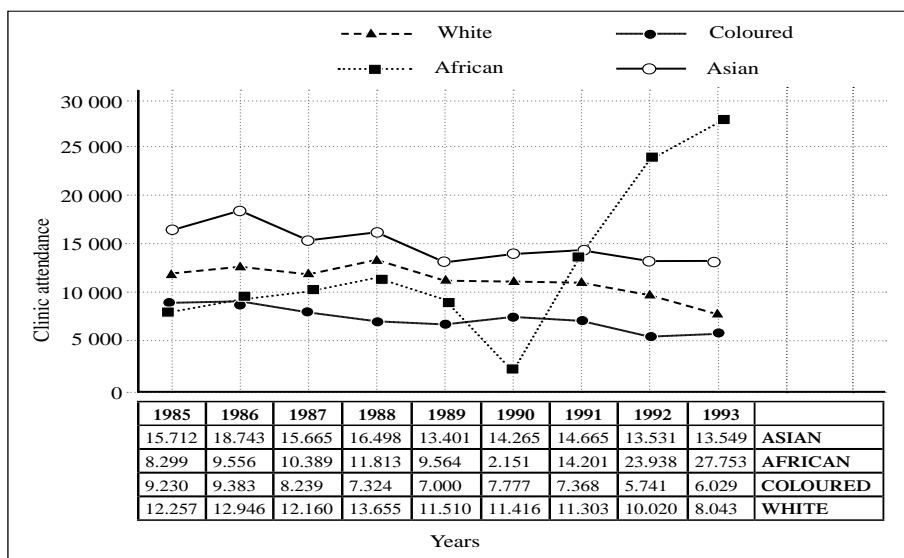


Fig. 2.1 Impact of unrest during the Seven Days War in 1990 on well baby clinic attendances, 1985–1993³⁸

Attendance at ante-natal clinics also soared in the early 1990s, from 706 in 1991 to 5 201 in 1993, due to the fact that the municipality offered a free service, whereas the provincial and KwaZulu governments were charging for it.

An increase in informal trading in the city was noted and met by environmental health services with education on food hygiene and cleanliness rather than resort to regulation and control. From 1994, following the election which saw the ANC come to power, the transformation of health services became one of the new government's priorities. However, the rationalisation of the vast number of departments of health, including the three tri-cameral houses, the homeland administrations such as KwaZulu, the provincial health departments, the miscellaneous development boards and local authorities (the cities in particular with large and well-established health departments) became an enormous challenge, replicated in all other government services such as education and welfare. The plan of the national government was to rationalise services in the district health system, in which all public health services in one geographical area were managed by one authority. One of the first changes was the announcement of free health care for all children under six years and pregnant women in public health facilities, although they already had been free within local authorities such as Pietermaritzburg. Under the new government, a National AIDS Co-ordinating Committee of South Africa was functioning and giving direction to HIV/AIDS strategies. In Pietermaritzburg the ATICC had helped to establish a drop-in centre for people with HIV/AIDS in Edendale.

The Pietermaritzburg City Council appointed another medical officer of health to work with Dr Walters to address transformation issues and within a few months all clinic services were fully integrated, rendering comprehensive primary health care. At this point the clinic services comprised eleven permanent venues, twelve satellite venues and four mobile clinic points. With the incorporation of Edendale and Imbali into the city and a new, democratically-elected council, plans were drawn up by the municipal Health Department to address the massive backlog of services in those areas. The priorities of the department were stated as 'the elevation of the health status of the entire community and the equitable provision of services...together with the creation of the District Health System [DHS] in conjunction with the National and Provincial Departments of Health'.³⁹ The nineteen environmental health officers were immediately reorganised to provide additional cover to the new area, which had been previously served by two vastly overstretched officers from the KwaZulu government. Only two clinics were found to be

serving the population of similar size to the old city: a five-year plan was put in place, approved by the council in consultation with local people, to address the backlog by aiming to have a clinic within 2.5 kilometres of every resident. In the interim, the city's mobile health clinic went out to various parts of greater Edendale: attendances increased from 6 377 in 1993 to 18 000 just four years later.

The municipality had, since its earliest years, purchased its own medicines for public clinics with the exception of national programmes for family planning, immunisation, tuberculosis and STDs. From 1996, however, the new KwaZulu-Natal provincial government took over the supply from its central medical supply centre in Durban. A qualified pharmacist was employed by the Council for the first time and a more professional medicine distribution service was put in place with computerised record keeping and stock control. Medicines were provided in accordance with the National Essential Drug List for Primary Health Care Services.

The first new municipal clinic built in the greater Edendale area was opened in 1997 in Willowfontain by the provincial Minister of Health, Dr Zweli Mkhize. Esigodini and Snathing clinics followed the next year, covering communities in the upper parts of Edendale. These were mostly funded by the government's Reconstruction and Development Programme (RDP), which had prioritised primary health care services to the poor. Council also funded a large clinic in the centre of town near the main square to serve the many commuters coming in and out of the city. It was opened by the city's first African mayor, Councillor Siphiwe Gwala, in 1998. The small clinic in the Health Department, in the main council administration building, was converted into a specialist tuberculosis clinic. Cognisant of the growing HIV/tuberculosis threat, and the fact that many staff might now be at risk of immune-compromisation, specialised air conditioning, extraction and filtration systems and ultraviolet lighting were installed throughout. Staff were also, confidentially, given the opportunity to be placed in another clinic if they knew themselves to be HIV positive.

Monitoring of many health indicators continued to be an almost impossible task, due to the continual changing of municipal boundaries during the transitional period, the restructuring of health services, and blurred reporting lines. However, the inclusion of all major centres of population within the city did improve the notification data of infectious diseases. The national plan for the DHS was starting to be implemented and the city's MOH was asked to also oversee the primary health care services of other administrations

in an area from Table Mountain in the east to Mooi River in the west. The initial strategy was to ensure that, even if the services were nominally run by different government departments, at least they could be aligned operationally and be in regular communication. Attendance at clinics for general ailments soared during this period, with an increase in treatment at city clinics from 30 000 in 1993 to 160 000 in 1998. This was due partly to additional clinics, partly to the growing HIV/AIDS epidemic, and partly to the national policy of not allowing patients to attend hospital without first attending a clinic. That the protection of tertiary health services was at the expense of the still inadequate primary health care services was vividly illustrated when Grey's Hospital out-patients' department suddenly closed in 1999, resulting in queues at clinics that stretched down the roads. The principle of implementing primary health care, interpreted as seeing all patients at the lowest level of care, was being implemented by provincial government before the services were ready. The staff and resources remained at hospital level, resulting in a net transfer of resources from the primary to the tertiary level of care. It was ironic that, just a few years after Grey's Hospital had been opened to all races, it was now being made inaccessible again. The strategy also took no cognisance of the HIV/AIDS epidemic, which meant that the number of patients with significant and complex illness had dramatically increased. As there were generally no doctors in the clinics, except for the tuberculosis clinic, the burden of care and responsibility on nursing staff was increasing markedly. The crowds of sick people waiting for treatment started to squeeze out those waiting for routine preventive services such as immunisation and family planning. Many of them started to go to private service providers.

The new Tuberculosis Clinic, along with Azalea Clinic in greater Edendale, was opened in 1999. The Health Department had by that time become adept at sourcing donor funds and equipment and a local company, Somta Tools, made a large contribution to Azalea Clinic. Computer equipment was obtained from the European Union, which facilitated a fully computerised health information system, and laboratory equipment from the Belgian government. However, the development of the information system continued to be hampered by national directives to change the data collected, and revise statistical forms, many of which changed each year as the new government constantly reviewed its system. Also in this year the Health Department finally acquired a purpose-built pharmacy depot. The involvement of the department in the wider district meant that the pharmacist was able to assist and train nurses at several clinics in outlying areas in medicine management, procedures such as the cold chain,

stock cards, and use of the new government's Essential Drug List. In 2000 a clinic was opened in Ashdown, although staffing such new clinics was difficult because of an increase in resignations due mainly to emigration to more developed countries such as Britain or Ireland. Total municipal clinic attendance was now more than 360 000 per year, rising to over 400 000 the next. In 2001, KwaPata clinic was opened in greater Edendale and a new gateway clinic was constructed in the grounds of Edendale Hospital by the provincial Department of Health to relieve pressure on that hospital. Boom Street Clinic, run by the municipality, was handed over to the province to enable it to be functionally integrated with its nearby East Street Clinic. The council's Central City Clinic, constructed just three years earlier, became the first primary health care clinic in the country to receive full accreditation by the independent Council for Health Services of South Africa. By 2002, with the opening of Impilwenhle Clinic in a new housing development behind Imbali, the council's clinic building programme had succeeded in bringing health services to within 2.5 kilometres of the urban population and Pietermaritzburg had become the first city in the country to achieve equity in clinics between its old and newly-incorporated areas.



The opening of KwaPata Clinic in the middle of a low-cost housing area, 2001.

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3

INFECTIOUS DISEASES AND EPIDEMICS¹

IN THE EARLY records of Natal there is no mention of significant health issues before the arrival of European settlers; and little indication of any health problems during the years immediately after their arrival, possibly because ships and passengers were screened for disease at Port Natal (the future city of Durban.) There is a passing reference to an outbreak of measles amongst the earliest settlers around Port Natal in 1839; and this is also recorded as affecting the trekkers still in their laager at the future Pietermaritzburg. But it appears that infectious diseases were rarely seen among the indigenous population.² The long voyage from England would have exceeded the incubation period of most infectious diseases and, although conditions on board were sometimes extremely uncomfortable with inadequate water, food and ventilation, there were no cases of cholera. Ships did record the occasional death on the voyage, the worst being an outbreak of scarlet fever on the Byrne ship, *The King William*, in which eighteen passengers and crew died.³ Mortality was higher generally among children on the voyages and no more than four children under fourteen years were allowed to accompany their parents.

In an address by Joseph Byrne in *The South African Commercial Advertiser* for 26 June 1850, he declared that Pietermaritzburg's 'climate was remarkably fine. There was no fever, no ague [malaria]; the only complaint which was local was dysentery, arising chiefly from the excesses of the white population themselves.' Indeed, from the descriptions of Pietermaritzburg at the time it appears to have been considered something of a green and comfortable oasis. This would have appealed particularly to settlers from the overcrowded, cold, damp and polluted industrialised north of England. However, epidemics were a regular concern at the Cape, which was far more heavily populated, with smallpox causing many deaths. An outbreak in Cape Town in the spring of 1858 caused 148 deaths in just the first two months. Smallpox vaccine, which had arrived in Cape Town on 26 November 1803 carried arm-to-arm by the vaccination of slaves,⁴ was used to vaccinate all races across the Cape and from the 1860s at Grey's Hospital.⁵

In the Grey's Hospital report for 1870, which covered White males and White, Coloured and African females, only one case of measles is reported out of approximately 250 admissions with another six of hepatitis. In 1875 no cases of measles or any other infectious diseases were reported. Diphtheria had first been noted in Natal in 1859, but is not regularly mentioned.⁶ It appears that cases were rare in the early years of the city, or else of a minor nature not requiring hospitalisation.

The health of the Asian population in the early years was described as good: new arrivals were checked before and after boarding ships for infectious diseases, in particular smallpox, plague and leprosy. In 1882 smallpox killed 1 000 people in the Cape and the first Cape Public Health Act (4 of 1883) was enacted to deal with it as well as other virulent contagious diseases.⁷ The report of the Protector of Immigrants of 1883 noted that two cases of smallpox were found on the ship *Coldstream*. When it reached Durban, passengers were quarantined for three weeks and their clothing was replaced. Vaccination of Asian immigrants was also undertaken. This proved effective during early outbreaks of smallpox, such as the one that occurred around Pietermaritzburg in 1894 among the African population: it was noted that Asians were not affected. Dr James F. Allen, medical officer, reported in 1898 that there were no epidemic diseases in the city (although as he was writing for what was largely a publicity book, he may have been exaggerating slightly).⁸ There was a further slight outbreak of smallpox in 1898: it was promptly stamped out, although nationally another epidemic occurred in 1899 around the start of the South African War. Some infected people entered Pietermaritzburg and 130 suspected people were put in quarantine; which so greatly annoyed those affected that they later tried to claim compensation from the city.⁹

From around 1900 the quality of information about infectious diseases improved, with more effort applied by the authorities to notification, analysis and control measures. Dr Woods, corporation medical officer in the early 1900s, gave the early reports of infectious disease in the *Corporation Yearbook*. His returns of notifiable diseases are a detailed source of information, particularly in respect of the White, Asian and Coloured communities; and in some respects for the African population (at least that proportion of it

Diphtheria: An acute infectious disease due to *Corynebacterium diphtheriae*, which lodges in the tonsils and naso-pharynx, causing a characteristic grey membrane to form that may obstruct breathing and can go on to cause heart failure.

Tetanus: An acute infection by the toxin of *Clostridium tetani*, through either contaminated wounds or the umbilicus of babies, characterised by severe muscular spasms with a high death rate.

living in the city.) The reason for introducing notification of disease was to help to find out how patients got their diseases so that the sources could be identified and further infections prevented. It also enabled steps to be taken to prevent patients spreading their disease, through quarantine if necessary, thus protecting the rights of others to remain uninfected. The major infectious diseases recorded in the early 1900s include diphtheria and scarlet fever, which regularly occurred among the European and Coloured populations, with an incidence of around one per thousand people per year; and typhoid, which came in epidemic form. Tetanus was rarely mentioned, with only one case of tetanus neonatorum in a White person in 1911. Leprosy, which had been legislated for in the Cape since 1884, was found in only one or two people per year.¹⁰ Measles became notifiable only in 1911 with less than ten cases a year and few deaths. It was initially only reported in the White population.

Smallpox generally existed in epidemics, one of which arrived in the city in 1903–4, with 60 White cases and 115 in the non-European communities. By 1905 it had spread to the surrounding areas, with five cases in Edendale and Sweetwaters and twelve around Otto's Bluff. The following years were clear until one case of smallpox occurred in 1907. The residents in the immediate neighbourhood were quarantined and this contained the spread. In 1911 the municipal Public Health Department report noted that the Union Government had ceased to procure smallpox vaccination from Europe and had substituted a locally manufactured vaccine that was pronounced practically useless. Several cases of the disease occurred in South Africa at this time, although not in Pietermaritzburg. However, in 1912 there was one case, in a Coloured man from Durban where it was prevalent and he had contracted the disease. With rapid isolation and quarantine measures for a period of sixteen days, any further spread was prevented. All used bedding, both at home and in hospital, was burned and all other articles and buildings were fumigated, disinfected and washed. Vaccination was undertaken of all inhabitants, some 6 000 people. The thoroughness with which the early health authorities reacted to cases of infectious disease, and their effectiveness, was impressive. In the latter half of the twentieth century the antibiotic and vaccine era perhaps led to complacency in this regard.

The year 1914 saw several outbreaks of measles, fortunately of a mild form, amongst children (216 cases notified altogether.) It appeared that Whites were far more susceptible to the infectious diseases of childhood (including measles, scarlet fever, diphtheria and erysipelas) at that time than other races, with the exception of chickenpox. In 1915 there was an apparent outbreak of diphtheria with 39 Europeans affected, but Dr Woods made the point that it seemed unusually mild with a low mortality; and without bacteriological confirmation it may have been misreported. In 1916 anthrax, rabies, Malta fever, yellow fever and sleeping sickness were added to the list of notifiable diseases, although the latter three were not known to occur in the Pietermaritzburg area. Anthrax was occasionally reported in animals, with an outbreak amongst cattle in 1922. The year 1918 saw another epidemic of measles from April to June, perhaps the most severe reported. Altogether there were 444 cases, an incidence of 1.3% of the population. There were four deaths, a case fatality rate of 0.9%. The outbreak terminated after the schools closed for the winter holidays. Nationally the major reported infectious diseases in 1920 were scarlet fever (with 1 732 cases), smallpox (1 035) and diphtheria (1 016). Measles was not nationally notifiable. In 1920 the Council for Public Health resolved that 'only first cases in each family or household be notifiable, and recommended that the Department of Health call the attention of local and school authorities, and the public generally, to the importance of measles as a direct and indirect cause of sickness and mortality in children, and the necessity for taking all possible precautions against the disease'.¹¹

In the Medical Officer of Health (MOH) for Pietermaritzburg's annual report for 1925, Dr Anning presents detailed records of infectious and other diseases. There were two deaths from cerebrospinal meningitis (one an infant) out of six cases; three cases of poliomyelitis; one case of whooping cough; eight cases of scarlet fever; one death from measles out of 58 cases; and one of diphtheria out of eleven cases. Of the eleven diphtheria cases, ten were in Whites and just one amongst the other communities, an incidence of 0.6 per thousand and a 9% case fatality rate. Most of the measles cases were admitted from boarding schools and other public institutions. The health implications of accommodation of

Erysipelas: A superficial skin infection caused by Streptococcal bacteria often affecting the face, leg or arm, with fever and general illness.

Anthrax: An infectious disease due to *Bacillus anthracis* that occurs in grazing animals and is transmitted to man through the skin, inhalation of spores or eating contaminated meat; giving rise to skin, pulmonary or gastrointestinal disease.

Malta Fever (Brucellosis): An infectious disease caused by *Brucella* bacteria, with acute fever, followed by relapses of fever and vague aches and pains. The organisms are usually transmitted from infected animals such as cattle, sheep and goats.

Yellow Fever: An acute viral infection transmitted by the bite of an *Aedes aegypti* mosquito characterised in severe cases by bleeding, jaundice, vomiting, convulsions and severe fever; sometimes fatal.

Chickenpox: An acute viral disease caused by the varicella-zoster virus, usually beginning with mild general symptoms followed by a characteristic itchy, vesicular rash. Generally mild.

Whooping Cough (Pertussis): An acute, highly infectious disease caused by the *Bordetella pertussis* bacteria, characterised by a severe spasmodic cough that ends in a prolonged inspiration or whoop. May be serious in children and spread in epidemics.

Meningitis: Inflammation of the meninges of the brain or spinal cord that may be due to a variety of organisms. Symptoms include fever, stiff neck, headache and vomiting with change in consciousness, coma, seizures and death.

children in boarding schools serving the surrounding towns and rural areas continued to be mentioned. It was noted in the MOH's annual report for 1927 that a considerable proportion of infectious disease cases came from 'the innumerable boarding schools in the town and district'. The major cases treated included measles, chickenpox, diphtheria and scarlet fever. In 1928 a boarding school was also associated with an outbreak of typhoid.

Vaccination for smallpox was still being carried out in 1925, but vaccination coverage rates were estimated at less than 50% for both infants and children at twelve years. The vaccination of non-Europeans was done by the district surgeon, but attendance was low. In 1924 eleven Asians and Africans were convicted for failing to have their children vaccinated and fined up to £3. This caused a rapid response with many more people coming forward. Whites, however, despite having a large unvaccinated population, were not prosecuted. In 1927 a smallpox outbreak occurred in Durban, predominantly in a large Asian barracks. There was concern about its possible spread to Pietermaritzburg and a mass vaccination campaign was undertaken in July, of 3–4 000 people, with emphasis on those residing in barracks. In October the reappearance of the disease in Durban prompted another campaign, this time covering around 19 000 people of all races. No cases occurred in the city and it was reported that due to prompt and effective action by Durban the epidemic was over in six weeks.

In 1927 there were three deaths from whooping cough and six cases of meningitis, all of whom died. The death rates from all communicable diseases were 0.5 per thousand for Whites, and 2.5, or five times higher, for the Coloured population. Scarlet fever remained a problem with 25 cases, although this was predominantly in the White population and not fatal. Measles remained prevalent with 22 cases admitted to Grey's Hospital in 1927 and 43 in 1928. There were two cases of tetanus in 1928 and one of anthrax. The death rates for all communicable diseases in 1928 remained over five times higher for non-Europeans, at 2.8 per thousand compared with 0.61 for Europeans.

In 1928 there was an increased incidence of diphtheria with 37 cases and five deaths. The case fatality rate was 100% in the Coloured community, compared with 5.9% in the White. A small

outbreak of diphtheria occurred in an orphanage, affecting eleven children. This was ascribed to a failure of prompt diagnosis – a doctor was not called in time. After their removal to hospital and the immunisation of the healthy children with antitoxin, the spread ceased. The high case fatality rate in non-Europeans was said to be due to the delay in seeking medical attention, usually delayed until the patient was moribund. Measures taken by the Health Department to minimise the spread of infectious diseases included the disinfection of rooms occupied by people with communicable diseases. A further outbreak of diphtheria occurred in 1934. Twelve cases were from the Government School's hostel and the aggregation of children in schools was considered one of the commonest means by which the disease was spread. The MOH was considering the introduction of immunisation with diphtheria anti-toxin, which had been shown in Hamilton, Canada to be very effective. He stated that 'for 18 years the mortality rate averaged 24% of all diphtheria cases; isolation, disinfection and detection of carriers were ineffective in controlling the disease. Immunisation of children was begun in 1922, and by 1927 it was found that the diphtheria hospital had fallen into disuse, and it was permanently closed'.¹²

Leprosy had been declared a notifiable disease in 1921 and in that year 108 cases were reported nationally, although few occurred locally. The occasional case presenting in Pietermaritzburg was kept in the Epidemic Hospital, then transferred to Salisbury Island in Durban harbour. This national figure remained at around 80 to 110 cases a year through to 1935 when it started to increase,¹³ but it continued to be seen only occasionally in Pietermaritzburg. There was one case of leprosy in an Asian female in 1936, together with three cases from outside the borough, and these were removed to the Leper Institution on the North coast of Natal. In 1938 there was again only one case, in a Coloured female, five in 1940 and one in 1943, although by then the national incidence had risen substantially. Out of 23 058 native labourers routinely examined in the city in 1946, two were found to have leprosy, a prevalence of 8.7 per 100 000. Leprosy does not appear to have been a problem disease in the area, although nationally it increased significantly from 1936, rising from its previous level of about 100 cases a year

Leprosy: A chronic infectious disease caused by *Mycobacterium leprae*, which affects skin and nerves. If untreated it may, over a number of years, give rise to damage and deformity particularly to the limbs and nose. Although not very infectious, the deformities caused sufferers to be socially stigmatised.

to around 700 for the next eight years. The areas of peak incidence were in eastern Transvaal and northern Natal. Tetanus is also rarely mentioned in Pietermaritzburg, in either its generalised or neo-natal forms, with only one death reported in 1940.

Measles was much less prevalent in 1936 than in 1935, with only eight cases compared to 50. Outbreaks in schools and hostels were common and it was the practice to admit the first two or three cases from all boarding schools to hospital in order to prevent the further spread of infection. Internationally, measles also occurred in epidemics around this time with over 600 000 cases in the USA in the first six months of 1934. The average length of stay in hospital for measles was 11.5 days. Other infectious diseases needed even longer with 18 days on average for chickenpox and whooping cough, 27.5 days for scarlet fever and 29 days for diphtheria. In 1938 there was an outbreak of diphtheria in the wards of Grey's Hospital, which perhaps reflects the long period of admission for this disease. Diphtheria appears to have been rarely diagnosed in non-Europeans. Again in 1939 there was an increase in diphtheria with 41 cases notified, of whom 33 were White, and three deaths. This increased again in 1940 to 50 cases. The MOH noted that the disease was 90% preventable with immunisation, which had recently been made compulsory in France, but that there was public apathy regarding it in Pietermaritzburg. It was encouraged through health visitors and infant clinics.

While infectious diseases had been present in the city throughout the first half of the twentieth century, the numbers had been largely manageable, with vaccination and control measures able to cope with steady numbers and occasional outbreaks. However, from the start of the Second World War the picture started to change significantly. While a small increase in measles cases had been noted in 1938 and 1939, a large proportion again coming from White boarding schools and hostels, by 1940 there were 52 cases and three deaths in Africans; and in 1943 there were 146 cases altogether. It was noted that many cases of measles in Africans were complicated by pneumonia.

In 1944 there was an epidemic of scarlet fever with 153 cases notified, although there was thought to be considerable under-reporting due to misdiagnosis. Of the reported cases, 126 were

Scarlet Fever: An infection caused by Group A Streptococcal bacteria, causing characteristic rash, sore throat and fever.

schoolchildren and four were teachers: 87 were hospitalised and 66 isolated at home, which resulted in a further twelve secondary cases in families. The annual case load of scarlet fever is shown in figure 3.1, which reflects the epidemic of 1943–4 and subsequent decline thereafter. Virtually all cases were White.

The decline was linked to the introduction of penicillin for the treatment of scarlet fever in 1950. This brought about a considerable improvement in prognosis and enabled children to return to school after two weeks quarantine at home, with less spread of disease. Scarlet fever continued, rather curiously, to be reported only in Whites. It was noted in 1952 that based on Dr Maister's reports, 'races other than Europeans do not suffer the scarlet fever reaction and it seems that they are less vulnerable to the streptococcal and more vulnerable to pneumococcal parasites'.¹⁴

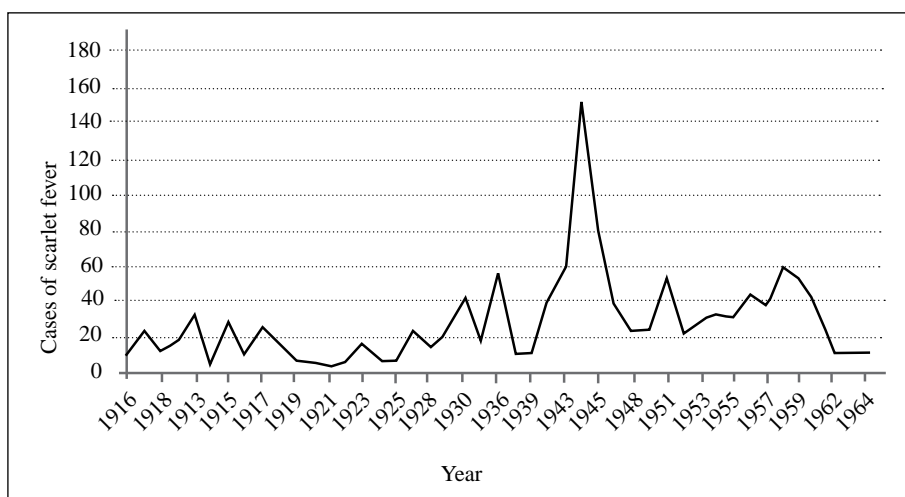


Fig. 3.1 Annual cases of scarlet fever in Pietermaritzburg, 1906–1963.

Smallpox continued to be mentioned only rarely in Pietermaritzburg. In 1938 it was noted to be widespread in the Transvaal and other provinces, with some cases in northern Natal, mainly among Africans. While no cases indigenous to Pietermaritzburg were seen, patients from other areas did travel to be treated at Pietermaritzburg hospitals, which posed the risk of spread of infection in crowded waiting areas. An appeal was made for people to come forward for vaccination. African males were vaccinated at the togt (casual) labour site and 1 078 were vaccinated there out of 13 299 examined. Few female domestic employees were so examined and it was thought this was

Smallpox: An acute, highly-infectious viral disease causing a characteristic blistering rash, frequently causing devastating epidemics in the past, but now declared eradicated.

to the disadvantage of both employee and employer in that it prevented communicable diseases being identified and treated. However, while ill health through what was then referred to as venereal disease or tuberculosis may have led to treatment, it could also mean rejection as an employee. Perhaps the lack of female workers coming forward was due to their employers being more sensitive to women's circumstances than to men's, although Dr Anning ascribed it to lethargy on their part.

Five people were diagnosed with smallpox from Edendale in 1943 and four were admitted from the Bishopstowe area outside the borough in January 1944. Three cases came from a farm that supplied milk to the city. Another patient, who appeared to have been infected while a patient in the Epidemic Hospital, presented in February. Three months later more cases arrived from the surrounding areas, coming into the city by bus, train, ricksha, on foot and in taxis, and were discovered in the crowded out-patients' department of Grey's Hospital. The implications of having inadequately served native locations outside the city were vividly illustrated. A public mass vaccination campaign was undertaken with 24 944 people being vaccinated by the municipal Health Department. In neighbouring Swartkop location (now Vulindlela) smallpox was introduced in June 1944 by a visitor from Durban. It was found that only 54.4% of the population had vaccination scars and mass vaccinations were conducted at various centres by an Assistant Health Officer from Durban, not neighbouring Pietermaritzburg. By the end of July there were 36 cases and twelve deaths. In October a team was stationed at Taylors Halt, with a six-week vaccination programme run, interestingly, by the Chief Health Officer of Durban. It was then decided to vaccinate by home visits and this was found to be more effective in tracing people who had not previously been vaccinated. Altogether there were 65 cases in Vulindlela in 1944; of whom 21 died, giving a case-mortality rate of 32.3%.¹⁵

By 1945, however, the situation regarding smallpox had worsened and an epidemic broke out in the city. Altogether, 113 cases of smallpox were treated in municipal hospitals: of these 34 died, giving a case fatality rate of 30.1%. Forty-three cases were borough residents, of which twenty were White, nineteen African and four Asian. A detailed outbreak investigation and report were

undertaken by the MOH, Dr Maister. The disease was put down to air-borne contagion, a situation suggested to him by the fact that all the Whites affected, except one who was a direct contact, lived in the suburb of Scottsville close to the Isolation Hospital. Outbreaks were known to occur within the vicinity of smallpox hospitals. In this case, the prevailing winds were monitored and found to be blowing in a direction from the hospital to the affected residents. However, this did not explain the large number of unvaccinated persons who remained uninfected on a house-to-house search of the area (see map and figure 3.2).

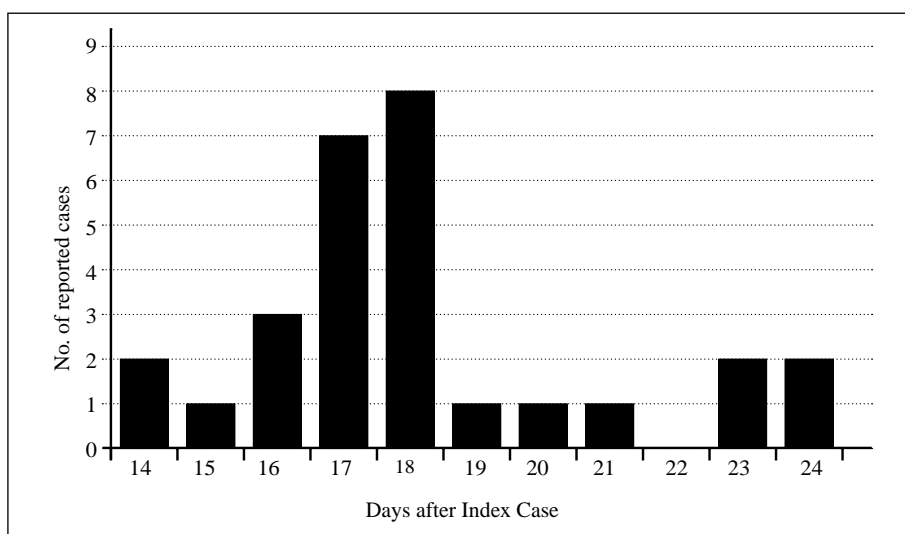


Fig. 3.2 *Evolution of the smallpox epidemic in Pietermaritzburg September 1945. The graph shows daily cases during the two week period following the first (index) case.*

The possibility of fly-borne spread was also considered and stringent precautions against flies were enforced. Other measures taken included hospitalisation of all cases, disinfection of bedrooms with formalin, disinfection of clothing and bedding with steam, and vaccination and quarantine of all contacts for fourteen days unless recently successfully vaccinated. All contacts were visited daily to check on quarantine and take temperatures. The entire area was visited house-to-house and surveyed for vaccination status by the health inspectorate. Vaccination facilities were provided for all residents, with routine clinics suspended, and volunteers were recruited from amongst other health professionals in the city, St John Ambulance and the Red Cross.

Altogether 79 457 doses of vaccine were administered. Of these, there was one possible vaccine-related death when a child died nine days after vaccination. Non-Europeans were treated at the Epidemic Hospital. Of eight Asian cases, two were from the city; the first a man whose family tried to conceal the disease at the Indian Barracks and the second his child who developed the disease two weeks later. Legal proceedings were instituted against this patient when he was released from hospital, presumably for ignoring the notification and quarantine regulations and hence endangering all those around him. While 64 of the 113 total cases, both residents and from surrounding areas, were classed as mild, 22 were haemorrhagic and a further 27 classed as severe: 34 of these 59 patients (69%) died. Analysis of the effects of previous vaccination was undertaken. The majority of cases (70) occurred in people with no marks of previous vaccination, as did 22 of those cases where death resulted. While some deaths and severe cases occurred in those with between one and three marks of successful vaccination, none occurred in those with four marks, all of whom (five cases) had only a mild form of the disease.

The years after vaccination were also considered. Dr Maister concluded that where vaccination was more than 40 years old, it could no longer be relied upon to protect. He also concluded that deaths always occurred where there was the least amount of vaccination. He noted that sulphonamides had no specific value in treating the disease: there was no significant difference in the case fatality rate and length of recovery period between those treated with the antibiotic and those who were not. Vaccination after exposure to smallpox also seemed to be of little effect in preventing people acquiring the disease as nine people went on to develop the illness between two and eight days after vaccination. While smallpox may no longer be a problem, the report is an indication of the expertise of 60 years ago in dealing with epidemics; and of what would be required should some of the other, still present, deadly infectious diseases break out in the city. It was fortunate that, while there was no specific treatment available, there was at least the chance to reduce the severity of the epidemic having had regular, reasonably effective vaccine available. After the epidemic, the Department of Health introduced smallpox vaccination for all infants at their clinics and 384 were vaccinated in 1946.

In the same year the city also faced poliomyelitis, part of a national epidemic. Twenty cases were notified between October 1944 and May 1945, with eight deaths. All of the survivors had some residual paralysis, which varied in severity. The incidence peaked in November to February, which would be expected in a faecal-oral spread disease during the hot, rainy season. This outbreak was

Poliomyelitis (Polio): An acute contagious viral infection spreading rapidly where sanitation and hygiene is poor, giving rise to fever, headache, and sore throat, which may be followed by the severe paralytic form. Usually involves children and young adults.

also intensively investigated: the possible associations considered included exposure through public swimming baths, flies, rodents, sewage disposal and recent tonsillectomy. Prevalence of flies did not seem related as they were reported as being present in only 55% of houses. In 50% of cases rodents were reported. While the poliomyelitis virus has been associated with both flies and rodents, these could not be firmly identified as the culprits in this outbreak. Five cases had attended public or private swimming pools. Fifteen cases occurred in houses with water-borne sewerage, two had septic tanks and three had the pail system. Two patients had contact with another case; and eight had a prior tonsillectomy. The investigation was therefore inconclusive regarding the mechanism of spread of the disease, but still of interest.

In 1948 poliomyelitis recurred in epidemic form throughout the country, 27 cases being notified in the city after an absence of two years. The first case was only diagnosed in retrospect, in a schoolgirl in December 1947. The next case came in February and within a period of three weeks seven more cases were notified. Four more cases were reported four weeks later in pre-school children during the March school holiday, and infant and nursery schools were kept closed. More cases occurred during April, May and June, and altogether there were two deaths: 56% of the cases fully recovered and 37% had a residual paralysis, which was severe in 9%. Upon analysis there appeared to be no relation between the outbreak and fly prevalence or swimming pool use, although it remained municipal practice to close swimming pools when outbreaks occurred. Dr Maister presented his analysis rather elegantly in diagrammatic form, as shown in figure 3.3.

Smallpox recurred in 1950. Three cases had occurred in one family in Edendale in 1949, possibly brought down from the Transvaal where there was a major epidemic. All contacts were vaccinated though the Local Health Commission (LHC), placed under police guard and moved to the Isolation Hospital. Road blocks were set up, house-to-house visits were made for vaccination purposes and 17 772 people were vaccinated in ten days. Within the borough in 1950 there were five cases in one Asian family and two people died. Active measures were taken to isolate and quarantine the cases and known contacts, and there was no further problem in

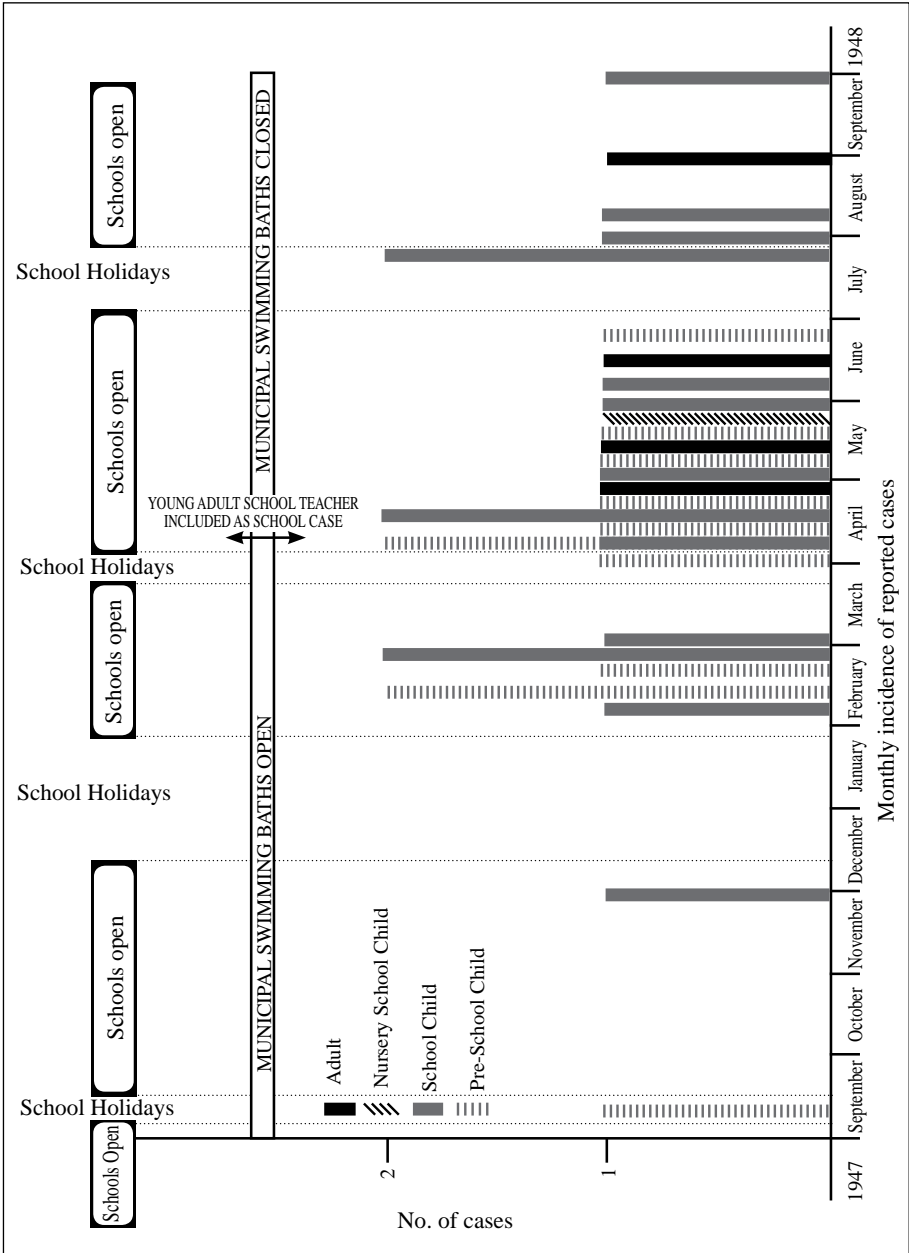


Fig. 3.3 Analysis of poliomyelitis outbreak in Pietermaritzburg, 1948.

the city. Edendale Hospital, however, admitted 44 cases and 19 contacts from outside the area. In all, 34 355 vaccinations were undertaken in the city.

Diphtheria continued to occur every year: 50–70 cases with one to three patients dying. Up until 1940 it was rarely diagnosed in the non-European population, but from about 1940 it started to increase in Asians and Africans. In 1949 there was an outbreak in Edendale with 39 cases. Dr Maister concluded that this increase would continue until at least 75% of the child population was immunised. So far, no case of diphtheria had occurred in any child in the city who had completed a full course of immunisation, although two cases had occurred in young nurses. In 1950 there was an outbreak in the African children's ward at Grey's Hospital and 34 cases were notified as a result of this. Of 23 cases investigated, eleven had previously been immunised, of whom two died; and twelve had not been immunised, of whom three died. That year, 1 089 immunisations had been done at infant clinics, with pre-inoculation Schick tests for older children. A further hospital ward outbreak occurred in 1951. All children in the ward underwent throat swabbing and this found that most of them were carriers, many them immunised. The coverage rate for 1950 based on immunisations done by the Health Department was estimated at 78% for Whites, 97% for Coloureds, 58% for Asians and 38.8% for Africans, although this was probably inaccurate as some were immunised by private medical practitioners. Vaccinations had increased considerably since 1943 and included whooping cough, which required three injections. Asians were not vaccinated in the same way 'on account of the difficulty experienced in persuading them to attend for the full course of three injections'.¹⁶ Instead, they had a two-injection method with alum precipitated toxoid. In 1953 there was an increase to 26 cases from fourteen the previous year, with two deaths in unimmunised children, and it was noted that immunisation coverage had fallen. A campaign was held the following year with circulars sent inside electricity bills, posters on municipal buses, and messages printed on Health Department envelopes. This was quite successful, with a considerably higher proportion of infants being immunised, and the incidence of diphtheria remained at around 20–30 cases a year in the late 1950s. However, there were many admissions to the Infectious Diseases Hospital of Africans with diphtheria from outside the borough, which suggests that immunisation status was much worse beyond the city boundaries.

An analysis of previous diphtheria immunisation in the 26 cases reported in 1959 seemed to indicate a more protective effect from vaccination than seen a decade earlier: from four immunised cases there were no deaths, while from 22 non-immunised cases there were eight deaths. By the 1960s, notifications were minimal and immunisation coverage was estimated at between 72% and 84% for all races.

Figure 3.4 shows a reduction in European cases of diphtheria with the introduction of immunisation in 1940, but outbreaks occurred in other races from that time until the mass immunisation campaign.

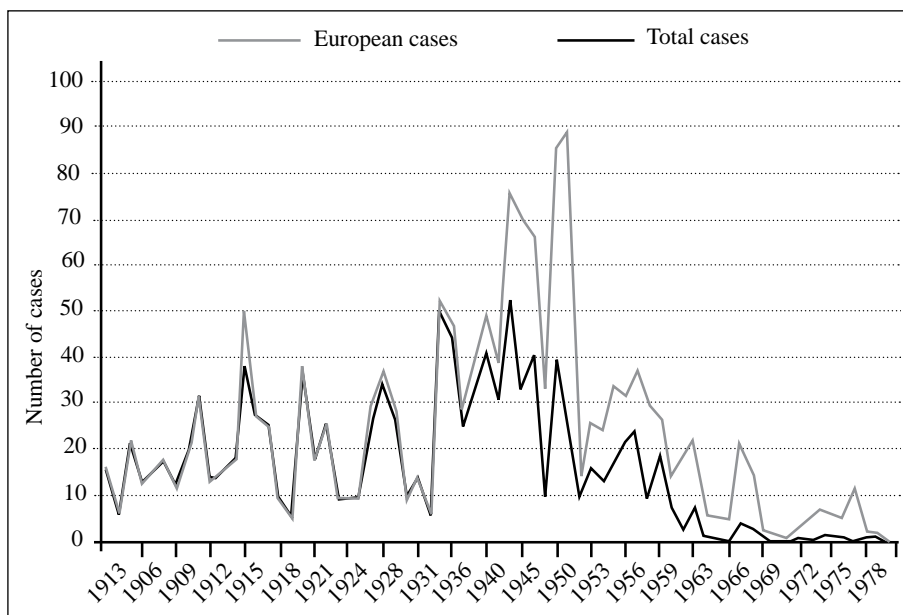


Fig. 3.4 *Diphtheria in Pietermaritzburg, 1903–1980.*

Following an epidemic in Cape Town in 1947, during which there were 107 deaths, whooping cough became notifiable there in 1950.¹⁷ However the disease is rarely mentioned in Pietermaritzburg, possibly due to a higher vaccination coverage rate with effectiveness estimated at over 99%. Mumps is likewise rarely mentioned in the history of infectious disease in Pietermaritzburg, presumably because it was generally mild. However, in 1951 a severe outbreak was reported, occurring mainly in children but also in adults, most of them Whites: 75 cases were treated in the Isolation Hospital. Along with chickenpox it appeared that, as with other infectious diseases, Whites were more susceptible, as further outbreaks affected predominantly White children. In 1959, of 34 cases of mumps only four were not in Europeans.

In 1954 poliomyelitis reappeared with 24 cases, eighteen of which were paralytic. Those requiring respirator treatment (the

Mumps: An acute contagious viral disease usually causing painful enlargement of the salivary glands, particularly the parotids, common in children between five and fifteen years.

iron lung) were admitted to Grey's Hospital. The disease appeared to come in approximate two-year cycles after the end of the Second World War. These recurrent outbreaks of infectious disease after the war were also noticed in other countries such as Japan and may have been related to mass movements of people during the war and their return home. Certainly in Pietermaritzburg there were large numbers of troops, prisoners of war and convalescent soldiers resident and passing through during the war years, including Poles and Italians.

Polio vaccine first became available in 1955, but the immunisation programme suffered many setbacks. At first confidence was shaken by a bad experience in America, then supplies of vaccine were limited and only 73 children commenced the course. No serious vaccine-related incidents were reported. A further polio outbreak occurred in 1956 with 51 cases notified. Supplies of vaccine were inadequate to meet the demand and recipients had to be prioritised. A start was made with the children of medical and nursing personnel and teachers, then the age groups 1–5, 6–10 and 11–15 years. Adults requesting immunisation were put last in line, although there were an unusually large number of adults infected and the need for vaccination up to the age of 40 was recognised. For the LHC, supplies of polio vaccine were also limited and its MOH discovered that they were only permitted to use it for non-Europeans at Edendale and Clermont (near Durban), not in other areas. Again there were no serious vaccine reactions.

The incidence of polio during the outbreak was higher in Whites, as had been found for other infectious diseases such as scarlet fever and diphtheria. The impression was that non-Europeans gained immunity earlier than Whites. Additional staff were engaged to assist, a respiratory unit was established in Grey's Hospital to cope with the demand for respirators and additional iron lungs were acquired. Many more patients came in from rural areas and small towns in the province: in 1957 admissions stood at 26 for residents of the city, down on the previous year, but there were still 101 admissions from elsewhere. The Salk vaccine became more freely available the following year and was offered to all children and adults up to the age of 40 years on request: 13 207 doses were given in the city in 1958 with no serious reactions. From 1961 the oral Sabin vaccine was issued to people aged between three months and 30 years, with three doses given as part of a national government campaign. In Pietermaritzburg 128 581 doses were given during the campaign, reaching an estimated 77% of the target population, although this varied considerably between races, with 91% of Whites covered but only 37% of Africans. The objective of the campaign was not just individual protection, but establishment

in the susceptible population of a non-virulent form of poliomyelitis virus that would produce immunity against the paralysis-producing 'wild' virus and replace it completely with the harmless variety. It was estimated that at least 90% of the target population needed to be reached during the campaign in order to meet the objective. From 1963 the Sabin vaccine completely replaced the Salk vaccine. Figure 3.5 illustrates the impact on the disease of the introduction of poliomyelitis vaccination in the late 1950s. Polio had been virtually unknown in the city prior to the war and was rapidly brought under control with vaccination. The vast majority of cases were in Whites.

While cases of polio from the borough declined to nil for 1964, due presumably to the vast immunisation programme, there were still fifteen cases admitted to the Infectious Diseases Hospital from outside the city boundary.

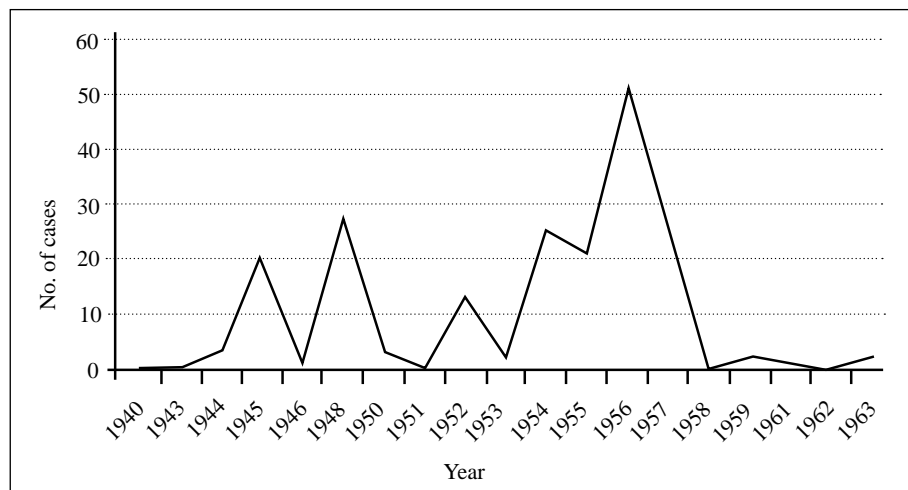


Fig. 3.5 *Cases of poliomyelitis, Pietermaritzburg, 1940–1963.*

By 1960 the era of massive and devastating outbreaks of infectious disease epidemics was largely a thing of the past with the widespread use of immunisation and an experienced and organised health service.

During the 1960s there were large movements of people across the city as the Group Areas Act was enforced and people were transferred to new housing developments for their respective ethnic groups. The movement of Asians from their semi-rural lifestyle on smallholdings, for example at Pentrich, into the small dwellings of the closely packed housing estates in Northdale seemed to increase the incidence of infectious disease, as both tuberculosis and diphtheria notification increased. However, immunisation facilities then became easier to

access and increasing numbers were immunised against disease. Where cases of diphtheria occurred they were almost entirely amongst children with no immunisation history. They were also predominantly Africans whose coverage was estimated at around 57% in 1969. By the early 1970s only one or two cases occurred within the borough, but large numbers continued to come in from rural areas where immunisation coverage was presumably much lower. Polio appeared again in 1969 with nine cases of the paralytic disease, but by 1973 it had disappeared within the borough. An illustration of the protective effect of the city's immunisation programmes compared with the lesser services outside the boundaries is reflected in the admission statistics for 1975 to the Infections Diseases Hospital. Figure 3.6 shows a far greater number of admissions from outside the city for the vaccine preventable diseases of diphtheria, tuberculosis and poliomyelitis. An extensive polio vaccination campaign was undertaken by the national Health Department in the rural areas following these cases.

The average length of stay in Infectious Diseases Hospital was around 70 days, at a cost of R8 per patient day. The number of admissions for diseases other than tuberculosis dropped over the next five years following further extensive vaccination campaigns in the rural areas and the municipality was instructed by the national Department of Health to close the hospital. One of the disadvantages of this was a decline in the reliability of infectious disease data as notifications from government hospitals were not complete. For example, Northdale Hospital only submitted figures for the total number of patients admitted without a breakdown of their illness. Private medical practitioners also failed to notify many illnesses.

Disease	In borough	Out of borough	Total
Diphtheria	2	47	49
Measles	1	1	2
Chickenpox	0	1	1
Meningitis	0	2	2
Pulmonary tuberculosis	72	118	190
Poliomyelitis	0	68	68

Fig. 3.6 *Admissions to the Infectious Diseases Hospital, 1975.*

By now smallpox was fading into a memory in the city. In 1975 the disease was reported by the World Health Organisation to be present only in Bangladesh and the remoter parts of Ethiopia. The global eradication of smallpox was

within sight and, although vaccination remained compulsory, it was noted that the mortality and morbidity from the vaccination might become a greater risk than the disease itself, at which point the vaccination programme could cease. By 1978 smallpox was reported as eliminated worldwide and was finally declared eradicated in 1979. Smallpox vaccination was discontinued. In that year viral haemorrhagic fevers were added to the list of notifiable diseases and measles was re-introduced to the list. In 1982 there was an epidemic of conjunctivitis with 1 567 cases reported from schools, of which 844 were treated by municipal clinics and nurses. This outbreak was part of a nationwide problem, in which it was estimated that 300 000 people were affected.

By 1988 there had not been a case of poliomyelitis notified in the city's residents for eleven years despite there being a polio epidemic in areas of neighbouring KwaZulu. An intensive immunisation campaign was held and covered all schools in the city. Diphtheria also appears to have been completely eradicated in 1980, the last case having been notified in 1979.

While measles immunisation had commenced in the 1970s it was unlikely to have had universal coverage and the disease was described as often fatal in African children. Notification was poor, with only a handful of cases recorded, and yet the reports talked of it having a fairly high incidence in schoolchildren. This is illustrated by 1985 when the annual report recorded a measles epidemic affecting mainly Asian and White children, 62% of whom had not been immunised. Yet notifications for the year totalled only twelve. Dr Peachy noted this huge under-notification in 1986. Full immunisation coverage rates were estimated in that year as 77% for the White population, 89% for Coloureds, 86% for Africans and 91% for Asians. The White population often attended private doctors rather than municipal clinics, which made data collection more difficult. The lack of correlation between measles cases and notification data is illustrated again in 1987 when it is mentioned that there were reports of 176 cases of measles in Asian schools, but only one Asian case, and 22 in total, were listed as notified. It may well be that not all of the 176 cases reported were actually measles, but clearly something was wrong with the surveillance system. It was likely that as the city grew, and the health authorities

Viral Haemorrhagic Fever: A term for a group of viral infections causing severe fevers with generalised bleeding, frequently serious, often spread initially from animal hosts via insect or arthropod vectors. Secondary spread sometimes occurs from person-to-person in devastating outbreaks (eg Dengue haemorrhagic and Crimean-Congo haemorrhagic fever).

Conjunctivitis: An acute inflammation of the conjunctiva of the eye, caused by viruses, bacteria or allergy, producing redness, irritation and discharge.

Measles: A highly contagious acute viral disease often affecting children, with cough, fever, conjunctivitis and a typical rash. It may give rise to serious complications, for example pneumonia in poorly-nourished children with low resistance; and occurs in epidemics.

grew ever more distant from the large number of general practitioners who were self-employed and operated independently of the government health services, contact between them was lost. Only if a disease appeared of great public health significance as judged by the general practitioner, such as meningococcal meningitis or poliomyelitis, would he or she report it. Measles may have been a condition judged routine and of little public significance. Unfortunately, it continued to take a large toll on the under-nourished and poor section of the population and inadequate data did not help to address the problem.

There were two outbreaks of infectious disease in 1987: one of infectious hepatitis in two crèches; and another of meningococcal meningitis in which there were thirteen cases and two deaths. Ten of the meningococcal infections were in the White population, mostly schoolchildren: 2 406 contacts in schools and the community were given preventive measures.¹⁸ The incidence of the disease was normally only around one or two cases per year. There were a further four cases in 1988, with one death of a school pupil.

The problem of measles was addressed nationally in 1990 with an immunisation campaign. While notification data was hopelessly inaccurate, reports from hospitals regarding measles admissions on paediatric wards gave clear indications of a significant problem and all health departments joined together to run a campaign. As the MOH, Dr Walters, said 'It is well known that the fragmentation of health services has caused confusion and disarray, besides being wasteful and counterproductive. In the measles immunisation campaign all the various health departments [too numerous to list] joined together and acted as one body.' The immunisation coverage rate was calculated in a pre-campaign survey, with satisfactory results as shown in figure 3.7. They were considerably better than the level of 59% for measles vaccination coverage for the province as a whole.

The booster dose coverage was possibly low as it was administered at school and many African children did not commence school at the recommended age. Following the national measles immunisation campaign, a further survey of coverage rates was undertaken. Curiously the coverage for the White population dropped after the campaign to just over 70%. This was possibly partly due to the fact that the main target of the campaign was the African community, more affected by the disease (figure 3.8). In addition, measles immunisation coverage was lower for the White community due to parents opting out from the nine-month injection, preferring to wait for the measles/mumps/rubella immunisation from private general practitioners (of whom only one in the

	Asian	African	Coloured	White
DPT 1 and polio*	100%	100%	100%	100%
DPT 2 and polio	98.6%	100%	100%	89.9%
DPT 3 and polio	95.9%	100%	100%	82.6%
Measles	97%	90%	92%	85.5%
Booster DT and polio	91.6%	65.8%	75%	94.7%

*DPT = diphtheria, pertussis (whooping cough) and tetanus

Fig. 3.7 *Immunisation coverage rates in Pietermaritzburg, 1990.*

city submitted immunisation statistics.) This was probably due to a feeling in the White community that measles was an insignificant childhood disease, not realising that it was often fatal in poorer, malnourished children. These factors left their children less well protected than other communities and lowered the general herd immunity. The national immunisation schedule now included doses of measles vaccine at nine months and eighteen months for low-risk infants; and at six, nine and eighteen months for high-risk.

Nationally the measles campaign was seen as a success: notifications fell from 15–20 000 cases annually in the 1980s to 2 680 in 1992. Registered deaths from measles nationally fell from an average of 325 annually in the 1980s to only 29 in 1991.¹⁹ Problems around inadequate notification of measles continued. Efforts were made in Pietermaritzburg to get better liaison with schools as a way of detecting cases. However, the information submitted proved inaccurate: for example, of 60 cases of measles reported by schools in 1990, only three had been diagnosed by a doctor. The remainder, on investigation, proved not to be measles. The main problems reported from schools were scabies, head lice, chickenpox and conjunctivitis. In 1992, following the measles immunisation campaign, the number of cases reported from schools dropped to 29. This may have been a result of improved vaccination coverage; but also increased awareness among schools of the need to give more accurate diagnoses. Twenty-one cases were correctly diagnosed, of which sixteen came from one school in a two-month period. The remaining cases of measles tended to be in White children whose parents were 'conscientious objectors' to vaccination programmes.

Rubella (German Measles): A contagious viral disease, usually mild, with general illness and rash, of importance mainly due to causing congenital defects in infants born to mothers infected during early pregnancy.

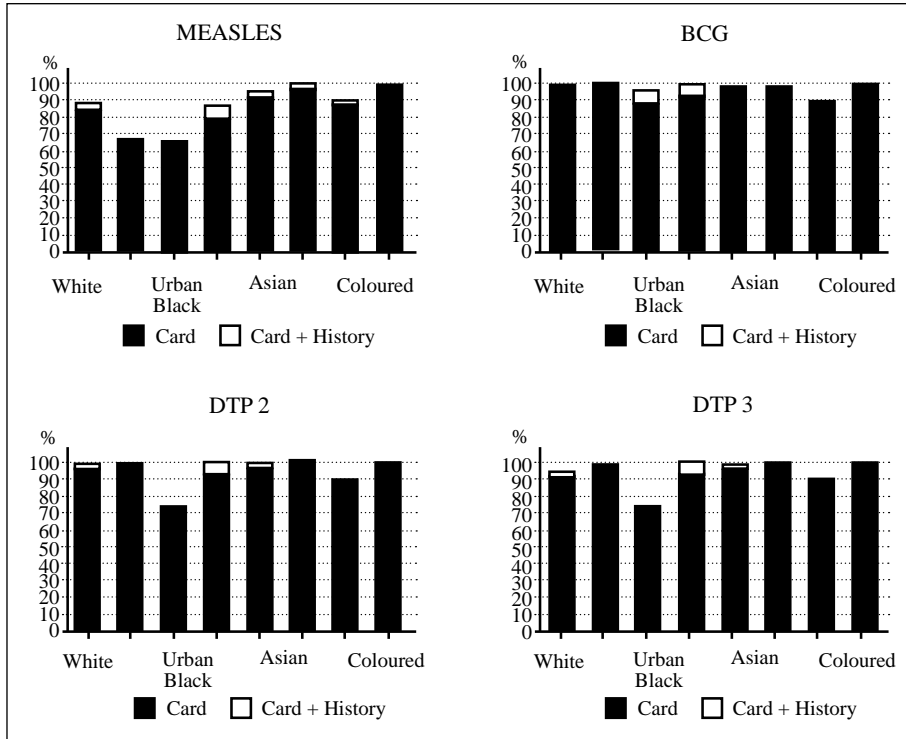


Fig. 3.8 Vaccination percentage coverage, Pietermaritzburg, 1990 and 1991.

However, a sign of growing reporting inaccuracy is that in the same report only eleven cases of measles are listed on the notifications table.

Notwithstanding the inaccuracy of the data, which was similar at a national level, a country-wide campaign for the prevention of polio and measles took place again in 1996. In the city over 17 000 were immunised against measles and 7 880 against polio. Thirty-four cases of measles were reported that year in the municipal area, which now included Sobantu, Imbali and Edendale. The following year only nine cases of measles were notified, which indicated some success for the campaign. By 1999 measles had virtually disappeared from health reports, with only one case being notified. Nationally the levels had also dropped, such that in 2002 there were only 30 cases notified nationwide, of which the majority were imported from Angola.²⁰ It would appear that along with the infectious diseases of scarlet fever, whooping cough, smallpox, diphtheria and poliomyelitis, it had almost been defeated.

ENDNOTES

- 1 The majority of the statistics in this chapter are taken from the annual reports of the Medical Officer of Health of Pietermaritzburg for the relevant year.
- 2 A.F. Hattersley, *A Hospital Century: Grey's Hospital, 1855–1955* (Cape Town: Balkema, 1955): 25.
- 3 A.F. Hattersley, *The British Settlement of Natal: A Study in Imperial Migration* (Cambridge: Cambridge University Press, 1950): 198.
- 4 P.W. Laidler and M. Gelfand, *South Africa: Its Medical History, 1652–1898* (Cape Town: Struik, 1971): 112.
- 5 A.F. Hattersley, *A Hospital Century: Grey's Hospital, 1855–1955* (Cape Town: Balkema, 1955): 56.
- 6 P.W. Laidler and M. Gelfand, *South Africa: Its Medical History, 1652–1898* (Cape Town: Struik, 1971): 324.
- 7 A.F. Hattersley, *A Hospital Century: Grey's Hospital, 1855–1955* (Cape Town: Balkema, 1955): 61.
- 8 J.F. Ingram, *The Story of an African City* (Pietermaritzburg: Times of Natal, 1898): 104.
- 9 M.D. Bollman, *War and Natal Urban Communities: The Socio-Economic Life of Pietermaritzburg and Dundee During the First Phase of the Anglo-Boer War, October 1899–April 1900* (Thesis – Pietermaritzburg: University of Natal, 1987): 77.
- 10 A.F. Hattersley, *A Hospital Century: Grey's Hospital, 1855–1955* (Cape Town: Balkema, 1955): 77.
- 11 'Seventy Annual Reports of the Directorate of Epidemiology' *Epidemiological Comments* 17(12) 1990: 13.
- 12 C.C.P. Anning, 'Annual Report of the Medical Officer of Health' *Pietermaritzburg Corporation Yearbook* 1934: 68.
- 13 'Leprosy Today: World Situation and in South Africa' *Epidemiological Comments* 20(4) 1993: 55.
- 14 *The Medical Officer* 88(4) 26 July 1952: 35.
- 15 H. le Riche, 'Smallpox Control in the Swartkop Native Location' *Clinical Proceedings* (4)1945: 280.
- 16 M. Maister, 'Annual Report of the Medical Officer of Health' *Pietermaritzburg Corporation Yearbook* 1951: 65.
- 17 J.W.J. van Rensburg, 'Whooping Cough in Cape Town' *Epidemiological Comments* 19(4) 1992: 70.
- 18 A.H. Chapman, 'Report on Meningococcal Meningitis and Meningococcal Septicaemia: Outbreak in Pietermaritzburg' *Community Health in South Africa* 3(4) 1988: 25.
- 19 'The Measles Strategy, South Africa, 1991: An Evaluation of its Effect' *Epidemiological Comments* 19(7) 1992: 123.
- 20 'Measles in South Africa' *Epidemiological Comments* 5(4) 2002: 8.

4

SANITATION, FOOD AND WATER-BORNE DISEASE

IT WAS CHOLERA that led to the appointment of Britain's first Medical Officer of Health (MOH), Dr William Duncan, in Liverpool in January 1847.¹ In 1849, 72 180 deaths from cholera occurred in England, reaching a climax in September with a weekly rate of over 1 000 in London.² Other cities followed Liverpool's example and appointed medical officers of health, who then set about trying to reform the sanitary, sewerage and housing conditions of the urban working class. The squalor and misery of industrial England was one of the contributing factors to the great emigration of that period. Towns and cities in England were hazardous places to live in and it took the public health movement until after the 1870s to start turning them into healthier environments. Their achievement was indicated by the decreased role of the filth diseases, including cholera, typhoid, diarrhoea and dysentery, spread by the fouling of water and food by infected faeces. Cholera virtually disappeared from England after its last epidemic in 1866–7.³ Cleaner water, milk and privies (latrines) and the prevention of nuisances led to a steady decline in diarrhoea and typhoid. Cholera had also been a regular visitor to the Cape, with many cases in the 1860s due to insanitary conditions, slums, poor drainage and refuse disposal. Pietermaritzburg, in contrast, was starting with a clean slate. There was no backlog of insanitary, overcrowded conditions inherited by the early settlers, only clean, open countryside. Hence there was an opportunity to learn from the mistakes of the mother country and develop in an ordered and hygienic manner.

Nuisance refers to anything which:

- a) is injurious to health, or is indecent or offensive to the senses, or forms an obstruction to the free use of property;
- b) affects a community or neighborhood;
- c) occurs during, or as a result of, the treatment or disposal of wastes or refuse.

Pietermaritzburg was well located next to a meandering river, originally named the Little Bushman's and then the Msunduzi.⁴ As early as 1850 a good supply of water was secured in Pietermaritzburg by the construction of furrows and the supervision of the water fiscal.⁵ Water was led from the Dorpspruit along the Zwartkop

valley to the upper part of town and then by furrows and sluice gates to all areas. There were plank bridges at street crossings.⁶ However, this was of course untreated water and dysentery and diarrhoea are mentioned in most references to health in the late 1800s. Dysentery seems to have accounted for more admissions than any other illness in the early years of Grey's Hospital: its victims included the first Lieutenant-Governor of Natal, Martin West.⁷ Complaints started in the 1860s and 70s about water supply, described as pea soup, which 'courses down the man-traps called sluits or open drains'. Dr R.J. Mann warned in *The Natal Witness* that stream water used by the residents of the town's 700 or so houses was first of all contaminated by hundreds of troops in Fort Napier, then received the town's refuse, the droppings of oxen and horses, and finally the slops from scullery men before being taken in as drinking water by 'our lower townsmen'.⁸

It was suggested that water be brought down by pipes from a dam to be constructed in the Zwartkop valley. However, this was opposed by the first District Surgeon, Dr Samuel Gower, who had a fear of the dam bursting. He preferred 'fresh running water, openly exposed to sky and sun, over a reservoir of stagnant water, conveyed to us through wooded, iron or leaded tubes, which were likely to bring tadpoles, earwigs, cockroaches and other small fishes, reptiles and insects of various sorts and sizes in our tea and coffee. It is better,' he added, 'to have your coffee made from water in a sluit that a horse has been drinking from, than with water that a horse would refuse to drink'.⁹

Mann concluded: 'yellow fever, black fever, malignant cholera and contagious dysentery are somewhere before us'. He was indeed prophetic. While Napoleon Wheeler had set up on the Market Square the first town pump for the use of all, the statistics of Grey's Hospital in 1870 reveal that twenty cases of dysentery and gastroenteritis were admitted, 8% of total admissions. Nine of these patients died. Six patients were admitted with hepatitis in that year.¹⁰ Townsmen started to dig their own wells and a commission was appointed to enquire into the sanitary state of the borough. It reported in 1873 that 'many native and Indian dwellings were surrounded by pollution and the main streets were covered with rank vegetation up to 5-6 feet'.¹¹ Central Church Street in 1874 was

Cholera: An acute infection of the bowel due to ingestion of the bacteria *Vibrio cholerae*, with profuse, watery diarrhoea, dehydration and collapse; often fatal if untreated.

Dysentery: An acute infection of the bowel characterised by profuse watery, blood-stained diarrhoea with systemic symptoms, caused mainly by *Shigella* bacteria or *Entamoeba histolytica*, amongst other organisms.

described as a 'horrid sea of almost impassable quagmire'.¹² Cape Town in this period also had a system of drainage with malodorous water courses running down the main streets. Dr Hartley found in 1878 that the death rate from typhoid was 'appalling' and it was not a clean city until the appointment in the late 1890s of Dr E.B. Fuller as its first Health Officer.¹³

In 1875 there were seven cases of dysentery admitted to Grey's Hospital with one death; and thirteen cases of hepatitis, also with one death. By 1880 there were 63 admissions to Grey's for dysentery or diarrhoea and 15 deaths. The original waterworks for the city were finally established in 1880 at a cost of £30 000, with water supplied in pipes. Scabies, related to overcrowding and inadequate water for washing, is first mentioned in the Grey's Hospital returns, which recorded three admissions in 1880. However, by 1895 cases of scabies had increased to 153 seen in out-patients. There was a high death rate from typhoid in the latter years of the nineteenth century, first mentioned in the Grey's Hospital report of 1887, before which it is hard to distinguish having been included under a general fever category. Cases of cholera were found in the early years among Asians arriving in Durban by ship. In 1888 the *Quathlamba* arrived with 27 cases of cholera and nine deaths: the ship was quarantined until the outbreak was over. Cholera arrived again in 1890 on the vessel *Congella*, but the containment and quarantine measures were successful in preventing its spread.¹⁴

There was rapid population growth in Pietermaritzburg during the 1890s and the South African War and the city's infrastructure was clearly unable to keep pace. The District Surgeon, Charles Ward, described the city in his report of 1895 as having 'filthy streets, sanitary conditions worse than they have ever been, the road covered with a layer of dessicated excrement, sluits emitting pestilential odours, water supply quite inadequate even in the midst of summer, night soil cars allowed to poison the night air with their emanations – the same story year after year'.¹⁵ By the end of the nineteenth century typhoid was occurring on a regular basis in the city and in the period 1890–1904 there were regular epidemics. Figure 4.1 illustrates that in 1897 diseases of sanitation and overcrowding (typhoid, diarrhoea, dysentery and tuberculosis) were the cause of more than 50% of deaths in Whites. During the

Scabies A parasitic infection of the skin by the *Sarcoptes scabiei* mite, which causes burrows, itching and often secondary bacterial infection. It commonly infests hands, wrists, elbows and genitals, transmitted by skin-to-skin contact amongst children or in overcrowded conditions.

Typhoid: Infection caused by ingestion of *Salmonella typhi* bacteria, leading to severe gastro-intestinal and systemic illness.

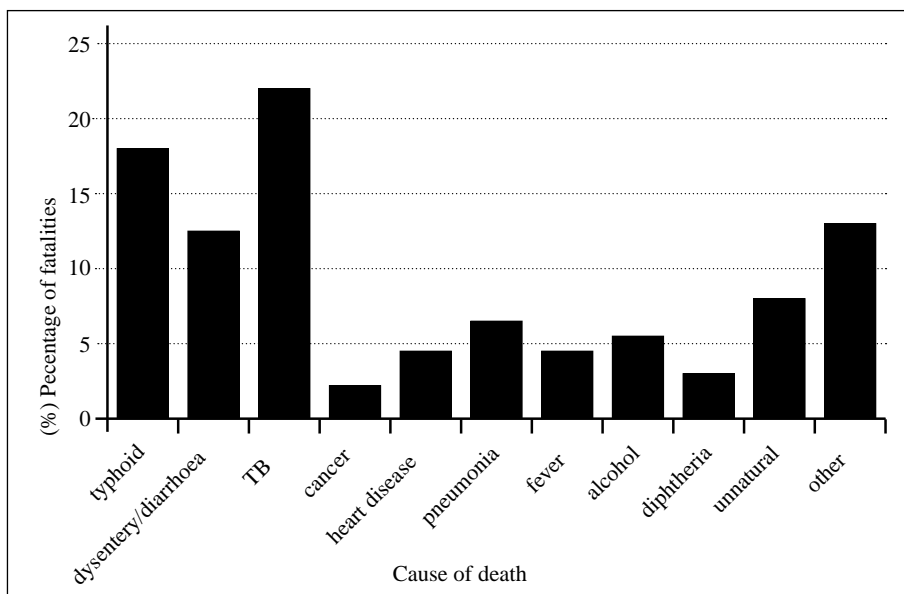


Fig. 4.1 Cause of death for Europeans in Pietermaritzburg, 1897.

war there were 5 000 troops stationed in the city, placing pressure on the water supply and raising complaints about its quality. It was considered by some that the waterworks in Pietermaritzburg were the worst to be found in any capital city in the world.¹⁶

The Government Bacteriologist, in his report of 1905, looked for causal connections for the outbreaks of typhoid. He noted that in all countries there was a season of maximum prevalence: for England it was around November, or the end of autumn. In Pietermaritzburg the peak occurrence was in the hottest part of the year, opposite to the situation in the United States and England. He looked for correlations with different climatic factors and found an association with the period of low subsoil water at the end of the dry season, particularly if then followed by heavy rains. This was similar to climatic conditions found in England, Germany, the United States and Cairo during their period of peak typhoid prevalence. He plotted the cases of typhoid during the 1903 epidemic against rainfall, as shown in figure 4.2, and concluded that heavy rains were probably washing surface pollution into the water sources used for drinking. It therefore followed that the provision of water supplies, unpolluted and protected from the washings of infected soil, would result in the disappearance in the enteric season of typhoid, along with diarrhoea and dysentery.¹⁷ However, while rainfall was only one of a multitude of reasons

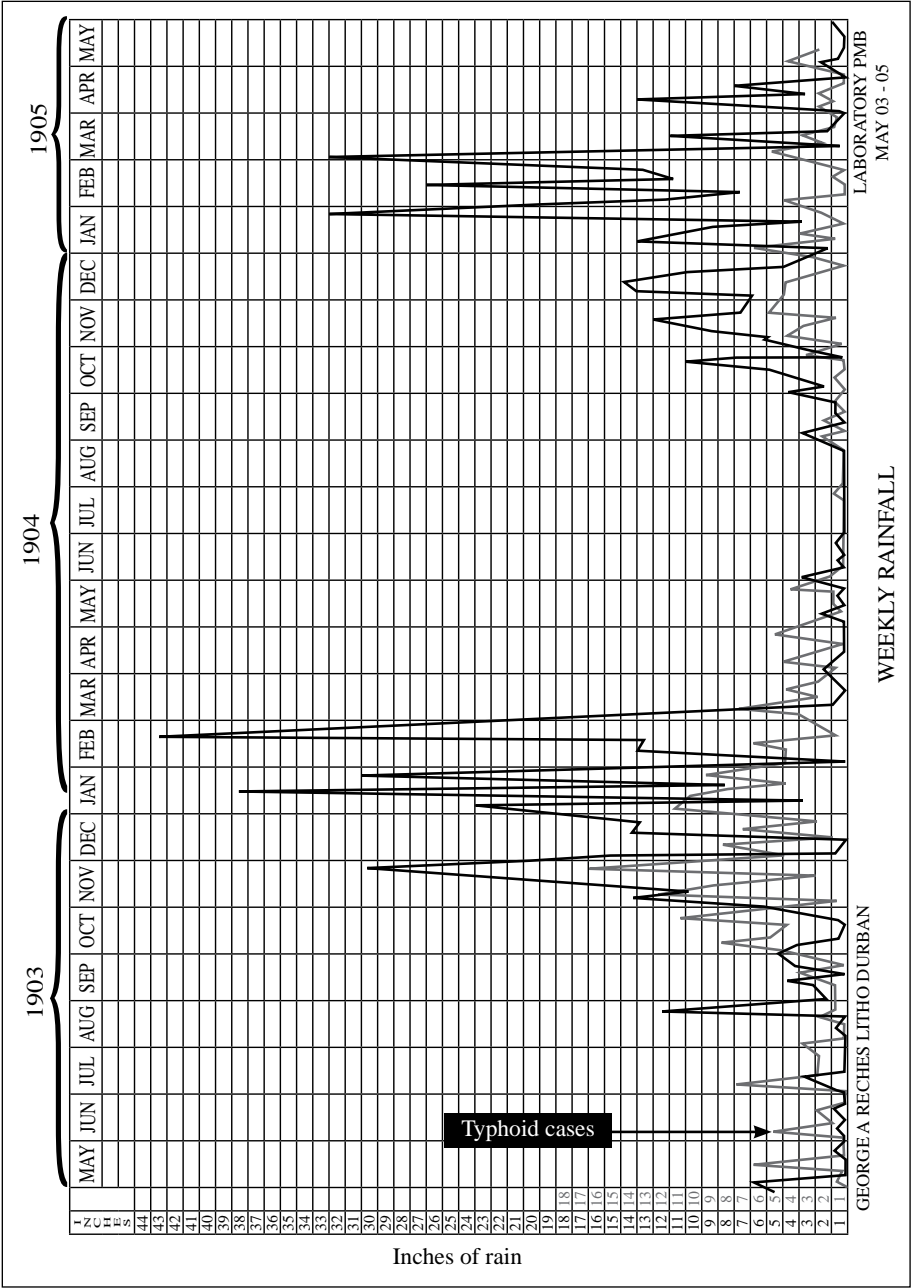


Fig. 4.2 Incidence of typhoid compared with rainfall pattern, Pietermaritzburg, 1903 (Government Bacteriologist's report, 1905).

for this enteric season, all of them related to inadequate water, sanitation and drainage systems that had failed to keep pace with the needs of a growing, urban population.

The condition of the Msunduzi River was noted to have deteriorated with the increasing population and had become so poor that at the end of the 1800s Mayor A.W. Kershaw stated that 'the pollution of the river from the City was so great as to render living within a few hundred yards of the lower banks almost unbearable'.¹⁸ The water courses of the city were much improved with the laying of underground drains in the early 1900s and an improvement in the state of the Msunduzi was noted. By 1908 the condition of the river had improved sufficiently for swimming sports and a boating club, and it was considered clean and sanitary. Interestingly, one of the reasons the river quality had improved was due to public action taken against the Council in *Clarence v. Corporation* in the Supreme Court. This resulted in an order to the Council to cease polluting the river at the point of discharge of the southern interceptor sewer, which was finalised in the following year. The sewage disposal works were completed in 1910.

Priority was also given to connecting government buildings, including Fort Napier, the gaol and Grey's Hospital, to the water-borne sewerage system, although the latter caused some initial problems due to the large amount of detergent being flushed away, killing the bacteria in the purification works. After resolving that problem it was noted that the purified sewage was often much cleaner than the river into which it was discharged. The Msunduzi River at this time was extensively used for boating and fishing.

A general scheme for sewage was prepared by the Borough Engineer in 1911, in order to make the town 'healthy and popular'¹⁹ and there was extensive sewer construction in the centre of the city. Prior to this, use was made of conservancy tanks and pails, which were considered very unsatisfactory. The borough Inspector of Nuisances, James Niven, on his appointment in 1908 described it thus

there was a great shortage of pails, the pails were in a shocking condition, being neither properly cleaned nor repaired, and a very large number of the pails were found to be leaking. On account of this shortage the full pail was carried from the privy to the conservancy van, into which its contents were emptied. The pail was then returned – not always to the same privy – after being swilled out with water at a tap on private property, and dirty water resulting from the washing being thrown away, anywhere in the vicinity.

He went on to state that 'at the sanitary depot the method of disposing of the excrement was also unsatisfactory, for the plug was withdrawn from the

van and all the more liquid contents of the excrement were allowed to flow into the open stream, which in consequence was an open sewer'.²⁰ The solids were buried in holes in the ground. Niven implemented a system of washing, disinfecting, tarring and repairing the pails. The excrement was kept in the pail and transported by cart to the depot, where the contents were emptied through a system of light trams and an iron tip truck into trenches. The slop carts were made of iron: the metallic rattling of the pails and carts could be heard half a mile off as they did their rounds at night.

The impact of all these improvements in water supply and sanitation was evident from the rates of typhoid in the city, which dropped from more than 200 cases a year in 1903 and 1904, to around 40 by 1909 with four deaths. Interestingly, it was remarked upon by the District Surgeon that Africans in the rural areas surrounding Pietermaritzburg seemed to have good health, with only one death from typhoid and little sickness being reported in 1903.

The supply of water was considered abundant and the flow of the river was far in excess of requirements at the turn of the century. Water consumption varied from 40 gallons (182 litres) per head to 75 gallons (341 litres) per head per day in the hot season. The original waterworks had been extended at the beginning of the twentieth century and the Edendale waterworks were completed at Henley in 1906.²¹ The main water supply was from the mountain streams known as Umsindusaan, Tenjaan and Inwalini. However, by 1912 it was noted that in drier years, the supply had to be supplemented from the Msunduzi River and per capita consumption was now the highest in South Africa. Measures were considered to reduce usage and wastage. Although not pure, the fact that water was available in abundance may have contributed to the relative health of the population where conditions related to inadequate personal hygiene, such as scabies, were concerned. They were rarely mentioned during the period. It was decided to protect the area in the vicinity of the waterworks from human pollution and all African kraals were removed from the surrounds and replaced by 600 acres of trees. What became of the inhabitants removed in this way is not mentioned in the Borough Engineer's report. However, the trees were reported to bring considerable benefits, including prevention of run off and soil erosion and reduction of flooding. The Borough Engineer recommended that another 7 000 acres of trees be planted on either side of the streams in Zwartkop to protect water sources. The bacteriological quality of the water was tested and considered to be excellent by 1914. The water supply was extended to include the new areas of Town Hill, Scottsville and Woodlands Road. The water in local streams, such as Town Bush and Chase Valley, was



Church Street scene showing storm water drains in the early 1900s (Souvenir of Maritzburg, photographs by L. B. Jensen, S.A.P. & Co. [circa 1910]).

still considered polluted and during drier years such as 1916 the volume of water available began to appear inadequate.

The condition of foodstuffs in the early twentieth century was a cause for some concern. Large quantities were condemned during 1909, due to putrefaction in game, fish and meat; cysticercosis (tape worm) in pork and beef; tick fever in beef; liver rot and jaundice in sheep; weevils and worms in rice, flour and cocoa; and putrefaction and fermentation in tinned foods. One case of arsenic poisoning was reported from the re-sale from a rubbish heap of what some storekeepers had thought was discarded flour to Africans, who had made bread from it. Arsenic contamination of food was again a worry in 1912 with its presence suspected in milk, cream, butter and milk from cattle that had been dipped as protection from East Coast fever. East Coast fever was rampant in the colony and large numbers of cattle had been killed by it. Fruit was also sprayed to protect it from pests. Samples were taken for inspection, but arsenic was not found in a measurable quantity and it was concluded by the Corporation Analyst, Professor Denison, that the dipping of cattle and spraying of fruit was not a danger to health. Food samples were regularly taken under the Adulteration of Foods Act. This revealed some coffee to be 50–60% adulterated, but the law was inadequate to secure a prosecution.

The link between animals, milk and abdominal tuberculosis had been recognised at the first Congress for the Study of Tuberculosis in Paris (July 1888), following which it was resolved that 'every means, including the compensation of owners, should be taken to bring about the general application of the principle that all meat derived from tuberculous animals, whatever the gravity of the specific lesions found in those animals, should be seized and totally destroyed.' However, not much had happened, particularly in England as British health officers found that their attempts to prevent the sale of meat and milk from tuberculous animals were challenged by businessmen through the courts. The first British Commission on Tuberculosis reported in 1895, after five years of deliberations, with only vague recommendations. A second commission in 1898 recommended establishing public slaughterhouses, closing private ones, appointing meat inspectors and destroying carcasses. It recommended giving powers to local authorities to deal with dairies and milk. A report at that time from Manchester found that one in six milk cows had advanced tuberculosis of the udder. A third Tuberculosis Commission reported in 1911, having undertaken a mass of experiments. It confirmed that much human tuberculosis was caused by the bovine tubercle and that a considerable portion of children's tuberculosis was due to infected milk. Another study found that approximately 20% of tuberculosis cases sampled were caused by the bovine tubercle, mainly in the abdominal form.²²

In Pietermaritzburg from the early years of the twentieth century dairies and milk vendors were registered and inspected. However, the conditions regarding milk supply were considered unsatisfactory: cows were kept in the backyards of houses and milk was bottled in open yards, where it could be contaminated by dust and manure. The retailing and delivery of milk was in long, narrow-necked bottles with wads of paper or old rags used for stoppers. Old milk cans had crevices and leaks that could not be cleaned: milk was sent round in large, open-mouthed cans out of which it was lifted by a metal measure. This measure was laid, still wet, on the floor of the cart in between uses where it was exposed to dirt and dust. The fingers and sleeve of the cart attendant often dipped into the milk as well. However, a successful prosecution in respect of the adulteration of milk was reversed on appeal to the Supreme Court. This was a cause of concern to the borough Medical Officer, Dr Woods, as the milk was consumed raw by infants and invalids. At this time there were 76 registered dairies and 133 registered milk vendors in the municipality. A new set of by-laws was passed in 1915 in order to control the handling and sale of milk, and improve the vessels in which it was delivered. A standard type

of milk bottle was adopted and written instructions were given out to milk handlers with sanitary inspectors visiting regularly.

There were many cases of diarrhoea and dysentery in this period, probably due to a combination of still inadequate sanitation and contaminated water supplies; and the poor quality and storage of milk and food and its rapid decay and contamination. Considerable quantities of unsound foodstuffs were seized and destroyed each year, in particular meat and fruit. It was felt that abattoir services should be taken over by the Council to try to improve the condition and examination of meat and this occurred in 1912 with by-laws introduced to control the meat supply. Tuberculosis in meat was prevalent and the source of these cattle was investigated together with the government Veterinary Department. It was felt that the seizure by the Corporation of all diseased meat would lead to a healthier community and prevent much sickness and suffering. In 1914, 8 559 animals were slaughtered at the abattoir and twenty tons of meat was condemned: 140 cases of tuberculosis were discovered both at the abattoir and by the Veterinary Department.

Many of these were dairy cattle, which then suggested a serious risk for people drinking non-sterilised milk. *Cysticercus bovis* (cattle tapeworm) was found in some cattle; and *Cysticercus cellulosae* (pork tapeworm) in 10% of pigs examined. This leads to tapeworm infection of humans; but also the more serious cysticercosis, the formation of cysts in human organs, including muscles and more importantly the brain, giving rise to neurological complications such as epilepsy. Other diseases found that could affect humans included actinomycosis (which causes a chronic fungal infection giving rise to multiple draining sinuses in various parts of the body), echinococcus, along with flukes, abscesses and other infections. The practice of slaughtering animals outside the municipal abattoir and then submitting the meat for inspection was discouraged: it was much more difficult to detect many of the diseases just from visual inspection and each piece had to be carefully examined. The same problem arose where meat was processed outside the borough: pork sausages, for example, were found to contain *Cysticercus cellulosae* cysts. Over twenty tons of meat and eleven tons of internal organs were condemned in 1915 and cold storage facilities were introduced at the abattoir only in 1916, principally with a view to supporting the export of meat to Europe. These improvements dramatically increased the throughput of animals at the abattoir, going from 4 313 in 1913 to 39 265 by 1917. It was commented that the flesh of animals slaughtered and dressed at the Pietermaritzburg abattoir was more favourably

received on the European market than that from any other South African source.

Inadequate storm water drainage continued to be a problem and the Borough Engineer and Medical Officer conferred regarding priority areas for upgrading. The drains emitted foul smells at every opening due to their being used, in the absence of a sewer scheme, for slop water that flowed from the backs of houses and through the street channels. Slop water often lay stagnating in the vicinity of houses, breeding flies and mosquitoes as well as polluting the atmosphere. Fly breeding could have contributed to diarrhoea outbreaks. During 1912 there was a good deal of sickness in the area around Boshoff and Braid Streets and work was undertaken on the surface drainage. Catchpits were installed and house drainage by-laws prepared. By 1915 there were well over 100 miles (160 kilometres) of channel drains in the storm water system and ten miles (16 kilometres) of underground drains.

Plans were also made to install public toilets at the back of the City Hall, with separate accommodation for Whites, Asians and Africans. Further diarrhoea outbreaks occurred in 1913, killing 42 people, largely infants. By 1913 all 24 main government buildings were on the sewerage system and it was proposed to extend this further, although by 1914 there were financial constraints owing to the war in Europe. Permission was given to private owners to connect to the lines, although only one or two had taken advantage of this. It was considered that compulsory drainage areas should be declared in terms of the Sewerage Act of 1903 for those near the sewer lines so that properties which could be served by sewers connected as soon as possible. The charge of £2 per toilet was abolished to encourage connection. The drainage area was defined as the whole city centre area and any property within 500 feet (152 metres) of a sewer, and sewer lines continued to be installed. Liquid sewage was used to irrigate crops of barley, lucerne, millet, sugar cane and pumpkins. Some crops grown on the sewage farm were used to feed corporation animals and the surplus was disposed of at the Municipal Market, producing an income for Council. Sanitary inspectors still found many properties with inadequate sanitation and consequent pollution of land in the vicinity. All were required to provide additional privy accommodation. By 1916, 408 properties were connected. The conservancy service was extended to include portions of Scottsville, Mountain Rise and Town Hill, and in some areas the once-weekly service was increased to twice-weekly. The pails were now emptied into the sewerage system, although three people were reportedly prosecuted for deliberately knocking over night soil pails.

The health of the city was now considerably improved. While the presence of prisoners of war and the defence force put additional strain on the water system, and a few extra cases of typhoid occurred, the impact of all the sanitary measures of the period 1903–20 was significant; as summarised in figure 4.3, which shows the decline in typhoid cases. The incidence in 1920, at four per thousand, was significantly below the national figure of 65.²³ In 1916, the corporation Medical Officer of Health (MOH) started to send samples to a private Durban laboratory. This revealed that many cases reported as typhoid were actually paratyphoid, a much milder disease. In typhoid the death rate was 10 to 15% of cases, whereas it was only 1% for paratyphoid. While it may be that over the preceding years the diagnosis of typhoid was mistaken, whichever of the two conditions was involved the decline in the infection rate is still evidence of an improvement in general hygiene and sanitary conditions. Combined measures to combat the faecal-orally transmitted diseases paid off as by 1917 the overall death and infant mortality rates were dropping significantly to among the lowest in the country.

The sewerage scheme continued to be extended over the years, although unfamiliarity with the system caused blockages as people put inappropriate items down the sewers. Blockages were, for example, caused by patients of the Natal Mental Hospital putting ‘a brown blanket, a female dress, empty powder tins, pieces of wood, iron spoons, and quantities of macadam’ down the drains.²⁴ Similarly, below the gaol several convict caps were found.

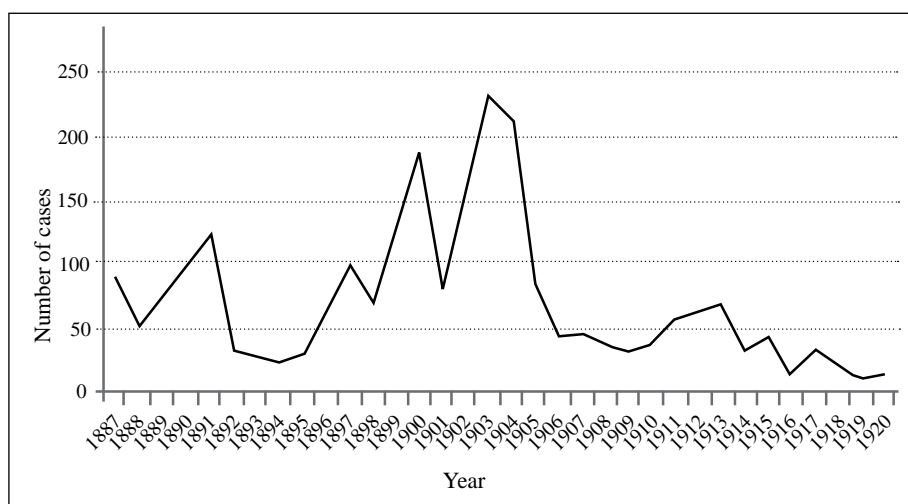


Fig. 4.3 Typhoid cases in Pietermaritzburg, 1887–1920.

The government Public Works Department was requested to install screens to stop this material reaching the sewers. By 1918 there were twenty miles (32 kilometres) of main sewers in the city and Dr Woods recommended that the sewerage scheme be extended to the Asian population in lower Church Street. Although by 1919 there were almost 1 000 premises and 2 500 toilets connected to the sewers, there were still 5 725 privies and urinals and 600 000 pail removals were undertaken annually. This service became more difficult in 1920 due to a repatriation scheme for Asians, which removed them from Council employment, and higher wages had to be paid to the remaining staff. Gradually, however, the sewerage system extended through the city and some 200 houses were connected annually, Council having powers to connect properties compulsorily where the owners failed to do so. Many blockages still occurred through misuse, and the Borough Engineer reported finding scrubbing brushes, wooden spoons, knives and forks, cigarette tins, chains, pieces of timber, iron rods and a set of false teeth in drain blockages. It appeared that some people were tipping all their household rubbish into the sewer system.

Tree planting continued apace around Henley to the west of the city mainly, it appears (at least initially), to prevent contamination of water supplies from the increasing African population in the catchment area. Occasionally the bacterial content of water would increase: chlorination of water was started in 1918, although during wet weather when the water became muddy this was insufficient to maintain cleanliness and the public were advised to boil it. Sedimentation tanks and flocculation would also be required. However, general improvements in water, sanitation and drainage over the previous years paid off: even though 1918 experienced 54% more rainfall than average, with the Msunduzi River overflowing its banks, there was no subsequent increase in typhoid. Flooding occurred again in 1920, affecting the Dorpspruit and its tributaries. Only this exceptionally heavy rainfall enabled the city to meet the demand for water and an impounding reservoir (dam) was proposed. Increasing demand was due in part to the migration of the European population out to spacious plots, with large gardens, in the suburbs. It was estimated that the watering of gardens in the dry season could be absorbing as much as 41% of total water consumption. There was also a fairly rapid increase of population of about 4% per annum in this period and in February 1921 water had to be cut off between 10.00 pm and 6.00 am. Continued heavy demand relative to supply started to lead to deteriorating water quality, with samples failing bacteriological tests and often proving dirty when drawn from taps.

Despite attempts to protect water sources with tree planting, raw water was becoming more contaminated due to population growth in the Edendale and Sweetwaters areas and an increase in ploughing for cultivation and cattle grazing. Chlorination became less effective due to the heavy load of organic matter and mud. There were renewed calls for the provision of complete water filtration plants, as well as the planned sedimentation tanks. In 1922, 4 500 house-to-house inspections were undertaken to check for water leaks and irregular and excessive use of water, and over 2 000 washers were fitted to leaking taps. By 1923, city water consumption averaged 80 gallons per capita per day, one of the highest in the country, and an engineer from Cape Town was approached to design a dam at Henley.

An outbreak of typhoid occurred in a boarding house in 1922: altogether it infected seventeen people and caused four deaths. It was noted that the great majority of cases of typhoid now occurred in areas where the night soil pail system was still in use. While the sewerage system was being extended as rapidly as possible, the outward sprawl of the developing city meant that new pail privies were being added as fast as old ones were connected to the sewers. In addition, the collection of pails was more difficult in the more remote suburbs, although they continued to be emptied twice a week. The completion of the sewers in the city centre, however, resulted in a great improvement in general cleanliness in that area, as domestic waste no longer flowed to such an extent through the street channels to the storm water drains. There were a further 29 cases of typhoid in both 1924 and 1925, in addition to some imported by people residing in other parts of Natal. The prevalence of diarrhoeal diseases and typhoid continued to be attributed by the MOH to the 'largely imperfect arrangements which exist for the disposal of night soil'.²⁵ By-laws requiring that sanitary accommodation for Africans resident or employed on private premises should be provided by the owners of those premises were published in 1925. Surveys had shown that it was not provided in two thirds of accommodation for Africans in one district. In a second area, in which all the houses of White had been connected to water-borne sewerage over the previous year, pail closets for the African population had been put out of use and nothing provided instead. The MOH issued a warning that the situation had to be rectified and the new by-laws applied. Five brick-and-tile public toilets for Africans were completed in the city area.

Milk supply to the city in 1925 derived from 68 licensed dairies in and around Pietermaritzburg (fourteen in town), six milk shops and nineteen milk vendors (who imported their milk under permit from farms in the district) and a

branch of the Natal Creamery (supplied by 31 farmers in the district.) All were inspected annually for their licence, and then repeatedly through the year, and had to comply with by-laws. Farms supplying milk to the creamery were not inspected as they pasteurised their milk by the Jonas Neilson process, which had been found to destroy all ordinary pathogenic bacteria. The creamery was installing a bottling apparatus. One outbreak of typhoid, affecting six people, had been caused by infected milk from a dairy farm and the farmer's permit to send milk into town was suspended. Consideration was being given to instituting minimum bacteriological standards in the by-laws and limiting the number of dairy cattle that could be kept within the town. There was a concern that the presence of Cape cattle could have brought tubercular animals into the dairy herds. The MOH proposed to have all cattle inspected by a veterinary surgeon, and to have the milk inspected for tubercle bacilli, although tuberculosis spread by milk was thought to be rare at that time in the region, at least in Whites. It was, however, common in the Cape where the incidence of abdominal tuberculosis in young children was said to be considerable.²⁶ In 1927 there were 37 notified cases of typhoid, with seven deaths. While the incidence was similar amongst Whites and Coloureds, the death rate was noted to be higher for Coloureds (six out of eighteen cases versus one out of nineteen cases in Whites) with a more severe disease type. Some of the cases were traced to infected milk supplies. Diagnosis was now by blood culture, which enabled more rapid action to be taken to investigate and prevent the spread of the disease. A bacteriological standard for milk was established in 1927: 200 000 bacteria per cc for raw milk and 100 000 per cc for pasteurised milk. In 1928 there were 47 applications for permits to sell milk produced outside the city boundary. In most of these cases the milk was pasteurised before being sold. About 75% of samples of pasteurised milk complied with the by-laws, whereas only 60% of the raw milk samples complied.

In 1925, while liquid chlorine had replaced the chloride of lime and sodium hypochlorite previously used to treat water, the process of purifying water for Pietermaritzburg had still not been completed. Rapid gravity filters were being installed. Seventy samples of water were examined biologically from the three distributing reservoirs: they showed a satisfactory standard of purity throughout the year, except for a short period of contamination in the Zwartkop reservoir due to a defect in the tank. The water purification works for the city were finally opened in November 1927 with sedimentation tanks, eight Patterson rapid gravity filters and automatic chlorination. The standard of purity of the water was considered high in all weathers, except for a short

period after opening. American standards of purity were maintained and the mayor described the water as being of sparkling clarity.

The work of laying sewers in the central area of the city, where 75% of the population lived, was completed in 1927. The pail system had disappeared and this was expected by the MOH to reduce the incidence of typhoid and diarrhoeal diseases. Sewerage was being extended to the suburb of Scottsville and the enforcement of separate sanitary provision for 'Coloured servants' was going well. However, in 1928 the total number of cases of typhoid was 50, with eight deaths. The increased incidence in the White population was due to an outbreak in a boarding school, St Lucy's, affecting thirteen children. Similarly, there were cases in the native police barracks and the Asian barracks. The outbreaks were intensively investigated, the possible source child identified and the other children inoculated. An oral vaccine was used and although its efficacy at the time was uncertain, no further cases occurred after its use. In the same year, the MOH reported that the sanitation and refuse situation in the overcrowded Pentrich area was becoming dire. In 1929, an outbreak of typhoid occurred in another boarding school, affecting fifteen children. This was considered to be due to failure to remove a schoolboy to hospital.

In terms of meat supply, in 1925 all slaughtering was carried out at the municipal abattoir and there were nineteen licensed butcheries in the town. Just under 1% of beef, 3% of pork and only 0.2% of mutton carcasses were condemned as unfit for sale or consumption. These were condemned mainly for tapeworm, with some for tuberculosis. Condemned carcasses were removed from the abattoir by the owner of a fertiliser factory by rail. A by-law was passed to prevent the contamination of meat in butcher shops by flies. Bylaws were also approved by council for better control of bakeries; and a new municipal abattoir was built during 1928. Butchers were able to store their meat at the Pietermaritzburg Cold Storage Company. In 1928, 27 744 sheep, approximately 9 000 cattle and 3 500 pigs were slaughtered, with 0.64% of carcasses condemned. The infection rate of cattle with *Cysticercus bovis* was 2.26%; and for pigs with *Cysticercus cellulosae* it was 1.42%. Twelve of the cattle and 59 of the pigs were condemned for tuberculosis infection. Other conditions found to affect condemned meat included actinomycosis, flukes and various bacterial infections. As only ten out of 28 000 sheep were condemned, it would appear that it was safer for your health to eat mutton.

By-laws relating to the preparation, storage and sale of foodstuffs were promulgated in the *Natal Provincial Gazette* in July 1929, with special by-laws regulating meat, fish, bread and ice cream. These replaced earlier sections

of the general by-laws, comprehensively rewritten in 1930, and covered all premises where any kind of food was sold, prepared, manufactured or kept. They contained extensive requirements regarding the hygiene, water supply and ventilation of such premises, and protection measures against insects and rodents. The dairy by-laws were amended and approved, and these now prohibited the erection of cowsheds for trade purposes within the city proper without a permit. It was noted that they had almost disappeared. Milk standards were considered to have improved quality considerably, with dairymen being convinced of the necessity of milk utensil sterilisation and strict cleanliness. In addition, the use of sealed bottles was increasing, from about 8% of all milk delivered in 1932 to 38% in 1934. It became a requirement under the by-laws that all milk for sale in shops had to be bottled and sealed by the producer. However, almost a third of milk samples with more than 200 000 bacteria per cc still failed bacteriological testing.

An extension of the sewerage system was undertaken to include the suburbs of Prestbury and Mayors Walk. Scottsville was the last heavily populated area still using the pail system, with an estimated 900 premises involved, and sewerage was extended there in 1931. Increasing volumes of effluent meant that plans were made to expand the sewage farm. Once the additional land for disposal was put into use, the effluent tested showed that it was of a high standard of cleanliness and could safely be discharged into the river. In 1930, there was an outbreak of typhoid linked to milk with nine people infected. The cause was traced back to a child with typhoid on a dairy farm. Eighteen cases of typhoid were reported in 1931 in the 'Coloured races', most amongst Asians living in the Camps Drift area, and spread by one or two cases nursed at home without medical attention. The likely cause was thought to be from milk supplied to their neighbours from two cows. These were removed and the spread ceased.

By 1935 the MOH was able to state that typhoid had nearly disappeared from the White population. This probably relates to the fact that White areas were now on water-borne sewerage and had piped, treated water supplies and better control over milk quality, together with a generally higher standard of living and education. More and more people were also acquiring electric refrigerators and it was noted that 563 were connected to the electricity mains by 1934. He noted that in England typhoid had become a disease mainly of rural districts in the process of development and that this was also now true of South Africa, at least as far as Whites were concerned. However, non-Europeans remained less fortunate and an outbreak investigation of seven cases in a White

school revealed that they had contracted the infection through the Asian cook, who lived in the insanitary area of Camps Drift. This demonstrated that the selective development of areas by race would never erase the risk of disease to all communities. Comprehensive development was not only morally and ethically desirable, but necessary to combat the spread of communicable disease. Diarrhoea and dysentery also continued as a significant killer of non-European children with an average of 50 deaths per year in the under-two-year-old age group out of a population of around 2 000. Sources of infection were thought to be the water and milk supply, contaminated foodstuffs, and flies from refuse, manure heaps and pit latrines. General food hygiene was often still poor, particularly in shops and cafes and related to hand washing, protection from flies and dust, and washing of dishes: 'too often all that is done is a hasty swishing of glasses, dishes and other tableware through muddy-looking tepid water'. In homes, poor pantry and kitchen accommodation, with an inadequate supply of water to keep utensils and food clean, and 'ill-drained insanitary yards where refuse stands and aids the breeding of germs and of flies to carry those germs to the food' were to blame for the continuing high rate of gastro-intestinal infection.²⁷

Tuberculosis attacking the bones, joints and lymphatic glands was usually due to the consumption of infected milk or meat. An examination of dairy cattle in Durban in the early 1930s showed a very high percentage of infected cows. However, no cases of bovine tuberculosis were seen in Pietermaritzburg that year and milk samples tested negative. In 1936, however, the incidence of non-pulmonary tuberculosis was 0.14 per thousand for Whites (with a death rate of 0.04 per thousand) and 3.55 for non-Europeans (death rate of 0.17). The Food, Drugs and Disinfectants Act was passed by the national government to replace the Natal Food and Drugs Act, and it set standards for a variety of foodstuffs and provided for regular sampling and testing. Meat was regularly examined at the abattoir, according to government regulations, using by-laws promulgated in June 1930. These covered the registration of meat inspectors and slaughtermen and control of the abattoir, which fell under the MOH. The handling of animals, meat, skins and offal was controlled together with the method of slaughter, with exceptions being made for Jews and Muslims. The tuberculosis infection rate in slaughtered cattle in 1936 was 0.46% and in pigs 5.28%. Tapeworm (*Cysticercus bovis* and *Cysticercus cellulosae*) were found to contaminate around 6.95% of cattle and 1.7% of pigs respectively. While the infection rate in pigs was fairly stable, that of cattle was gradually increasing, up from 3.83% in 1933. Anthrax was seen only very rarely. The slaughtering

of animals was governed by the Slaughter of Animals Act, introduced in 1935, which covered routine and religious slaughter. Meat was also received from abattoirs outside the city, mainly from the Johannesburg or Durban municipal abattoirs, or the export abattoir at the port. There was concern that people were bypassing butchers and buying meat slightly cheaper in the peri-urban areas without realising the risks they were running – particularly from tapeworm, actinomycosis, intestinal tuberculosis and other bacterial infections, and possibly anthrax – by purchasing uninspected meat.

Butcher shops were regularly inspected, along with other shops and the market, and food condemned if unfit for human consumption. Applications for new butcher's licences were scrutinised before approval. Twenty-two applications were considered in 1938, of which two were refused. Milk and dairies continued to be inspected regularly and an annual clean milk competition was held with the Royal Agricultural Society. Occasionally, milk was found to have been diluted with water. Other foodstuffs inspected under the national Food, Drugs and Disinfectants Act included bread, ice cream, sausages and mince meat. Some adulteration was found and prosecutions were undertaken against shop owners.

Municipal water supplies were managed by the City Engineer's Department and still derived from streams coming from the hilly country to the west of the city. The water was treated with lime and alumina-ferric before filtration, then chlorinated before distribution to four service reservoirs. Samples were tested every month and found to be of good quality. However, it was noted in 1938 that in six out of twelve cases of typhoid the cause was probably drinking raw river water: it was clear that the water in the rivers and streams of Pietermaritzburg had faecal contamination and was unfit for consumption. Municipal water supplies started to prove inadequate for the growing population in the 1930s and during dry periods water restrictions were put in place. By 1934, 43 000 people, or 92.5% of city residents, lived within the water supply area.

By 1938 most of the town and suburbs were on the water borne sewerage system, although some remained with the conservancy system or septic tanks. This, of course, ignores the areas just outside the town proper. The Native Village and the Ohrtmann Road Hostel were still using the primitive bucket system with sewage-filled buckets emptied twice a week. There was a complete absence of sanitation together with a lack of pure water supply in the Edendale-Plessislaer area where 10 000 people, equivalent to a quarter of the city's population, now lived. Typhoid, although lower than in the 1920s, afflicted nineteen patients in 1939, of whom five were suspected to

have contracted it through drinking contaminated river water. The incidence continued at about this rate throughout the early 1940s. In terms of the Local Health Commission (Public Health Areas Control) Ordinance of 1941 these areas were placed under the control of the local authority as they were seen as a threat to the people of Pietermaritzburg.

During the Second World War consumption of water increased because of the military camps and additional hospital services, and the use of hosepipes was prohibited for certain periods. Fortunately rainfall was high: floods occurred in 1943, testing the new dam at Henley severely. There were also concerns about the dam silting up and the need was expressed to control soil erosion in the catchment area. The City Engineer noted that 'every effort must be made to have proper soil conservation methods practised in the Native locations which form the major part of the 92 square miles of catchment area'.²⁸ The piped water quality, however, remained good. The sewerage system had been extended further, and there were concerns that the land area available to dispose of treated sewage was insufficient, with a danger of pollution of the river. Around 1 000 pails were still being emptied nightly. The keeping of animals in the city by the municipality ended in 1951, when all the animals in the Pietermaritzburg stables were auctioned off. Twenty mules were still in use at the sewage farm.

The municipal abattoir became much busier than usual in the war years, supplying meat for military camps and hospitals, and the troop convoys calling at Durban. The prevalence of *Cysticercus* infection in cattle was increasing, up to 10% in 1944. This was put down to the fact that increased demand meant cattle were being drawn from 'native areas', normally avoided due to high infection rates. It declined a little after the war years to around 7–8%. The prevalence of the more serious *Cysticercus cellulosae*, however, increased after the war years, rising from an infection rate of 2.26% in 1945 to 5% in 1948. It declined a little thereafter to around 2%, dropping further to around 1% by the late 1950s. There was concern about the ritual slaughter of animals in Edendale, bypassing the meat inspections at the abattoir. The Local Health Commission (LHC) refused to permit the slaughter of cattle and limited it to goats as they were felt to suffer rarely from diseases that could be transmitted to humans. Government emergency regulations made it necessary to return milk bottles during the war years, requiring decanting immediately the milk was delivered. Circulars were issued to every household in 1943 by the Health Department advising of precautions in the handling of milk, which was still a possible medium for spread of disease. There were

99 registered milk producers supplying the borough, of which 48 sent their milk to be pasteurised at a central plant. In 1945 testing of milk found that 62 samples were bacterially infected, all but two of which were unpasteurised. The effectiveness of pasteurisation was clearly illustrated.

In 1945 amoebic dysentery (caused by *Entamoeba histolytica*) was declared a notifiable infectious disease in Natal. In the first year, 40 cases were notified and in the second, 87 cases. Their investigation was time consuming for the Health Department, particularly as they could have been carried by the patient for some time, several months or even years before being diagnosed. An investigation in 1946 found that the average duration of chronic cases was 3.3 years for Whites, 2.1 years for Africans and six months for Asians. This lengthy period between onset and diagnosis meant that for long periods before treatment people were carrying the organism, and disseminating it in the community. Presumably due to the long time lag before diagnosis, it was removed from the list of notifiable diseases in 1947, although this then prevented the Health Department from hearing about and investigating cases to try to identify and treat carriers.

Diarrhoea, typhoid and dysentery feature prominently in the early reports of the LHC, with 108 cases and 26 deaths from typhoid and 83 deaths from diarrhoea in 1945. The following year there were only five deaths from typhoid and 36 from diarrhoea, but an outbreak of 57 cases of dysentery. They were described as the diseases of insanitation, exacerbated by poor nutrition, and immunisation against typhoid was given to 2 088 people. Water in the area was supplied by shallow wells, springs and contaminated streams, some of which were grossly polluted; and only the areas of Siyamu and Ashdown had a treated water supply from the municipal pipeline. People were encouraged to boil water before drinking and this was thought to be the cause of the reduction in deaths between 1945 and 1946. Pollution levels in the Msunduzi River at that time showed an average of 1 500 B Coli per 100 cc. The predominant causes of death in Edendale throughout the 1940s continued to be gastroenteritis and tuberculosis, and dysentery was widespread. Typhoid cases remained scattered and related to areas using surface water, and mass immunisation against the disease was undertaken. Generally it was found that those taken ill with the disease in infancy, when it took the form of acute gastroenteritis, became relatively immune as adults if they survived the initial infection. The LHC set about establishing standpipes for communities to improve the water supply and 35 were erected in 1950 with five miles of piping, then a further 15 the following year. Scabies was also noted as prevalent in the Edendale area and

the MOH ascribed this to a shortage of soap along with a lack of water for personal hygiene: 531 cases were seen in 1950. Patients were bathed with benzyl benzoate in the clinic. An improvement was recorded in the following year and this may have been related to the greater availability of water from the standpipes. By 1954 water was reaching the communities of Slangspruit, Snathing and Esikoleni. The water needs of Edendale Hospital caused problems for water supply and an agreement was entered into between the LHC and the Pietermaritzburg Council to supply bulk water to Edendale and other areas such as Cleland, Ockert's Kraal and Lincoln Meade. Two hundred and fifty standpipes were provided by 1958, an average of one per 140 people.

Ascaris lumbricoides (roundworm) infestation was also prevalent: this also contributed to ill health and under-nutrition, and the need for improved sewerage was noted. It was almost all by pit latrine, the construction of which was inhibited by a shortage of cement in the 1940s. But this eased in 1950 and the LHC sold them to the public. However, the small size of residential plots and high water table in parts hampered the development of a good sanitation system.

The incidence of so-called water-washed diseases such as scabies, related to personal hygiene and availability of sufficient water for washing, appears to have been low in the city for the first decades of the century and they are rarely mentioned. However, in the 1940s, possibly relating to increased overcrowding and insanitary conditions in the developing areas of Plessislaer and Edendale, they start to appear in the health reports. In his report headed 'Medical examination of Natives' (for tog or casual labour purposes) Dr Maister records reasons for rejection. Aside from the usual venereal disease and tuberculosis, he specifies that out of 23 058 men examined in 1946, 66 (0.3%) were rejected for being dirty, 145 (0.6%) for scabies and nineteen (0.08%) for impetigo, sores or other skin infections.

An outbreak of gastro-enteritis occurred at a girls' boarding establishment in Pietermaritzburg in 1946. It was also found in 8% of the population in the surrounding area and attributed to a coliform contamination of the main water supply, which may have been due to a previously repaired burst pipe. Typhoid also continued to occur in the city and broke out in 1946 in a girls' school hostel where nine

Gastroenteritis:

A general term for disturbances of the gastro-intestinal tract with diarrhoea and abdominal pain, often caused by infection by various bacteria or viruses.

Impetigo: A superficial bacterial skin infection characterised by pustules and itching, crusting lesions, often affecting the face, arms and legs and common in children who may spread the disease through scratching.

children and a matron became ill. The source of the outbreak was not traced. A second outbreak occurred on a dairy farm due to contamination of raw milk by polluted water. Ten cases occurred on this farm and a neighbouring farm, and twelve cases in the city from people receiving milk from the dairy. Those who boiled their milk escaped infection. The dairyman was prohibited from supplying milk to the city. Cases of typhoid continued to occur sporadically with sixteen in 1951, including some at the sewage farm and Native barracks. Immunisation was provided for contacts, with two injections of endotoxoid.

Another outbreak occurred early in 1952: twelve people had consumed raw milk from a dairy where cases of typhoid had occurred shortly beforehand. The precise source of infection was not identified. In December 1952 there was a more severe outbreak, with 99 notified cases altogether, the majority of which were White. It started with a single case on 20 December, followed by a second on 26 December, and discovered that in both cases raw milk from the same supplier had been consumed. Steps were taken to ensure the supplier pasteurised his milk. Approximately 77% of the milk sold in the city was pasteurised in the 1950s. However, three days later a number of further cases were reported and it was clear there was an epidemic, which appeared to be milk-borne. By 6 January 1953 there were 66 cases and one death and calls were made for a public enquiry.²⁹ By 9 January there had been 82 cases and 1 200 people had come into the health services to be immunised.³⁰ The outbreak is illustrated in figure 4.4. The dairies were investigated and one milker was

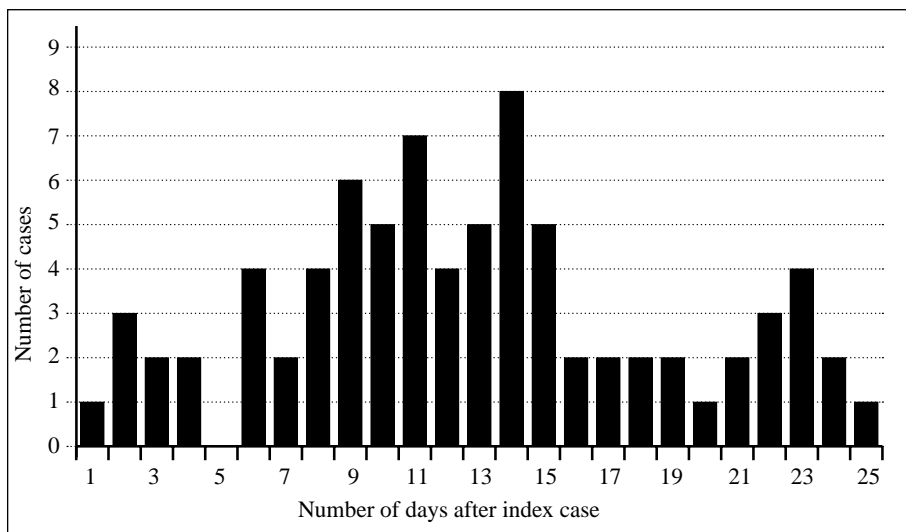


Fig. 4.4 *Number of typhoid cases by day after index case, December 1952.*

found to be a typhoid carrier of similar phage type. The last case came eleven days after the compulsory pasteurisation of milk by the supplier was introduced and then the epidemic terminated. In addition, 946 immunising injections of typhoid endotoxoid vaccine were given to dairy employees.

An outbreak of food poisoning, thought to be caused by *Bacillus cereus* in salt beef at a boarding school, affected eighteen children in the same year. Another outbreak involving 22 people occurred in 1954 after a banquet. The possible cause was *Staphylococcus aureus* infected fish paste. Another outbreak affected 59 hospital employees in 1957. Occasional small outbreaks occurred annually, but the cause was rarely identified.

A more modern sewage disposal works was approved and construction commenced in 1953 by the City Engineer, as illustrated in the diagram by the MOH on page 118. Areas such as Town Hill, Zwartkop Road, Blackridge and Sobantu were still not on mains sewerage. The new Darvill Sewage Purification Works was opened in 1958 and named in honour of the former City Engineer. The sewage farm tried the growth of various crops, including sugar cane, lucerne, mealies, pecan nuts, oats, sunflower, cow peas and soya beans. By 1960 it was estimated that 60% of the built-up area of Pietermaritzburg was on water-borne sewerage. Parts of Sobantu and other areas were still on the bucket system, although the clanking metal buckets were replaced by quieter, rubber models. New areas developed in order to implement the Group Areas Act and were connected to sewerage. The incorporation of Raisethorpe was followed by provision of piped water supplies to each site, sewerage connections and all-weather roads. The City Engineer's report of 1962 described the suburb as 'a far cry indeed from the position which existed three to four years ago when the only water supply was by means of standpipes, when the sanitation system for the whole township was by means of pails, and when the refuse removal vehicles could not travel on the so-called streets.'³¹

By 1952 water supplies started to prove inadequate for the expanding needs of the city and restrictions were imposed on occasion. The purification works were expanded to cater for a larger volume and the metering of all domestic water supplies, together with the introduction of a higher water tariff, was approved in 1954 to reduce total consumption. Dummy accounts were first sent to consumers to alert them to their consumption and give them time to locate leakages in plumbing and fix dripping taps. Full implementation in 1957 was estimated to have reduced consumption by 21%. This measure did not appear to affect public health and enabled the Council to remove all restrictions on use. Water losses from the system were estimated at a reasonable

12–13%. Sterilisation of filtered water with ammonia and chlorine was the normal routine except when supplies of chemicals were short. Then hand feeding of chloride of lime, an unsatisfactory procedure according to the City Engineer, had to be used. Routine bacteriological testing of water was done and found at Grey's Hospital to be most unsatisfactory, particularly during very wet weather. External contamination of reservoirs was suspected and it was recommended they be roofed: it had been reported that people bathed in them. The raising of the dam wall at Henley, which approximately trebled its capacity, was undertaken in the late 1950s. The planting of trees around it continued, with 160 000 being planted in 1958.

Simultaneously with the raising of the Henley Dam wall, planning commenced for a new dam on the Umgeni River and by the mid 1960s this was being constructed at Midmar, near the town of Howick twenty kilometres to the north-west of Pietermaritzburg. It would add further water capacity to cater for future growth of the city, with a new water treatment facility at Ferncliffe supplied by aqueduct from the dam. The additional capacity enabled new housing developments, such as Imbali and Northdale, to be supplied by municipal water. Surface water, including streams, rivers, springs and wells throughout the city and Edendale, was by now generally heavily polluted

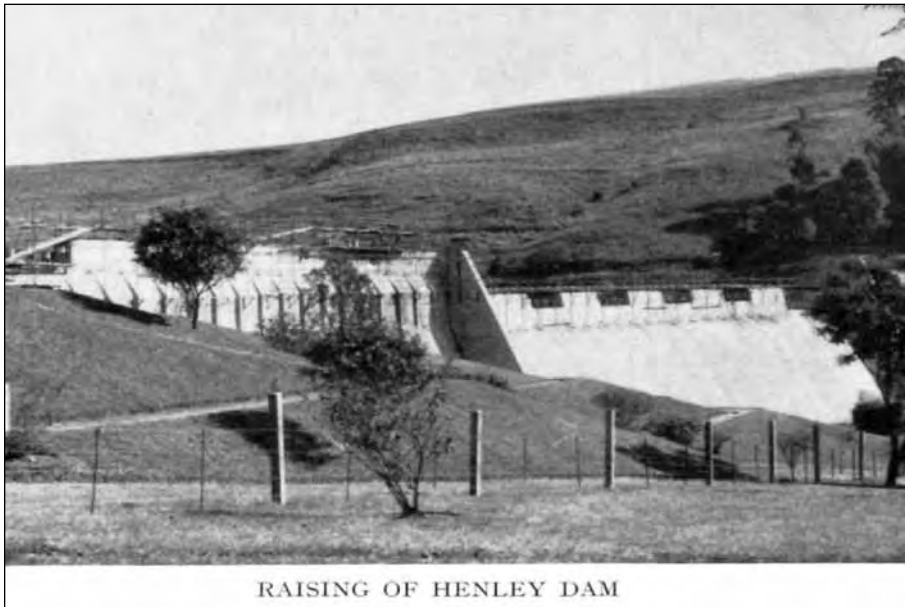


Construction of sewage plant, 1957 (Pietermaritzburg Corporation Yearbook).

by faecal organisms: 166 out of 175 samples were unsatisfactory in 1966. This was probably due to the inadequate sewerage system in the Edendale area where the African population still generally used pit latrines. Although the LHC had an extended payment system for ready-made latrine units, the increasing density of population was making new sites harder to find and the ground was gradually getting more polluted with faecal organisms. A vacuum tanker service to empty latrines started in 1972.

Municipal water was always recorded as being free of fluorine and occasionally there was discussion about whether this was responsible for dental caries in children. The lobbies both for and against fluoridation of water were vociferous and it was never undertaken.

The testing and immunisation of dairy workers against typhoid continued on a regular basis and municipal workers at the sewage farm and in the water section were immunised annually. In Edendale the whole population was offered typhoid vaccination, with 12 249 doses given in 1963. In that year the MOH recommended that all milk sold in the city be pasteurised, but this was rejected by Council, even though it could have reduced the risks of infection and also saved public funds. However, they did agree to amend the by-laws so that all raw milk sold had to be tuberculin tested and conform to a bacteriological standard of not more than 30 000 bacteria per cc with no



Raising of Henley Dam wall (Pietermaritzburg Corporation Yearbook).

faecal B Coli in 0.1 cc. Aluminium caps were to be used on all bottled milk. However, while the Council approved these measures in 1963, the Provincial Administration only did so in 1969, by which time some 84% of milk sold in the city was pasteurised.

By 1964 the municipal abattoir was slaughtering 100 000 animals per annum. Infection with *Cysticercus* declined slightly to around 6.4% for cattle and less than 1% for pigs. Prevalence of tuberculosis in slaughtered animals was 0.24% for cattle and 3.6% for pigs. Major changes were made to the abattoir in 1965 to upgrade the procedures and remove contact with the floor, and a by-products factory was added. A rather gruesome process of mincing and drying condemnations, wastes and raw blood to form carcass meal, tallow and blood meal for sale is described. Food samples continued to be taken regularly for inspection and analysis from outlets throughout the city, in particular looking at meat that did not bear the municipal stamp from the abattoir, milk, ice cream, processed or minced meat and sausage. Prosecutions were undertaken for food that failed to comply with the Food, Drugs and Disinfectants Act in terms of content. In 1972 the abattoir finally left the control of the municipal Health Department and was handed over to the Government Abattoir Commission. The last figures for meat infection by *Cysticercus* were 5% for cattle and 0.8% for pigs. The tuberculosis rates were 0.24% for cattle and 0.06% for pigs. In 1979 the Pietermaritzburg abattoir was closed down and a regional abattoir constructed at Cato Ridge, half way between Durban and Pietermaritzburg. By this time 96% of all milk handled in the city was pasteurised.

In Sobantu at the end of the 1960s, 377 houses (35%) were still on the bucket toilet system with removal of rubber buckets three times a week. In Edendale in 1969, 571 households had mains water and there were 275 standpipes. Typhoid cases numbered seven to ten a year and vaccinations were given in large numbers to the public. Mortality from diarrhoea and dysentery hovered at between 60–100 deaths per year in the township during the 1960s and 70s, or just under two per thousand (approximately 10% of deaths). In the city, typhoid immunisations continued to be given routinely to workers in dairies, the waterworks and the sewage farm, and contacts of cases. The great population expansion to the north and east, mainly to accommodate the movement of the Coloured and Asian communities into their respective group areas, necessitated major additions to the city's water infrastructure, with new trunk water mains installed. The quality of the water remained very high, but the City Engineer had concerns about removal of fencing and encroachment of African housing up to the boundary of the City Council-owned land at Henley

Dam, which was increasing pollution levels in the Msunduzi River. Planned settlement and relocation of Africans to the area was being undertaken by the government without proper sanitation facilities. Rivers were also polluted by industrial discharge. An Effluent Control Inspector was appointed in 1967 to monitor and control it. The Ferncliffe water works, taking water from Midmar Dam, opened in 1968 and in 1978 they were handed over to the Umgeni Water Board, a parastatal body functioning on a regional basis. Supply continues from this source to the present day. The sewage works were extended in 1974 and were 'the first in the country to use high-rate, egg-shaped pre-stressed concrete digesters'.³²

While most of the city, and even Edendale, had access to piped treated water, albeit from communal standpipes, the water supply in Vulindlela, formerly Zwartkop location, was still from streams, some of which were protected, and occasionally from boreholes. On 18 February 1971, *The Daily News* (a Durban newspaper) reported on the water problem under the heading 'Plight of Zwartkop'. However, it was not until the drought of July 1980 that the KwaZulu Government ordered an investigation. The Pietermaritzburg City Engineer called on it to consider installing a water reticulation system and asked for a medium- to long-term solution to be given urgent attention by the KwaZulu Government and Umgeni Water.³³ However, no such intervention was forthcoming during the decade. Henley Dam was handed over to the Umgeni Water Board in 1981, the Council felling and selling most of the surrounding plantations beforehand. The drought affected water supplies to the city for several years with further water restrictions imposed from January 1983 to attempt to achieve a 10% reduction in consumption. These restrictions were extended in February. The national requirements for decreased water consumption were raised to 30% in March and 50% in May. Water rationing was introduced, limiting households to 400 litres per day, and flat residents to 300 litres. All watering of gardens and sports fields, filling of swimming pools and ponds, and washing of vehicles was prohibited. Henley Dam contained only 11% of its capacity in September 1983, although fortunately water was also available from Midmar Dam, which could hold 30 times as much. A 59% drop in consumption was achieved, as shown on figure 4.5.

Remarkably, cholera was absent from Pietermaritzburg for the first 150 years of its history. It is first mentioned in the MOH annual report of 1974, with an epidemic, having spread from further north, reported in Rhodesia and Mozambique. At that time no cases had been reported in South Africa, but 528 people were immunised as a precaution. Cholera was mentioned

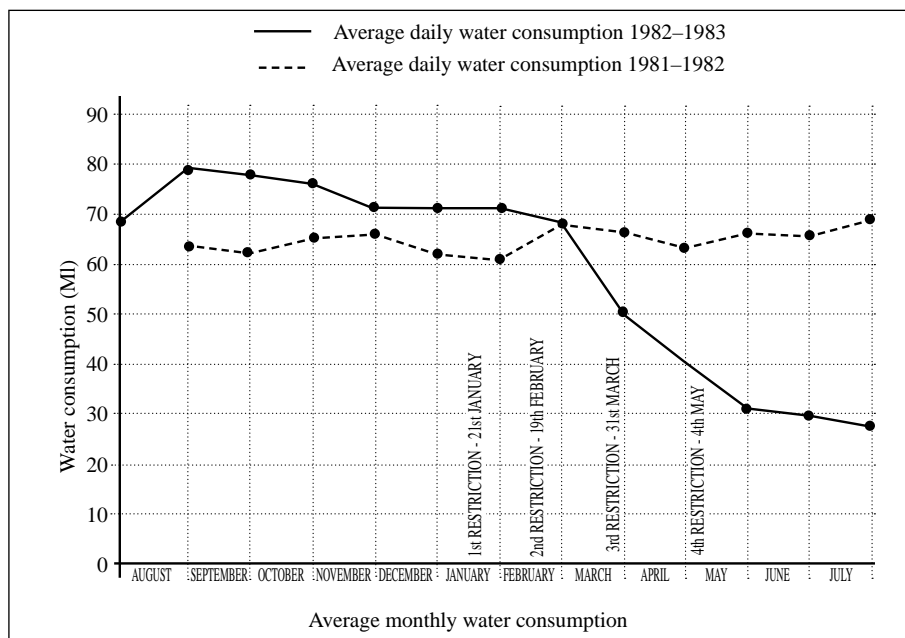


Fig. 4.5 Average monthly water consumption, 1982–1983.

again in 1980, when the MOH, Dr Peachy, reported that it was spreading throughout South Africa and had reached Natal and KwaZulu, although not yet Pietermaritzburg. The first clinical case ever recorded in South Africa was notified from Shongwe Hospital in what is now Mpumalanga province in October 1980, although sewer pads had tested positive in mines around Johannesburg.³⁴ More than 100 000 people were treated for the disease in the country over the next two years, from the Eastern Transvaal to the single men's hostels in Johannesburg.³⁵ Monitoring of the city's streams and sewage works was undertaken on a weekly basis using Moore pads, but proved negative for the *Vibrio cholerae* bacteria in both that year and 1981. Again in 1982 cholera was reported as a major health problem in the country, particularly in Natal, but was absent from Pietermaritzburg. Extensive health education was given in both the city and the peri-urban areas of Edendale and Vulindlela, and a joint task team was created with the Department of Co-operation and Development, which controlled Edendale, and the Department of Health and Welfare. A few Moore pads yielded positive results. By 1983 incidence in the country was declining, ascribed to the provision of safe water supplies in many areas (although much remained to be done in the rural bantustans), the effect of an intensive education campaign and the development of a herd immunity.

It remained present just across the borders: Maputo, capital of Mozambique, had over 1 200 cases in 1992. South Africa followed in the same year, after several cholera-free years, when it again presented at Shongwe Hospital.

Although drinking water was by now well treated and safe, the condition of the Msunduzi River, while cholera-free, had deteriorated drastically over the years due to huge population growth in the Edendale area, where most people were without proper sanitation or drainage systems. In the city the river was used only for recreation, such as canoeing, although beyond the municipal boundary it flowed through rural areas where it was used for many household purposes. Water supply in Edendale was still generally from communal standpipes; or springs and surface water in the Vulindlela area. A study in 1986 found that water sources for drinking were mainly unprotected springs (a minority were protected) with stream and river water used for washing clothes and bathing. No purified-reticulated water was available. Of 121 households surveyed all but ten had a latrine, all of the unimproved type. The outer walls were made usually of lengths of corrugated iron with wattle poles and pieces of sacking or plastic sheeting. They were generally down slope from the dwelling (75%), sites being chosen on the basis of space or odour. No one was aware of the danger of effluent seeping into springs and several were situated too close to the source of drinking water. Many were too shallow and ran the risk of surface runoff flooding during the rainy season.³⁶ Reliance on surface water in Vulindlela remained until the mid-1990s when extensive reticulated water supply was installed as part of a presidential lead project by the new, post-apartheid government.

Infectious hepatitis:

An infection of the liver caused by a variety of viruses or bacteria. Hepatitis A virus spreads by faecal-oral contact, carried by contaminated food and water, and may occur in epidemic form. Hepatitis B is typically spread by sexual activity or contaminated blood, and takes a more chronic form.

A severe outbreak of food poisoning occurred following a company Christmas party at a city hotel in 1984: 31 people were affected of whom eight were hospitalised. It was found to be due to *Salmonella*. An approach was made to the local branch of the Medical Association with a request that private medical practitioners notify such cases. An outbreak of infectious hepatitis at a pre-primary school and crèche occurred in 1986, with 32 cases diagnosed including some family members. Further outbreaks were reported in 1990, 26 cases in one instance. Curiously, strict controls over milk, which had done much to assist with the reduction in

extra-pulmonary tuberculosis, typhoid and other gastro-intestinal infections in the first half of the century, were now being relaxed under the heading of deregulation. Clearly complacency was creeping in, with the epidemics of earlier years receding from memory. Of the 73 samples of milk and dairy products tested in 1991, 26 were unsatisfactory.

The balance between deregulation, maintenance of health standards and adaptation to a changing paradigm was clearly a difficult and stressful one for all sectors of society. The Chief Environmental Health Officer, John Butler, tried to convey this: 'cries of horror greeted the environmental health officer as he investigated a ritual slaughter in the backyard of a house in what was once regarded as an upper class white suburb.' He felt that the average environmental health officer was 'unprepared socially, culturally and linguistically' and the principles underlying their training were questioned and challenged. Legal opinions were no longer so confident that what was a health nuisance in the past was a genuine health problem in the present. There were many issues that had been raised vociferously in the past from White residents in elite suburbs, such as white ants, overgrown gardens and noise, that were clearly not seriously hazardous to health; and the remediation of which was to a large extent humouring and pandering to that sector of the population with the vote. However, there were genuine threats from growing urban chaos – such as the rapidly increasing rodent and vector population from uncontrolled refuse, inadequate water and toilet facilities at informal settlements, and to a certain extent deregulation of milk and food handling – that had the potential to bring back long-forgotten infectious diseases. Ritual slaughter of cattle and goats in suburbia continued to be a challenge, both in terms of offending the sensitivities of the White community and sometimes for the genuine problem of disposal of blood, offal and other waste that found its way into storm water drains and caused odour and fly problems. Education and negotiation were seen as the solutions. By 1996 the city's environmental health services were fully engaged in Edendale, running educational courses for food handlers, traders, bakery staff and crèche owners; as well as undertaking routine inspection work of business premises, crèches and nuisances. One of the problems faced was that Edendale communities, unused to receiving a full environmental health service, seemed unaware that they could raise complaints about various health issues, which would then be attended to in a similar way to the 2 000 complaints received annually from the former local authority areas. Announcements at public meetings that people could now complain about such problems as

odours, noise, rodents, flies and mosquitoes were met with cries of disbelief and laughter.

During the twenty-year neglect of Edendale by national and provincial government, the population had grown greatly in size with no significant increase in water and sanitation development. The Council estimated that only 20% of greater Edendale was on water-borne sewerage: 15% had conservancy tanks that were not emptied sufficiently and the rest were using pit latrines. Violence had led refugees to flood into Edendale and many of them settled on privately-owned land in inadequate wattle and daub shacks. By the time the Council took over, there were up to ten families sharing 1 200m² sites that had inadequate sanitation or none at all and one standpipe for up to 150 families.

In 1998 Pietermaritzburg experienced one of its worse outbreaks of *Shigella* dysentery, which affected an old age home. Not notified to the local authority until eight residents had already died, altogether 36 residents were affected: thirteen were hospitalised and eleven died. The intervention of the infection control team of the Health Department prevented any new serious cases developing, but the incident illustrated the extent to which the reporting of infectious diseases had been forgotten by some general practitioners. In the same year a dramatic increase in hepatitis A cases was noted, coming mainly from a new housing development area in the Eastwood area: 140 cases were reported in all, compared with between 10 and 20 in previous years, peaking in the winter months. The rush to build new houses for the overcrowded African population, many of whom were living in informal settlements, had led to a push for quantity over quality. Sites had inadequate water supplies and no water-borne sewerage, with the expectation that people would use ventilated pit latrines. However, the sites were too small to allow for sufficient latrines and when the population of the small houses exceeded that anticipated, due to the desperate shortage of accommodation, the pit latrines rapidly filled up. There was inadequate space to relocate them and the soil was too hard and stony to dig by hand.

An urgent request to the Council to release additional funds to improve the sanitation system and provide additional water standpipes, plus health education, eased the problem. However, the broader issue of new housing developments relying on pit latrines for sites as small as 150m² continued. Experimental sewerage systems, such as the low-flush toilet, were tried together with communal toilets; but these often had unanticipated results due to lack of acceptance by the community or a shortage of money for toilet paper causing blockages by stones and other materials. Pollution of the Msunduzi

River at this time was up to over 200 000 faecal units per millilitre after heavy rain, indicating heavy ground water and surface contamination.

River pollution continued to be very high, sometimes in excess of 100 000 *E. coli* per 100 millilitres in the rainy season. River water below the Darvill sewage works was far cleaner than that above, due to the diluting effect of cleaner, treated effluent discharged into it. Major sources of pollution included parts of Edendale with very high water tables and no sewerage, such as Dambuza and Machibisa; and Edendale Hospital, where sewers frequently overflowed into the KwaPata stream due to blockages. One blockage caused *E. coli* levels to rise to over one million due to surgical equipment, bandages, gloves and even sheets forced down the sewer pipes. Fortunately, few people had cause to use the river water within the city as the supply of individual water connections and standpipes was quite rapid, along with water tankers to those few areas still without piped water. However, downstream outside the municipal boundaries there were still rural communities using river water.

Cholera again made its appearance in South Africa in August 2000, although only one case was reported in Pietermaritzburg. Initially the main outbreak was in the north of KwaZulu-Natal. The response from provincial authorities was very slow and cholera spread rapidly through the coastal areas. Unfortunately, as cholera occurred only sporadically in South Africa new government officials were unaware that once an outbreak had commenced, for every case there might be up to 200 carriers and the numbers could then increase exponentially. Action needed to be taken from the very first case. While the provincial Department of Health had sought to keep the first case of cholera in Imbali out of the newspapers, the city Health Department started a mass education and media campaign in September in order to enable people to start to protect themselves. Thirty-four thousand leaflets were distributed, targeting all schools, public transport, clinics, pension payout points, street traders and community and non-governmental organisations. Two thousand posters were put up and almost 900 health education talks given all over the municipality in the final months of 2000 to try to pre-empt the arrival of the disease. However, with the disease out of control in the rural areas it was only a matter of time before it reached the city: the first case was reported in Vulindlela in the village of Maswazini on 1 February. The initial cases presented as a severe outbreak: large numbers of people reported to Mafakathini clinic following a large party held in Maswazini. Some of the people at the house at which it was held had recently visited a cholera area. A joint operations centre (JOC) was set up by the MOH to include hospital managers, municipal disaster management

officials, Umgeni Water, the municipal water and sewerage engineer, and the provincial ambulance and emergency medical services (AEMS).

Investigation revealed the likely source to be contamination of food served at the party, possibly from fly breeding or personal contamination related to the extremely inadequate sanitation of the area. Households used pit latrines, few in number and poorly constructed. Maswazini was at the far western end of the municipality 50 kilometres from the centre of town. Due to the large number of cases from Maswazini arriving at Mafakathini, Elandskop and Mpophomeni clinics, the joint operations team established a rehydration centre in a community hall at Maswazini by 4.00 pm on Friday 2 February. The centre was largely supported by Edendale Hospital, which assisted with staffing, food, fuel, medicines and transport. Umgeni Water connected a temporary water supply and the municipality provided two additional toilets for staff, mattresses and blankets. The ambulance service supplied a generator and lights and an initial water trailer until the water connection was made. Beds and sundries were provided by the provincial Department of Health and city Health Division. Because the outbreak was mainly concentrated around Maswazini, no further rehydration centres were required. Edendale Hospital converted a hall into a rehydration ward.

An information centre was established by the Health Department and daily reports came to it from all hospitals and clinics for data processing. The latest statistics as compiled by the division about the outbreak were presented at each JOC meeting and to Council, and forwarded also to the provincial Department of Health. Every suspected or confirmed case from a new area was investigated immediately by environmental health officers, who visited each hospital every morning to get information about the latest admissions. The department also received flash reports of cases from clinics and hospitals as they occurred. Each case was investigated according to a specific protocol, which included visiting the home and neighbours if necessary. Detailed assessments were made to try to ascertain the source of infection and possible contacts. An intensive health education and door-to-door sanitation inspection, treatment and information programme was undertaken, and the Municipal Manager authorised the assistance of other departments in outbreak control. The programme was co-ordinated by the Chief Environmental Health Officer and his staff worked in conjunction with the Community Development Unit and Urbanisation Unit. A team of approximately 30 people was ultimately involved and undertook an extensive systematic programme of health education throughout the whole of the municipality using a variety of methods including community meetings.

Altogether they reached over 52 000 people, 15 300 of whom were personally addressed by door-to-door visits. A further 95 000 leaflets and 3 200 posters were distributed, and 3 500 toilets were treated with biological activators or chloride of lime. A list of the worst pit latrines in the informal settlements was compiled and the Health Division was granted emergency funding by the Council in order to pay the City Engineer's Department to clear 100 of them. In addition, extensive use was made of the media, who were very helpful. There was a double page spread in a *Natal Witness* supplement, articles in other newspapers, radio coverage and 60 000 leaflets were inserted in Council utility bills.

Umgeni Water undertook to address problem areas in Vulindlela with tanks or temporary standpipes, although most areas had clean, piped water. However, at the same time it was engaged in a policy of water disconnections for non-payment of water bills. It took the personal intervention of the City Manager with the Chief Executive Officer of the Umgeni Water authority to have this policy suspended for the period of the outbreak. The City Engineer's Department commenced an emergency tanker supply to all those municipal areas where there were shortages of piped water. All rivers tested negative for cholera in the area and were monitored regularly using Moore pads. Altogether, 804 cases were reported, the majority around Maswazini, with thirteen deaths within the municipal area. Treatment protocols were well established and the provincial health services managed this aspect well: the case fatality rate was only 1.6%. Most cases could be related in some way to the original party. Analysis by area showed that the cases related more closely to areas of inadequate sanitation than to water supply as virtually all affected communities used reticulated water for drinking. A second consideration was the impact of social customs and events on the spread of cholera. The initial outbreak, and many others throughout the province, was linked to large parties or gatherings; and practices around sanitation, personal hygiene, traditional hand washing techniques (sharing one bowl of water) and the washing of nappies in streams or rivers due to limited piped water. As a result of the swift, comprehensive and door-to-door response strategy the outbreak was swiftly brought under control, possibly aided by the facts that the disease never entered the rivers or streams and that most people used piped water throughout the municipality. As can be seen from figure 4.6, the outbreak was under control within five weeks.

The outbreak was very disruptive to the normal work of the municipality with 30 staff involved for three weeks and about ten for the entire episode. The routine work of much of the Health Department ceased. The work of the

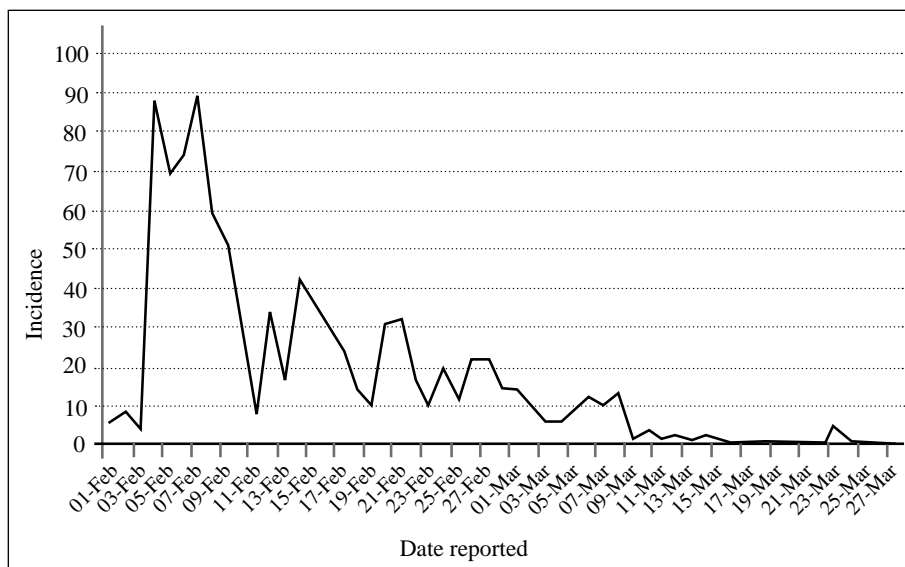


Fig. 4.6 *Cases of cholera reported during the epidemic in Pietermaritzburg, 2001.*

City Engineer's Department (Sewerage Branch) was disrupted as it diverted resources to empty problem pit latrines. The JOC, however, worked very effectively with all departments co-operating fully, sending senior officials who were able to take decisions. No problem arose in dealing with the outbreak that some department or organisation was not willing to take responsibility to resolve. It brought together not only municipal departments but major organisations across the city such as Umgeni Water, the hospitals and AEMS in a practical and professional alignment.

It was estimated at that time that 95% of the population of the municipality had access to clean water for drinking purposes. In Vulindlela very few people were using surface water for drinking. Problems arose not so much from the availability of piped water, but more from the continued threat of large-scale disconnection from the water service provider, Umgeni Water, which would have forced people back to the use of river water. The implementation of the government's Free Basic Water policy (six kilolitres per month for poor families) and its extension to Vulindlela was anticipated to alleviate remaining water problems and to encourage connection to the mains of the few people outside the reticulation system. There were still people in the municipality using communal standpipes and while this gave sufficient water for drinking and cooking purposes it may have discouraged adequate personal hygiene

and washing of cooking utensils, clothes and nappies. It was demonstrated, however, that cholera was geographically related to those areas without water-borne sewerage. The worst hit areas – Maswazini, Mafakathini, Elandskop and Taylors – did not even have sanitary pit latrines. The estimated total number of households there was 4 000. Later that year the Health Department secured funding for the installation of 450 sanitary ventilated improved latrines in the worst-hit cholera areas. This was followed up in later years by further funding in a continuous programme.

While the cholera outbreak was drawing to a close, the city was then hit with an outbreak of viral encephalitis, thought also to be faecal-oral spread. This commenced in schoolchildren and spread to several schools in the city, possibly because siblings were at different schools, leading to the temporary closure of two of them. Assistance was obtained from the national Department of Health in Pretoria, which had experience of a similar outbreak in Gauteng and was very helpful with technical details.

Letters were sent to every school in the area with advice about how to handle cases of encephalitis or headache and other symptoms; and boarding establishments were visited to advise on hygiene measures. Newspapers were provided with correct information and advice for the public. An information system was

Viral encephalitis:
An acute inflammatory disease of the brain due to viral infection that may cause fever, headache, decreased level of consciousness and seizures.

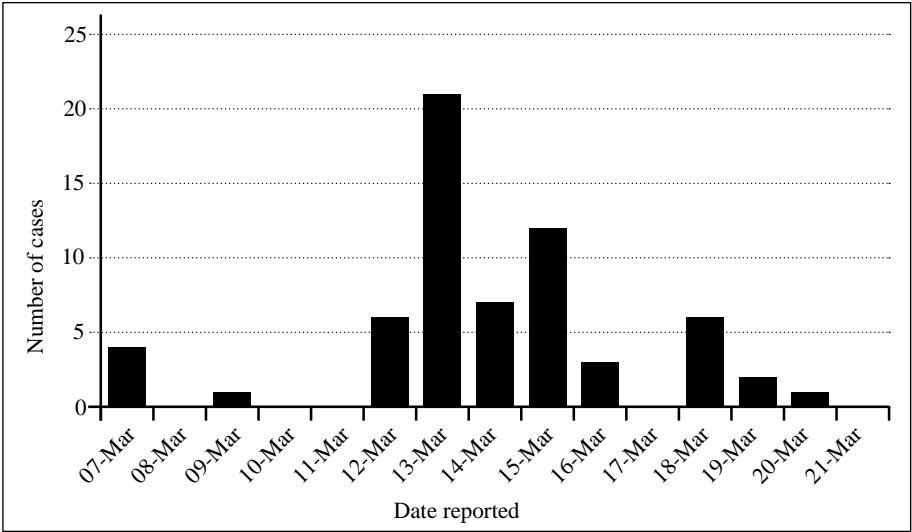


Fig. 4.7 Encephalitis outbreak in Pietermaritzburg, March 2001.

put into operation: daily case reports were obtained from schools and hospitals and data collected on age, sex, address, school, diagnosing doctor and date of onset. All doctors were contacted to request detailed information, prompt reporting of further cases and submission of samples. The University of Natal Department of Virology and local pathology laboratories assisted with collection and analysis of samples. Altogether there were 63 cases and one death. The progression of the outbreak is shown in figure 4.7.

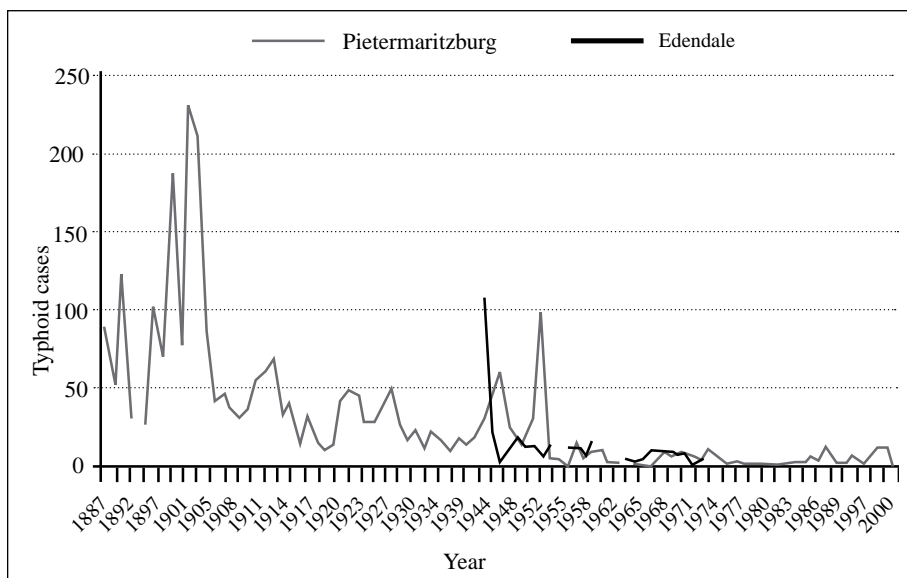


Fig. 4.8 Reduction in number of typhoid cases in Pietermaritzburg and Edendale (under Local Health Commission), 1887–2000.

By 2008 there was a realisation that sewerage was a major issue for the city and that a water-borne system for the whole population was the only way to go. While new, clean pit latrines may be the only solution in the short term for the rural areas of Vulindlela, with adequate space to relocate them when full, they would never be adequate in densely populated urban areas. Moves were underway to replace the conservancy tanks in Edendale and a decision was taken that all new housing schemes, even low-cost mass housing, should have water-borne sewerage.

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- 5 A.F. Hattersley, *The Natalians* (Pietermaritzburg: Shuter and Shooter, 1940): 19.
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- 7 A.F. Hattersley, *A Hospital Century: Grey's Hospital Pietermaritzburg 1855–1955* (Cape Town: Balkema, 1955): 49.
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- 23 *Epidemiological Comments* 18(3) 1991: 70.
- 24 'Report of the Borough Engineer' *Pietermaritzburg Corporation Yearbook* 1914–15: 107.
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THE EARLIEST REPORTS of the food of the original Zulu inhabitants of Natal mention neither a general shortage nor poor nutrition. The area was described as having countless wild animals, with elephants, lions and antelope of various kinds in the countryside, and hippopotami and crocodiles in the rivers. Russell describes the Zulus as 'living in the midst of plenty. They had cattle, sheep, goats and fowl in abundance, fruit and vegetables, bread and corn'. Vegetables that grew well included pumpkins, squash, calabash, sweet potato, *amadumbi* (an indigenous root crop), potato, beans, and millet for making beer.¹

Emigration from the United Kingdom came at a time of Irish famine and intense industrial depression in England and Scotland. Hence, the prospect of available fertile land was an incentive to come to Natal. Colonial Office regulations required that assisted emigrants should be either agriculturalists or rural artisans. However, many of those who came out under the Byrne scheme were not.²

The earliest settlers started to export livestock and butter from Natal to Mauritius from 1846, so we can assume that meat and dairy products were plentiful and formed a significant part of the diet. By 1840 a mill had been erected to grind corn and by 1846 Indian corn and meat were described as plentiful and cheap by Donald Moodie, Colonial Secretary of Natal. The settlers brought from Yorkshire between 1848 and 1850 were experienced in farming in conditions similar to the Natal Midlands and brought produce to Pietermaritzburg in ox wagons. Pietermaritzburg was then described as 'a small village with dirt streets, a few shops, too many canteens and a number of isolated dwelling houses on their own erven'.³ The climate was described as delightful, free from extremes of cold and heat and 'realised, as nearly as any land, the idea of eternal spring'.⁴ On the top of a hill overlooking the town was Fort Napier, to which locals sold farm produce and butter. However, some complained that 'the soldiers were competing with local citizens in the cultivation of anything from cabbages to horse fodder.' Around Pietermaritzburg

peaches, apples, pomegranates and quinces grew well. John Moreland, agent for the Byrne emigration scheme, planted in his garden in Pietermaritzburg Street all kinds of vegetables; along with apple, pear, pomegranate, quince, guava, cherry, fig, lemon, orange and other fruit trees, which all grew well.⁵ Thomas Botterill, a former Yorkshire farmer, found that he could raise three crops of oats within eleven months.⁶ At the Pietermaritzburg Fair of 14 May 1852, in the tent of the Agricultural Society were displayed pineapples, aubergine, ginger, arrowroot, turnips, carrots, celery, cabbages, potatoes, radishes, sugar cane, pumpkins, butter, bacon, biltong, ham, cheese, jam and vinegar. In that year the town was still largely agricultural in nature, with 50 out of 443 households describing themselves as farmers.⁷

Initially, vegetables were described as expensive, but by the 1860s the Yorkshire farmers were supplying more produce on improving roads and sheep were thriving to the north in Umvoti. In most areas two crops a year could be grown. In 1854 the Belvedere flour mill was erected on the banks of the Msunduzi River to grind wheat brought down from the interior, but it closed in 1856 as large amounts of American and Cape flour were imported into the colony. Some coffee was grown during the mid 1850s, but did not survive the decade.

For the indigenous population the situation regarding agriculture was regressing. In 1846 a commission had been established to identify land to be set aside for the 100 000 Africans in the province to settle on so-called locations, where they could maintain their own laws and traditions. The first location was established at Zwartkop, near Pietermaritzburg, for about 8 000 people and demarcated in November 1846.⁸ While the tracts of land were large, they were described as 'such as Natives alone could use, being exceedingly rugged and mountainous, and only fit for such people to occupy'.⁹ Stated another way, this land was all that the immigrant farmers could not use for agriculture, working on the assumption that the Africans did not wish to engage in farming. It was also suggested that placing Africans on the rocky and mountainous lands could be useful in ridding the province of dangerous wild animals that could lurk there: 'were they not inhabited by [Africans] they would soon become such a den of wild beasts as would be a great scourge to the adjacent farms'.¹⁰ Holden goes on to comment that 'All these lands... are occasionally visited with severe drought, and by destructive swarms of locusts, to say nothing of other wasting insects and animals of various kinds' and suggested that confining an agricultural and pastoral people to these lands was to sentence them to their doom. He estimated that one hundred times as

much land per capita was allocated for Whites as for Africans. The Africans were then ordered off all private land and the neighbourhood of the towns, where no squatting was to be allowed. All this must have had a great impact on the availability of food for the African population and was a hotly-debated issue at the time. Some were of the view that giving freehold title to land for those who were engaged in agriculture would encourage movement from a traditional to a Western lifestyle that would reduce the threat of clashes of culture in the future.¹¹ The area of Edendale was such an example: Africans retained title to their land and engaged successfully in agriculture, supplying the Pietermaritzburg market.

By 1863 immigrant agriculture was described as producing oats, Indian corn, potatoes, cheese, butter, bacon and poultry. The settler farmers were doing well and there was a good market for their produce in Pietermaritzburg. Cattle came more from the upper regions due to lung sickness amongst cattle in lower areas. Meat was inspected in slaughter houses by a municipal inspector and there was a thriving market in the town. Clearly for those settlers arrived recently from the industrial north of England there was a great improvement in the quantity, variety, freshness and quality of food available and this probably impacted on their health. Holden compared the advantages thus in 1855:

there [England] the small capitalist must run a sharp race to avoid losing what he has got, and being reduced to poverty in his old age...whilst here, after struggling for two or three years, he becomes independent. He has his own ground, produces his own vegetables, butter, poultry etc, his cattle go on increasing without cost...As for the labourer in England, he must labour on to the end of his life, with the prospect of spending his days of sickness or age in a poor house, whereas here he would...in a few years be able to occupy his own land and become a small farmer.¹²

Presumably in an effort to assist in agriculture, *The Natal Almanac* included extensive details of how and when to plant fruit and vegetables of all kinds – which month, soil types, how to plough for crops and how to raise animals. The maintenance, weeding, compost making and other activities required were elaborately described.¹³ How extensively this was read is not known, but it illustrates a commitment to spreading knowledge about farming and agriculture to the population that is not so comprehensively undertaken today and must have been helpful to the cause of nutrition and food sufficiency. However, in the next decade the rush to the diamond fields and the diversion of capital to transportation and other activity took its toll on agriculture. A drought in the mid-1870s caused many crop failures and flour, butter, cheese and lard had to be imported. The price of vegetables, eggs and butter rose

sharply. Varieties of meat eaten at the turn of the nineteenth century included, along with the usual beef, mutton and pork products (all parts were eaten including the heads) various fowl, including partridge, quail, hadedas (large, common birds), guinea fowl, doves and pigeons. Fruit appeared varied, with oranges, peaches, dates, apricots and bananas listed. This must have been an improvement on the diet available to the average person in Europe.

The African population was adapting rapidly to the European style of agriculture. David Buchanan, editor of *The Natal Witness*, wrote in 1870 that 'perhaps the most striking feature of the Kafir character is his energy and industry as a farmer'. He continued, 'the thousands of acres that have been ploughed up...and the hundreds of wagons they possess, are conclusive proof of their readiness and fitness to become agriculturalists'.¹⁴

In 1878 the farm land of Wilgefontein, to the south of Edendale, was acquired for the settlement of more immigrant farmers. The resident Africans were evicted by 30 June 1879 and the area was divided into 40 allotments. One hundred and thirty seven settlers and family members, most of whom had farming experience, arrived in Durban on 12 July 1880. There they received tents, bread, meat and groceries; and travelled by train to Inchanga, then by ox wagon for three days. The land had recently been burned and was black and uninviting, so several withdrew immediately. The rest struggled on, and



The original Pietermaritzburg Market circa 1902 (Souvenir of Maritzburg, photographs by L. B. Jensen, S.A.P. & Co. [circa 1910]).

sold their first produce of potatoes and mealies in the Pietermaritzburg market in June 1881. They also planted 10 000 trees over four years. But by 1889 there were only 65 left and some of them had rented out land to the African population to supplement their income. By 1892 the settlement had mostly broken up as people migrated towards the urban area.¹⁵ The area was eventually incorporated into Pietermaritzburg in 1996 as the suburb of Willowfontain.

The Asian community, which had arrived from 1860 as indentured labour, was by the 1870s and 80s being relieved of its commitments to service. The Protector of Immigrants Report of 1882 notes that 1 716 Asians received discharge certificates in the province that year and many went on to lease land and take up farming. In particular, they grew maize, tobacco and garden produce; and were generally very successful at it in competition with White farmers. By the start of the twentieth century, Asian traders were prominent in African areas, buying their produce for sale in towns. In African locations agriculture was going well with cattle, corn, pumpkin and other produce. In Edendale, the Reverend Daniel Msimang, one of the early settlers, had two houses on 89 acres of land and owned considerable numbers of oxen, cows and goats, but the success of the African farmers was starting to upset the White population. The Umgeni Magistrate wrote in 1880 that the labour supply 'has year by year become more inadequate as the Natives become richer, and yearly cultivate a large acreage with the plough'.¹⁶ By the late 1880s, Africans and Asians were debarred from selling in the Market Hall and the commission charged to them by the Council was higher than that for European farmers. The District Health Officer thought food was abundant and health generally good in the African areas, although he estimated a high prevalence of intestinal parasites (between 21% and 50%) including tapeworms, roundworms and whipworms.

One of the major transformations in African farming was the shift away from millet and sorghum, which had previously been the major source of starch, towards maize production. Maize was more marketable and less labour intensive, and started to become a primary source of both income and nutrition by the end of the nineteenth century.¹⁷ Africans had become highly successful and efficient producers of grain and meat and by 1894 were exporting maize to the Cape. By then White farming interests dominated government. While a series of natural disasters took its toll on all farmers – drought in the 1890s and 1900s, rinderpest in 1897 and East Coast cattle fever in 1904 – only White farmers were eligible for state loans to help them recover.¹⁸ The immediate consequence of the rinderpest epidemic, which eliminated many cattle, was

a loss of important nutrients from rural diets, including animal fats, protein, vitamins A and C and calcium. This may well have reduced African resistance to disease, in particular tuberculosis.¹⁹

The tendency by Africans to form syndicates and purchase White farms, on which they undertook sharecropping or worked as labour tenants, was one of the catalysts for the Natives Land Act of 1913, along with a growth in the number of squatters. This farming competition, along with the decreased availability of labour to White farmers, interfered with the traditional master-servant relationship.²⁰ The Natives Land Act limited the areas set aside for Africans to purchase, hire or sharecrop to within existing African reserves and African-owned land – about 8% of the total land of South Africa – thus transforming these arrangements into labour tenancy and bringing all tenants under the Masters and Servants Act.

In 1918 a report was written by Maurice Evans entitled 'The Native areas in Natal recommended by the Natives Land Commission' and it investigated the allocations of land between Africans and Whites. The report noted that at the time 43.1% of the area of Natal was proposed for Native occupation and 56.9% for Whites. He remarked that there were approximately 100 000 Whites in Natal, of whom more than half lived in towns; and approximately one million Africans. From this he calculated that 156 acres of land were allocated per head for Europeans and 6.8 acres per head for Africans. He noted that the prevailing view amongst White farmers was that 'Natives only desired a small amount of land on which to undertake subsistence farming'.²¹ However, he had discovered in his inspections of the province that there were many who had taken to larger-scale commercial farming and that the land allocations were therefore iniquitous. He also noted that the value of the White lands, in terms of their suitability for agriculture, were very much higher than those allocated to Africans, which tended to be on steep gradients and drier. The uneven distribution of land, in terms of both quality and quantity, would have impacted on the ability of Africans to secure sufficient food, either through subsistence farming, hunting, or commercial farming. Recommendations were made to set aside larger areas for them to purchase. However, in 1927 Lord Olivier noted that thirteen years after the Land Act, 'no additional areas have been opened for native occupation. On the contrary the evictions of native tenants who have nowhere to go have been rigorously carried out by the farmers with harrowing results'.²² A further 4% was eventually added for Africans under the Native Land and Trust Act of 1936, but this was still insignificant in proportion to that reserved for Whites. While Africans were

originally self-sufficient in food, in the first half of the twentieth century the reserves produced perhaps half their needs.²³

In 1917 the first medical inspection of schoolchildren in Natal was undertaken. One of the lessons Britain had learned from the Boer War was the urgent necessity for the supervision of the health of children of school age. In this matter the British lagged behind the European nations: Germany, Denmark, Sweden, France and Russia had commenced school health monitoring between 1880 and 1895. In England, a Royal Commission was appointed in 1903 to investigate the health of schoolchildren after a high percentage of army recruits were rejected because of physical defects. In 1905 a second Committee found 'beyond any doubt that large numbers of school children were suffering from defects which not only hindered them in their school work, but would last until adult life and render them more or less inefficient citizens'.²⁴ Medical inspections by local education authorities were made compulsory in England in 1907 for primary schools and extended to secondary schools the following year. In his report of 1916 the Chief Medical Officer of the Natal Board of Education said that a year earlier there were 'not less than a million children of school age as being so physically or mentally defective or diseased as to be unable to derive reasonable benefit from the education which the state provides'.²⁵

The 1917 inspection of White schoolchildren in Natal surveyed 1 893 boys and 1 612 girls. Of these, 14.9% of the boys and 10.6% of the girls were malnourished, although this was severe in only one boy and one girl. Free school meals were provided to needy children. Rickets was almost totally absent, attributed mainly to the higher exposure to sunlight than in England. A second inspection was undertaken in the following year in which an increase in malnutrition was noted: up to 21% of boys and 14.5% of girls. This was ascribed to the increased cost of living. The higher rates in boys were put down to their greater energy requirements due to physical activity. Free school meals were recommended for all White schoolchildren, along with the introduction of child welfare clinics. School boarding hostels were available to needy children living more than three miles from school and these aimed to solve the problem of malnutrition in schoolchildren from country districts. An examination of 222 students at African training colleges in the same year showed 14.8% malnutrition, a similar figure to the White students.²⁶

Unlike Europe, food supplies remained adequate during the years of the First World War, but in the early 1920s an increase in malnutrition in White infants in Pietermaritzburg was noted, with several deaths from marasmus.

In 1922, the Health Department provided baby milk formula and milk coupons, which were given from the new Mothers and Infants Clinic after a home visit by the Health Visitor on condition that there was regular attendance at the clinic. This was only for White and Coloured infants. The situation regarding their nutrition improved with the incidence of marasmus decreasing among Whites.

Attempts to promote the nutrition of African workers were made with the introduction of Native eating houses to supplement the beerhalls. At the Pietermaritz Street eating house six butcher stands were rented out, along with five cubicles for the sale of commodities and twenty tables for the sale of food by African cooks. The food was cooked on the premises and served in the eating hall. It was described in 1925 by the Mayor as being 'of wholesome quality, bakers bread with fresh butter and a cup of tea may be obtained at any time during the day, while curries, stews, roasts etc, together with vegetables in season, are served on payment of 3d a plate'.²⁷

Cleanliness was under the supervision of the Department of Native Administration. A Native butchery was opened on similar lines in 1924 with a second eating house at Mason's Mill.

For the African population, malnutrition was rarely mentioned in the reports of the Medical Officer of Health (MOH) until the economic depression of the 1930s when it was noted that poor nutrition and poverty were contributing to high rates of pneumonia, tuberculosis and whooping cough. It was stated that 'poverty has, very generally among the Natives, led to an inadequacy of diet perilously near the starvation line, and the absence of nourishing food is a cause predisposing to lung

Marasmus: A form of malnutrition due to inadequate energy intake, giving rise to wasting, weight loss, hunger, growth retardation and loss of fat and muscle.

**TOWN HALL, MARITZBURG,
NOV. 22nd & 23rd, 1916.**

**YOU KNOW WHAT OUR BOYS ARE DOING FOR YOU
WHAT ARE YOU DOING FOR THEM ?**

SEND YOUR CASH to the Treasurer, Mr. D. Sanders, Town Hall.

PRODUCE—Advise Mr. A. Saville, 297, Church St., of all contributions.

MERCHANDISE—Receiving Depot, next to Mason & Broadbent, Church St.

POULTRY & EGGS—Advise contributions to Secretary, Natal Poultry Club, Maritzburg.

LIVE STOCK—Advise Mr. D. F. Forsyth, Maritzburg

Produce marked "Natal War Market" may be consigned at any time to the Market Master, Maritzburg, who will dispose of same for the benefit of the Fund.

All contributions will be acknowledged through the medium of the Press.

All gifts and contributions will be carried **FREE ON RAIL** from any Station.

All information to be had from Organising Secretary, Town Hall, Maritzburg.

infections'.²⁸ Farmers suffered from a fall in demand, and hence prices, as well as a severe drought that left many on the brink of bankruptcy. The economic situation deteriorated rapidly and by late 1930 unemployment was a serious problem. A group called the Grouzers was formed to alleviate distress and they opened a soup kitchen to feed the White hungry: by the end of December it was feeding 600 people.²⁹ In 1935 the MOH stated that there was a need for improved nutrition, particularly of children. He felt that this was largely a question of education: 'the public needs to be taught not only what to eat but also how most economically it can get the necessary items of a diet that is well balanced for health'.³⁰ In particular, one pint of milk a day was recommended. However, it appears there were still very few deaths from dietary causes, with none recorded as such in the 1930s. The variety of food available around the city included game, with venison, dressed fowls, duiker and hares mentioned in meat inspections; along with duck, turkey, cattle, calves, sheep, pigs and goats. Dr Anning noted that Pietermaritzburg was fortunate to lie in the centre of an agricultural district: fresh animal and vegetable foodstuffs could readily be brought for sale into the city. He stated that 'In Pietermaritzburg it is not so true as in many other towns that the hall-mark of a good housewife has come to be her skill in opening tins'. However, the ease with which fresh foods could be produced and sold tended to make the sellers careless in their methods of protecting produce from contamination by dirt, dust and bacteria, and many hawkers paraded their produce in unprotected open boxes on rough handcarts. There were 371 licensed hawkers in 1933, the high number being related to the increase in unemployment at the time. Special care was taken by the Health Department to ensure that blown tins did not find their way into small shops in the poorer quarters of town. Dr Anning quoted a saying that 'all handling of natural food increases the cost and diminishes nutritive value'³¹ and hence felt that canned foods, millers products and refined foods should not be permitted to replace natural foods, like wholemeal wheat, eggs, milk and green vegetables.

Conditions in Edendale deteriorated during the years between the world wars. While great efforts were made to assist Whites during the depression through employment creation, it was often at the expense of the African population. Council retrenched 20% of its Black workers, some of whom had worked for it for many years, to make way for unemployed Whites.³² Food production continued at a reasonable level in the Sweetwaters and Edendale areas, although their population density was increasing due to migration from the rural areas and laid-off workers. By 1933 the population at the Wesleyan

settlement was 5 000. The Thornton Committee on Health in 1938 described poor sanitary conditions, with badly ventilated wattle and daub structures. It had been hit by faction fighting and tensions between those who owned land and those without access.³³ Poverty, overcrowding and lack of space to grow their own food started to impact on African residents' nutritional state.

Deterioration in the health of Africans followed on from a diet short in protective foods, such as milk, meat and vegetables. Mealies (maize) with a shortage of protein and vitamin B were the staple.³⁴ It was a diet largely composed of a single starch, whereas sorghum had been a more nutritious source of calories than maize, to which most African farmers had converted. If vegetables ceased to be consumed on a regular basis, a maize-based diet was inferior to one based on sorghum or millet. Various studies on the diet of urban Africans between the wars concluded they were not paid a wage that permitted the purchase of an adequate diet. Diets consisted largely of lower-priced starches, mealie meal and bread, with few resistance-building foods such as milk, fresh fruit and vegetables.³⁵ At a national symposium on nutrition in 1939 it was noted that poverty was the main cause of malnutrition. It was 'partly due to causes within our control, and for which we have to accept responsibility. Among these are our economic organisation, and our policy of restricting the free use and division of labour according to its capacity, so as to serve a definite social policy'.³⁶ It was also noted that male hostel dwellers were frequently badly fed and had nutritional deficiencies, a side effect of being removed from family meals.

At the same symposium milk was seen as a priority food to maintain nutrition and protect, in particular, against tuberculosis. The nutritional status of the White community continued to raise concern. A national survey of White schoolboys in 1938 had shown that as many as 48% in Transvaal were considered malnourished. Natal fared the best of the four provinces, with only 16.5% showing signs (and there was little evidence of stunting or severe malnutrition.) The use of milk and vitamin C supplementation was recommended.³⁷ Hence the national government ran a free milk distribution scheme aimed in particular at schoolchildren. Cheese and butter were also distributed. In 1939 the City Council decided to take over the administration of the State-Aided Butter Scheme for needy White and Coloured families, the aim being to introduce a valuable protective foodstuff, which was in surplus, into their diets. During the year, 12 549 pounds of butter were distributed, 8 572 pounds to 140 Coloured families. MOH, Dr Maister, hoped it would be extended to African and Asian families and include other surplus South African

produce. Milk was also distributed by the Infant Welfare Clinic and in 1939 allocation was made of 12 220 pints, 868 to European, 4 889 to Coloured, 483 to African and 5 980 to Asian families. The concept of sub-economic housing was also seen as a way to improve urban nutrition by allowing a greater percentage of income to be spent on food.³⁸

The situation regarding the Asian population was also deteriorating. While many were market gardeners, lack of ownership of land impeded their ability to develop. Burrows reported that 'the typical Indian market garden family of today cultivates a small plot of ground on an intensive but primitive basis, and on a monthly or yearly lease with no security of tenure...such a family lives congested in a poor sort of temporary shanty without adequate water supply, lighting or sanitation – a favourable breeding ground for diseases such as dysentery'.³⁹

In a health survey of African schoolchildren published by the Union Health Department in 1944, 44.5% of the boys and 43% of the girls in Pietermaritzburg showed signs of malnutrition. "The thin, round-shouldered, flat-chested, pot-bellied child with spindly legs was such a common sight that it can only be concluded that many were on the borders of starvation".⁴⁰ During the war years shortages of staple foodstuffs were experienced and the rising cost of living and food scarcity were noted to be aggravating the problem of malnutrition amongst non-Europeans. The report of the Manager of the Native Administration Department for 1946 stated that 'the Natives in Pietermaritzburg, in common with other races, experienced great difficulty at some periods of the municipal year in obtaining an adequate supply of foodstuffs'.⁴¹ The reason – a world-wide shortage – was explained to them by a touring motor van with a loudspeaker. They were urged to grow more vegetables in gardens and allotments, and additional allotments were hired out at a nominal rent. A municipal mobile market also visited the native village, named Sobantu in 1947. The distribution of butter continued through the 1940s: 6 866 pounds in 1945, but still only to Whites and Coloureds. The same year, 27 527 pints of milk were distributed to infants of all races, if necessary up to the age of five years. Deaths attributed to malnutrition during the war years were few, with seven African deaths ascribed to beri-beri in 1943. However, also that year 41 deaths from malnutrition were recorded as 'out of borough', suggesting the situation was worse outside the city. A similar situation pertained in 1944, with ten deaths of borough residents, but 55 from outside the city. A national feeding scheme providing one free meal per day to primary schoolchildren of all races was introduced in 1944. But the Bantu

Education Act of 1953 effectively led to the disintegration of the scheme for Africans.⁴²

Businesses of various kinds were regulated by by-laws relating to licences and licensing procedures of 1945, which replaced the trade licence by-laws and schedules of 1937. The era of racial and gender discrimination weighed ever more heavily, affecting food and drink: section IV(8)(a) stated that 'no person shall in any European restaurant, refreshment or tea room serve or supply any Native with articles of food or refreshment for consumption in such restaurant, refreshment or tea room'; and 8(c) that 'the licensee of any eating house shall not permit any white woman to be on the licensed premises unless her presence thereon be bona fide in connection with the conduct of the business of the licensee'. A restaurant for Africans was erected in 1948 in Otto Street and leased to the African-run Umgungundlovu Co-operative Trading Society. According to Mayor Hirst, it was 'designed on modern lines with facilities for electric cooking and refrigeration and is yet another step forward in the Council's progressive attitude towards the well-being of the Non-European section of the community'.⁴³ It was regarded as probably the first of its kind in the country. However, by the 1960s ownership of such African restaurants was reserved for Whites by national government.

Sixteen deaths of residents, nine of them infants, were attributed to malnutrition in 1950. The nutritional state was felt to be worsened by intestinal parasite infestation, which the MOH of the Local Health Commission (LHC) in Edendale felt to be extremely common. Ascariasis was estimated at almost 100%. By 1948 the State-Aided Butter Scheme had been abandoned, but margarine was available instead from mobile distribution depots operating at various sites in the city. Some 30 000 pints of milk were still distributed. It was noted in LHC clinics that babies had a high carbohydrate (mainly maize meal), low protein and low fat diet, and full cream dried milk was given out at in Edendale, together with condensed milk, some free and some at subsidised prices. The LHC also brought in supplies of pasteurised milk and there were plans to supply ice cream and amasi (sour milk) in addition. Free milk was given to the indigent, infants and people with tuberculosis. There were 34 deaths from malnutrition in the Edendale area in 1949. The LHC ceased supplying pasteurised milk to the general public in the early 1950s as it was felt by then that private retailers could meet the demand. However, malnutrition was noted to be increasing – the direct mortality was 5.5 per thousand in 1956 and for many more it was a contributory cause of death. The LHC provided welfare services in the township with various programmes to assist people. It

helped them apply for the many different kinds of grant available from the government, such as pensions and disability grants, and for poor relief from the Pietermaritzburg Native Commissioner. It was noted that government grants were usually paid only three to four months after application, which caused great hardship.

The LHC tried to assist with poor relief rations and encouraged the establishment of vegetable clubs as a means to improve nutrition. Vegetables were bought in bulk at the market in Pietermaritzburg then distributed at retail prices. By this means families could obtain a selection of vegetables for 2s 6d worth 7s at retail prices. In addition, people with tuberculosis could get extra food support if necessary. An allowance of one pint of milk per day, two pounds (just under one kilogramme) of meat per week, one pound of margarine and 2s 6d of vegetables were given to up to 100 patients. The cost was refunded by the national Health Department. Meat and milk were supplied on a voucher system from local traders. Further supplements given to needy families included cocoa, dried milk and sugar. Dr Seymour, LHC Medical Officer, noted that malnutrition, although not always recorded as a cause of death, was certainly a contributor and stated that 'the factors contributing to malnutrition among children, although basically economic, are really the results of the decline in the social system of the Bantu, the break up of stable family life'. This view was repeated in 1962 when mentioning the problems of malnutrition and kwashiorkor in Edendale; and in 1963 the LHC implemented the state-subsidised Skimmed Dried Milk Scheme that helped 120 children in its first year, rising to 600 in 1964. In addition, there was a fresh milk distribution scheme at schools and 5 000 pre- and schoolchildren were given a mug of milk per day. This programme of extensive milk and food distribution was thought by Seymour in 1964 to be lowering the number of cases of kwashiorkor. There were at this point in Edendale ten butchers, getting meat from the municipal abattoir, four dairymen and 46 milk purveyors.

Kwashiorkor: A form of malnutrition due to protein deficiency, with affected children showing signs of oedema (swelling), flaky skin rash, thinning of the hair and retarded growth.

Provision of milk continued in the city throughout the 1950s and 1960s, with some 47 000 pints of fresh and dried milk distributed in 1967. The large amount of supplementary foodstuffs distributed by both the Health Department, some supplied by the national government, and non-governmental organisations such as the Natal

Anti-Tuberculosis Association and others, was thought by the Pietermaritzburg MOH to be one of the reasons why kwashiorkor was rarely seen in borough residents. In fact, malnutrition of any form is scarcely mentioned in his annual reports. However, while kwashiorkor was not mentioned, it seems scarcely plausible that malnutrition could have existed in Edendale just two or three kilometres outside the borough boundaries and yet not be present within them when social conditions were similar. It was more likely that there was chronic under-nutrition, causing stunting and increased susceptibility to disease, with extensive welfare and food distribution services keeping extreme malnutrition or starvation at bay. It is also possible that the economic boom of the 1960s improved the situation generally, although the low wages paid to African workers would have not done much to remove the need for supplementary welfare services. Nationally, kwashiorkor was a more pressing problem. In 1968, the year when it was last a notifiable disease, there were nearly 11 000 cases reported, of which 9 800 were African (70% of the total population in 1968), 1 000 were Coloured, twelve were Asian and four were White.⁴⁴ However, it was recognised that the worst malnutrition was in the rural areas and homelands, where there was the least fertile land, serious overpopulation due to forced removals and few employment opportunities.

At King Edward VIII Hospital in Durban it was reported that 40% of paediatric admissions in the 1960s showed signs of malnutrition. This increased gradually, peaking at around 50% in 1975.⁴⁵ At least 40 children a month were dying in Edendale Hospital of kwashiorkor and marasmus in 1980.⁴⁶ Malnutrition was thought to be contributing to permanent brain damage and mental stunting. The chief cause of malnutrition was said to be poverty, ascribed to low wages; unemployment and underemployment; migratory labour, resettlement (over two million people had been forcibly moved); and lack of land, resources and education. The pay of live-in domestic workers in Pietermaritzburg averaged only R35 per month in 1980, or R50 if they lived out. This included bus fare, which could be as much as R20 per month. Using figures from the UNISA Bureau for Market Research, the Pietermaritzburg Agency for Christian Social Awareness (PACSA) stated that the minimum living level at that time was approximately R175 per month. It was noted that children of parents earning less than the minimum living level often suffered from diseases linked to malnutrition. The Domestic Workers and Employers Project (DWEP) recommended that live-in workers should receive between R71.50 and R110 per month according to skill levels and that live-out workers should get this plus transport and rent money. Alternatively PACSA

recommended that a domestic's hours of work should be reduced so that she could supplement her income elsewhere.⁴⁷

In addition to poverty and unemployment, a survey conducted in Edendale and Imbali published in 1984 found that agricultural activity and subsistence farming were fading: 68% of those sampled engaged in no agricultural activity at all, 15.6% had small garden plots and only 16% had land in excess of one hectare. Only 3.6% owned cattle. Poultry were more common, owned by 23.4%. Output from subsistence agriculture was found to be of negligible importance, both in terms of quantity and cash income. On average, food purchases consumed over one third of all household expenditure.⁴⁸

The urbanisation of the African population not only affected the diet of children. Africans were undergoing a nutrition transition as they moved from a rural to an urban lifestyle. This included moving from a low-fat, high-fibre rural diet to a Westernised diet with increased animal proteins, fat, refined carbohydrate and decreased fibre.⁴⁹ In addition, the promotion of super-refined maize meal to African consumers by milling companies was thought to be exacerbating nutritional problems.⁵⁰ In removing the bran and germ from the maize to produce animal feeds, milling companies were able to increase their profits, but reduced vitamin and fibre content for humans. In studies comparing rural and urbanised Zulu women, it had been found that there was an extremely high level of obesity in both groups: 72% of rural women were overweight, including 32% who were classed as obese. In the urban areas 86% were overweight, of whom 36% were obese and this was seen as 'particularly alarming'.⁵¹ The White population, with its typical high-fat, high meat protein, low-fibre diet, illustrated that the problems of over- and under-nutrition co-existed in the same community. It was recommended that White South Africans be encouraged to eat more fruit, vegetables, whole grains and legumes.⁵²

The supply of milk to patients continued into the 1980s, but stricter control criteria were introduced by the national Department of Health and Population Development. This resulted in a 57% decrease in patients qualifying for assistance, with a drop in milk packets issued from 17 292 in 1987 to 7 336 in 1988 and just under 5 000 in 1991. This was only 10% of the amount of milk distributed in 1967. The extensive number of non-governmental and religious organisations in the city, however, continued to support the poor. A new government scheme, called the Protein, Energy and Malnutrition Extended Food Aid Programme, was introduced nationally in 1991: it involved identifying children at risk and the supply of food parcels – 11 369 were distributed in 1992. Micronutrient deficiency was also addressed: a study of African children aged up to 18 years revealed that one third showed signs

of riboflavin and/or niacin deficiency. Compulsory fortification of maize meal with various micronutrients was recommended.⁵³

A national survey of six- to seven-year-olds in 1994 showed that in KwaZulu-Natal, 5.6% were underweight, 11.8% were stunted and 1.9% wasted. These were better than the national figures of 9%, 13.2% and 2.6% respectively and better in urban areas than rural Zululand districts.⁵⁴ The new government then changed the food supplementation programme again. It was re-designated the National Nutrition and Social Development Programme and laid down strict criteria in respect of nutritional status for those who could be assisted. Beneficiaries were identified from children under six years, pregnant women, lactating mothers, the underweight and chronically ill, and the elderly. Due to the strict criteria, however, only 406 people in the city benefited in 1996. In 1998, 624 patients benefited, but this was really a drop in the ocean compared with programmes run in previous decades by the LHC and the City Council, and which seemed to have had a significant effect on nutrition judging by the improvement in tuberculosis statistics in Edendale. However, other strategies adopted to tackle under-nutrition were more far-reaching. A national school feeding scheme was introduced to targeted primary schools, generally supplying brown bread with peanut butter and/or jam, and a drink of milk, soup or juice. More than 90% of KwaZulu-Natal children reported feeling less hungry and having greater concentration when on the programme.⁵⁵ Along with the school feeding scheme, a National Parasite Control Programme commenced. This gave mass treatment to 31 170 schoolchildren in Edendale in 1998 and continued for a further two years, with 52 000 treated in 2000. Initially, 35% of Vulindlela school children had *Ascaris lumbricoides* (roundworm) infection and 2.3% had *Trichuris trichiura* (whipworm) and/or *Necator americanus* (hookworm) infestation. After two rounds of treatment, this was down to 12.7% for *Ascaris*, 1% for *Trichuris* and no *Necator americanus*. Similar results were obtained for Edendale.

Vulindlela was incorporated into the municipal area in 2000 and a sample survey of nutritional status in children under five-years-old carried out there that year gave the results shown in figure 5.1.

The considerable percentage of children under the third centile for weight-for-age compared with the city, where less than 2% were under the third centile of weight-for-age and qualified for food supplements, seems to illustrate some of the advantages of urban life. Access to food, possibly due to better jobs and transport, seemed to bring nutritional benefits for which even access to land and agriculture could not compensate. Perhaps in the long term the creation of

Area surveyed	Number of children measured	Number underweight (third centile) (%)
Community homesteads	640	53 (8.3%)
Songonzima clinic	36	5 (13.9%)
Taylors clinic	38	4 (10.5%)
Overall	714	62 (8.7%)

Figure 5.1 *Nutritional status of five-year-olds, Vulindlela, 2000.*

jobs and economic opportunities will make more impact on the rural poor than agricultural and subsistence farming interventions.

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6

MURDER, VIOLENCE, AND ACCIDENTS

IN THE MIDDLE OF 1839, a girl lighting a candle in Pietermaritzburg started a disastrous fire in which thirteen houses were burnt down. ‘Numbers of the Voortrekker emigrants were incinerated, or blown to pieces by the bursting of barrels of gunpowder, and numerous wagons, along with large quantities of provisions and stores were destroyed. The charred bones of some of the victims were collected next morning, bound in a counterpane and buried in a hole’.¹ This may have been the earliest major cause of violent or accidental death in the town. Pietermaritzburg was bounded by Zwartkop Hill on the west and another range of hills to the north, considered to be the cause of terrific thunderstorms that occasionally had fatal consequences. There were also wild animals – lions, leopard, elephant and snakes amongst others – that would have caused some injuries and fatalities, but early statistics of these have not been found.

In the 1850s there was only one permanent road in Natal, between Pietermaritzburg and Port Natal (Durban), with regular ox wagons or horse-drawn traffic. It consisted of parallel tracks and was of such poor quality that wagons regularly overturned, occasionally causing injury to passengers. The average duration of the trip of 54 miles (86 kilometres) by ox wagon was three days. Roads inland were variable and dangerous when rivers were full. Swamps and mud holes damaged wagons, and the work of repair was almost incessant. Within the town walking on roads after dark was considered dangerous due to the open water sluits, camped oxen lying in front of homesteads, and heaps of rubbish and building material left lying around.²

In 1852 acting Surveyor-General, John Bird, proposed the construction of a road from the Thukela to Pietermaritzburg in order to allow the transport of produce to the chief town of the colony without the risk of delay by flooded rivers. However, in a letter to the press in 1875, the way up Town Hill from Commercial Road is described as ‘truly a terror to all who have to cross it’.³ An alternative road was under construction up the Zwartkop valley. The first fast vehicle seen in Natal was a horse-drawn coach travelling between

Pietermaritzburg and Durban. It took eleven hours to cover 58 miles (93 kilometres) and ran first weekly, then daily.

In the early years of the town there were occasional alarms about attacks from Zululand and in December 1847 a public meeting debated erecting two laagers near the junction of the Dorpspruit with the Little Bushman's River, but no attack materialised. Fear reigned again three years later with the outbreak of war on the Cape frontier, and in 1861 rumours of violation of the frontier with Zululand caused householders to fit iron bars to doors and windows. However, generally the city appears to have been a quiet and safe place to live under the protection of troops encamped at Fort Napier on a hill to the west of the city since 1843.⁴ Hunting was established as a sport, with paper chases and cross country runs for youngsters, and these presumably gave rise to some accidents. An account of a juvenile paper chase in 1870 mentions several falls, but none of these seems to have been too severe.⁵ The report of Grey's Hospital for 1875 lists 22 admissions for wounds or fractures, resulting in four deaths. Violence and injury were reported amongst the African population and largely ascribed to excessive alcohol and fighting. Clearly the fear of violent encounters with the African population was a concern, with the carrying of assegais and knobkerries (amawisa) prohibited.⁶ Other injuries referred to include snake bites, although these were more common in the coastal regions than Pietermaritzburg. Tetanus appears to have been a fairly rare complication of wounds, with one case reported from Grey's Hospital in 1880. The Zulu war of 1879 was obviously the cause of much violent injury and death, with 22 men from Pietermaritzburg killed at the battle of Isandlwana. Pietermaritzburg prepared by forming a laager in the centre of the town. It was capable of housing 4 000 people, with walls of sandbags, wells, and provisions stored in readiness. Fortunately it was never required. The first South African War occurred from 1880 to 1881, but again did not directly involve Pietermaritzburg. The Magistrate, Charles Barter, in his report of 1881 commented on 'the security of life and property now enjoyed by the citizens of Maritzburg'. There had been only one murder over the previous two years.⁷

By December 1880 trains were running between Durban and Pietermaritzburg and the line to Charlestown on the Transvaal border, via Newcastle, was opened in 1891. An extension of the railway line to Harrismith was completed in 1892. By 1895 the town was connected by rail to Johannesburg, which greatly benefited the economy of Natal. A grand railway station was opened (see illustration) and it later became famous as the site where Mahatma Gandhi was ejected from a train because of his race.



Pietermaritzburg railway station (built 1881) with horse-drawn carriages in the early 1900s (Souvenir of Maritzburg, photographs by L. B. Jensen, S.A.P. & Co. [circa 1910]).

Road making was still in its infancy in the early 1880s, particularly on the city's outskirts, with mounds of earth, shale and rubbish being thrown down without care to make roads, and threatening carriages with destruction. In 1894 Charles Barter wrote of the city's suburban roads that 'driving should be a pleasure, instead of a dangerous adventure;' and that it required 'conduits carried from end to end of the town, among hovels as well as palaces. It wants, in short, to be made as it might be made – attractive to visitors.'⁸

Suicide as a cause of violent death was mentioned from the earliest years of the town. In early twentieth century, when the Chief of Police submitted his return there were always a handful of cases of suicide, mainly among White and Coloured men. Popular methods included shooting, drowning, hanging, and the occasional use of poison. Barter reported that 'suicide is generally adopted by the Indian as the supreme remedy for the various ills with which life is infested: bodily pain, poverty, disappointment and the pangs of unrequited love'.⁹ There were seven Indian suicides in the province in 1894, mostly hangings.

The report of the Chief Constable of the Borough lists seven murders for 1907 and none for 1908 or 1910. Five Whites committed suicide in each of these years, through drowning, hanging, poisoning and shooting. Vehicle accidents

included slight injuries from traps and trolleys. Other forms of transport at the time included rickshas, pulled by men (as illustrated) and licensed along with their pullers; and trams, which at this time served around 9 000 people with 8.25 miles (13 kilometres) of track. In 1918 there were 356 rickshas with 4 640 pullers' licences issued. In 1912, a year that saw the Mayor and City send a contribution to the relief fund for the Titanic, nineteen persons were slightly injured in vehicle accidents and one was killed in a cycling accident. Deaths from accidents remained low in 1913 and only the occasional vehicle accident, or death from fire or drowning, was reported. Generally it appears that people were fairly safe as the death rate from accidents and violence was virtually nil throughout the war years. Some 107 municipal employees enlisted in the armed forces during the First World War: there were twelve fatalities and fifteen men were wounded.¹⁰

The advent of motor vehicles made it necessary to improve roads and street lighting, with brighter lights with later hours of operation up until 1.00 am replacing the earlier electric models and remaining oil lamps. The replacement of oil lamps was virtually complete in 1914 and by 1916 there were 600 electric streetlights, powered by the city's own electricity generating station. The Motor Car Ordinance was passed by the province in 1913 and the municipality was then able to frame by-laws to control traffic. There were 130 miles (208 kilometres) of road in the borough at this time, of which 40 (64 kilometres) were hardened. Their increasing use by motor vehicles, which travelled at greater speeds and were more sensitive to uneven road surfaces, meant more effort had to be put into improving them with shale. In addition, the extensive timber plantations being developed increased traffic on the roads as contractors carried loads of poles for use as mine props in the Transvaal mines to railway stations. In 1918 the transport of timber by oxen, mules and donkeys started to be replaced by trucks. In 1915 there were 36 slight injuries from accidents in various kinds of vehicles. The accident fatality rate was probably low due to the speeds at which vehicles travelled: the speed limit was as low as twelve miles (eighteen kilometres) per hour at points considered dangerous. Three people were killed in a railway accident in 1916, however, due to an unprotected level crossing in Chapel (now Peter Kerchhoff) Street. It was noted that many level crossings were unprotected, with alarm bells frequently out of order. An appeal was made to the Minister of Railways for gates at the crossings, but was this rejected. Discussions were held with other municipalities and municipal associations with a view to addressing the problem nationally.

The replacement of animal-drawn transport by motor vehicles continued apace, such that roads which previously withstood the traffic were rapidly disintegrating. By 1923 there were 175 miles (280 kilometres) of road in the municipality, of which 148 (237 kilometres) were under its control. Forty-eight of them (77 kilometres) were macadamised or hardened, but with the advent of trucks loads were now as great as twenty tons, moving at between eight and ten miles per hour (13–16 kph), for which the roads were not designed. Motorised transport was found internationally to increase the cost of road maintenance by around 30–40% per annum.



Ricksha puller in the Botanical Gardens, early 1900s (Souvenir of Maritzburg, photographs by L. B. Jensen, S.A.P. & Co. [circa 1910]).

In 1922 there were the heaviest casualties yet from motor vehicle accidents, with four deaths in 28 accidents, two of the deaths involving motorbikes. There were 30 accidents in the following year with one death. The combination of increasing numbers of trucks, cars, buses and motorbikes, along with animal-drawn vehicles (Council still had 57 animals for transport purposes in 1924), meant that new by-laws were required to deal with the volume of traffic. Nine Indian constables were appointed in the early 1920s to regulate traffic, particularly at intersections. In 1926 a referendum was held to consider whether the general policing of the borough should be taken over by government. The majority view – 1 502 to 1 070 votes – was against the proposal. However, Council did not accept the result of the referendum and the borough police force, together with equipment and buildings, was transferred some 79 years

after its inception to the South African Police in March 1927. The traffic control function was retained.

In the general by-laws of 1930 further reference was made to safety on the roads and section 2.6 stated that 'No person shall roll any hoop or fly any kite or throw stones or use any bow and arrow or by any means discharge any missile upon, over or across any road'. Protection of the population from physical harm was also obviously contemplated in section 3.5: 'no Native shall carry or use any sword, assegai, dagger, sjambok, iwisa, umtshiza or other loaded or heavy stick or any other dangerous weapon or missile'. In the annual report of the Medical Officer of Health (MOH) for 1931, 37 out of 514 deaths (7.2%) are ascribed to violent or accidental causes. In 1936 this had dropped to 5%, being attributed to deaths from accidents, suicide and other forms of violence. Eight of these 22 deaths were due to motor vehicle accidents, the same as the previous year. Three suicides took place, all amongst White men, with four in 1938. Six deaths were from burns, two were homicides and seven were from other accidents. A homicide rate of 0.045 per thousand people was extremely low by comparison with the years to come. It would appear that at this time Pietermaritzburg could be considered a safe place to live. In 1939 there were seven homicides, all of African men. The low death rate from violence and accidents continued through the 1940s, presumably excluding those killed in the war. The rate in 1945 for all population groups for accidental and violent deaths was between 3.5% and 5.5% of total deaths: again there were seven homicides of African men, and two of women, with none in other race groups. The race riots between Africans and Asians in Durban of January 1949, which left 142 people dead, 1 087 injured and over 2 000 buildings damaged or destroyed, fortunately did not spread to Pietermaritzburg.¹¹

The low mortality rates from violence in Pietermaritzburg carried on into the 1950s and 1960s. Edendale also had a low mortality from violence in this period, with 10–15 murders a year, constituting around 2% of deaths. On average during this period there were between ten and twenty people a year killed through motor vehicle accidents. For Africans who were disabled, either by accidents at work or motor vehicle accidents, there was not much possibility of assistance unless they were considered 100% disabled, in which case they could qualify for a disability grant. However, in 1958 the KwaHlengabantu Home opened in Edendale for the physically handicapped.

Council continued to run public transport services throughout this period, with buses going around the city and to Edendale. African drivers were employed from 1955 owing to a shortage of Whites. Periodically there were

fatal accidents with these buses, including their falling over onto other street users. The double-decker buses were gradually replaced with single-deck vehicles. The Council was instructed by the Local Road Transportation Board in 1959 to introduce total racial segregation, with separate buses for Whites and non-Europeans. Council, anticipating heavy financial losses as a result, appealed to the Supreme Court and was granted a temporary interdict. The case was dropped by the government, and the Council continued to run its buses for all races, although seated in different sections. Council was engaged in construction of bridges and underpasses during this period, ridding the city of its dangerous railway level crossings.



Double-decker bus (Pietermaritzburg Corporation Yearbook 1956).

The first mention of serious political unrest is in 1959, when the Mayor noted in his report that 'rather surprisingly, race relations having always been so good in Pietermaritzburg, disorderly behaviour occurred at Sobantu Village on the 15th August 1959'.¹² Damage was caused to three schools, the shopping centre and the community hall. The high school was completely destroyed and the clinic closed. Two deaths of African men were reported, shot by the South African Police. In the same year large groups of African women held demonstrations at

the police station, the men's hostel and the beerhalls, protesting about the pass laws. Unrest grew nationally, with a State of Emergency declared between 30 March and 31 August 1960.

The Pietermaritzburg area had always been prone to flooding, one of the worst cases in living memory being on 17 February 1967 when the Msunduzi River and the Snathing River washed away houses and possessions, leaving many in the Edendale area homeless. Relief measures by the Local Health Commission (LHC) included food and blankets. A fund-raising appeal brought in R5 650 in cash, including R1 500 from the City Council, together with food, clothes and building materials. These were used to rebuild seven houses in Ashdown. The flood, described as the worst since October 1917, also submerged several school playing fields in the city, it being policy to site sports fields and open spaces next to the river. Extensive work was undertaken to canalise the Msunduzi River within the borough to reduce the level of flooding in the city centre.

The non-violent picture of life in the Pietermaritzburg area started to change dramatically in the 1970s, due presumably to a combination of factors: overcrowding with lack of access to housing and jobs; social disintegration with absent fathers due to influx control and the migrant labour system; political unrest with more violent opposition to the apartheid regime and conflict between political factions. From 1973 the mortality rate from violence and homicide started to rise significantly, particularly among African men and women, and in 1977 this was responsible for 30% of recorded African deaths. By 1979, 46% of African male deaths in the city were homicides: 101 were recorded. A similar picture was seen across South Africa, with the national murder rate of 2.7 per thousand in 1979 compared with 0.1 per thousand in Britain. The assault rate nationally was six times that of Britain, bearing in mind that it was likely that a lesser percentage of crimes was reported in South Africa.¹³

The impact of violence on mortality in 1980, the year Imbali, Ashdown and Slangspruit were excised from the city, can be seen in figure 6.1. The peak age of death for Africans had moved a little lower than a decade before (see figure 1.7). These areas were put under the South African Development Trust, after which there were attempts by the government to impose town councils. Intermittent violence continued in the early 1980s, with large-scale demonstrations in Imbali and Sobantu against the inauguration of the new councils and clashes between members of Inkatha and the United Democratic

Front (UDF). There were school boycotts and demonstrations, and the rise of vigilante groups.¹⁴ The bombing of court buildings took place in 1983.

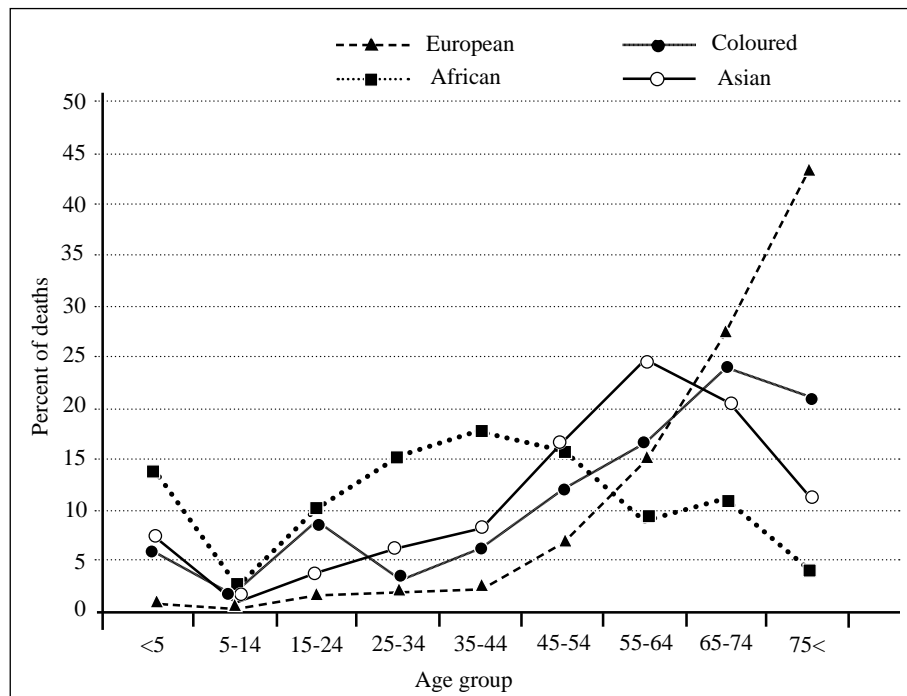


Fig. 6.1 Age at death in Pietermaritzburg, 1980.

Political tensions were exacerbated by the declining economy. Gavin Woods, Director of the Inkatha Institute, felt that much of the violence was caused by youths frustrated by poverty. He said that ‘statistics show that there have been no additional black jobs created [in the region] in the last nine years in the formal economy, against a population growth of about 4% in these areas’. He went on to quote Karl Marx that ‘poverty radicalises people to the point of violence’.¹⁵ This view was endorsed by the South African Communist Party’s Chris Hani who said

the obvious cause of part of the violence is socio-economic . . . Urbanisation without employment has brought along a crisis in housing and services. Further there are many pupil and student drop-outs – young people who are totally alienated and see no future for themselves in the country. Hence the increasing levels of crime, robbery and murder. This is also reflected in the mushrooming of informal settlements around Durban and Pietermaritzburg.¹⁶

Although socio-economic factors were clearly not the only cause of the violence, they provided a background against which complex political agendas played out, chiefly between Inkatha (strongly supported in the rural areas) and the UDF (more urban based), exacerbated by the involvement of the South African and KwaZulu security forces and police. Violence was particularly intense in the Pietermaritzburg area as 'nowhere else was the mix of urban and rural so complex and entangled as in the Edendale valley'.¹⁷ Underlying all these causes was apartheid, which was collapsing the economy, had destroyed family life and community stability, used Bantu Education to ensure perpetual servitude and loss of hope of reasonable employment, and created favourable conditions for political activism and faction fighting.

In September 1987 disastrous floods hit the province following several days of unrelenting rain. It was reported that 634 mm of rain fell during one storm. Many of the mud or wattle-and-daub houses in Edendale and Vulindlela collapsed or dissolved in the water, with 700 people being rescued from flood waters in Edendale, and 154 houses evacuated in Sobantu.¹⁸ Rivers became swollen and impassable, and non-governmental and religious organisations struggled to aid the communities.¹⁹ While blankets, food and clothes were still being distributed violence started again and by October 1987 the situation resembled a full scale civil war. Between 40 and 60 people were killed in a two-week period and flood relief agencies had to abandon their attempts to assist. Of African deaths reported in Pietermaritzburg, 30% were homicides the majority described as 'assault by cutting and piercing instruments' in the terminology of the Statistical Classification of Diseases. The Congress of South African Trade Unions (COSATU) estimated 150 killings in 1987 in the townships around Pietermaritzburg. The methods were particularly brutal and included the petrol bombing of houses, shootings and setting people alight.²⁰ John Aitchison estimated 397 deaths in the region in 1987, mostly in Edendale, Vulindlela, Imbali, Slangspruit and Ashdown.²¹ The violence continued into 1988, with an attack on Ashdown in February in which at least 19 people died. Shortly afterwards it spilled into the Pietermaritzburg city centre when a busload of armed Inkatha supporters arrived to attack the offices of Cosatu. The *Natal Witness* carried descriptions of the attack: 'the men swarmed off the bus wielding sticks, traditional shields, assegais [traditional short spears] and pangas [machetes]'. They attacked pedestrians and rampaged through the beerhall.²² The violence was noted only in passing in the health reports, where it was mentioned that attendances at city clinics by people from the Edendale/Vulindlela area increased by 50%. A lack of recognition of the violence on

their doorstep typified much of the white population's understanding: 'The inconvenience of an undelivered newspaper, the non-arrival of a garden hand, are usually the only hints that things are not quite as they used to be'.²³ Aitchison estimated 51 killings a month for the remainder of 1988.²⁴

In addition to the physical effects of the violence, refugees suffered psychological trauma, involving anger, grief and depression. Wendy Leeb, a researcher at the Centre for Adult Education at the University of Natal in Pietermaritzburg, found that adults commonly resorted to alcohol or drug abuse, while family and social violence intensified. Children and youths became restless and unable to concentrate, feeling a lack of worth and resentment against adults who had allowed the conflict. Increasingly 'violence became regarded as the norm and was seen as a solution'.²⁵

Despite many attempts to resolve the violence in the Edendale area it continued throughout the late 1980s, the pinnacle occurring in 1990, in what became known as the Seven Days' War. Starting after an Inkatha rally in Durban on 25 March, following which returning buses were apparently stoned, Inkatha unleashed a wave of violence against residents of the townships around Pietermaritzburg. By 29 March at least thirteen people had been killed and over 130 houses gutted.²⁶ On 30 March this rose to 30 people killed and 250 houses destroyed by an organised force up to 12 000 strong, apparently dropped off by trucks with KwaZulu government registration plates. The police were accused of being partisan during attacks, taking very little preventive action. More than 4 000 people were forced to flee, 63 000 children were too frightened to go to school, and only half the African workforce was able to get to their jobs.²⁷ On 1 April, Nelson Mandela, only recently released from 27 years in prison, addressed an audience of 2 500 people in Edendale to try to quell the violence, saying that the real enemy was apartheid. President F.W. de Klerk announced a number of measures including a greater security presence and deployment of the South African Defence Force. Between 27 March and 25 April 1990, 200 people were killed in the area.²⁸ People poured into the city's health facilities, partly because many were afraid to attend Edendale Hospital, administered by the KwaZulu Government and perceived to be more sympathetic to Inkatha supporters. An additional 85 doctors were requested by Grey's and Northdale Hospitals to help cope with the victims of violence.²⁹ By early June, security forces had quelled violence in Edendale valley, although it spilled over into other areas of Natal.³⁰

Between September 1987 and the beginning of 1990 over 2 000 people were killed in the region around Pietermaritzburg, and far more maimed and

injured. Kentridge described it as an unofficial war, which the state did its best to ignore, so the effect on the population was consequently neglected. However, in the townships people talked about being at war, with the conflict zone extending to every road, yard, house and hillside.³¹ Aitchison analysed deaths by area over that period. These are summarised for the Pietermaritzburg area (those areas that would later form part of the municipality) in table 6.2. In addition there were numerous injuries from stonings, arson, petrol bomb attacks and assaults.³²

Area	1987	1988	1989	Total
Imbali	40	50	82	172
Ashdown	20	24	14	58
Sobantu	10	9	0	19
Edendale	126	73	58	257
Vulindlela	123	248	155	526
Slangspruit	22	25	2	49
Pietermaritzburg City	6	25	33	64
Total	347	454	344	1 145

Table 6.2 *Deaths due to violence in the Pietermaritzburg area, 1987–1989.*³³

A public hearing was held on the Seven Days' War by the nationally convened Truth and Reconciliation Commission (TRC) in 1996. It was noted that altogether approximately 20 000 people had fled their homes and even eight years later residence patterns had not returned to normal with some areas in the Edendale valley remaining deserted. Due to the total separation of communities enforced by apartheid, however, most of the White community of Pietermaritzburg continued their lives through the war in relative calm: Renate Cochrane noted that 'in white Maritzburg children returned from school giggling and chattering, totally oblivious of the war so close to them. People strolled along the shopping malls licking ice-cream and munching hot dogs, as if Edendale were on another planet'. In contrast, many in Vulindlela and Edendale had to flee from their homes and lost everything they owned, including household possessions and livestock, finding refuge in halls, churches or shacks in other areas. In addition Edendale Hospital, run by the KwaZulu government, was seen as biased. Sibongile Mkhize noted that 'we could not use the Edendale hospital. If you came from Caluza [central Edendale] then you would die on the stretcher. Thus it was best if we could handle some of our medical needs ourselves. Again the church came in to help us'.³⁴

As mentioned above, lives were not only disrupted due to violence in the area, but also from natural disasters such as the flooding that occurred on 29 September 1987. However, this merits only brief mention in the MOH reports, with a reference to refugees at the Sobantu Clinic and clinics being offered at refugee halls in the city and Northdale: 132 patients were treated. Large increases in attendances at city clinics were noted in 1988, probably due to a loss of confidence in the KwaZulu health services. Attendance at the Sobantu Clinic declined and home visiting was suspended due to the unrest. However, with the Seven Days' War the MOH, Dr Walters, states the impact with more vigour. An old, disused bus depot at Mason's Mill (between Edendale and the city) was made available as a refugee camp and for twelve weeks up to 1 500 refugees were housed there. The Red Cross supplied blankets and the Pietermaritzburg Council of Churches, along with other non-governmental organisations and commerce and industry, provided food. The Johannesburg City Council also gave a donation. The Municipal Social Worker reported that many families were left homeless, unemployed and penniless. Deaths by violence recorded in the city for 1990 totalled 183, of which 150 were African male. This formed 57% of African male deaths, 43 of them from gunshot wounds. Interestingly, from an analysis of deaths by month, these were not brought about by the Seven Days' War. Very few deaths were recorded for March and April, so war casualties must have been recorded elsewhere since they occurred outside the city boundaries. The large increase in African deaths occurred during the months of June to December and would have reflected a general increase in violence and conflict in the community. Fifty-five per cent of African male deaths occurred between the ages of 15 and 44 (compared with 4.4% of White male deaths, 21% of Asian and 28% of Coloured.) Violence was also noted to affect municipal employees, with the Occupational Health Clinic remarking on the increased number of injuries treated. It was also noted that alcohol and drug abuse increased in parallel to the violence, escalating in particular when there were periods of political unrest. The Environmental Health Section noted that industrial unrest, political upheaval, strikes, stayaways and faction fighting were 'buffeting' factories in and around Pietermaritzburg. The situation also impaired their ability to render a service as municipal staff were affected.³⁵

The unrest continued into 1991 when there were 327 deaths due to assaults and homicides. While the White community was very afraid of violence, only 2% of White deaths were from this cause and 87% of White deaths were in people over the age of 65. In addition, motor vehicle accidents were claiming

more lives with 90 in that year, of which 81% were male. Society was getting generally more violent and dangerous, with a concurrent increase in suicides of which there were 25 in 1991, 50% of them Asian men. The commonest method was hanging and strangulation.

While political violence started to subside gradually after the new government was elected in 1994, deaths from unnatural causes remained high. On the afternoon of Christmas Day 1995 the city was hit by disastrous floods, which made the news worldwide. Following heavy rains, water came rushing down the tributaries of the Msunduzi River – the KwaPata, Slangspruit, Azalea, Snathing and Willowfountain streams – in sudden tidal waves, taking out everything in its path. Houses both formal and informal were swept away, together with trees, cars and people. Following the unrest refugees had established settlements in Edendale and the city, and many of them were on dangerous ground, within flood zones. The onset of the deluge was so sudden few had time to get out of its way and the devastation was enormous, including destruction of water and sewerage pipes, roads and bridges. Two hundred people lost their lives and hundreds of homes were completely destroyed. The Council, run by a temporary political arrangement including members of the African National Congress (ANC) and Inkatha Freedom Party (IFP), needed all its resources to cope with the worst natural disaster ever recorded in its 160 year history and it was not helped by the fact that at Christmas many staff were on leave and unreachable. Temporary accommodation was set up in halls and tents and the Health Department was stretched to the limit dealing with problems of sanitation, clean water, waste disposal and vector breeding of flies and rodents in the huge areas of land that had been flooded, much of it with sewage-contaminated water. Large amounts of chloride of lime were used to treat problem areas, and fly traps and bait set up with insecticide. Bodies of people found after the flood literally piled up in mortuaries, waiting to be claimed. The situation became so unhygienic that the MOH, Dr Walters, had to issue an instruction that they be buried. A suggestion that they be stored in the cold room of the Municipal Market was not well received.

In January 1996, 67 portable chemical toilets were hired. There was a deluge of donations from the public and commerce, although this created its own problems as donated food was often expired or unfit for consumption and had to be checked by the environmental health officers before distribution. Mobile clinics visited refugee sites and administered first aid, with treatment of later problems such as respiratory infections, infected wounds and eye infections.

Everyone was immunised against typhoid and children against measles and polio.

While tents were provided to refugees to enable them to leave the community halls, new permanent housing was required urgently. Funds were sought to re-house the flood victims, but the process also involved the identification of suitable land outside flood plains and verifying the correct beneficiaries. Many people in the area, desperate for new housing which had not been constructed in decades, tried to manoeuvre their way onto the flood victim list. By the time winter came, with the cold, wet weather of July, many people were still living in squalor and misery in inadequate tents in Willowfontain, KwaPata, Slangspruit and Imbali, surrounded by seas of mud. The city was then hit by the effects of some of the worst snow seen in the province. While it did not actually snow in Pietermaritzburg, many surrounding roads were blocked, including all routes out of KwaZulu-Natal to Johannesburg and Transkei. Many people were trapped in the city on public transport, unable to leave: over 1 000 people were given temporary accommodation in the Showgrounds. Blankets, mattresses, food and baby milk were distributed.

Violence continued to a certain extent in the newly incorporated townships, making work there for municipal employees difficult and, at times, dangerous. The Occupational Health Service had to undertake stress debriefing for those employees who were victims of hijacking, assaults and armed robberies, or who were witness to violent incidents. The rate per thousand population for murder in the province in 1996 was 7.48; for attempted murder 8.41; for rape 9.75, and for assault with grievous bodily harm 29.2.

An analysis of deaths from violence or trauma of various kinds was compiled in 2000, as seen in figure 6.3 on the following page. The homicide rate, at 5.5 per thousand people, was still very high, but well below its peak of 17 in 1991. The last recorded rate is 4.59 for the year 2002. The overall pattern of deaths from violence and motor vehicle accidents from 1945 is illustrated in figure 6.4 on the following page.

Cause	0-9 yrs	10-19 yrs	20-39 yrs	40-59 yrs	60+ years	Total
Motor vehicle accident	10 (22%)	9 (15%)	54 (14%)	44 (24%)	9 (22%)	126 (18%)
Homicide: gunshot	0	26 (43%)	139 (37%)	46 (25%)	8 (20%)	219 (31%)
Homicide: stabbing	2 (4%)	6 (10%)	67 (18%)	28 (15%)	2 (5%)	105 (15%)
Homicide: unknown method	2 (4%)	2 (3%)	20 (5%)	9 (5%)	1 (2%)	34 (5%)
Strangulation/ hanging (self/other)	0	6 (10%)	30 (8%)	15 (8%)	5 (12%)	56 (8%)
Burns	8 (17%)	2 (3%)	11 (3%)	5 (3%)	5 (12%)	31 (5%)
Drowning	9 (20%)	3 (5%)	7 (2%)	6 (3%)	1 (2%)	26 (4%)
Suicide: unknown method	0	3 (5%)	11 (3%)	3 (2%)	0	17 (2%)
Poisoning: self/other	4 (9%)	0	4 (1%)	1 (0.5%)	1 (2%)	10 (1%)
Lightning	0	0	1 (0.3%)	1 (0.5%)	0	2
Electrocution	0	1 (2%)	0	0	0	1
Tractor accidents	0	0	2 (0.5%)	1 (0.5%)	0	3
Trauma/violence: method not recorded	11 (24%)	3 (5%)	31 (8%)	24 (13%)	10 (24%)	79 (11%)
Total unnatural deaths	46	61	377	183	42	709
Total deaths	551	164	1 953	1 311	1 037	434

Fig. 6.3 Table of deaths from violence or trauma by type and age in Pietermaritzburg district, 2000.

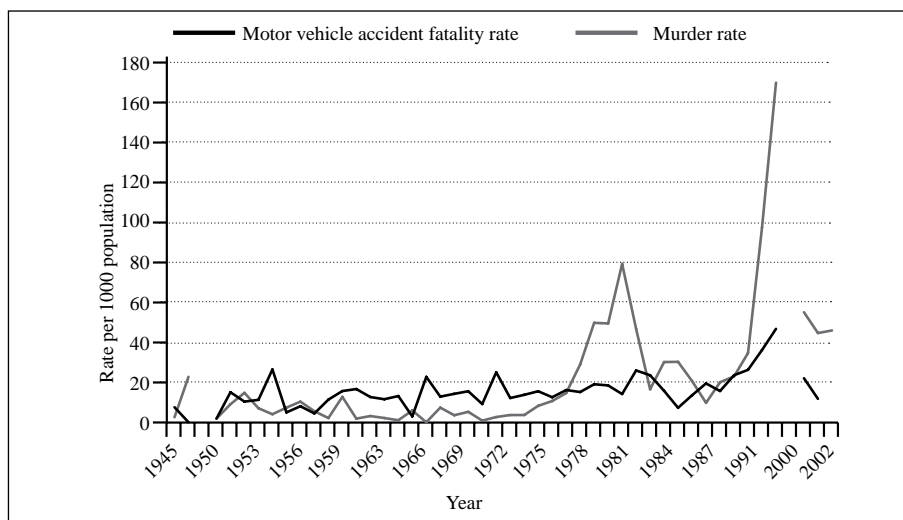


Fig. 6.4 Graph comparing deaths from motor vehicle accidents with death by murder in Pietermaritzburg: rates per 1 000 population from 1945 (no figures for 1993 to 1999).

ENDNOTES

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- 2 A.F. Hattersley, *Pietermaritzburg Panorama* (Pietermaritzburg: Shuter and Shooter 1938): 44, 86.
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THE MOST TROUBLESOME creatures to the earliest settlers of Natal were snakes, described in 1855 as ‘abundant and poisonous. There are several species whose bite is fatal. The puff-adder, the cobra and the python are the largest. Not unfrequently are reptiles found in our houses, or hanging from trees, and concealed in narrow paths’.¹ There were also scorpions and flies, but the most irritating creature was considered to be the tick, particularly near the coast: ‘On every spire of grass they await the passing of some living creature, to which they tenaciously cling, bury their heads in the flesh, and, while they suck the blood, infuse a subtle poison, which excessively irritates the skin, and causes painful and obstinate sores’.² Whether they were suspected at that time to be vectors of disease to both people and animals is uncertain, but both ticks and mosquitoes were considered nuisances for the sores they produced.³

Another early reference to problematic animals appeared in the report of the District Surgeon of 1893, when he wrote about the dog nuisance that had accompanied the city’s rapid, apparently virtually uncontrolled, growth. He described dogs as ‘a veritable curse. Thousands of dogs roam the streets making night wretched, and...totally preventing sleep with their hideous noise...the streets are foul with their excrement, with smells and dried powder floating everywhere.’ Rabies, however, was not mentioned and the District Surgeon does not refer to this as a hazard of the roaming dogs in his report.⁴ But rabies had been known in South Africa since 1821, with possibly the first case reported in a slave at the Cape.⁵ The first mention around Pietermaritzburg was in a letter to the *Natal Witness* from Karkloof, where it was reported to be present in African dogs and to have killed some people.⁶

Plague was a vector-borne disease that continually worried health authorities in the early years of Pietermaritzburg, although in the earliest records of Grey’s Hospital there was no reported case. Caused by the bacteria *Yersinia pestis*, it occurs primarily in wild rodents and is transmitted from them to man by the bite of an infected flea vector. Person-to-person transmission occurs from the inhalation of droplets, spread by the cough of a patient with

Plague: An acute, severe infection in either bubonic (enlarged lymph nodes) or pulmonary form, due to infection with *Yersinia pestis* bacteria transmitted either by bite of an infected rat flea or inhalation; and with a high death rate.

bubonic or septicaemic plague with pulmonary lesions, giving rise to primary pneumonic plague. All forms have a very high fatality rate if untreated – 60% for the bubonic form and virtually 100% for the pneumonic form. In order to prevent plague, public health measures were taken to control rats from early days in the province. They would have been a known risk due to the frequent arrival at Port Natal (Durban) of ships harbouring rodents from all over the world. Plague hit Cape Town, likewise a major port, in 1901. The movement of grain and people across the country was another possible way it was spread.⁷

As a response to the plague in Cape Town an emergency Plague Administration was set up, focused on the presence of Africans whom they associated with the social and sanitary conditions linked to the disease. During March 1901, 6 000 to 7 000 Africans were moved to a hastily-constructed settlement at Uitvlugt on the Cape Flats. The removals were effected in terms of the Public Health Act of 1883, inspired by a smallpox epidemic in Cape Town in 1882 when over 4 000 people had died.⁸ Plague also broke out in the native location in Port Elizabeth in the Cape in the early years of the century and this resulted in the authorities driving the occupants out of the town carrying what they could of their dwellings on their heads. Some 7 000 Africans out of a total population of nearly 10 000 were removed in 1904. This gave rise to the large shack township of Korsten, which was not incorporated into the city until 1931, at which point 7 283 premises unfit for human habitation were found. This showed that pushing problems beyond city boundaries did not mean that they went away. Forced removal of Africans as a response to plague in 1902–3 was similarly carried out in Johannesburg and Cape Town and related health legislation started the movement towards segregated urban housing in the country.⁹ In the early years of the twentieth century epidemic plague became an opportunity for those promoting segregationist policies, by equating black urban settlement, labour and living conditions with threats to public health. This was described by Swanson as ‘the sanitation syndrome’.¹⁰

In 1902 a similar plague outbreak started in Durban and spread to Pietermaritzburg. An investigation by the Government Bacteriologist showed the hardiness of the bacillus (known by him

as *Pestis bubonicae*) as it grew vigorously at a wide range of temperatures between 15 and 40 degrees Celsius and could easily cope with the different seasons.¹¹ Control of refuse was one important way to minimise rat breeding and, given the appalling sanitary conditions prevalent in Pietermaritzburg at the end of the nineteenth century, the city was fortunate to avoid a severe outbreak. At that time refuse was disposed of by tipping at a site below the road to Edendale and at the Ohrtmann Quarry. However, action was taken against the Corporation by a Mrs Musson regarding nuisances caused by the quarry rubbish, which being uncovered was a breeding ground for flies and rats. The Council had to pay damages of £100 and cease the tipping. The existing rubbish was covered with a mound of earth. For a while the refuse was taken to the sanitary depot by various means of transport including mules, but by 1910 it was being tipped into clay pits at the Chase Valley Road brickfields under the direction of the Borough Engineer. This was found to cause no nuisance and helped to reclaim land, which was later able to grow crops of mealies (corn) and pumpkins. In the dry season the rubbish was also used to fill in a donga (large gully) at the foot of Boshoff Street and to form an embankment.

There was a further outbreak of bubonic plague in Durban in 1912, reinforcing the sanitation syndrome that advanced the cause of racial urban segregation with its panacea of separate locations.¹² Plague was spread by both rat fleas and humans, leading the Pietermaritzburg Council to take measures to rid the town of rats as a preventive measure. Poison was laid by a gang going house-to-house and it was estimated that 20 000 rats were destroyed. A few dogs also died, not from eating the poison, which contained phosphorus, but the rats. However, no children died from poison ingestion. The measures taken seem to have been successful in preventing the plague from reaching the city. It was recommended that they be augmented by the employment of a person to continuously pick up litter, such as paper, orange skins and banana peel, from the central streets in addition to the early morning street scavengers. The collection of household rubbish was improved by instructing householders to keep refuse in a properly designed, closed iron box before the rubbish cart arrived in order to reduce the breeding of flies and rodents. The street scavenging work was difficult: in the absence of sewers, the storm water drains were carrying all waste water from houses complete with various kinds of household refuse. Appeals were made to shop owners to keep the footpaths and verandas in front of their premises clean, and baskets for waste paper were first placed on poles in Church Street to see if people would use them. The inadequate, open storm water drainage system meant that waste water from

private premises flowed in open drains into street channels. The major refuse found included waste paper, egg shells, tea leaves, rice, porridge, vegetable peelings and other foodstuffs. As there was not much of a gradient to the street drains, much of the solids accumulated in patches. The Borough Engineer, James Niven, stated that the street almost constantly presented 'a dirty, untidy and unkempt appearance, the drains, both surface and underground smell most disagreeably, and the corner street catchpits are veritable cesspools of waste water'.¹³ A new by-law prescribing the type of refuse bins to be used was passed in 1915. On average 76 000 cubic yards of refuse was removed annually.

The city's Public Health Department commenced a system of fumigation of premises in 1914, with a view to exterminating vermin, and about 100 infested properties were fumigated that year. House-to-house inspections were undertaken by sanitary inspectors who gave advice and, if necessary, wrote to offenders. In 1915, 10 000 circulars were sent out warning about the dangers of the house fly as a carrier of disease – more than 100 different pathogenic organisms have been isolated from the legs of flies. Breeding places for flies and mosquitoes were cleaned up and sprayed with insecticide. Concerns were expressed about the problems caused by the stabling of cows, horses and other animals in residential areas. Although the stabling of horses was still occurring in European cities, the lack of a general sewerage system in Pietermaritzburg and a hotter, more humid climate meant that the nuisances caused by manure and the breeding of flies and other insects were far greater. It was also noted that cattle were not kept in backyards in Europe to anywhere near the same extent as they were in Pietermaritzburg. It was recommended that all animals be registered and their accommodation inspected.

The destruction of rats was a problem affecting many countries. A British report published in 1919 recommended that a campaign should take place simultaneously over wide areas, preferably during winter when a shortage of natural food drove them to take bait more readily. Studies showed 'that dried bread is always accepted, and that oatmeal, cheese and tallow are also attractive baits'; and that fish, lard and dripping were only useful when no other food was available. Poisoning was recommended, using squill solution obtained from a plant growing on the coasts of the Mediterranean. Payment for rat tails was also considered useful.¹⁴ The discoverer of squill solution, Dr de Christmas, was reportedly awarded the Legion of Honour for his services in combating the rat plague in France. In 1924 there was an outbreak of plague in the Orange Free State, where it was noted that veld rodents had been infected

with plague for many years. Few cases had previously occurred in humans, but in 1924 cases appeared in widely separate parts of the province. As Pietermaritzburg received much of its grain from that area, and as infected rodents could come down with the grain, it became necessary to take precautions. Rat destruction began in February with the appointment of two rat catchers. Three pennies were paid for every dead rat brought in over a period of two to three months. The rat-proofing of stores importing mealies (corn) from the affected areas was also undertaken, but the greatest area of risk was identified as the railway station. The receiving sheds at stations were not rat-proof and one was found to be infested. The matter was taken up through the Medical Officer for the province, who approached the Railway Department to address the situation. In 1925 the Medical Officer of Health (MOH) reported that rat destruction was carried on vigorously, with two men again being employed for this during the summer months. Poisoning with barium had proved ineffective, so arsenic and phosphorous were used with success. Three pennies per head continued to be given for dead rats throughout the year and about 13 000 rats were received and paid for. This appears to have been quite a successful method of controlling the rodent population as well as a poverty alleviation project. It was estimated that altogether 20 000 rats were destroyed in 1925. An arrangement to pay one shilling for any rat killed in railway trucks coming from up country revealed that not many rats were coming into town in this way. The rat-proofing of food and grain stores was enforced by the Borough Engineer in terms of government regulations that applied to new buildings. By 1928 the rodent inspector was reporting that the rat population in town was very small.

Malaria, spread by the anopheline mosquito, had been present in the coastal areas of Natal since the days of the earliest settlers, one of the reasons why the Voortrekkers preferred to settle in the Natal Midlands. In 1869 there was a report of an outbreak of a fever, thought to be malaria, at the mouth of the Umgeni River in Durban. It was estimated that 50% of the population was infected, with seven deaths, and it was put down to the insanitary condition of the area. Mosquitoes breed in standing water and Durban remained vulnerable with mangrove swamps and a higher winter

Malaria: An infection by malarial parasites, spread by the bite of *Anopheles* mosquitoes, characterised by chills, fever, sweating, anaemia, headaches and muscle pains. Typically has a relapsing cause; and may be fatal.

temperature that mosquitoes could survive. Pietermaritzburg, however, was at an altitude of 2 160 feet above sea level (659 metres) measured at the City Hall with lower night temperatures falling in winter below freezing on occasions. Malaria was only rarely seen as the mosquitoes could not survive. However, it had been reported at the bottom of the Town Hill area in low-lying land in the 1860s. At that time there was no awareness of its spread by mosquitoes, only that it appeared to be linked to water courses.¹⁵ Malaria continued to be present in river valleys, such as the Umgeni and the Umlaas, as far upstream as Camperdown ten miles (16 kilometres) to the south east of Pietermaritzburg. The city was thought to be malaria-free for some years and the next specific reference was in 1893 with eleven cases admitted to hospital. It may have been present earlier, but classified or misdiagnosed as fever: 40 cases were seen in 1896, 27 in 1898 and 34 in 1899 until the figure dropped in the early 1900s, possibly due to extensive cleaning up of the city's water, sanitation and drainage, which interfered with mosquito breeding. Dr James Allen, Medical Officer, stated in 1898 that malaria was unknown in the city, so it is possible that many of the hospital cases of malaria were found upon investigation to have been contracted outside the borough boundary.¹⁶

In 1927 one case of malaria was reported, but did not appear to be indigenous to the Pietermaritzburg area at that time. A few more cases were found in Pietermaritzburg, all imported from Durban. The MOH reported that generally a few Africans and Asians would have malaria in the summer months, but that this was generally contracted elsewhere in the province. However, in 1929 about ten cases, including four White children, seem to have been infected within the city. Examination of mosquitoes and their breeding had always failed to show the presence of any malaria-carrying type. In that year anopheline larvae were found in one pool, but it was not possible to tell if they were malaria carrying. Precautionary measures were, however, recommended and stagnant water was treated with oil or larvicide once a week. It was noted in 1929 that funds were provided for the installation of proper drainage in the Pentrich area, one of the most insanitary in the city. Larvae from all over the city were regularly examined in 1930, but no anopheline mosquitoes were found. Malaria was made a notifiable disease in that year and a by-law passed giving the Health Department power to control mosquito breeding on private property.

The twelve cases of malaria admitted to city hospitals in 1930 were still thought to be due to the occasional introduction of mosquitoes by train, car or other means. However, cases of malaria increased in 1931: 105 affecting

all races and fourteen deaths between February and April. All were shown to have been infected within the borough. There was again an outbreak in 1932, which affected most of the staff of Grey's Hospital causing one death: the incidence peaked in April and May, the end of the rainy season. The wards were over-full, with marquees erected at the hospital for non-Europeans and ward space borrowed from the municipal Epidemic Hospital. There were altogether 230 White cases and nine deaths, 75% of which were infected within Pietermaritzburg, and 700 non-European cases with 83 deaths.¹⁷ The worst affected parts of town were those bordering on the rivers and streams, particularly the Camps Drift area.

Treatment of malaria was by intra-muscular injections of quinine, which enabled patients to be discharged faster than giving oral quinine. This rise in malaria since the early years would seem to suggest that urbanisation had increased the amount of standing water in the city, through poor drainage and waste water disposal, and supported the breeding of the anopheline mosquito. Possible mosquito breeding areas were identified and mapped and anti-larval measures, spraying oil or Paris Green onto pools and standing water, were carried out at least once a week. In addition, the Borough Engineer's department filled in or drained some possible breeding sites. It was noted that oil spraying when weather conditions were unfavourable could not be relied upon to prevent mosquito breeding completely and that filling or draining pools and canalising or channelling streams and drains was also necessary. In 1933 there were 239 cases in the borough and 125 deaths in hospital from malaria, most of the victims living within half a mile of the Msunduzi River or its tributaries. People living in the low-lying Sobantu village were particularly hard hit, with an estimated 60% infected in the previous year. Few of those infected had taken malaria precautions, such as sleeping under bed nets, spraying or screening their houses. Most of the deaths came from outside the borough.

Spraying of all Sobantu houses was undertaken the following season. Anti-mosquito measures were extended to half a mile beyond the city's boundaries and included Plessislaer and Edendale. The MOH stated that under protest the Council funded half of this work and the provincial authorities paid the rest. However, prevention measures in these areas were considered to have started a month too late and there were approximately 38 deaths of borough residents in 1934 from malaria and 472 cases in all. The overcrowding in Grey's Hospital was described as deplorable with marquees and wood and iron huts erected for patients. There was an increased case detection rate of malaria ascribed to

the routine examination of all blood slides in the department's own laboratory, commenced that year as a free service. This enabled earlier diagnosis and treatment. Most infections occurred in the second half of February and the month of March; but there was an increase in cases during April due to people who went away for the Easter weekend, but failed to take precautions. A large number of cases came to the hospitals from the Table Mountain area, which contained low-lying valleys and rivers. In the borough the majority of cases came again from the City East area adjacent to the Dorpspruit (stream) and the Msunduzi River; Mountain Rise; and Camps Drift, where there was inadequate drainage and insanitary housing. When house spraying occurred there were few infections, except towards the end of the season. This seemed to confirm the findings of the Malaria Research Station at Tzaneen in northern South Africa that during the rains *Anopheles costalis* remains indoors during the day and could therefore be dealt with by insecticide spraying in the morning. However, when the rains slowed at the end of the season the mosquito tended to remain inside only during the evening, so morning spraying was inadequate.

The medical report from Grey's Hospital acknowledged that the anti-malarial measures taken in the city had much improved the situation commenting: 'in inverse proportion to mosquito control, so is the incidence of malaria'. By 1935 there were no cases of malaria in the borough.¹⁸ Cases and deaths from malaria in the 1930s are illustrated in figure 7.1.

A municipal laboratory was available for the examination of mosquito larvae to identify disease-carrying species and in 1936 over 10 000 larvae were handled. The lack of malaria in 1935 was ascribed, in addition to preventive measures taken by the municipality, to the cold weather of the two preceding winters, which had prevented hibernation of the *Anopheles costalis* mosquito in river beds around nearby Table Mountain. It was observed that infection was not contracted when the mean temperature fell below 60° Fahrenheit (15° Centigrade); and a rise in temperature could be taken as a sign that there was likely to be an increase in cases three weeks later. Measures to destroy the mosquito should therefore be increased seven to ten days after such a rise.¹⁹ Most anopheles larvae were isolated from muddy pools of standing water exposed to the sun. Clearly a sophisticated surveillance and control system was in place, enabling rapid responses to possible mosquito breeding. Only one case of malaria (*Plasmodium falciparum*) occurred in 1938, but the source of the infection could not be found.

Malaria continued at a low level, with one or two cases a year. Although numerous anopheline and culicine mosquitoes were breeding everywhere, they

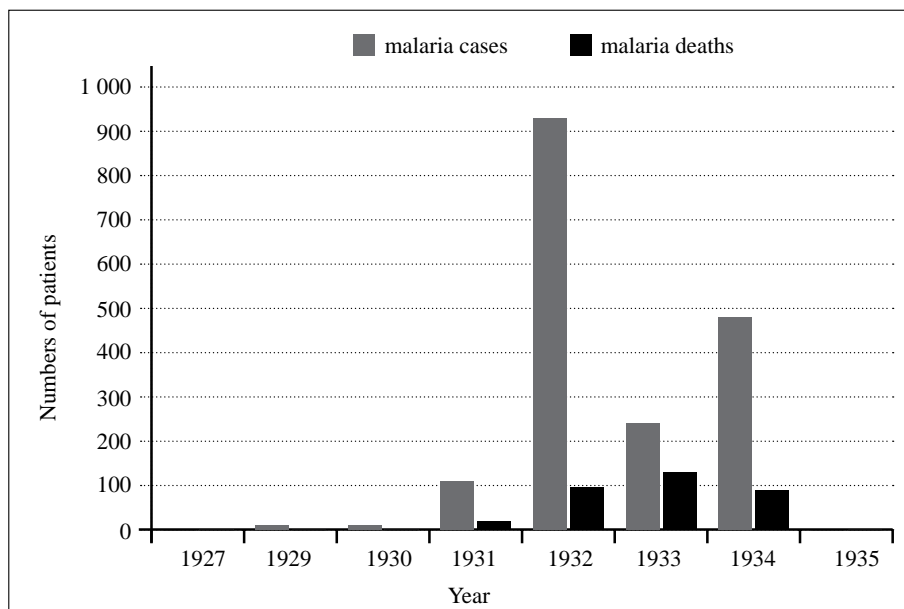


Fig. 7.1 *Malaria in Pietermaritzburg, 1930s.*

were not of the malaria-carrying strains. Filling of swampy areas, drainage work and tree planting were undertaken to dry out wet areas where mosquito breeding could occur. The siting of large military camps during the Second World War converted previously uninhabited bush to thickly populated areas. This raised the level of mosquito breeding and required preventive measures to reduce both the risk of malaria and the nuisance value of mosquito bites, which for many poorer children went on to develop into sores and leg ulcers from scratching and secondary infection. (With the twenty-first century trend to restore wetlands and remove alien trees, this original need to remove the threat of mosquito breeding may have been forgotten. It could become of greater importance in future with the threat of climate change.) House spraying was undertaken in 606 rooms during 1940, but phased out in 1950 to focus on known breeding areas, and the insecticide DDT was introduced. Generally over the remainder of the century only the occasional case of malaria occurred in Pietermaritzburg.

The 1928 report to Council by the MOH on conditions in Pentrich noted that refuse was buried or dumped in the open by the approximately 1 000 people in the area. In 1931 the method of disposal for household and other refuse was by tipping into disused clay pits. By 1933 updated sanitary by-laws

had been published, regulating the removal of refuse and refuse containers. The town was felt by then to be free from rats on the whole. In 1936 some 836 fleas from 153 rats were identified in the course of a plague-control survey. No cases of rat plague occurred in the borough that year and the rat-proofing of food stores and destruction of rats was actively pursued. The types of rat found were described as *Rattus rattus* (the town rat), *Rattus norvegicus*, *Mus musculus* (often brought into town from the country with grain and hay bales), *Rhabdomys pumilio* (living in gardens and scrub on the outskirts of built-up areas), *Otomys irroratus* (living in moist areas where there is thick grass and vegetation) and *Gramomys dolichurus* (living in nests in vegetation or the hollows of trees). All these types were of importance in the spread of plague and anti-rodent measures had to be carefully implemented in order to prevent plague importation from other areas of the country. The main focus in plague prevention was on extermination of the house rodent, inspections of newly-erected buildings for rodent-proofing, systematic inspections of existing buildings and monitoring cargoes coming into town. It was felt that the greatest threat to the population of Pietermaritzburg lay in the possibility of the infection of the town rodent population through transport of plague-infected rodents. The inland foci of plague were very far away and the port of Durban was thought to be well protected against the introduction of infected rodents by sea.

In the 1936 rat-flea survey, an average of five fleas was found per rodent and the types identified were:

<i>Xenopsylla cheopis</i>	63.3%
<i>Leptopsylla segnis</i>	26.1%
<i>Ctenophthalmus calceatus</i>	6.1%
<i>Dinopsyllus lypusus</i>	3.5%
<i>Chiastopsylla rossi</i>	1.0%

Of these, *Xenopsylla cheopis* had been proved a plague bacillus vector. *Ctenophthalmus calceatus* was considered of little importance, while *Leptopsylla segnis* had been described only rarely in South Africa as a plague vector. *Dinopsyllus lypusus* and *Chiastopsylla rossi* had both been described as capable of transmitting plague from infected to non-infected rodents. The Health Department routinely treated rooms with cyanide gas to destroy vermin such as fleas, bedbugs, lice and cockroaches and 372 rooms were fumigated in 1931. The most significant condition to be dealt with in this way would have been typhus, which is first probably referred to under the general heading of

fever in the records of Grey's Hospital prior to 1865, although it may have been confused with typhoid on occasion.²⁰ It had been recognised at the Cape since the 1600s, when it was probably introduced on the ship *Medemblick*.²¹

In 1927 there were 23 cases of typhus in two small outbreaks. Six of the Africans affected in one outbreak had come from a native recruiting depot and had developed the disease a week after their arrival in town. In the second outbreak, eight Whites in one family and one washerwoman were affected and this may have related to overcrowding. Five hundred and six dwelling rooms were fumigated with cyanide gas in order to destroy disease vectors and a considerable quantity of bedding was treated by a steam disinfectant. Ninety-five rooms were disinfected after occupation by infectious disease patients.

The typhus situation caused some debate as to whether or not the disease was louse-borne. In 1928 there were four White and three African cases and, unusually for louse-borne typhus, it appeared to attack those in rather better living conditions who seemed to be louse-free. The first case of murine, or flea-borne, typhus in Natal was identified in 1939 in Pietermaritzburg. It was suspected as the woman worked in a grain store and had typical

Typhus: Acute, febrile infections due to various Rickettsia, spread mainly by lice (epidemic form, *Rickettsia prowazekii*) or rodent fleas (murine typhus, *Rickettsia typhi*)

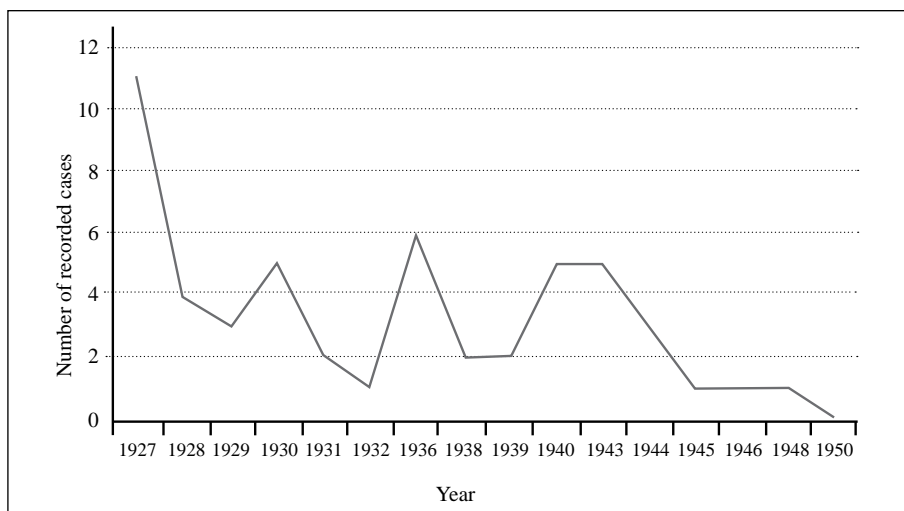


Fig. 7.2 Typhus cases recorded for the White population of Pietermaritzburg, 1927–1950.

symptoms. Detailed investigations of both the patient's blood and rats from the grain store, with the assistance of the South African Institute for Medical Research, established that the rats harboured the Rickettsiae or murine typhus and that the rat flea *Xenopsylla cheopis* could transmit the infection. A second patient was later found with the condition. This reinforced the necessity of rodent-proofing precautions, although the condition is much less serious than plague. The number of cases increased to five in the following year. A Rodent Inspector was employed to inspect buildings for rodent-proofing and rodents were trapped and poisoned with zinc phosphide, strychnine and cyanogas. Warfarin was introduced around 1952. The impact of fumigation, along with significant improvements in housing for Whites in this period, is illustrated by the decrease in the incidence of louse-borne typhus over a period of twelve years – from 0.6 per thousand people in 1927 to 0.09 per thousand in 1939. This decline in typhus continued over the next decade (figure 7.2).

Bilharzia: A parasitic disease caused by *Schistosoma* flukes, of which the haematobium form occurs in the KwaZulu-Natal area. They penetrate the skin from fresh water (while bathing) and infect the bladder causing genito-urinary symptoms and bleeding. Certain fresh-water snails are intermediate hosts.

The first mention of bilharzia (*Schistosoma haematobium*) was in the annual report of the Local Health Commission (LHC) of 1946 and a very high rate of infection was noted in the Edendale area. It recommended the construction of protected swimming baths to stop people swimming in contaminated streams. In Pietermaritzburg examination of streams proved positive for the snails that carried the disease and there was a high incidence of bilharzia reported in children from the Slangspruit area. The snail (*Physopsis africana*) was found to be more prevalent in the period December to February, then falling off. Warning signs were placed at spots where people bathed and rivers were dosed with copper sulphate in the summer. This provided a rapid and considerable reduction in the number of snails found and was repeated at two-monthly intervals. In 1948, 976 cases of bilharzia were seen in Edendale and they were treated with antimony or anthiomaline, which was not very effective. However, the infestation did not appear to cause much ill-health. In 1954, 1 857 snails were examined of which 91 were bilharzia related. The city continued into the 1960s treating its streams when necessary with copper sulphate and this was very effective in removing the snails. Only occasionally were cases of bilharzia reported from within the borough, notably from children

in Sobantu Village who had been bathing in the nearby Msunduzi River.²² The surrounds of Henley Dam did not contain the types of snail carrying bilharzia. Schistosomiasis continued to be rarely mentioned, although often presenting at Edendale Hospital. As part of the Parasite Control Programme run through schools at the end of the twentieth century it was reported that of 90 112 children seen, only five required treatment for the condition. This would appear to be a very low prevalence. The widespread introduction of piped water across the municipality in the 1990s probably gave people less reason to be in streams and rivers.

The provision of swimming pools had proved something of a liberal cause célèbre over many years. The Coloured community had motivated for a swimming pool in the early 1940s, arguing that use of the Msunduzi River and Dorpspruit resulted in bilharzia infection and drownings, but this approach was brushed aside. The local builders' merchant and benefactor, H.V. Marsh, had pledged £1 000 towards a pool in 1939 provided the balance was found by the Council; while ten years earlier use of the Buchanan Street Baths by the Coloured community had been suggested. Both initiatives were met with indifference. Throughout the 1950s appeals from the Asian community, supported by the liberal Indo-European Joint Council (I-EJC), for a swimming bath fell on similarly deaf ears. This was during a period when competitive White swimming was particularly strong in Pietermaritzburg, backed by considerable municipal resources used to maintain three pools. The Berg Street Indian Baths were opened only in September 1965. The R.G. Pilditch Baths in Woodlands (Coloured) and Northdale Olympic Swimming Pool (Asian), both products of the Group Areas Act, were opened in 1968 and 1978 respectively. Over this period African children were still being treated for bilharzia after swimming in the Msunduzi River (as noted above.)²³

Refuse removal in the 1950s was provided twice a week to all areas except Blackridge and Mkondeni. Street scavenging covered everywhere except Northdale and outlying areas, with two sweepers and a hand cart. Their duties were to keep the street drainage channels clean and free of weeds and to collect litter from the streets. There was no refuse removal service in Edendale for the 15 000 or so people who lived there in 1950. People were expected to dig pits and dispose of their refuse on site. A service was commenced for trading premises in 1951, using a communal dumping site. This continued into the 1960s and the first domestic refuse removal service was planned to start only in 1974. However, this was the year in which the LHC was to hand over Edendale to another government department and it is uncertain if the

service ever commenced. The area of Vulindlela never had a refuse removal service.

Along with general refuse, in 1958 a total number of 101 dead horses, cows, pigs and donkeys, and 1 290 dead dogs, cats and small animals, were collected and buried by the Council. However, not until 1961 is rabies mentioned, although there is reference to it having occurred back in 1907. It was reported in ten dogs and one cat in the city following occurrence of the disease in other parts of Natal. Restrictions on the movement of dogs in and out of the area and on the control of unleashed dogs in the city were imposed by the State Veterinary Department when the whole of Natal was declared a rabies-infested area. No dog could be taken out of Pietermaritzburg until six months after it had been inoculated and even then it required a permit. Similarly a dog had to have been inoculated at least 50 days before it could be brought into the city. Dog bites were reported regularly to the Health and Veterinary Departments, and arrangements were made for them to receive vaccine in hospital if rabies exposure was suspected. Eleven people were treated in this way. Mass immunisation of dogs was organised by the State Veterinary Department. After biting someone, dogs were observed for ten days. No human cases were reported in the city and a media campaign was conducted. Odd reports of infected dogs in the city and province continued over the next few years and the veterinary restrictions and compulsory inoculation of dogs remained in force.

The issue of litter as a problem in the city was mentioned again in the early 1970s and a public education programme was instituted. The MOH, Dr O'Keefe, stated that 'the Asian business area is covered in litter at the end of each day, particularly around the bus terminals in East Street. In the white residential areas some house-occupiers appear to encourage the dumping of their garden refuse on any nearby vacant plot – sometimes even on the sidewalk'.²⁴ This attitude of many of the city's residents towards indiscriminate dropping of litter and dumping of refuse has continued. Given its potential to be one of the most attractive cities in the country – forested hills, extensive parks, meandering river and striking Victorian architecture – it is odd that there has been such a complete lack of civic pride on the part of large numbers

Rabies: An acute, viral infection of the central nervous system spread through the saliva of rabid animals, characterised by spasms, inability to drink, paralysis and death.

of Pietermaritzburg's citizens from every sector of society. Whether or not this was associated with the apartheid system having fostered feelings of alienation and antipathy towards the city is unknown, but this does not explain dumping by the White community. O'Keefe lamented this again in 1979 when he said of Pietermaritzburg that 'it wallows in the rubbish it throws about all over the City and surrounding country – in spite of exhortations to "Keep your City Clean" and "Put Rubbish Here" signs placed throughout the town'. He felt also that the increasing tendency of retailers to package products in disposable containers was adding to the problem and that they should in some way contribute to the cost of collecting them once discarded on the streets and pavements.²⁵

The litter problem continued unabated. In 1985 the MOH, Dr Peachy, attributed much of this to the extensive pavement trading that had been allowed by the Council in the central part of the city. He commented that 'if this practice is allowed to expand it will lead to a lowering of the tone of the Central Business District area. First world health standards will suffer if third world trading practices are condoned and allowed without restriction'.²⁶ What went unappreciated was that most of the population were being kept at a third world socio-economic level and hence resorting to typical survival techniques such as street trading. The next MOH, Dr Walters, adopted a more sympathetic tone and stated that

recently, due to financial constraints and deregulation the citizens of Pietermaritzburg have on many occasions over the past year queried whether the quality of life was now dropping. This is the problem as first world and third world meet together, and it should be treated with patience and understanding and the desire to help each other; unfortunately at times there are moments of intolerance and selfishness.²⁷

Walters, who had come from Britain and not grown up under apartheid, perhaps had more understanding of the appalling social engineering that had led to the separate development of Whites and Africans towards first world and third world socio-economic conditions – but who were now starting to come together on the streets of the city centre.

With the increasing litter and refuse problem, the battle against rodents continued. The Chief Environmental Health Officer, John Butler, noted in 1990 that 'the war between man and rodents is unrelenting, since the victories achieved are of a temporary nature, therefore rarely resulting in a long-lasting reduction in their population.'²⁸ Places showing increasing infestation included premises close to streams, vacant properties with refuse dumped on

them, buildings used for keeping poultry and storm water drains near food establishments: 1 489 burrows were baited that year. Population growth, periods of unrest and increases in informal trading and settlements were aggravating the problems of litter and vectors, with fly breeding and mosquito breeding also rising. Fortunately, the mosquitoes were not of a malaria carrying species, but presented a nuisance value together with skin infections and leg ulcers from scratching.

Four hundred and eighty-nine complaints of dumping of domestic, garden and commercial or industrial refuse were received in 1990, especially in the Northdale, Eastwood and Woodlands areas. The discontinuation of municipal refuse containers by the Council refuse department exacerbated the problem. Much of the dumped refuse found its way eventually into streams and then the Msunduzi River. Then it would meander down through the rural areas, where people were still reliant on river water for domestic use, towards Durban. Periodic clean ups were held, but the rapid growth of the urban population, informal settlements and perhaps a sense of lack of belonging to a city still run by a minority White population meant the problem continued to worsen. Environmental conditions continued to visibly deteriorate in the centre of the city. As Butler said, 'with the present unsatisfactory unemployment situation, and encouraged by deregulation, the emergence of local entrepreneurship has taxed the less innovative environmental officer'.²⁹ With the litter, the problems of a century before returned – rodents, flies and mosquitoes. Fortunately, due probably to a very good provincial control programme in the north of Natal which kept the disease several hundred kilometres away from Durban and Pietermaritzburg, malaria did not re-establish itself in the city. The occasional case reported was contracted elsewhere.

Following incorporation of Edendale and Imbali into the city in 1996 extensive environmental health education sessions were held, together with the Council-supported Keep Pietermaritzburg Clean Association, to try to deal with the growing problem of litter and rodents. There had been a 30% increase in complaints about rats (numbering 252) and 377 complaints about dumping. Seventy-three clean up campaigns were held in 1997 alone and 272 tons of waste removed from the Old Greytown Road in Northdale. Complaints about rats increased to 369 the following year, including newspaper coverage of a child in an informal settlement who was bitten on the face. This led to formation of a Rodent Control Task Team until the situation had improved. Many of the problems related to inadequate refuse removal services at informal settlements and the newly constructed mass housing. Generally only

a skip was provided: it was both too high for children to reach and infrequently emptied, and resulted in a surrounding accumulation of refuse.

Rabies was mentioned again in 1984, with the national incidence the highest since 1941. Ten out of fourteen national cases occurred in KwaZulu, but none in Pietermaritzburg. An increase in rabies in the area started from 1987 when it was commented upon by Dr Bachmann of the State Veterinary Services as a result of inadequate vaccination.³⁰ This may have been linked to the political violence causing social breakdown and movement of refugees in the region.³¹ The Health Department assisted the State Veterinary Department with its annual immunisation campaigns. In 1991 two deaths were notified and by 1994 the Chief Environmental Health Officer was commenting on the increase in stray dogs, which 'have the run of both the informal settlement areas and the formal suburbs' in the city.³² This was associated with an alarming increase in the number of reported rabid animals, which continued to be linked to the unrest, massive displacement of population and movement into the city of people looking to establish safe residence nearer to employment opportunities. As people fled their homes during violent upheavals they were unlikely to take their dogs with them and control of animals was difficult in a shack settlement. The dogs roamed the settlements and scavenged in the piles of litter growing around unemptied refuse skips. In 1995 all the human rabies cases in the country occurred in KwaZulu-Natal, mainly due to people not accessing the correct preventive treatment after dog bites.³³ The situation was better in Pietermaritzburg: because of the large number of health facilities, the immunoglobulin was more accessible and people could be adequately treated. However, the continuing problem of uncontrolled dogs was illustrated by the fact that the Environmental Health Section had to follow up 487 reported bites in 1999. It has been hypothesised that the growing mortality from AIDS and tuberculosis in adults may have exacerbated the roaming dog problem: as parents died, children were taken to relatives' houses, but their dogs were abandoned.

At the start of the twenty-first century the waste management problems of Pietermaritzburg were still not resolved. Littering and dumping continued as a way of life for all sections of the community. From throwing fast-food wrappers out of car windows to dumping industrial waste by the truck load in scenic forests in order to avoid refuse disposal charges, a lack of care for the environment of what could be one of the most attractive cities in the country remained. A theory that littering results in job creation for the poor was held by some, not considering that these are unproductive jobs resulting

in no lasting benefit to citizens and diverting money from more constructive jobs and activities such as building roads and infrastructure. Refuse removal services were extended through Edendale and into new housing developments, with innovations such as community-based refuse collection, recycling and education. But as affluence grows, waste generally increases in a consumer society and the struggle with rodents and other vectors of disease looks likely to continue.

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HOUSING, HOSTELS, OVERCROWDING AND PULMONARY TUBERCULOSIS

THE FACTORS CONTRIBUTING to the spread of pulmonary tuberculosis are many: nutrition, immune status and occupation all play a critical part. However, overcrowding and housing undoubtedly have a major role, with overcrowding being the socio-economic factor most strongly related to the transmission of infection. In the context of South Africa, where inadequate shanty-type housing and the appalling hostel accommodation system used for migrant labour on the mines were widespread, it is appropriate to consider the disease of pulmonary tuberculosis in this chapter. These conditions resulted from what has been described by Packard as 'a product of a particularly pathological intersection of political, economic and biological processes' within South Africa.¹ Clearly at the end of the twentieth century HIV co-infection and AIDS take over as the major contributor to tuberculosis spread, but from an historical perspective over the last 130 years the housing environment, including the hostels for migrant labour linked to the massive development of the gold mining industry in the Johannesburg area, laid the background for the severe epidemic seen today.

In Pietermaritzburg in the early 1840s, before the era of industrialisation and urbanisation, there were only 15 or so lots with houses more substantial than clay or wattle-and-daub. The typical Pietermaritzburg settler cottage had shale foundations and thick stone walls. However, while houses may have been of basic construction, the plots were large. By 1844 there were 132 mud, stone or brick houses with either thatched or tiled roofs.² In 1855 municipal by-laws specified that walls should be not less than nine inches (23 centimetres) thick and from 1 January 1856 it was not permitted to build in wattle-and-daub.³ Following a disastrous hailstorm in 1857, which almost totally demolished many tiled roofs, galvanised iron was preferred to tiles or thatch as roofing material.⁴

On the other hand, Holden noted in 1855 that while Africans could live as domestic workers in town, earn an income and develop a European life style, their accommodation was often 'the most wretched hut, not fit for humans to

inhabit, and they can have no other, the master not being willing either to build a cottage, or to allow his people to do it, so that, whilst his horse must have a stable, his servant may sleep in a hovel, or in the kraal or the bush'.⁵ Should two workers marry they were obliged to leave the town and live elsewhere, so that they could build their own home. Clearly double standards for housing were set from the beginning of the settlement and already these living arrangements were causing great disruption to African family life. Early reference to housing for Asians in the 1870s noted that, although employers constructed barrack accommodation for their staff, Asians preferred to build their own houses, no matter how basic, rather than live in the barracks. It was observed that these houses were generally clean, well drained, with fruit and vegetables growing in gardens nearby 'in great variety, and considerable abundance'.⁶ Tobacco was also grown for consumption and sale.

By contrast in Britain, from where most of the European immigrants came, industrialisation and urbanisation were occurring at great speed. By 1851, 54% of the English were urbanised, increasing at 5% per decade. The standard urban house was the terrace, in monotonous straight rows, the worst of which were one-up one-down, back-to-back, with a total floor space of perhaps 40 square metres. Two thirds of Nottingham's houses were of this type, containing families of up to a dozen people. The Public Health Act of 1848 introduced the most important local authority structure of the period, the Local Board of Health. This enabled boroughs to facilitate sanitary improvement, with the appointment of medical officers of health to look after the public interest. In Edinburgh, as in England's industrial cities, behind the grandiose houses of the new town there lay formidable concentrations of destitution and squalor, in the form of overcrowded houses, tenements and slums. It was the collapse of a massive tenement building in 1861 and the loss of 35 lives that drew attention to the squalid living conditions, and the appointment of Edinburgh's Medical Officer of Health (MOH). Medical officers of health complained often of these insanitary housing conditions, but they continued to be replicated in mining areas outside their areas of jurisdiction. However, the 1866 Sanitary Act conferred upon householders the right to call local authorities to account for their failure to the Home Secretary.

Tuberculosis (TB):
A chronic, recurrent infection usually of the lungs, but may involve any other organ of the body, due to *Mycobacterium tuberculosis*. Infection is either by inhalation or ingestion.

In Glasgow in 1871, 30% of families lived in one-roomed dwellings and 41.5% in two rooms. Dr John Simon, in his *Second Sanitary Report to the City of London* described the overcrowding as 'this pestilential heaping of human beings,' and stated that 'death so largely comforts these poor orphans of civilisation'.⁷ During the nineteenth century tuberculosis was the number one cause of death in Europe and the link between industrialisation and the disease was well recognised.⁸ By the 1880s the housing of the working class in Britain had become so pressing a public concern that a Royal Commission was looking into it.⁹

Early Pietermaritzburg, however, had no such problems. Settlers were allocated large pieces of land on which to construct adequately-sized dwellings with gardens in a rural atmosphere and healthy climate. The first reference to tuberculosis is in the earliest records of Grey's Hospital, with six patients in 1875, two of whom died. There continued to be less than ten cases a year until 1880, which recorded twenty cases and nine deaths. The population of Natal was considered to be largely immune as a result of the benign climate and open air life. Dr J.F. Allen, who had arrived in Pietermaritzburg in 1875 and later became the city's Medical Officer, declared that 'towns have no echoing streets of three or four storey houses which exclude light and air from each other and the street between, no flats or slums'.¹⁰ However, by 1881 some concern was growing over the large Asian population in the centre of the city, which was seen as posing a threat to public health, and the Magistrate Charles Barter suggested that the city might have to consider 'relegating them to a special quarter or suburb'. He also described the native barracks as 'a sink of iniquity' and said a native village was required.¹¹ His thoughts were supported in the 1896 report of Magistrate W.H. Beaumont, who said 'there are places right in the heart of the city which are a disgrace and a danger to the community'. There were shanties at the lower end of town with 'filth, vice and drinking,' and he recommended the formation of Asian and African locations.¹²

Tuberculosis was thought to have been brought to Africa originally by Arab traders as it had been present in the Middle East and Egypt for millennia. It was then carried by European explorers, although little or no reference was made to the condition by the early Dutch travellers. It is considered, however, to have been known amongst the Zulu population of Natal prior to the European settlers, perhaps exacerbated by the coming together of large numbers of the population in military barracks under the leadership of King Shaka.¹³ It became more prominent at the end of the nineteenth century when Cape Town, a much larger, more industrialised, overcrowded and insanitary city than

Pietermaritzburg, experienced an explosive growth in levels of tuberculosis. The first record of causes of death from the MOH for Cape Town was in 1875 when mortality from tuberculosis was 3.07 per thousand population (all races), or 15–20% of total deaths. In England and Wales at that time the death rate was 2.2 per thousand men and 2.03 per thousand women. By the end of the century mortality among Black and Coloured Africans was more than ten per thousand.

In the latter half of the nineteenth century South Africa, in particular the Cape, had been actively promoted as a healthy destination for those suffering from tuberculosis in Europe, where there were major epidemics. While Spain and Italy had believed for centuries that tuberculosis was contagious, and taken certain measures to control its spread, England had rejected the idea, favouring a hereditary theory. The infectious nature of tuberculosis was not accepted there until after the identification of the tubercle bacillus by Robert Koch in March 1882.¹⁴ With no specific treatment available, the idea of a sanatorium originated with Dr George Bodington of Warwickshire in 1840, but the first were not established until the second half of the century, with many in Germany, other parts of Europe, and later in the hot, dry towns of the Cape Karoo, which hitherto had not experienced many cases of tuberculosis. The risks that these posed to the local population were not appreciated. The chairman of the 1914 Tuberculosis Commission recalled seeing at Beaufort West in the Karoo ‘the consumptives at the chief hotel, and of whom there were a number, sitting all day on the stoep [veranda], expectorating into an adjacent open water-furrow which was the only source of water supply of many dwellings and of the extensive coloured location just below’.¹⁵ It was only when compulsory death registrations were introduced in Cape Town in 1895 that the extent of the problem was realised and the immigration of tuberculosics no longer encouraged. The death rate from tuberculosis in the Karoo towns was then 6.2 per thousand for Whites and overcrowding in insanitary dwellings had caused the tuberculosis mortality rate in the Cape Coloured urban population to rise to 12.4 per thousand.

While the district surgeons had noted the rapid spread of tuberculosis in towns of the Cape Colony from the presence of immigrant consumptives, the problem only really came to the public’s attention during the South African War, with the ‘drifting of numbers of consumptives into the larger towns’. Many ‘became derelicts, dependant for support upon local authorities’.¹⁶ Tuberculosis was thought to have spread from White consumptives in the Karoo towns to the local population through the sale of their clothes and

possessions after death, and from their local servants. Similar spread to local populations had been observed in the tuberculosis resort towns of Switzerland, France (Biarritz) and Australia (Melbourne).

The advent of industrialisation led to the creation of labour centres, where Africans and Coloureds lived in densely populated compounds, hostels and locations from which the disease could spread amongst migrant labourers and then throughout southern Africa. This would have been assisted by the mining activity around Kimberley and Johannesburg that brought miners from England, in particular Cornwall, and other European countries, where an association between mining and tuberculosis had already been noted. By 1910 there were over 200 000 African mineworkers in the Johannesburg area.¹⁷ The system of migrant labour in South Africa, which brought together large numbers of men in confined spaces with inadequate conditions, and who then returned to their homes and kraals, facilitated the spread of the disease all over the country.¹⁸

Compulsory registration of tuberculosis cases was introduced in the Cape and Natal in 1904, ahead of Britain. But Pietermaritzburg was an exception due to the opposition of the Council, which lasted until 1907. In January 1905 the South African Native Affairs Commission drew attention to the 'marked increase in consumption' among Africans, attributing this to the adoption of European clothing. The tendency of Africans to have few windows in their traditional homes, and to cover them so that there was little ventilation, was also considered a contributory factor. A conference of principal medical officers of health in 1906 resolved that the matter was grave and 'a danger threatening the native and coloured races'. It drew attention to the 'unhealthy housing and generally insanitary conditions' in which they lived near towns and in labour compounds.¹⁹ In Natal the MOH had for some years been making representations regarding the increasing prevalence of the disease:

It is in the improvement of the very wretched conditions under which it is acknowledged the native and coloured elements of nearly all urban communities in South Africa are allowed to live that so little has hitherto been done. In other countries improvement in housing and general sanitation has been accompanied by a material reduction in the rate of incidence of tuberculosis, along with the other preventable diseases.²⁰

The early reports of the Corporation Medical Officer, around the turn of the century, are a little contradictory in terms of the absolute number of tuberculosis cases. Some information is available from the records of Grey's Hospital, but these are not limited to residents of the borough. However, what is clear is that there were only a handful of cases recorded for the years up to

1890 and then a gradual increase that relates to the period of rapid population growth and insanitary conditions in the city. Similarly the MOH of Durban reported seeing few cases before 1880. In 1903 the Pietermaritzburg City Magistrate noted that most Africans lived in shanties hired from Asians or Europeans. He noted that tuberculosis was on the increase, particularly among those in gaol and commented of Africans living in urban areas that 'the race seems to be deteriorating very much in physique and health'.²¹

The Acting Health Officer of the Province, Dr Haydon, stated that there was a high proportion of cases of tuberculosis amongst the African population, principally in men working in towns; but it was spreading to women and children in the countryside. This may have been due to the mining industry's practice of repatriating all diseased or injured miners, thus ensuring that the epidemic of urban-based tuberculosis soon spread to the rural areas.²² Haydon felt that there was a need to improve housing conditions and general sanitation in towns and labour centres, and reduce overcrowding.²³ It was also reported that in Pinetown, some 50 miles (80 kilometres) to the south-east of Pietermaritzburg near Durban, the prevalence of tuberculosis was on the increase, with 69 out of 1 400 Africans examined found to be suffering from it, a prevalence of 4.9%. It was felt to be acquired both at work and at home and then spread through families, so stricter attention needed to be given to housing conditions.²⁴ By 1910 there were several hundred thousand men moving back and forth annually between their rural homes and the mines.²⁵ Around this time the number of tuberculosis cases was increasing in Pietermaritzburg, with sixteen in 1910, 21 in 1911 and 23 in 1912. The provincial incidence was reported at five to ten per thousand for Whites and Coloureds between 1904 and 1909. For Asians in the same period a difference was noted between the indentured and the free, with the rate being higher amongst the former due to inferior living conditions.

The increase in tuberculosis, the subject of the comprehensive report of the commission of 1914, was to be one of the catalysts along with the plague outbreaks of earlier years for the popularity of urban racial separation as espoused in the Natives (Urban Areas) Act of 1923. Conditions in Edendale at the time of the First World War were described as those of 'an industrial slum'.²⁶ For Whites, however, the Tuberculosis Commission noted 'an almost complete absence of those conditions which favour the occurrence of tuberculosis'. Even where housing was relatively poor, with the 'magnificent climate...outdoor life is always possible. Extremes of cold, so common in Europe, did not exist'.²⁷

Overcrowding in the poorer quarters of Pietermaritzburg was commented on in 1914 and it was recommended that a native location be established with proper housing. Legislation had enabled local authorities to do this since 1904. The Public Health Department noted a large increase in the number of tuberculosis cases in coloured persons (that is, Africans) thought to be under-reported as many tended to return to their kraals when ill. The Inspector of Nuisances, James Niven, commented that 'the unnatural lives of Natives in European communities...together with the absence of washing accommodation for Coloured persons in all urban communities is a most serious problem'. He noted that while European houses were quite adequate, African quarters were far from satisfactory and owners had to be convinced of the need to make the necessary improvements. Buildings declared unfit for human habitation by his sanitary inspectors were demolished, usually after persuading the owners, but occasionally by resolution of Council. By the end of 1914 he felt that there were no premises within the town that could be classed as slum property 'as one knows such to be in the old country;' although there were still many properties which should not have been allowed to exist and too many people living under unhealthy and insanitary conditions. There were still many cows and horses in residential areas and Niven argued that this also was unhealthy and should be restricted.²⁸ A Native Women's Home had been established using funds from the Native Administration Fund, financed by income from the municipal beerhalls and eating houses.

By 1915 the incidence of tuberculosis was still increasing rapidly in the city with 66 cases among Asians and Africans compared with just nine in 1911. Niven stated that their overcrowded buildings, some unfit for human habitation with an absence of fresh air and lack of washing facilities combined with restricted and inconveniently situated sanitary facilities, were causing increasing health problems. Accommodation had damp floors, was poorly lighted and ventilated, and lacked any consideration of moral, spiritual or physical welfare. He felt that this was posing a 'distinct menace to the health of the whole community' and that the presence of large numbers of African men, without their women, was a danger to White and Coloured women.²⁹ While this latter statement sounds rather less sympathetic than some of his other comments, it may have been a tactical approach designed to stimulate the interest (and hence finance) of councillors through an appeal to the self-interest of their White constituency. He recommended the provision of suitable houses for all classes and sections of the community. The National Council of Women also proposed a cottage home, to accommodate twelve female sufferers of

tuberculosis. The response of the Council was to select a site based on access to water and sewer connections, electricity supply, and the fact that the area was already largely occupied by Africans. There were strong objections to the site by the burgesses.

In 1919 the mortality from tuberculosis per thousand was compared with other cities:

East London	0.27
Johannesburg	0.49
Pietermaritzburg	0.90
Cape Town	1.01
Port Elizabeth	1.65

Nationally, according to notifications, typhus was in fact more common than tuberculosis with 6 992 cases reported in 1920 compared with 3 313 cases of tuberculosis.³⁰ Pietermaritzburg's housing situation must have been improving considerably for Whites at that time, as 1 276 private houses, averaging six rooms, were constructed between 1902 and 1918. They were presumably mostly built by Whites, whose population had grown by only 2 907. The new suburb of Scottsville was being developed, with spacious one acre plots. However, the situation for Asians and Africans continued to decline, particularly for those living on the outskirts of the town in areas such as Hathorn's Hill and New Scotland. The need for a native location was motivated on the grounds that it would relieve pressure on housing to a significant extent, as 'many of the houses at present occupied by Natives could be improved and made suitable for the better class Indians'.³¹ Much discussion was held regarding possible sites for the location, with objections made by local residents.

In July 1919 a national committee was appointed to investigate and report on the question of housing in urban areas following the influenza epidemic which, by its appalling mortality rate, had drawn attention to the inadequate housing conditions under which the majority of the African population lived. The committee's report, published in January 1920, disclosed a very serious situation regarding both the shortage of houses in most centres in the Union, and the unsatisfactory and insanitary housing conditions that existed in many of the larger towns.³² A Housing Act was passed later that year providing for loans of public money for the construction of dwellings, conferring special powers on local authorities in this respect, and establishing a Central Housing Board under the Department of Public Health. In Pietermaritzburg, Dr Woods the MOH, reported in 1921 that the increasing population, growing at around

4% per annum since the war years, was starting to experience overcrowding. A census was undertaken to ascertain housing needs and this resulted in 375 applications, made up as follows:

Municipal employees	19
Civil servants	41
Railway servants	95
Residents at Fort Napier	50
General	170

It was then decided to build 30–40 semi-detached houses with two rooms and a kitchen, ‘suitable for the accommodation of the poorer class,’ presumably for Whites. However, for Africans the situation was worse in both domestic servants’ quarters and the labour barracks where they lived, and the building of a native village seemed ever more urgent. With respect to Asians, while their housing in the city centre was being cleaned up, there were areas at the periphery of the city where conditions were very bad. This was due, according to Dr Woods, to the practice of letting plots of land to Asians for low rents on which they constructed dwellings described as ‘shacks built of scrap iron’.³³ The answer, he felt, was in laying down minimum requirements for such buildings and demolishing existing structures.

By 1923 Woods remarks that housing for Whites (population 18 482) was reasonably adequate in that rooms were not overcrowded, although on occasion two families shared houses to save money. Almost all White houses were of brick, detached, with their own plot of land of one eighth of an acre or more. This description places the standard of White housing far above what existed in England at the time. Amongst the Asian population (7 769) there were many who lived in separate, well-constructed dwellings, but the rest in town were in barracks or tenement houses. The barracks were rows of squares of single-storey buildings, usually constructed of brick although some were wood and iron, let out as one- or two-room dwellings. Most complied reasonably well with the by-laws. The other half of the Asian population lived on land bordering the town, mainly in two locations – Hathorn and New Scotland. The land there had been divided into small, half-acre lots let to Asian gardeners who built small dwellings, described earlier by the MOH, on them. Rooms were added to accommodate Asian or African lodgers until they contained as many as 15–30 people. A survey showed that 42 Asian-owned dwellings were occupied by 291 Asian and 303 African tenants, or an average of 14.1 people per dwelling. This compares with the norm for Whites of five

per house. Clearly this overcrowding would have impacted on the spread of infectious diseases of many types, including tuberculosis.

Woods considered the African population of the town (then 11 975) in three groups, the first being single men who lived on their employers' premises as house servants or store employees. They formed more than half of the African population and their accommodation was generally compliant with the by-laws. The second group were single men working as casual daily (togt) labourers, a few monthly workers in stores and factories, and some house servants who found their own accommodation. Many of these lived on White premises, giving some small service in lieu of rent, but occupied stables or other outhouses often without sanitary provision. Others were tenants of Asians on Hathorn's Hill, in the Asian quarter below Retief Street, in New Scotland or elsewhere. Almost all of these men occupied dwellings unfit for human habitation. It was estimated that there were more than 1 000 single men housed in this way. The third group comprised married men who lived in the borough with their wives and families. There were about 400 to 500 such families, totalling some 2 000 to 3 000 people, most of whom lived on townlands occupying either dwellings erected by them or living as tenants of Asian landlords at Hathorn's Hill or New Scotland. These were in many cases unfit for human habitation.

The city dwellings, it was thought, would be considerably improved by the removal of the pail sewerage system. Other areas, however, lacked sanitation, water and refuse removal, and the houses were hovels. The only factor minimising the risk of disease was the fairly large area of land in relation to the population. The Council was planning to start to address the issue by the construction of dwellings for single men, the start of the notorious hostel system. This, in attempting a quick-fix solution to one problem (sanitation), was to lead to far greater consequences not only from health problems such as tuberculosis, but social disruption caused by housing large numbers of single men together, away from family structures. The design was of two rectangular blocks, each accommodating 700 men, with communal sanitary facilities, showers and a recreation shelter. The first part was built in 1924.

In 1925 the mortality from tuberculosis in Whites was ten, which was 6.1% of total deaths or 0.5 per thousand. This was similar to the previous year at 0.48 per thousand. All deaths were of people aged over 36 years and it was felt that all cases were reactivations of existing disease. In the Coloured population there were five deaths from tuberculosis, or a rate of 3.4 per thousand, compared with 2.5 in 1924. There were nineteen deaths amongst Asians or 2.4 per thousand;

and 57 deaths among Africans or 4.7 deaths per thousand. This was a slight reduction from 5.26 the previous year, but considerably higher than the other races and ten times that of the White population. It was noted in the annual reports of Grey's Hospital that large numbers of African males presented in the late stages of tuberculosis and 24% of that hospital's deaths in 1930 were due to tuberculosis. There was some suspicion also that the Masters and Servants Act was being abused by employers: they would allow their staff to attend out-patients, but not be admitted for treatment. The incidence of new cases of tuberculosis overall, however, stood at 1.5 per thousand, significantly below the national level recorded at that time (just over 5). Woods notes in his report of 1924 that the picture of tuberculosis was not complete, with the number of new cases notified far less than the deaths occurring. This may also be due in part to mortality occurring from longstanding disease, which was essentially untreatable in those days, rather than rapid spread of new infections. However, he took action by writing to all medical practitioners asking them to notify. The high death rate in non-Europeans he ascribed, at least in part, to their very poor housing situation and urged that this be improved as it was contributing to the incidence of tuberculosis amongst Whites.

Seventy-one new houses were built in 1925, but it was considered that this was not keeping up with the increase in the city's population. Twenty houses were built by the Council to relieve the shortage. They were small workmen's cottages with three bedrooms and a combined kitchen and sitting room. The first section of the native hostel was completed for 150 single men. It was planned to accommodate 700 men in the future and it would appear that still no thought was given to future health and social problems that could ensue from such unnatural accommodation provision. The Natives (Urban Areas) Act of 1923 had the intention of clearing Africans out of mixed urban areas and re-housing them in locations, making provision for the administration, financing and policing of these locations.³⁴ Eventually in Pietermaritzburg the site for a native village was decided upon by a referendum of white voters, at what is now known as Sobantu. The MOH at the time hoped that this would relieve the 'deplorable conditions under which large numbers of the Native and Indian population are living' that were contributing to the high incidence of tuberculosis.³⁵ Plans were made for an initial phase of 50 brick houses with two rooms each and 25 semi-detached brick cottages.

At this time people with tuberculosis were admitted to Grey's Hospital. It objected to receiving White patients with tuberculosis on the grounds that they were not suitable for general wards. However, no other accommodation was

available for them and there was hardship if Grey's would not accept them. Two were sent to the Nelspoort Sanatorium, but it was a great distance from Pietermaritzburg. The MOH recommended that the government remedy the situation. The housing problem was easing for Whites as the rate of population increase was slowing and 190 new houses were built in 1926. These were well-constructed, spacious, detached and stood in generous plots, many in excess of one acre. Whites were described as 'well housed, and in this respect living in conditions which are perhaps exceptionally favourable'.³⁶ In 1927 there were 20 deaths from tuberculosis, three White and 36 Black.

There were still large numbers of people living in the barracks, although some of these had been renovated, and some new houses and tenements built in the Asian Quarter. New sewers were laid and old, insanitary privies demolished, which made the area cleaner and healthier. However, the area between Edendale Road and Pentrich, and Hathorn's Hill, were still considered insanitary with a large number of new dwellings. These were described as hovels with pit latrines and no proper water supply, surface drainage or refuse removal. There was a reluctance to demolish them as people would be rendered homeless, but they were considered a serious threat to the health of the town and improvements were recommended by the MOH. It was felt that the native village should be expanded and 100 houses were under construction in 1927.

In 1928 the MOH noted that White mortality from tuberculosis was now very low, but that amongst other communities was high, and it was his view that this would continue until the housing situation was improved. In the same year 70 new houses were built for Whites, although the housing situation for them was more than adequate. Forty-four new houses were built for the Coloured population. In contrast, housing for Asians and Africans had not much improved from previous years. While Whites enjoyed a standard of accommodation and spaciousness unparalleled in the homelands of their forefathers, it appears that for other races they were re-creating, or allowing the creation of, urban slums similar to those from which their families had fled. The MOH lamented that the housing situation for Asians and Africans was worsening as the population increased. It was estimated that over 1 000 people – half Africans, half Asian – were living in up to 150 houses in the Pentrich area. He reported to Council that a considerable portion of the land was below flood level and unsuitable for housing. There were no proper roads or surface drainage and more than half the houses were considered unfit for human habitation. The habitable ones were generally constructed of wood and iron. Most of the houses were owned by Asian market gardeners who took in

African lodgers, raising the occupancy to twenty or more. The suggestion was made that this situation was due to the fact that Asians did not have permanent tenure of the land they occupied. The MOH, Dr C.C.P. Anning, recommended that, in addition to establishing proper drainage, night soil removal, refuse disposal and water supply, African housing should be constructed by the municipality to decongest the Asian areas and the Asian tenants then be given fixed tenure.

In 1929 the tuberculosis death rate in the White population was the lowest for 20 years at 0.15 per thousand. The rate for the other population groups remained at ten times that level. Housing continued to be built for Whites (50 houses in 1929) and the shortage was overtaken. Thirty-four houses were built in the Pentrich district, mostly by Asians. However, the insanitary conditions remained and the MOH thought that they would continue until satisfactory housing was provided in the native village. In fact, the problems actually worsened as people were ejected from certain areas and had to find shelter in the Pentrich or Hathorn's Hill areas. The MOH continued to express concern that both Asians and Africans lived in 'shacks unfit for human habitation, and amid surroundings which are insanitary in the extreme'.³⁷

Anning expressed the view in 1931 that the incidence of tuberculosis reported was very inaccurate, as cases were either not notified at all, or else the same cases were notified repeatedly by several different practitioners consulted by the patient. The death rate in Whites was considered more accurate and, at 0.34 per thousand, was higher than during the previous five years. However, this was only one sixth of the rate in other races, a reflection of the socio-economic conditions of the time, including housing, overcrowding and nutrition. The MOH of East London expressed similar sentiments in his 1931 annual report noting that, even if slums were removed from White urban areas, segregation had resulted in 'overcrowded unhealthy slums areas in locations, hot beds of tuberculosis and venereal disease removed at some distance from town'.³⁸ One hundred houses were completed by the Council in the native village in 1931 and in 1932 the 600 or so Africans of Hathorn's Hill were relocated there. Hathorn's Hill was subsequently cleared and 284 shacks demolished. More were relocated to the village from Camps Drift in 1933. A survey of housing in 1933 was undertaken in the insanitary Camps Drift, City East and Maryvale areas. The results are summarised in figure 8.1.

At that time health services still had little to offer tuberculosis patients apart from nutrition and rest. The spread of the disease in South Africa had much to do with the migrant labour system on the mines and the grossly inadequate

	Camps Drift	City East	Maryvale
Number of dwellings	272	105 (Barrack dwellings)	83
Total number of rooms	722	937	
Number habitable	200 rooms habitable; 79 could be made habitable	Few	6 dwellings
Number unfit for habitation	443 rooms – mainly wattle-and-daub or wood-and-iron	Most – structural problems and insanitary	77 dwellings insanitary
Average people per room	2.4 (non-Europeans)	3.05 (all races)	

Fig. 8.1 *Housing survey of insanitary areas in Pietermaritzburg, 1933.*

hostel accommodation system. The Medical Superintendent of Grey's Hospital commented in his report of 1934 that 'the inroads that pulmonary tuberculosis makes amongst Non-Europeans is startling'.³⁹ Of the 120 patients admitted from in and around Pietermaritzburg more than half died, mostly within a few days as they presented with very advanced disease. A local branch of the Natal Anti-Tuberculosis Association (NATA) was formed in the city in 1934 with the chairman of the Council's Public Health Committee as head of the branch and representatives of all local public bodies and all races on the committee. Largely as a result of the publicity brought by NATA the government allocated money for a Natal Tuberculosis Hospital near Durban and agreed to refund the costs of establishing tuberculosis clinics in Pietermaritzburg and Durban. The tuberculosis clinic started in 1934 in Grey's Hospital, but was run by the MOH. The Christmas Stamp Fund decided to build a preventorium for children who had been exposed to tubercular infection at home, had had the disease, were malnourished, or frequently absent from school because of ill health. The year had been particularly unfavourable for people with tuberculosis and other chest diseases, having had unusually heavy rainfall that left low-lying areas damp for much of the time. Economic conditions among non-Europeans had also been poor, so that of 46 deaths in that year from tuberculosis, 23 occurred in the City East area and 10 in Camps Drift, Slangspruit and New Scotland. For the Asian population most of the deaths were of young women aged under 35 years old. This was thought to be due to long hours spent by

them in ill-ventilated, often damp and overcrowded dwellings, while the men at least spent part of the day out in the fresh air. While around 3% of White deaths were due to tuberculosis, the figure was between 11% and 13% for non-European deaths.

In his report of 1935 Anning again attempted to draw attention to and sympathy for the plight of non-Europeans in the city. While the White death rate was almost the lowest in the Union, he commented that non-Europeans were much less healthy and put this down largely to overcrowding and unsatisfactory housing, combined with ignorance. He noted that 'very little has been done so far to deal adequately with this problem, and the condition of many of the dwellings in the Camps Drift and City East areas is deplorable.' While he felt that the proportion of deaths due to preventable disease was slowly being reduced

there remains an absolutely unnecessary wastage of human life due to diseases of dirt and bad housing. Every individual life has not only a sentimental, but also an economic value. For the future welfare and prosperity of the town it is essential that the health of the Non-European section should be raised nearer to the fine level achieved by the European population.⁴⁰

These statements define concisely the divergent impacts that urbanisation was having on the health of different communities in Pietermaritzburg. All the best that development could offer – prosperity, housing, water, sanitation and education – had raised the level of health of the White population to amongst the best in the world. Indeed, the infant mortality rate (IMR) for that year, at 22.4 deaths per thousand live births, was stated to be the lowest in the world. This impact of development on health is illustrated by the decline in the tuberculosis mortality rate for Whites shown in figure 8.2. Conversely, the non-European population was feeling the full impact of moving from a rural lifestyle to the worst that cities could offer, with slum housing, inadequate sanitation and drainage, poor refuse removal, and overcrowding. Anning believed that while officials in the Council were willing, there was a distinct lack of enthusiasm for the abolition of slums and overcrowding by the public and City Council.

The lower mortality for Whites from tuberculosis was sustained during the late 1930s and 1940s. This was considered to be partly due to improved facilities for diagnosis, observation and treatment; as well as to increased awareness by the general public of the need to catch the disease early. Contacts of cases were checked by tuberculosis visitors and seen at a special tuberculosis clinic started up in 1934. However, while deaths were declining from earlier

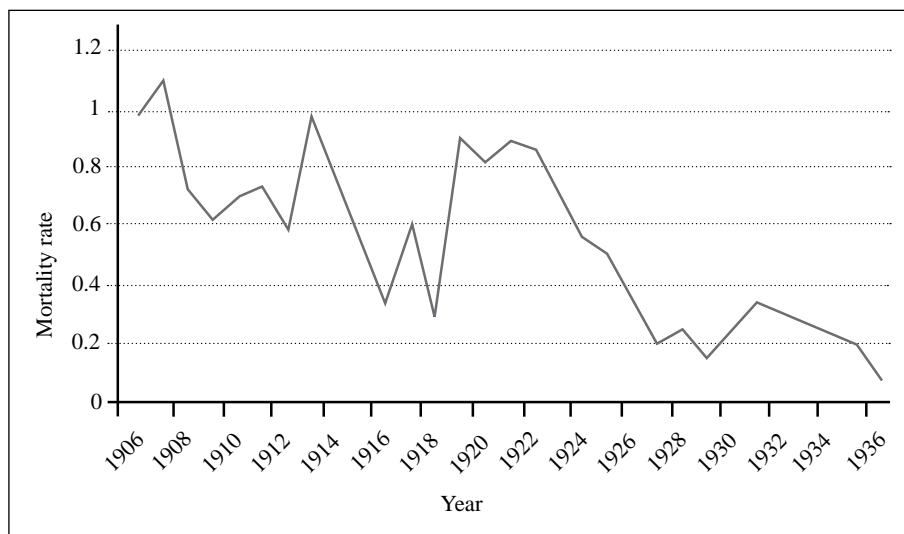


Fig. 8.2 *The decline in tuberculosis mortality for White residents during the period of improvement in housing and sanitation, 1906–1936.*

diagnosis and more effective treatment, the number of cases was increasing. Of the 102 cases notified in 1934, 66 came from the City East and Camps Drift areas and tuberculosis continued to be a particular problem amongst Asian and Coloured communities. Home visits confirmed that 86% of new cases came from overcrowded living conditions and 77% from houses where lighting and ventilation were inadequate. As Anning said, ‘tuberculosis is rife where ignorant poverty sleeps in overcrowded, dark and stuffy rooms. Where sun and fresh air can get freely into dry, clean rooms the tubercle bacillus has little chance of multiplying’.⁴¹ An investigative committee looking at Asian housing in Natal reported that the barrack system of the 1920s and 30s, where many lived in the centre of town, was one of ‘the greatest evils the Local Authority has to cope with. The barracks generally consist of rows of rooms badly planned and constructed, and often having no light or ventilation. Each room is usually occupied by a separate family, and the sanitary conditions surrounding many of the barracks are very bad and a menace to health’.⁴² How to deal with these areas, however, was clearly a contentious political issue. Towards the end of the 1930s a few Asians began to buy houses in predominantly European areas. Whites, who previously objected to Asians on the score of a low standard of living, now objected to them living in better class houses. The Broome Commission set up to investigate what was termed

penetration visited Pietermaritzburg in early 1941 but eventually found less than 250 cases (1927–45) of what was essentially a Durban issue. However, what Sir Francis Broome did identify was the deplorable standard of living and socio-economic provision for Asians in the city.⁴³

In 1937 regulations relating to apartment houses were published: these covered hostels, barracks and houses in multiple occupation in the city, not private blocks of flats. They defined requirements for kitchens, water supply, ventilation, floor area per person, laundry facilities and general hygiene. Latrines were required to the ratio of one latrine for twelve people. Segregation of the sexes was required for those over 12 years old, save for married couples; and all infectious diseases were to be notified to the MOH. The Slums Committee of the Council approved a new sub-economic housing scheme for Asians in the same year with 200 houses, but subsequently rescinded the decision in respect of the chosen site. A notice to Asian tenants at Camps Drift to vacate Council land was withdrawn on representation from the Natal Indian Congress (NIC). Land was to be set aside for White occupation and an unsuccessful attempt was made to secure Asian representation to discuss ‘the question of setting apart of areas within the City for Europeans only’.⁴⁴

It was thought that the African population ‘suffered from apathy, ignorance and fear of the hospital,’ and it was hard to attract regular attendance at the tuberculosis clinic.⁴⁵ It seemed that, in the first half of the century at least, Africans went back to the rural areas when they felt ill and unable to work, rather than seek help. In 1934, 102 cases of tuberculosis equated to a rate of 22.8 per thousand people overall. Of these 17 cases were White, or 8.2 per thousand; while 85 were non-European, or 35.5 per thousand people. The rate was thus 4.18 times higher in non-Europeans. In Cape Town at this time the equivalent rates were similar for Whites to those in Pietermaritzburg and approximately 50 per thousand for non-Europeans. Home visits were made to all communities with tuberculosis, suitable advice was given and pamphlets circulated to the public in English, Zulu, Hindi and Tamil. NATA was also active in the area. These principles of outreach and contact tracing had been pioneered in Edinburgh at the Royal Victoria Hospital around the turn of the century.⁴⁶ In adopting them through trained health assistants, Pietermaritzburg Health Department was thought to be ahead of other cities in the country. In the 1930s there were still no suitable antibiotics to treat tuberculosis and the only specific therapy was surgical collapse of the lung (artificial pneumothorax, or APT), but there was a lack of both hospital accommodation for non-European tuberculosics and of facilities for APT. It had been found in Europe that patients

treated with both sanatorium care and APT had a 20% better survival rate than those without it. In Michigan this was done for 87% of patients in the 1930s and it is noted that the MOH visited America to study tuberculosis treatment. While both sputum examination and chest X-ray were used, it appears many were sputum negative and diagnoses were made on the basis of X-ray changes. In the municipal tuberculosis clinic in 1936 only seven positive sputa were recorded out of 123 samples taken (5.7%), but 68 positive diagnoses out of 267 (25.5%) were made on the basis of chest X-rays.

In 1930, the Council adopted the principle that no single or semi-detached dwelling was to be erected on any lot smaller than one quarter of an acre, which would have been considerably larger than the average size in England, and indicates the relatively high standard of living enjoyed by many Whites in South Africa. While the size of lots for other races was less than this, at least the principles of adequate light and ventilation were adopted for the new housing projects in Sobantu and in later years by the Local Health Commission (LHC) in the Edendale area. It was noted in 1936 that the Native Village (Sobantu), although housing only 1 100 out of 13 000 Africans in the borough, was considered one of the best locations in South Africa. Three miles (five kilometres) from the centre of town, it comprised 254 well-constructed brick houses supplied by communal water standpipes, with an average of 4.3 people per house. Sanitation was unfortunately by the bucket system, with buckets of waste removed twice a week, rather than via the water-borne sewerage system enjoyed by much of the rest of the city. Sobantu was governed by the Native Village, Hostels and Church Site Regulations of the Native Administration Department and life was strictly regulated. For example, regulation 13 stated that 'any Visitor to the Village desiring to remain longer than 3 hours shall report himself to the Manager who shall, on his being satisfied that the applicant is a fit and proper person, issue to him a temporary permit'. The residents could elect an Advisory Board to make input into administrative matters, and a school had been provided.

In 1938 the MOH, by now Dr Maister, analysed 54 African cases of tuberculosis and noted that in 23 cases notification was synchronous with death. In four cases death followed within one week, fourteen patients died within one month and seven died within two months. In one case each, death followed within four, six, eight, fourteen, sixteen and twenty months. This indicates that not only were patients presenting late, well into the illness, but that the treatment available at that time offered very little hope of survival. The recommendation at that time was for isolation of patients to try to limit the

spread of the disease, but clearly by the time they presented they would have been ill for several months and already infected many people. This is reflected in the increasing incidence rates. The comments in the reports start to take a slightly different tone under Maister and less sympathy for the plight of those living in urban slums and squalor is evident. Their situation is now described as a menace to the health of Pietermaritzburg, with no sanitary control. He states that 'Edendale, Plessislaer and Raisethorpe have steadily increased in size and the menace is becoming proportionately greater'.⁴⁷ The population of Edendale and Plessislaer was estimated at around 10 000, or almost one quarter of the population of the city. Edendale landowners had taken to property rental for income and people from rural areas, who found it difficult to settle legally in Pietermaritzburg, came to this and other areas adjacent to the city. A government commission of enquiry had been appointed to look into these 'black belts' as the peri-urban areas were now described. Legislation was available to order the demolition of insanitary dwellings in terms of the national Slums Act. A total of 356 were so described, but constraint was exercised and only twelve were demolished using public health by-law 19. This action was usually only taken when houses were vacant, as the occupants would have nowhere else to go.

A survey of housing was submitted to Council in September 1937. It indicated that only 39 Whites required rehousing, or 0.2%, compared with 3 025 non-Europeans, or 14.2%. The City Engineer reported that during the year, 61 dwellings were erected by Whites and only seven for non-Europeans, illustrating the great divergence developing between the needs and socio-economic circumstances of the different communities. Improvements in health for the White population were probably related in some part to a reduction in overcrowding. However, grossly inferior health status for non-Europeans could be the only logical consequence of these inadequate developments in housing. To make the African health situation worse the hostel system was also in place, although fortunately not as extensively as in the more industrialised and mining cities. There were now three Council hostels for single Africans, two for males accommodating 239 (East Street) and 105 (Ohrtmann Road) respectively. They were connected to the sewerage system. A women's hostel in Church Street accommodated 160 single women. The hostels were under the control of the municipal Native Administration Department: they had White superintendents and were governed by the Natives (Urban Areas) Act. About two thirds of the Africans residing in the town were domestic servants who lived in quarters on the property of their employers and were generally

considered easier to control. The only special Asian Council accommodation at that time consisted of two compounds housing the sewage workers and scavenging gangs where altogether 59 workers lived with their families. Plans were approved by Council to build 50 houses for Asians near the centre of town, and 100 for Africans in the Native Village, for completion in 1940. People would be moved to them and their slums demolished. A railway housing scheme was also planned. Plans to rehouse Asians were far below requirements and it was becoming very difficult, even with the assistance of 0.75% sub-economic loans, to keep rentals at a level within the means of the poorer workers. Tentative rentals were 7–9 shillings a week, while average incomes were between £2 12s and £4 4s per month. Clearly, incomes were inadequate to sustain a family outside slum conditions and poverty.

There was a slight drop in pulmonary tuberculosis notifications in 1939, down to 80 from 86 the previous year. While Asian, European and Coloured patients could now be sent to King George V Hospital in Durban (and NATA made grants to families to enable the breadwinner to accept hospital treatment), isolation for African patients was a problem and their homes were too overcrowded to allow them even to occupy a separate room. The City Council approved a rent subsidy scheme whereby Africans with tuberculosis in the Native Village could be moved to larger houses on condition that they conformed to the Health Department's instructions on isolation, in which case the increased rental would be paid by the municipality. The native health assistants and staff would supervise the isolation. The sanction of the Union Health Department was required for this to be implemented and in 1940 five families were assisted in this way. This was seen as a temporary measure pending the opening of the Infectious Diseases Hospital at Mountain Rise. Once completed, an analysis of tuberculosis patients was undertaken in 1942. The preferred treatments of earlier years, the surgical procedures of APT and pneumolysis, were now found to have poor results. The average survival times for patients were only 15.8 months for those with advanced disease and 4.1 years for those with moderate infection, while surgical procedures only increased these by an average of three months. Complications of haemoptysis, laryngitis and enteritis occurred in 22% of African, 24% of Coloured and 40% of Asian patients. Eighty-two per cent of cases were sputum-positive on admission, making isolation facilities of great importance. However, many of those admitted were male breadwinners and some absconded because of financial pressure.

The problems of insanitary and overcrowded health conditions in Edendale and Plessislaer, to the south west of the city, continued. The recommendation to establish a LHC for the area in 1940 was seen as a way of dealing with the threat to the health of the city. The MOH felt that some sort of control body was critical and would hopefully lead to a 'lessening of the liability of the area to attacks of epidemic disease, with a consequent lessening of the menace to the health of Pietermaritzburg'.⁴⁸ The backlog of housing was again noted as acute in Maister's report of 1943 and he noted that no new slum clearance had taken place that year owing to the lack of housing for people displaced. Just 22 houses were built during the year. Only a small proportion of Asian housing had been provided, with none for the Coloured and White population. It had been noted by a special committee of the Central Housing Board in 1940 that

under the conditions of overcrowding that have existed in every slum in the large towns of South Africa since the World War of 1914-18, any pulling down of slum houses has done nothing but harm unless the displaced occupants have been suitably re-housed. It has simply intensified the already appalling overcrowding in other houses, and helped to create new and worse slums.⁴⁹

However, the City Council was not able to provide housing for its residents independently, but needed the approval of the Central Housing Board for its schemes. Representations were made by the Council to the National Health Services Commission and the Provincial Committee on Post-War Reconstruction and Development Work regarding the need for immediate housing relief, and the need to simplify approval processes.

Despite these approval difficulties it was proposed in 1943 that twelve White and twenty Coloured sub-economic cottages, with 50 for Asians, be constructed, together with 100 for Sobantu and an additional 83 hostel places. However, Maister felt that the requirements for native housing were now very small. This appears to indicate that in respect of Africans it was a case of out of sight, out of mind, as the housing situation for them in Edendale, just a few kilometres from the centre of town, was far from adequate. The housing provided in Sobantu was of reasonable quality, but with communal water pipes and the bucket sanitation system. It had at that time 354 houses with 1 700 residents, or an average of 4.8 residents per house, and the additional 100 houses were completed in 1946. They were constructed with African labour, which was an innovation, and it was noted that 'the quality of the work done compares most favourably with work previously done by European labour'.⁵⁰ Due to the short supply of building materials during the war years, asbestos roofing was used. This was to become common in the provision of

social housing, but there is no mention in later years of cases of asbestos-related lung disease as a result. It may be that such disease, if it occurred, was misdiagnosed as tuberculosis.

As these small Council houses generally had two bedrooms and measured 59 square metres on average, they would have been tolerable in terms of space per person for a small family unit. The larger houses, with three bedrooms and measuring 74.5 square metres, were among the largest in the country at that time, when the average size was 71 square metres. Minimum standards of housing accommodation for non-Europeans were accepted in 1947, with standard plans prepared. These gave average sizes of 55 square metres for two-bedroom units and 71 square metres for three-bedroomed.⁵¹

In the three hostels there were 399 (East Street), 127 (Ohrtmann Road) and 174 (Church Street) residents respectively and there were plans to increase capacity to accommodate a further 500 men. About 80% of Africans residing in the town were domestic servants living on the property of their employers. By this time the incidence of tuberculosis was dropping slightly amongst the Coloured and European communities, and stood at around 12.6 and 3.8 per thousand respectively. Overall it stood at 16.1 per thousand, similar to the national incidence. Amongst all races the age group most affected was between 15 and 44 years: it was a disease of young adults, with males affected more than females. An analysis of area of residence showed that two thirds of those who died from tuberculosis lived in the centre of town rather than the suburbs.

A peak in tuberculosis mortality was reported during the war years in Europe, seemingly related to poor nutrition due to unavailability of foodstuffs. In Pietermaritzburg, however, there was a slight decrease in both cases and mortality for the years 1939 to 1944. After the war in 1945 the incidence of tuberculosis increased again to 25.3. Seventeen cases were detected as a result of a school survey and seven from routine examination of contacts. The screening method employed was the use of the Vollmer Patch Test, followed by X-ray if indicated. The MOH suggested that routine surveys offered the most hopeful method of discovering early cases, the preferred method for which would be mass X-ray screening. The results of screening schoolchildren showed that the rate of infection in African children was much higher than expected. Severity and prevalence were closely related to the degree of exposure to tuberculosis and their poverty or wealth. White children showed slight or no evidence of primary infection, compared to African children who had frequent and often severe manifestations of active disease. Overall, African children had a 4.7% prevalence, compared to 0.6% in Whites, 1.5% in Coloureds and 2% in Asians.

Amongst White children there was a higher level of tuberculin sensitivity in individuals attending non-fee paying schools than those at free schools; that is those probably coming from poorer homes.

During 1944 the Provincial Council introduced an ordinance to control, under licence, the occupation by Asians of residential premises within urban areas. The Mayor objected strenuously, saying its scope should be extended to control the acquisition by Asians of premises in all urban and peri-urban areas that were predominantly White. At this point it was estimated that 34% of Asian households in Natal occupied only one room. It was reported that the 'majority of Asiatics in Natal are illiterate, very poor, under-nourished and wretchedly housed'.⁵² An attempt was made by the MOH in 1945 to estimate the overall housing backlog in Pietermaritzburg for all races, using the figures available for occupied houses and voters in the case of Whites and Coloureds, and the number of rooms occupied and average persons per room for Asians. The figure for Africans was estimated with the Manager of the Native Administration Department. The figures arrived at were a backlog of 100 houses for Whites and Coloureds, 240 houses for Asians and 300 houses for Africans. When the municipal census was undertaken in April 1945 a housing questionnaire was circulated at the same time to assess overcrowding, using the Manchester Standard. This was 2.5 population units per bedroom, a child under ten counting as half a unit. The Pietermaritzburg standards at the time, under the building by-laws, were a minimum of nine square metres per adult occupant. The results of this questionnaire were as shown on figure 8.3 on the following page.

The conclusions drawn from this survey were first that this was not an effective way to obtain information about the African population; and second that the White returns were estimated at about 70% of the population and hence were reasonably informative. The Coloured and Asian returns, while inadequate as a percentage of the population, gave an indication of the prevailing, fairly desperate, situation. Overcrowding amongst Whites was less than had previously been thought and 2.8% is clearly very low. Although 324 houses had more than one family, it is an indication of the size of the houses that only 98 of them were considered overcrowded by the Manchester standard and these could have included dwellings that had been subdivided into flats. Allowing for the 70% submission of returns it was estimated that the provision of another 40 houses for Whites would be sufficient. Overall it was considered that there was a shortage of 360 houses for the city's population, excluding Africans. There was also a need to consider returning soldiers,

	White	African	Coloured	Asian
Total houses	3 536	4	39	191
Overcrowded houses	98 (2.8%)	–	14 (35.9%)	104 (54.5%)
Population units constituting overcrowding	169	–	29.5	250.5
Overcrowded houses where overcrowding would be reduced by probable departures	20	–	0	4
Population units probably leaving Pietermaritzburg	33	–	1.5	14.5
Houses holding more than one family	324 (9.2%)	–	5 (12.8%)	52 (27.2%)

Fig. 8.3 *Housing survey of urban Pietermaritzburg, 1945.*

although many of these would probably have been included within the family units surveyed. During 1945 the Council resolved to proceed with 25 houses for Whites and 28 houses for Coloureds, but a site for Asian housing had not been agreed. This, perhaps exacerbated by large family size, was the main reason for the shortage of Asian housing and the overcrowding experienced – there was simply no land they were allowed to buy to build on. A sign of the White standard of living at the time was that the 25 houses planned for ex-service personnel included native quarters – even Whites dependent on social housing were not expected to forego the services of a servant. A further 100 houses were planned for the Native Village, together with a facility for 28 aged and indigent people and an ablution block with laundry facilities and hot baths.

The report of the LHC for 1946 indicates the planned construction of 800 houses in Ashdown, within the Edendale district and almost adjoining Pietermaritzburg, and a further 87 houses in the rest of the area. A housing census completed in that year showed that the number of habitable dwellings in the area was 38 for Whites, 30 for Coloureds, 340 for Asians and 2 658 for Africans, of which most had no piped water or sanitation. However, the MOH of the LHC recorded that many people were inadequately housed. A survey in the Georgetown area in 1946 found thirteen cases of tuberculosis in 816 people, or a prevalence of sixteen per thousand. In the Asian population of

the area there was a tuberculosis prevalence of 12.7 per thousand. He reported that 'the wretched plight of the community housed in insanitary, overcrowded dwellings undermines their health so gravely that relief by establishment of temporary houses should be afforded'.⁵³ The LHC itself, however, did not agree, and no temporary houses were provided.

Interestingly, in none of the reports of inadequate housing and insanitary conditions that prevailed at various times in different parts of the city is there comment by the Health Department on inequalities in workers' pay. That so many Whites were adequately housed related primarily to their receipt of what might be called a living wage, sufficient to house, feed, clothe and wash their families. This is indicated by the fact that in 1946, for example, 106 dwellings and flats were privately built for Whites, compared with thirteen for non-Europeans. That other races might require a similar amount of money to live to a healthy developed standard is never mentioned. The civilised labour policy concept – that Africans and other races were destined to remain in squalor – predated the apartheid government of 1948. Additional needs were to be catered for by charitable or paternalistic housing provision.

In 1948 the housing picture was even more dramatic, with 183 flats and houses built by or for Whites, and only nineteen for non-Europeans. Since the end of the war the White population had increased at around 9% per annum (5 595 people). Some of this was presumably due to people returning from the war and rejoining families with houses. The non-European population within the borough had increased at around 19% per annum, or by 10 694 people. Clearly a mismatch was developing between the size of the population and housing available. The Council's remedy for this was to increase accommodation provision only in the hostels; and build further houses in Sobantu – an extra 100 were planned. In 1951 there were now almost 1 000 men living in the East Street Hostel and an additional hostel for 139 women was built at Oriibi. However, the mayoral report of 1949 stated that 'Drawings have been ready for some considerable time for additional sub-economic housing for Europeans and Indians, but these schemes have been considerably delayed by the National Housing and Planning Commission'.⁵⁴ This was presumably because the new National Party government was commencing its plans for the Group Areas Act and completion of the final separation of the races.

Some houses for Africans were built in the Edendale area by the LHC, with 400 constructed at Ashdown around 1949. They were approximately 42 square metres in size and built of brick with asbestos roofs, concrete floors, a pit latrine and piped water. The MOH for the LHC noted in 1948 that tuberculosis

was the major cause of death there, with 75 deaths or 5.2 per thousand and an incidence of 7.25 per thousand, up from 6.9 the year before. He noted that tuberculosis was increasing annually and described the situation as 'a sad state of affairs'. He went on to comment:

at the present time the tuberculosis rate for Europeans in this country compares favourably with the rest of the world, How long this will remain so depends entirely on the action taken in respect of the appalling high rate amongst the Non-European population...surely the time has passed for slogans, press reports, conferences and the like. The fight against TB in this country can only be won by placing such a fight on a war footing.⁵⁵

A further 122 houses were constructed at Ashdown in 1950. They were reasonably spacious, built on plots of one-eighth of an acre, but without sewerage and adequate waste water disposal. Water was supplied either by internal connection or standpipe. Houses were offered to any owner of a wattle-and-daub structure prepared to demolish it after moving.

In 1951 the MOH of the LHC, Dr Seymour, noted that tuberculosis incidence was directly related to the cost-of-living index. He found it incredible that there was no national prevention policy to address the issues of housing and food in particular and commented that 'it appears impossible, in spite of the overwhelming evidence available, to stimulate the interest and positive action which is required to tackle the formidable task ahead'. Remarking on the morbidity caused to the workforce by the ravages of tuberculosis, Seymour went on to state that 'riding as they are on the crest of a gloriously profitable era, it is unlikely that either Commerce or Industry will take time to see the danger which this disease threatens their business interests'. A housing census completed in Edendale in 1951 showed 3 117 habitable houses for Africans, 396 Asian, 39 White and 30 Coloured houses. There was concern that the number of people treated at home for tuberculosis was increasing, although this was the trend in Europe that had been adopted in South Africa. Seymour thought it inappropriate as house conditions were too poor – overcrowded, ill-ventilated and damp, 90% wattle-and-daub – and with a diet 'deficient in protective food'.⁵⁶ There was an average of 5.5 people per home and an average of three rooms per house, although many seemed more overcrowded than this average, and 67% had either inadequate or no sanitation. Discussions were underway with the South African National Tuberculosis Association (SANTA) to commence a tuberculosis settlement in Edendale.

For the Asian population of the city proper the MOH of Pietermaritzburg described the situation as truly desperate and a backlog of 920 houses was

estimated. In 1946, under the United Party government, an Asiatic Land Tenure Act had been passed to restrict Asian residence to certain parts of Natal. Following the rise to power of the National Party in 1948 the Group Areas Act, passed in 1950, extended this concept with statutory recognition of racial groups and the setting aside of areas in towns for ownership or occupation by each. A Land Tenure Advisory Board was established to recommend the setting aside of areas for different races and a committee of the Group Areas Board met in Pietermaritzburg in 1954 to consider plans submitted by the City Council, acting in collaboration with the Natal LHC, a Reference and Planning Committee, and counter-proposals by the Natal Indian Organisation (NIO).⁵⁷ Local authorities generally proposed moving Asian homes and businesses a mile or more (two kilometres) out of town and occasionally eliminating them altogether. The new City Engineer, D.V. Harris, commented in 1955 that 'it smacks somewhat of remarking on the obvious for me to make any observations on the need for housing for Non-Europeans'. He continued

the repercussions of the Group Areas decision – when it is announced – on the provision of alternative housing for Indians and Coloureds, will be far-reaching but the immediate aim should be to provide services to both the Indian and Coloured areas and to build as many houses as we know at this stage are necessary pending the final Group Areas decision.⁵⁸

The houses and flats constructed after 1945 are summarised in figure 8.4. The divergence between the number of households (using an estimate of six people per household) and housing provision for the Asian community is indicated in figure 8.5 overleaf. By 1953 housing in Pietermaritzburg had grown for Whites at ten times the construction rate for Asians, although the populations had both increased by a similar number. It was anticipated that, with the implementation of the Group Areas Act, some 9–10 000 Asian people, 50% of the total population, would be displaced together with 2 500 Coloured people.⁵⁹

In 1955 a housing scheme for Asians had finally been approved, with fourteen dwellings and 65 flats built in 1956, and a plan to construct 100 economic and 114 national houses at the new suburb of Northdale, west of Raisethorpe, had been supported. The design was of concrete in steel shuttering with asbestos roofs. In 1957, 127 privately-built dwellings for Asians were constructed. This was the first year in which any significant formal housing development had taken place for this community, but by then a huge backlog had developed. The area of Woodlands had been set aside for the Coloured community, with 50 houses planned.

Year	White	African	Coloured	Asian
1945	134	222	28	13
1946	128			8
1947	196			5
1948	183			13
1949	?			45
1950	182	30	0	11
1951	175	30		6
1952	213	52		29
1953	149	0	0	7
1954	308	102		43
1955	437	28		35
1956	479	192	50	79
1957	302	0	45	251
1958	263	4	67	119
1959	215	0	50	64
1961	130	0	83	199
Total	3 494	690	584	927
Population growth during period	18 775	20 477	3 292	12 820

Fig. 8.4 *Approximate formal dwelling construction (public and private, excluding hostel accommodation) in Pietermaritzburg, 1945–1959 and 1961.*

An income limit of £30 was established in order to qualify for sub-economic housing. This disqualified most Whites, but the rapid rate of private housing construction was meeting most of their needs. The rapid growth of housing for Whites during the 1950s, the vast majority of which was privately constructed, is an indication of their growing affluence. Differences in income continued, however, to prevent non-Europeans catering for their own housing needs.

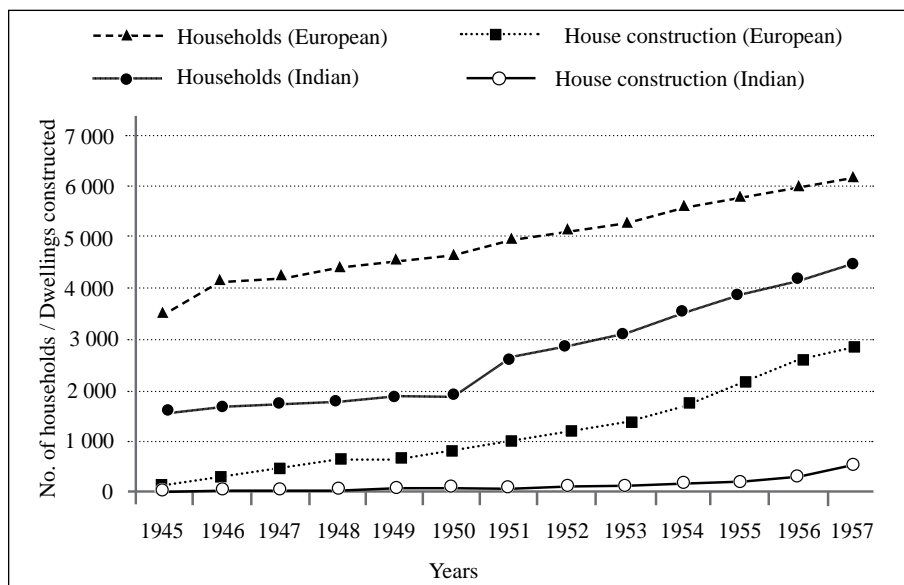


Fig. 8.5 *Growth in number of households versus housing provision for Asians and White residents, 1945–1957, showing divergence between population increase and cumulative construction of dwellings (based on estimate of six people per household).*

Using the 1951 census, Kuper, Watts and Davies estimated mean and per capita income (in Rand) in Durban for the different races as:

	Whites	Coloureds	Asians	Africans
Mean income	552.06	201.20	182.85	87
Per capita income	282.74	64.34	40.02	45

Per capita income for Africans was difficult to estimate as their families were forced to live outside the city, with money being sent back by the earner to the rural areas.⁶⁰ Plans for a second African village had been halted by the national Minister for Native Affairs in 1951. The Urban Bantu Authorities Act of 1952 provided for the handing over of native villages to an urban bantu authority, although this was not compulsory; while the Native Services Levy Act of 1952 provided for payment of contributions by employers towards the housing of Africans, other than those residing on employer's premises, but including those working for the local authority. A portion of these funds could be used to subsidise African transport services as Africans were now generally to be located far from town centres. With all the legislation controlling where Africans could live, the Council's only option was to accommodate them in

hostels. By 1954 there were 1 750 men living in the East Street hostel, with sometimes as many as 2 192 accommodated at night.

Maister stated that the powers under borough by-laws to deal with insanitary dwellings were used only sparingly owing to the desperate housing situation and were generally applied to backyard shacks occupied by Africans. By 1954 Sobantu had 807 houses with a population estimated at over 4 842, or six people per house. Using the Manchester standard, the average Sobantu house, with two bedrooms, was now overcrowded. While 6% of the population of the city lived in Sobantu, it was noted that 39% of its deaths from tuberculosis occurred in Sobantu in 1952. Every year the housing and population statistics for Sobantu indicated slightly more overcrowding. The Council started to build economic housing for more affluent Africans in Sobantu, but in 1955 the national government prohibited the extension of this scheme, even though there was adequate land. The Council was also refused permission to convert residential letting to home ownership on the grounds that 'the inhabitants of the village would have to be moved to an area specially determined for native occupation under the Group Areas Act in about 25–30 years time when...



Sobantu Village (Pietermaritzburg Corporation Yearbook 1956).

the village was de-proclaimed'.⁶¹ The relief of congestion at the hostels by extending them was also refused, because in government's view they were wrongly sited. The overcrowding there was worsened by the activities of the South African Police, who prosecuted people for allegedly harbouring natives; who then had nowhere to go but the hostels. Sixty per cent of Africans in the town resided on the premises of their employers, which were generally in good condition. This was constrained, however, by so-called locations in the sky legislation, which prohibited the housing of more than five Africans outside native areas without the permission of the Secretary for Native Affairs.

During the late 1940s and 1950s an upward trend in notifications of pulmonary tuberculosis was noted, together with a slight upward trend in non-pulmonary tuberculosis cases, of which there were 26 in 1951, although the latter started to decline thereafter (figure 8.6). The mortality from extra-pulmonary tuberculosis started to decline from 1947 with the introduction of antibiotic treatment.

The number of deaths from pulmonary tuberculosis was also falling from a peak of 67 in 1949, due probably to the introduction after 1945 of anti-tuberculous drugs such as Streptomycin, Para-amino salicylic acid and, in the early 1950s, Isoniazid. Dr Seymour in Edendale also noted the benefits of the

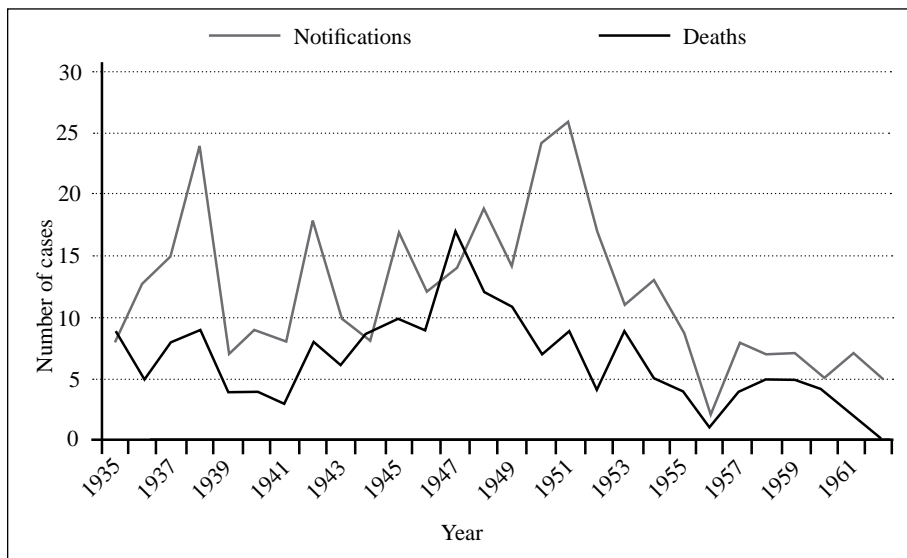


Fig. 8.6 Notifications and deaths from extra-pulmonary tuberculosis in Pietermaritzburg, 1935–1961, showing decline following introduction of antibiotics in the late 1940s.

new treatment regimes, which gave him hope that treatment at home might have an improved outcome, particularly if the drugs were supplemented with food. For many years Maister recorded the tuberculosis mortality by month, but no obvious pattern is discernable. The predominant age groups remained 15–54, with more males than females.

In 1949 the government Health Department sent its Mass Radiography Survey Section to the city for two weeks, and carried out surveys in five factories with miniature chest X-rays and mantoux testing. As a result of the survey, 49 possible cases were detected, although 25 were later proved non-tuberculous. Unfortunately the number of people examined was not given, so prevalence cannot be calculated. It also operated at a stand during the Royal Agricultural Show and 2 004 X-rays were taken. However, 1 762 of these were of Whites, who had a lower incidence of the disease; and many of them came from different parts of the country and could not be followed up. The main benefit was felt to be educational. The unit continued in Pietermaritzburg for some time, visiting more factories and screening the general public on the Market Square. A second survey was undertaken in 1950 and the combined results of these surveys were as shown in figure 8.7.

	White	African	Coloured	Asian	Total
Total X-rays	1 789	2 169	265	1 553	5 776
Minimal/inactive tuberculosis	10 (0.56%)	18 (0.83%)	0	20 (1.29%)	48 (0.83%)
Advanced tuberculosis	2 (0.11%)	21 (0.97%)	1 (0.38%)	7 (0.45%)	31 (0.54%)

Fig. 8.7 Results of mass miniature X-ray surveys in Pietermaritzburg, 1949–1950.

The MOH saw value in these surveys. A detection rate of 1% in the African population and 0.5% overall certainly suggests that mass miniature X-rays had value, particularly as a quick screening test. The surveys were repeated in 1951 and 1952 and interestingly the detection rate declined slightly each year. Maister said this illustrated the need for hospital beds for isolation and treatment and 24 beds were motivated to the Union Health Department. White patients went to Wentworth and King George V Hospitals in Durban. NATA made grants to families to enable the breadwinner to accept hospital treatment. In 1954 the city acquired its own miniature X-ray equipment, which took

chest X-rays seven centimetres square in size. Its first year of operation can be summed as follows:

Total people X-rayed	7 244
Referred from Native Pass Office	4 418
Referred by doctors	682
Referred by clinics	317
Referred by employers	403
Referred by hospitals	235
Voluntary	649
Pre-employment	178
Pre-employment (Council)	31

It was found very useful for screening of contacts, as they were first sent for X-ray and only if this was positive attended the clinic. This caused attendances at the tuberculosis clinic to drop by 50%. Treatment now involved ambulatory administration of Streptomycin injections at clinics, and oral Isoniazid or PAS, which enabled much earlier discharge from hospital. In 1954, 2 371 home visits were made to tuberculosis patients and contacts. The impact of these drugs on tuberculosis mortality can be seen from figure 8.8, which shows that by 1963 tuberculosis deaths had fallen to almost zero.

The MOH of the LHC said in his report of 1954 that 'it is doubtful whether a more significant set of figures has ever been produced by this Department' as he described the reduction in case fatality for the disease from one-in-three to one-in-eight. Notifications were still high, however, and the number on the register was increasing, although this would have been partly due to the fact that people were not dying. He commented on the remarkable turnaround in physique, appearance and attendance for diagnosis and treatment that the new antibiotic regimes had produced.

The mass X-ray unit was now returning a prevalence of around 0.7% active tuberculosis in Whites and 1.4% in non-Europeans, with altogether 1.8% showing some evidence of past or present tuberculous disease (1955). This compares with a mass radiography survey in Glasgow in the same year that gave a prevalence of 1.14% (710 838 X-rayed).⁶² Patients were sent to a variety of hospitals in the city and Durban. This was done on a racial basis, with all White patients having to go to King George V Hospital in Durban, there being no beds for them in the Pietermaritzburg hospitals. Council allocated a budget of £1 000 for the purchase of supplementary food for indigent patients.

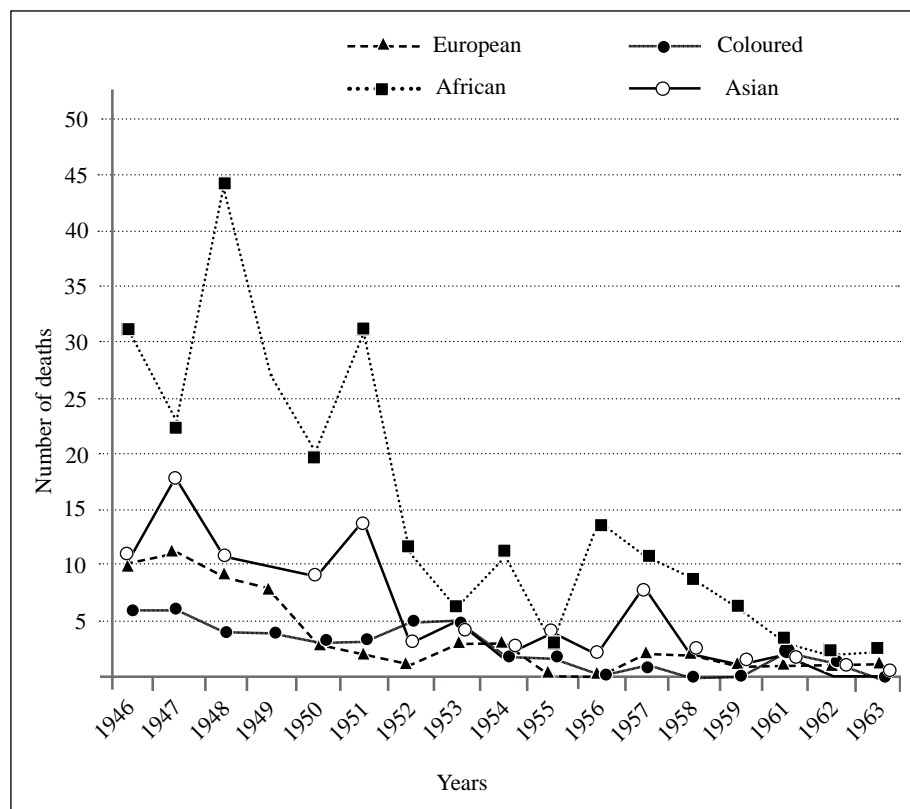


Fig. 8.8 *Decline in pulmonary tuberculosis deaths in Pietermaritzburg during the post-war, antibiotic era, 1946–1959 & 1961–1963.*

In 1957 the overcrowding in Sobantu was now approaching eight people per two-bedroom house, due partly to the fact that the Council, refused permission to build extra accommodation, had no alternative but to allow more lodgers into the village. It was seeking approval for another site under the Group Areas Act to house Africans. One possibility on the other side of the city at Slangspruit was under consideration. The population of East Street Hostel had now risen to 2 000 African men. Maister continued to limit the demolition of dwellings to backyard shacks until 1961 due to the acute shortage of housing. Then he reported that, due to new housing provision for Asians in Northdale, there were now increasing demolitions of slum dwellings. There were plans by the LHC in 1954 to build more housing in Edendale, where 300 acres was available, but as with Pietermaritzburg this was frozen by national government pending Group Areas Act determinations. While the area of Landauville in Edendale

was one where Africans could acquire land freehold, buffer zone restrictions (vacant buffer zones were created between housing developments for different races, to prevent integration) hampered the 800 house Ashdown scheme. Dr Seymour considered that under the prevailing conditions of poverty 'it was ludicrous to expect a patient on domiciliary treatment to make any progress let alone prevent tuberculosis from spreading to the rest of the family'.⁶³

In the Edendale area all tuberculosis cases were investigated for home circumstances and where possible assisted to get grants and pensions, which covered rent and food. Old age pensions had been made available to White people in 1928 and were extended to urban Africans in 1943 (they were only available to rural Africans from 1965). There was active intervention in Edendale to assist people to get employment after recovery and 79% were helped in this way in 1956. It was noted that of those employed who contracted tuberculosis, 25% were given paid sick leave by their employer; 20% were given reduced pay; and 55% received nothing, not even re-employment after recovery. Those earning less than R10.50 per week before falling ill were excluded from the Unemployment Insurance Fund and dependant on government grants of R2-3 per week. This not only stopped them buying the necessary food to aid recovery, but also created conditions conducive to the spread of diseases, such as the sub-letting of already overcrowded accommodation. A sheltered employment scheme was started in Edendale by the LHC for tuberculosis patients, with jobs being offered in gardening and tree planting at 1s 6d per day. It was noted that things were particularly hard for those officially domiciled in districts far from where they wished to find employment due to influx control, as they were not permitted to work in the urban areas. Employment offered through the Bantu Affairs Department was usually farm and railway work distant from their homes, preventing clinic attendance and contributing further to family breakdown. The Doris Goodwin SANTA settlement was constructed near to Edendale Hospital in 1959 and this enabled more patients to be admitted and cared for.

Notifications of non-pulmonary tuberculosis declined significantly by 1956 and only one Pietermaritzburg resident died of it, while there were two notifications. By 1957, 25% of the city Health Department's budget was being spent on tuberculosis control. A comparison was made between clinical examination followed by X-ray where indicated, and mass miniature X-ray without clinical examination. It was found that undertaking clinical examination first as a screening measure, and then sending only suspicious cases for X-ray, resulted in 0.3% of 13 708 total examinees being found to have

active tuberculosis (based on routine togt office examinations.) Another series of 8 269 people were routinely miniature X-rayed (also a togt office sample) and of these, 1% were discovered to have active tuberculosis. It was therefore concluded that mass X-ray screening was approximately three times more sensitive in detecting active pulmonary tuberculosis than screening through history and examination. It also showed that the prevalence of tuberculosis in African men at that time was approximately 1%. On the basis of this, the Council continued to use mass X-ray screening for tuberculosis, particularly for contacts where it was more cost-efficient than a clinic visit. It added the routine screening of all new employees.

In 1959 the area set aside for slum clearance in Edendale was increased. Wattle-and-daub homes were permitted but restricted, requiring submission of plans showing adequate ventilation and light (particularly because of the extensive tuberculosis problem) and access to piped water supply under its inferior housing policy. In 1961, 240 applications were received, of which 193 were approved, with all new dwellings to be on sites of at least a quarter of an acre. This was three times larger than the size recommended by the Native Affairs Department of 50x75 feet (15.2x22.9 metres).⁶⁴ This policy appears to have been a reasonable compromise between affordability and public health requirements, especially since loans to people to build more substantial homes were stopped by the National Housing Office. However, it was noted that where shacks were replaced by approved-style housing, spare rooms were often let out, contributing to continued overcrowding. This was a response to increasing unemployment. The LHC then obtained permission to make loans itself to individuals and by 1969, 205 had been granted for house construction in various areas, although in Landauville only three houses had been completed.

The LHC's social work report of 1962 stated that tuberculosis was basically related to the sub-economic conditions suffered by the Edendale population: 'low and inadequate wages, unemployment, inadequate accommodation etc'. Of the 210 cases notified that year, 67 were adult males of whom only 25 were employed. Wages were generally less than R4 per week. The report was quite outspoken on the plight of the African population, in particular those with tuberculosis. It commented that

the Pietermaritzburg Corporation Bantu Administration Department have always been most sympathetic in regard to patients from Edendale requiring employment, but since Influx Control Regulations have to be rigidly applied all the sympathy and cooperation in the world will not help to obtain registration to seek work in the first instance, let alone finding the employment.⁶⁵

Although fit for work after completing tuberculosis treatment the family of the patient were now destitute – ‘in this situation lies the whole tragedy of the TB problem’.⁶⁶

By 1962 the Department of Bantu Administration and Development continued to prohibit the extension of the LHC’s Ashdown scheme until the number of Africans employed in Edendale and requiring houses was determined. This was linked to the department requirement that the Pietermaritzburg Council meet the demands for housing its own workers, although authority to construct African housing was slow in coming there also. By 1961 the population of Sobantu was estimated to be living ten people to a house, there were 2 300 men in the East Street hostel and 433 women lived in the Church Street hostel. The municipal Director of Bantu Administration, D.N. Bang, said the hostels were invariably overcrowded, but as men had nowhere else legally to go he allowed them to ‘use halls, kitchens and verandahs for sleeping accommodation’.⁶⁷ New housing had been forbidden at Sobantu for the previous five years by the national government and the township was described by Maister as ‘bulging at the seams’.⁶⁸ Plans to build a new village in the Slangspruit area (Imbali, originally known as Thembani – to be hopeful) were progressing slowly and in the meantime no new housing was forthcoming, although the need was estimated at some 3 000 units of single and 1 000 units of married accommodation. Part of the problem was the delay in acquiring 56 properties, varying in size from one acre to 260 acre farms, owned by Whites, Asians and Africans. The Estates Manager’s report of 1962 states that ‘considerable resistance was encountered from members of the Indian group, the majority of whom were completely opposed to selling their properties,’⁶⁹ and presumably also to forced relocation to Northdale with related loss of farming income.

A rise in tuberculosis in infants under two years old was noted and most of them came from the Women’s hostel and Sobantu village. BCG immunisation in Sobantu was commenced on newly-born infants and those attending the Infant Welfare Clinic, using the Heaf Gun method. The housing needs of the city were estimated by the Estates Manager in 1962 at, for the Coloured population, 109 sub-economic units and 101 economic units. For the Asian population housing was needed to meet the needs of the Group Areas Act, as well as for population growth, as it would be necessary to relocate people from the LHC areas in Plessislaer and Edendale. The existing housing shortage for Asians was estimated at 739 units and to fulfil the requirements of the Group Areas Act a further 56 units were required before a 1967 deadline. However, the accounts in the Mayor’s official reports neglect to mention the immense

social and financial upheaval these massive movements of people across the city were causing to individual lives. Further housing schemes for Coloureds and Asians were approved by the Council and the development of Imbali was planned during 1963, seven years after any formal public or private housing for Africans had been constructed. Plans included sewers, water supply, roads, 1 486 married quarters and 432 cottage hostel homes, each of four rooms and designed to hold two people in each room built as an alternative to the hostel accommodation for single people. Occupation of these houses commenced in 1965.

This must have been a period of great general prosperity: housing construction was vast during the mid-1960s. The housing layout plan for Asian areas, known collectively as Greater Northdale, aimed to cater for 100–120 000 people. The approvals processes, whether from national or provincial government, were torturous as detailed in the City Engineer's report of 1964. Instructions were given to limit the size of houses for Asians to two rooms, which the Engineer described as being of very little use for the average family and clearly not conducive to good health. Surveys were done of families before they were relocated: in 1964 they included 341 Asian and Coloured families living in areas such as the city centre, Pentrich, Raisethorpe, Ockert's Kraal and Sweetwaters.

New housing schemes planned in 1965 included a further 182 units for Whites, 127 for Coloureds and 382 for Northdale, and by 1966 many of these were under construction. Private housing construction also increased significantly and plans were made for a further 453 houses in Northdale and 127 for Woodlands. By-laws providing for demolition of insanitary dwellings were now applied more freely and 29 were demolished in that year. However, while housing provision was now proceeding at a great pace there was still a backlog.

**Impact of Group Areas Act on the Indian population:
interview with D.C. Moodley, 11 June 2008**

D.C. Moodley moved to Pietermaritzburg from a sugar plantation in 1949 and stayed in the Indian barracks in the City East area. He does not recall them as being particularly unhealthy, although, with many families having up to eight or ten children, houses were overcrowded by today's standards. He recalls ox wagons in Loop (Langalibalele) Street and collection and mixing of the droppings with water to plaster the bare earth to quell the dust. Houses were kept clean



RAISETHORPE—THIS IS TYPICAL OF EXISTING CONDITIONS



NORTHDALÉ
A SCHEME TO PROVIDE BETTER LIVING CONDITIONS FOR THE INDIAN

*Photos of housing used to justify forced Group Areas removals
(Pietermaritzburg Corporation Yearbook 1958).*

and neat, no matter how poor the residents. He contracted tuberculosis in 1951, fortunately after the introduction of specific antibiotic treatment, and recalls being admitted to hospital for eight months of Streptomycin and PAS. In earlier years he recalls seeing people with tuberculosis carried off by ambulance and not returning.

For a while he stayed in Raisethorpe: Asian landowners there accepted tenants, mostly living in small wood-and-iron houses with, typically, two rooms and a kitchen. There was no piped water, only a well, and pit latrines, but he remembers most people keeping their houses clean and does not recall a high incidence of disease or infant deaths. In fact, he feels that disease was less than in town, due to the use of traditional, Asian remedies. The suburb of Pentrich in particular he recalls as being clean; a neat, model township with many professional people, including teachers, lawyers and business people and a hub of cultural activity with different races living contentedly side by side. However, there were few places in town for Asians to live – no land was released or houses built – so as new people came into the area it became more overcrowded.

Moodley is clear that Asian people were uprooted and moved to Northdale for purely political reasons, to isolate them in a township with only one access road where they could be controlled. One house was allocated per wage earner, so a family of ten could end up in a two-bedroom house. In addition, those engaged in activities such as market gardening lost their livelihoods without compensation.

Moodley was politically active in the Natal Indian Congress from 1947 (the NIC became closer to the African National Congress in the 1950s). He was also chairman of the Newholmes Civic Association and led delegations to the City Council on issues such as social amenities and rates.

In Edendale the LHC had completed another housing survey in 1964: the total population was then 38 510. It found that the average number of people per house was 8.8. The average family size was 6.6 for Asians, 5 for Coloureds and 4.5 for Africans. Usually for Africans there were two or more families per house; 23% of which were overcrowded. Fifty-five per cent of families had an income of less than R5 per week and only 12% had an income of more than R15 per week. Seymour reported: 'the Commission has to carry out its local Government function of a population of whom more than half are financially incapable of contributing much towards these services and to the prosperity of the area'.⁷⁰

In 1964 oral anti-tuberculous drugs were used for patients discharged from hospital and the clinic that gave Streptomycin injections was discontinued. Most patients were admitted to hospital to commence their treatment unless no bed could be found, in which case they were started on out-patient treatment

until a bed was available. An extensive programme of home visits to patients and contacts continued with 5 209 visits made in that year. A tuberculosis stand was held at the Bantu Trade Fair in Edendale with education, examinations and miniature X-rays offered. Edendale Hospital started giving BCG vaccination to new-born babies in 1969.

The boom in housing construction continued throughout the late 1960s and 70–80 houses a year were demolished, for both public health reasons and to make way for new construction. Housing construction almost seemed to exceed demand for Whites as the number of units built was greater than the reported backlog. Housing for Africans in the city was restricted by the Bantu Laws Amendment Act of 1963, which further limited accommodation for domestic servants to only one per householder with effect from 1966. By 1967, 11 500 Africans lived in Imbali stage 1 in 1 545 newly-built houses and 432 hostel units, which all had piped water, sewerage and refuse removal services. Some of the hostel dwellers were those who had formerly lived in hostels in town and been relocated. The number of Africans living with their employers had now dropped to 40% and clearly this rapid housing provision, although a little late, was finally having an impact on dwelling standards and the ability of Africans to live as family units. Imbali stage 2 followed and the population of the township rose to 15 000 with a housing waiting list of 1 800 families.

The provision of new housing in the Asian area and movement of people from their formerly semi-rural dwellings into more closely settled urban conditions was thought to be impacting negatively on the incidence of infectious disease as notifications of both diphtheria and pulmonary tuberculosis seemed to be increasing. The demolition of old dwellings continued: five for public health reasons and 100 to make way for new housing construction in 1969. White housing construction continued at a great pace with 151 houses and flats built by the Council in 1969 and 429 built privately that same year. The waiting list for housing was still great with 350 Coloureds and 2 100 Asians on the list and a housing backlog for Africans of 6 500. Plans were afoot to build 2 657 private and council houses for Asians, who had an average house occupancy of 6.6 people, and 215 for Coloureds. Authority for Asian housing construction was still granted mainly for only two-room houses – one room plus a kitchen. Even the largest houses in the sub-economic schemes only had two bedrooms and their average occupancy was 7.5 people. By contrast, the majority of White sub-economic houses had three bedrooms and the average occupancy rate was 3.7. The village of Sobantu remained overcrowded, with an average of ten

people per house in 1970, but at least numbers in the hostel in town had been reduced to 1 300. However, 3 456 men were now accommodated in hostel accommodation in Imbali. The housing statistics give some indication of the enormous social and financial costs of the Group Areas Act and the massive movement of people across the city that it required. This was shouldered in particular by the Asian community moved off land with little residual value to a tightly-drawn area where land was at a premium and its price relatively high.

The situation of the Zwartkop location beyond Edendale was described as sombre by the City Engineer in his report of 1968. The grassy hills were now described as 'closely developed shackland; there is no proper water supply, no sanitation other than some pit privies, and the Bantu people have to drink the water in which they wash themselves and their clothes, and in which they also swim.' While the government was proposing site and service schemes, he described what was happening as 'site with no service'.⁷¹ He felt that the provision of African housing, in properly planned and serviced layouts, should be a priority and suggested that 1 000 houses a year were required. However, no housing development took place there until after 1994. A recent survey had shown that the population in the area was 70 000, with 60% of breadwinners working in Pietermaritzburg. Edendale at that time had a population of 58 000.

In the early 1970s private construction of housing continued at a reasonable pace, with 242 houses built by Asians in 1971. At this time the Department of Bantu Affairs was starting to purchase land owned by Asians and Coloureds in Willowfontain, in greater Edendale, to force them to move into the Group Areas housing schemes in the city. The Group Areas Act was also forcing Asians out of rural farming communities such as Albert Falls. Hope for control of tuberculosis was being pinned on the expansion of the BCG vaccination programme, however, by the new MOH, Dr O'Keefe. He thought it was 'difficult to visualise the day when economic progress here will reach such a stage as to provide sufficient and proper housing and sanitation to overcome the debilitating effects of overcrowding and where each family is able to afford sufficient wholesome food to overcome the poor disease resistance of many of our population, which stems from malnutrition and under-nutrition'.⁷² In fact, economic progress was indeed occurring, but O'Keefe omits mention of the inequitable distribution of its fruits through wages, which would continue to prohibit progress of the kind he sought. BCG immunisation of infants was made compulsory by the government in 1973. Unfortunately, it appears to have been badly planned as the government medical stores immediately ran out of vaccine and the BCG campaign in Pietermaritzburg had to be halted

for several months. However, 8 199 BCGs were given in 1973, including school entrants, which must have covered much of the target population given that there were only 3 105 registered births that year. In addition to the BCG vaccination programme, the programme of mass X-ray screening continued, with 30 153 miniature chest X-rays done in 1972, of which 28 000 involved screening people from the Pass Office or some other kind of programme. This must have had a great impact on detection and treatment rates and probably ensured that most cases were notified. A prevalence rate of active tuberculosis of approximately 0.5% was estimated from the Pass Office X-rays and 3.5% showed X-ray changes of old tuberculosis.

The preferred treatment was now ambulatory out-patient therapy and the drug of choice Isoniazid. Less use was made of Streptomycin because of its side effects. In 1972, 10 713 home visits were made to patients and contacts to check the adequacy of housing and distribute extra rations, containing high protein and carbohydrate items including powdered milk, to the needy. Free transport to collect the rations was also supplied. In 1973, 911 patients were assisted: two White, fifteen Coloured, eleven Asian and 883 African, some of whom were from outside the borough. Unfortunately, the national government stopped providing funds for this project in 1977.

By 1972 the population of Imbali had risen to 15 000. One hundred unauthorised shack dwellings housing African, Coloured and Asian residents were found. They were described as 'an assortment of tin shanties, mud huts, old vehicle bodies etc' and the residents were re-housed.⁷³ The number of Africans living with their employer had dropped to 16.3%.

The area of Eastwood was planned for the Coloured community, which seemed to have the most rapid population growth, and aimed to house ultimately around 20 000 people. It was incorporated into the city in 1974. Community facilities and a clinic were planned from the beginning of the project. For the first time in five years the municipal housing backlog fell in 1973 with a large amount of private and Council construction having taken place, although there was still a huge variation between the private dwellings built by the White (118 units built in 1972) and Asian communities (four built in the same year), reflecting the continuing disparity in socio-economic status and land availability. Twenty-one per cent of Asian and Coloured houses were occupied by more than one family. The waiting list for accommodation over this period, excluding the African population, is shown below in figure 8.9.

Race	Year					
	1969	1970	1971	1972	1973	1974
White	600	650	411	346	249	220
Coloured	350	380	435	555	468	596
Asian	2 100	2 100	2 462	2 540	1 416	1 164
Total housing waiting list	3 050	3 140	3 308	3 441	2 133	1 980

Fig. 8.9 *Changes in the municipal housing waiting list in Pietermaritzburg, 1969–1974.*

The drop for Asians was due to the completion of 1 580 economic houses in Northdale; while 44 ultra-sub-economic houses were erected for emergency slum replacement for Coloureds. The following year these were consolidated into 24 units. Interestingly, although the backlog for the White community in 1973 was only 249 homes, with the Estates Manager saying there was very little demand for White sub-economic housing, there were plans for 744 flats and houses for this group in the Grange area. By this point the Council was managing 6 167 rented housing units for Coloureds, Asians and Whites. Housing and hostels for Africans were taken over by the newly-created Drakensberg Bantu Administration Board (DBAB), thereby completely removing this section of the population from the housing administration of the city. The housing density remained at approximately eleven per house in Sobantu, where the government had prohibited additional houses, and 6.3 per four-roomed house in Imbali. The LHC had to hand over Edendale to the South African Bantu Trust, followed by the DBAB, in 1974. At that time it was anticipated that the greater Edendale area could be accommodating 350 000 Africans by the year 2000. The impact of the LHC's efforts over tuberculosis, through its various strategies around housing, case finding, treatment and nutrition is shown in figure 8.10.

The economic boom turned to recession by the mid-1970s and the construction of private housing started to decline. As a result, the demand for Council housing started to increase again. In 1977 tenders were called for the construction of 2 266 houses for Asians in Northdale, together with 302 houses for Whites in Westgate and 900 houses for Coloureds at Eastwood. The permitted standard had been raised in 1974 to a five-roomed house. By 1978 the Estates Manager felt that the White community was adequately provided for and the major need was for Asian housing. A further 1 077 housing units

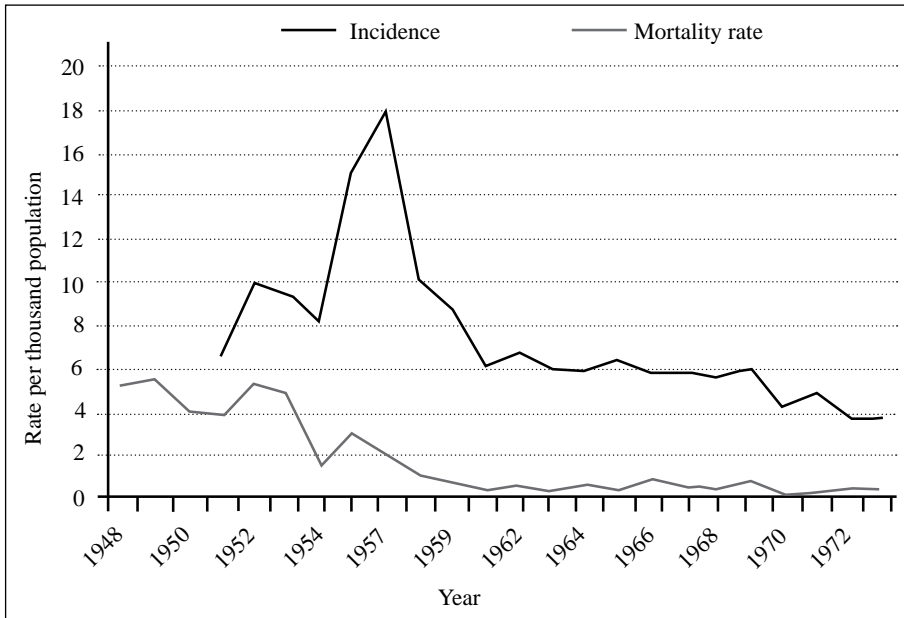


Fig. 8.10 *Tuberculosis incidence and mortality in Edendale during the administration of the Local Health Commission, 1948–1973.*

were completed for them in 1980, raising the number of units under the Estates Department to 8 109. The scale of housing construction by the Council during these decades was quite considerable.

The housing of Africans under the DBAB made no progress: no new housing in Edendale was provided over seven years. Imbali was completely excised from the city in 1980 and put under the administration of the national Department of Co-operation and Development, allegedly for the benefit of the population, although no further development was visible other than the building of a new clinic. Sobantu was handed over to a Community Council. From this period onwards the provision of housing is not recorded in the health reports, although it was noted in 1984 that overcrowding in Asian homes may have hindered attempts to reduce tuberculosis levels.

Overcrowded housing and failure to construct new housing for the African population was not peculiar to the Pietermaritzburg-Edendale area. In the country as a whole it was estimated in 1985 that there was a surplus of housing for Whites of 37 000 units, compared with shortages of 44 000, 52 000 and 583 000 units for Asians, Coloureds and Africans respectively.⁷⁴ In Soweto, surveys estimated in the mid-1980s that there were between seventeen and twenty

people per house.⁷⁵ In Port Elizabeth, a city of similar size to Pietermaritzburg, there was an estimated backlog of 20 000 houses and massive overcrowding. It was estimated that 45% of African households in Port Elizabeth would not be able to pay an economic rent on any house, built either by the state or private sector. They could only afford to live in a shack, or share a house with one or more other households.⁷⁶ National government policy remained determined to try to prevent Africans moving into urban areas: in Cape Town all house building for Africans was halted in 1966, save for hostels. Nationally it was estimated that 95% of the country's 500 000 gold mine workers around Johannesburg were housed in massive single-sex hostel compounds.⁷⁷ It was reckoned that between 1960 and 1983 a total of 3.5 million people, almost all of them black, were forced to move from one place to another; and by 1985 over 750 000 people were forced to move by the Group Areas Act alone.⁷⁸ The housing situation eased a little for the Asian and Coloured communities after the introduction of the tricameral parliament, as this involved housing departments targeting specific communities.

For the diagnosis of tuberculosis the Health Department used a combination of sputum examination and X-rays, and it would appear that the detection rate from X-ray examination was far more sensitive. Of 282 sputum samples examined in 1974, only 6% were positive. However, of 565 X-rays examined, excluding mass miniature X-ray screening, 40% showed tuberculosis. It appears that had they relied on the theory of later years, which placed heavy reliance on sputum examination only, they would have missed a great number of cases in the early stages with serious implications for both patient and contacts. Mass miniature X-ray screening from the Pass Office, operating under the DBAB, in 1977 gave a prevalence of 0.8% old or active tuberculosis. While the medical examinations of Africans at the Board's influx control offices ceased in 1979, the mass miniature X-ray of all work seekers continued at the Pass Office, using the 70mm machine.

Resistance to anti-tuberculosis drugs was reported from 1965 by the national Department of Health. Improved treatment regimes caused a significant drop in drug resistance between then and 1989 for Isoniazid (from 28.8% to 14.2%), Streptomycin (33.8% to 12.1%), Rifampicin (6.4% to 1.8%) and Ethionamide (20.8% to 2.5%).⁷⁹ It was estimated in Pietermaritzburg in 1980 that the defaulter rate from treatment was approximately 30%. The majority of these were people who lived outside the city boundaries and therefore could not be followed up by the health services home visiting programme. Those working in the city were reached through a workplace visiting programme, which went to

25 factories and large stores. Rifampicin had been introduced to the treatment regime and this now lasted 4.5–6 months. The extensive programme of home visits continued, with 15 170 visits made in 1984. The intensive measures against tuberculosis nationally had an impact in that the mid-1980s saw the lowest incidence since the 1940s, at 16.2 per thousand (in 1986). Broken down by race it stood at 1.5 per thousand for Whites, 18.9 for Africans and 6.1 for Asians.⁸⁰ Nationally the incidence for the Coloured population was increasing rapidly, although this was not the case in Pietermaritzburg where population numbers were relatively small. Across the country the overall incidence was highest in the Western Cape, declining eastwards and northwards, with Natal relatively low (12.8 per thousand in 1989 versus 57.5 in the Western Cape). In Pietermaritzburg, however, it was not considered under control, with the incidence rising a little in 1986 due, the MOH thought, to the depressed economy. However, the mid-1980s represented the period of lowest tuberculosis incidence, after which it rose due to the arrival of HIV/AIDS.

The housing situation in Edendale became ever more dire. More than 70% of the African population were living in mud houses, mainly in Edendale and Vulindlela, and had no electricity, water or sewerage.⁸¹ The African population was becoming more assertive about housing need, with no government houses having been provided for many years, settling in squatter camps within the city boundaries. The squatters were described as very well organised and aggressive and tended to settle near the Asian housing estates in the Northdale and Copesville areas to the north of the city. In addition to the informal settlements, overcrowding within formal housing was becoming worse in the poorer areas, including what the Chief Environmental Health Officer, John Butler, described as a 'black market operation involving the poorer class and the affluent owners'.⁸² Property owners exploited the need of the African poor to move into town, and charged inflated rentals for space in inferior dwellings, many with no natural lighting or ventilation. Plans for new housing to accommodate non-Europeans continued to perpetuate the apartheid structure of the city and move people further outwards. For the Asian and Coloured communities the national policy had changed to encourage private home ownership and housing rental stock was gradually sold off to the occupants.

By 1991 the link between tuberculosis and Human Immunodeficiency Virus (HIV) infection was becoming apparent and the number of cases of tuberculosis was gradually starting to rise. Unfortunately, the statistics in the Health Department reports became less and less reliable. In 1992, for example, one table states that 208 new cases of tuberculosis were diagnosed and yet the

same report states, in a different table, that 109 were notified. Yet a third table in the same report gives notifications as 96. Perhaps the notification data is only for cases diagnosed outside municipal services, in which case perhaps there were as many as 317 cases in that year. Whatever the true figure, it is unhelpful as the growing influx of patients from outside the city boundary due to unrest and difficulty in ascertaining who lived where meant that both numerator and denominator were unreliable and unrelated. In 1996 there was an attempt by the Health Department to calculate a more accurate figure. After the merger of Edendale and Imbali with the city under the new political dispensation, figures from all areas could be collected and the specific place of residence became less critical. Population figures had become more accurate because of requirements for non-racial elections. The department found a total of 1 438 notified cases out of a population of 485 000, an incidence of 29.6 per thousand. This compared with 38.1 for the province, of which 45% were HIV positive, and 36.2 for the country as a whole. By then it had been noted nationally that individuals infected with both HIV and tuberculosis had a 25 times greater chance of dying from their tuberculosis than those who were not HIV infected (anti-retroviral medicines were not available in the public health service at that time.) The national programme for tuberculosis control focused on directly-observed short course treatment (known as DOTS) to all sputum smear-positive cases at this time, even though this gave poor results due to poor compliance. It did acknowledge the fact that many HIV positive patients with tuberculosis were sputum negative, and could only be diagnosed on X-ray. An additional note from the guidelines stated that even if patients had active tuberculosis following treatment interruption, they could only receive a second course of treatment if they were sputum positive. While smears could be examined fairly quickly, sputum culture results could take several months to get back, being centralised in Durban. Multiple-drug-resistant tuberculosis was estimated provincially to cause 1% of new tuberculosis cases and 4% of retreatment cases.⁸³ Additional training of health workers and standardisation of treatment across the country was vigorously pursued.

In 1997 the Health Department commented that implementing DOTS was often impractical as many people came into the city's clinics to be diagnosed, but lived too far out of town to be followed up, or without a local clinic to which to be referred. Outcomes at that time were estimated to be 48% treatment completed and 42% treatment interrupted. This was adding to growing drug resistance. Also noted were an increasing number of infections with *Mycobacteria Other Than Tuberculosis* (MOTT), although this did not

continue in the following years. The city planned for a specialist tuberculosis clinic in the Municipal Administration building with a laboratory, X-ray facilities and infection control measures. The opening of the clinic in 1999 did much to facilitate treatment and diagnosis, with same-day sputum microscopy results. By 2002 an additional laboratory technician was needed as the clinic was examining 13 000 sputum samples a year.

With the incorporation of Sobantu, Edendale and Imbali the backlog caused by 30 years of neglect in housing provision by the national government, which had removed the areas from local government in the 1970s, fell back to the municipality to try to resolve. It was estimated, probably conservatively, that 7 500 houses were overcrowded and 10 700 families were living in backyard structures. The national plan was to build houses in terms of the Reconstruction and Development Programme, which aimed for at least one million low-cost houses over five years.⁸⁴ Funds were channelled to local authorities for implementation of mass housing projects in organised township layouts. Due to the enormous need for housing, the emphasis was on volume of units rather than high quality construction and on ownership of land so that people would be free to extend their starter home later. A fixed amount of subsidy was provided per housing unit for the very poor, with 15% extra for areas with unfavourable topography, such as Pietermaritzburg. This was to include the costs of roads, water and sanitation. Communities and officials had to debate whether they would have a higher level of service – for example, tarred road versus gravel – or a larger size house. New houses were extremely small, starting at only 20 square metres with the smallest just 12 square metres. While this allowed for decongestion of existing houses, it still only provided one room for the new occupants. It had been noted back in 1953 that families housed in conditions where all the activities such as eating, cooking, dressing, undressing and sleeping occurred in one room, were not housed in an environment conducive to living a good family life and that social problems would arise.⁸⁵ Later the minimum size was set at 30 square metres and at present it stands at 40 square metres. Plot sizes were around 200 square metres. Within the first three years the Council had built approximately 9 500 housing units and in 1998 it won the provincial prize for housing delivery.⁸⁶

It is interesting to observe the patterns taken by these developments. Even though the Group Areas Act no longer applied, it is curious to note that almost all new public housing developments in the city still maintained the previous, apparently deeply resented, group areas. With the exception of the new housing developments adjacent to Eastwood (a Coloured area) and Copesville (Asian)

all other developments targeting the African community were located to the south west of the city, beyond the buffer zone separating African from non-African. Even the buffer zones were largely maintained intact, although many of them were unsuitable for development, being flood zones or wetlands. Any suggestion of low-cost housing near previously White and Asian areas was met with vocal concerns about reduced property values, fears of crime and lowering of standards, which – remarkably considering the history of the country – were accepted. A court appeal by residents against a decision by Durban Council to place low-cost housing next to an Asian township resulted in a rates decrease of 60%. The implications for the municipalities of this loss of revenue stopped them trying it again.⁸⁷ While vacant space near the White areas was not large, housing construction would have been facilitated by the existence of water and sewerage pipes, roads and drainage, thus enabling more to be spent on the top structures, as housing units were known. Residential racial integration only took place when non-Europeans bought established properties in areas formerly denied to them. This happened more quickly for the Asian community, generally more affluent than the African community.

The new houses made some contribution to the increasing battle against tuberculosis, by reducing overcrowding in older township houses, although the new houses were generally small and poorly ventilated. However, the nature of the tuberculosis problem was dramatically different from pre-1985 as it was now fuelled by the HIV/AIDS pandemic. It was estimated in 1998 that 50% of tuberculosis patients were also HIV positive. Unemployment and under-nutrition remained as contributing factors. The high incidence of sexually-transmitted disease contributed to the spread of HIV/AIDS and the impact of new housing developments on these diseases is unknown. By the year 2004 some 14 000 housing opportunities had been created in the city over the previous ten years, but still the housing demand kept growing due to influx from rural areas. The pace of housing delivery started to slow due to increasing bureaucracy, contradictory legislation and difficulties in land acquisition.

By 2000 the figures for the city's tuberculosis clinic were standing at 57% treatment completed, somewhat better than the figures for the district as a whole, including the three large hospitals where the treatment completion rate was 32%. Twenty-eight per cent of patients still interrupted their treatment. The HIV co-infection rate in the province was up to 65%, compared with 48% nationally. Multi-drug resistance was increasing. The incidence of pulmonary tuberculosis was up to 58.2 per thousand and mortality was rising rapidly, with age-specific mortality rates as shown in figure 8.11.

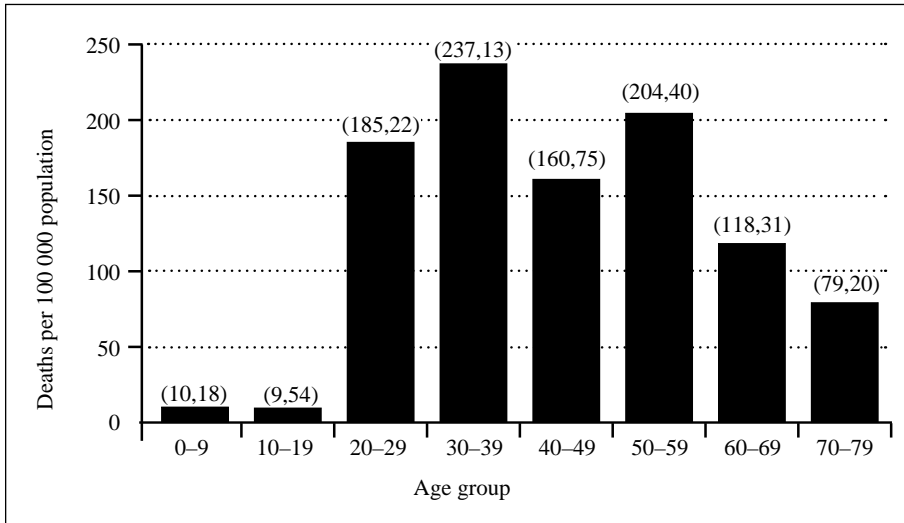


Fig. 8.11 *Tuberculosis: age specific mortality rates in Pietermaritzburg, 1908–2000.*

The pattern of drug resistance seen at the main Church Street Chest Clinic for the period 1994 to 2001 is shown in figure 8.12.⁸⁸ The total number of patients seen with drug resistant tuberculosis increased from three in 1994 to 48 in 2005. The trend was moving away from resistance to single drugs, to multiple-drug resistance. This was particularly hard to manage as the results of sputum smears for culture and sensitivity testing took weeks or months to return, by which time many of the patients had died. The exponential increase in tuberculosis cases across the province was overloading government laboratories. Treatment interruption rates were running at 30%, despite the training of legions of unpaid, community-based treatment supporters. The policy for retreatment cases was to include Streptomycin to the treatment regime, which was still inadequate in many cases that turned out to have multi-drug resistance. Once diagnosed, these patients had to be sent to King George V Hospital in Durban for in-patient treatment. Analysing tuberculosis in the new millennium, the future is uncertain. The high mortality is causing a review nationally of the point at which anti-retroviral treatment commences for those with co-infection with HIV. The response to resistance requires the development of new drugs, rather than continuing to depend on those that have mostly been around since the 1950s. This is an international problem. From multi-drug resistance has emerged extreme drug resistance (XDR), which made its first global appearance in a rural hospital just 100 miles

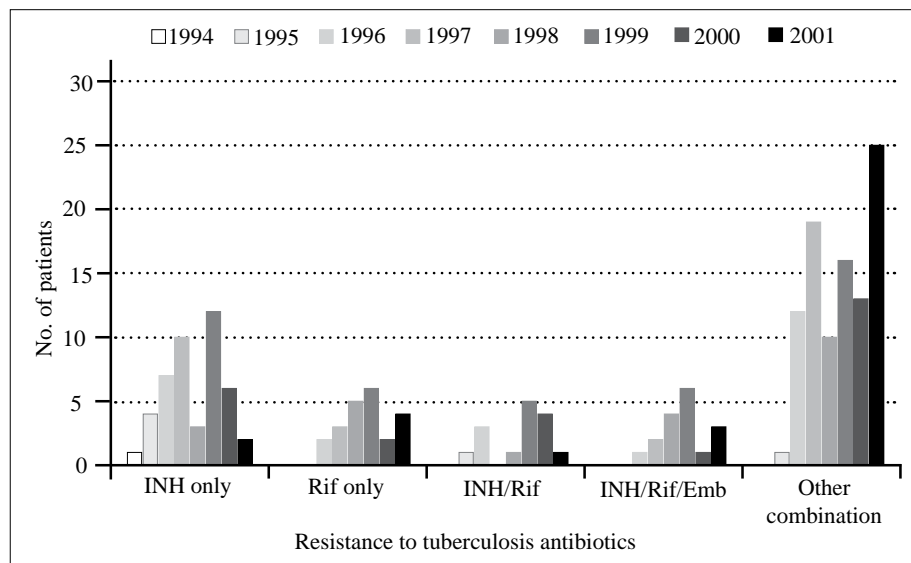
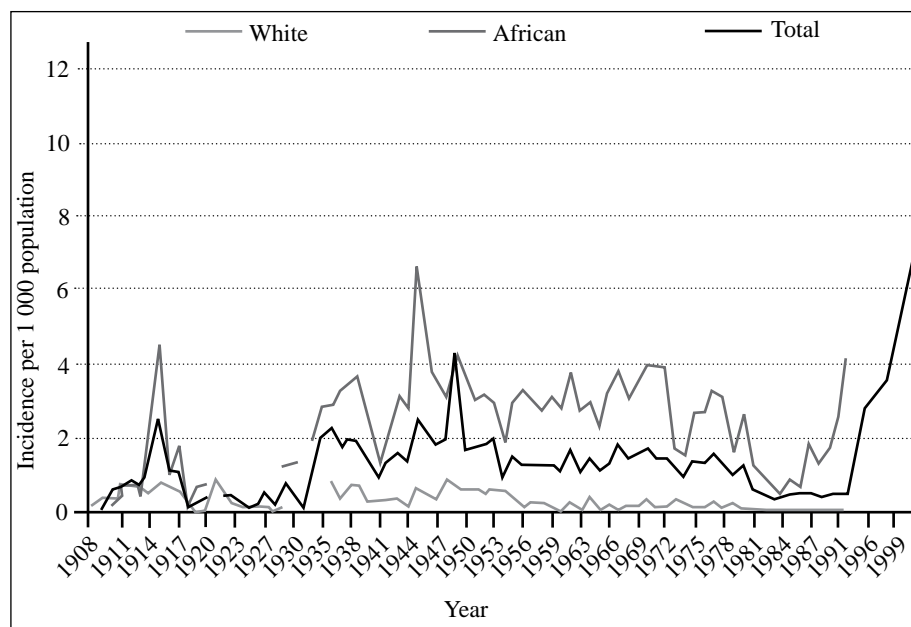


Fig. 8.12 Tuberculosis drug resistance patterns in Pietermaritzburg, 1994–2001.



*from 1994 data was not collected by race.

Fig. 8.13 Incidence of tuberculosis per thousand population of White, African, and all races in Pietermaritzburg, 1908–1999.

(160 kilometres) north of Pietermaritzburg and for which there is at present virtually no treatment. Adherence to the long treatment period and increased vulnerability due to high HIV infection rates are complicating factors to which no easy solution is in sight. Is it of relevance to note that in the 1950s when the incidence of tuberculosis was under 20 per thousand, 2% of the entire municipal budget was spent on tuberculosis control; yet 50 years later, with the incidence approximately four times as high, expenditure was down to 0.12% of the budget?

A summary of the trend in tuberculosis incidence in Pietermaritzburg over the last 100 years is shown in figure 8.13.

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INITIAL PORTRAITS OF Pietermaritzburg as a small, comfortable, English rural town in the mid- to late-1800s imply there were few urban threats to health, or dangers of lifestyle, save for the risks of travel. The town was laid out in a pattern of eight long streets and four cross streets, all named by the Voortrekkers. The important buildings included several chapels, the gaol and a mill, but generally it was a small country place with pleasant trees, cottages and gardens.¹ By the 1860s there were a considerable number of buildings in the city, mostly thatched, which rendered them vulnerable to fire. Taxes on residences were already in place, with a tax of seven shillings a year on native huts, unless part of a White residence. This tax put pressure on Africans to become part of the cash economy, needing to sell their labour in order to pay. Rates of pay for different categories of labour were defined and racially segregated. For example, White labourers were paid around five shillings per day and English domestic servants might earn £2 per month, whereas African labourers received between five and twelve shillings per month.² David Dale Buchanan, editor of *The Natal Witness*, wrote of the African labourers that ‘from first to last in this town they may be seen at work, making bricks, tending tradesmen, cultivating gardens, and serving as domestics, with a cheerfulness that indicates good treatment’.³ Social life was influenced by the presence of the garrison, which set a fashion of amateur theatricals and helped to establish a turf club in 1844.⁴ There were agricultural shows, cricket clubs and races, literary societies and benevolent societies, and people were described as ‘healthy in mind and body’.⁵ There were no White beggars and no need for an English-style poorhouse. The first case of juvenile delinquency in Natal was reported in 1850 in Pietermaritzburg when three boys were charged with robbing a potato field. The town was described in 1859 as having ‘cultivated erven, hedged with quince, and irrigated by water flowing down the unlighted main streets, suggesting a large village or small country town;’ and a gentlemen’s club was planned.⁶

In this highly-regulated, emerging urban society, a proclamation was issued by the Lieutenant-Governor of Natal that required native residents of certain towns of the colony to wear a 'proper form of clothing', amended in 1863 to specify trousers. This was presumably for aesthetic reasons and the sensitivities of Whites, mostly from Victorian Britain, rather than conferring any benefit, health or otherwise, on Africans, although there was a view that they needed to be subjected to 'civilising influences' such as going to school, wearing Western clothing and engaging in urban labour. In later years the same wearing of Western clothing would be blamed for increasing tuberculosis rates. Walter MacFarlane, President of the Native Commission, stated that 'there can be no true civilisation without labour and exertion'. He felt employers should be bound by law to clothe and feed young African labourers, lodging them 'in a comfortable room with a fireplace' with two weeks holiday a year to visit friends.⁷

During this period of the mid- to late-1800s White migrants were moving from a formerly poverty-stricken, urban lifestyle in the northern, densely-populated and squalid industrial cities of England to a relatively rural, village-type lifestyle in the small town of Pietermaritzburg, which may well have been beneficial to their health. The outdoor lifestyle, fresh air, congenial climate, plentiful fresh food and spacious residential plots would probably have compared favourably with the situation in their homeland, even for those coming from a rural background. Conversely, the measures taken against the African population in terms of residence, labour, clothing and other matters were causing a fairly rapid transition amongst some of them from a rural to an urban lifestyle, complete with severe gender imbalance (more males being employed in town than females) and the introduction of newer and stronger forms of alcohol. In 1874 regulations were passed to control *togt* (casual) labour. Prohibitions on residence in the towns, except on White property as domestic workers, or within certain restricted locations, would have greatly interfered with the establishment of normal or extended family units, and separated men from their wives and children. Clearly this was destined to give rise to social problems.

The risks of alcohol abuse seem to have been recognised from the beginning with cheap, strong liquor available to the earliest settlers in canteens and some dying within a short time from alcoholism: 'No-one dies here except by dissipation and old age'.⁸ Dr R.J. Mann wrote in 1859 that 'upon the whole a considerable proportion of the illness which is encountered in the colony may be traced to obvious mistakes in personal management,' which he particularly

ascribed to 'the aid of stimulant drink'.⁹ By the 1860s the sale of wines, spirits and other alcohol was controlled by a licensing system for manufacture, wholesale and retail trade. Applications were advertised by magistrates, who heard objections and issued licences. Sale was prohibited between 9.00 pm and 6.00 am and on Sundays; and sale to Africans was forbidden altogether. However, despite the attempts of Council to stamp out illegal taverns in 1870, two years later it was reported that Africans could still get as much of every kind of liquor for which they could afford to pay.¹⁰ In the criminal statistics report of 1875 it was stated that the 'prosperity and wealth of natives has much increased...making the men independent'. It was felt that this was leading to increasing beer drinking, parties and faction fights, with some murders. Once imprisoned at the gaol, criminals were separated by race as well as gender, with different conditions and diets. For example, a White prisoner's diet included eight ounces of meat on four days a week, bread, potatoes and two ounces of vegetables daily. "Hottentots", "Coolies" and "Kafirs" (in the language of the time) got one to four ounces of meat and one ounce of vegetables three times a week, the rest of the food being maize meal, potatoes, rice or gruel. Prevailing diseases in prisons were diarrhoea and dysentery with a few cases of fever.¹¹

Schools were established in the early years of the town: a public elementary school opened in 1849 offered algebra, geometry and the classics. Monthly payments by parents varied from sixpence (6d) to 2s 6d per child. Parents in the rural areas who could afford it preferred to send their children to board at Pietermaritzburg schools.¹² In the report of the Superintendent of Education for 1875 he states that 'Boarding is an important element in the scholar's training...it acquires and confers a character, like a college or a regiment, and a parent pays for the board of his son that he may acquire character as well as knowledge'.¹³ By that time there were fourteen day schools with 958 children in the city, two evening schools and one boarding school with 45 pupils. In 1876 a new school was built to accommodate the government primary school. However, some of the boys were without settled homes and roamed around the town at night, occasionally being caught stealing fruit. This coming together of boys from surrounding rural areas to board at school, separated from their parents, is an early consequence of urban development. By the 1880s and 1890s secondary schools and associated cadet corps had been established. Schools were racially segregated. Provincially, by 1883 only 3 391 African children (or 1% of the African population) were in schools run by missions and churches. There were 4 000 Asian children in school in Natal (20% of the Asian population.) This commitment to education by the Asian community

may have been linked to their increasing prosperity: 53 out of the 58 stores in Pietermaritzburg selling goods to Africans in 1881 were owned by Asians.

When the novelist Anthony Trollope visited Natal in 1877, Pietermaritzburg was a small market town in the middle of agricultural countryside. He thought it 'perhaps the best of all South African towns' and everybody seemed to him to be 'comfortably well off'.¹⁴ However, by 1886 and with economic depression ragged and barefoot urchins were found sleeping in the streets, dependant on charity for food. Magistrate Charles Barter reported in 1881 that unemployed people were seen on every corner, although he felt labour was scarce in skills and expensive. He queried how so many people were able to live without work. Possibly there was a mismatch between the skills required and the abilities of the unemployed. The major crimes of the period were attributed to those resulting from 'the inordinate haste to acquire wealth without labour, and of the tendency to indulge in luxuries without considering means or counting cost,' which included swindling and embezzlement. Crimes of violence appear rare, except for those resulting from alcohol abuse. As Barter reported, 'drunkenness flourishes' and there was much debate about how to control it, including limitations on the sale of alcohol and punishment of offenders. Grey's Hospital returns for 1880 included 33 cases of alcoholism (out of 654 admissions) and one death. This would appear to have been the main lifestyle-related health problem of the era. It may not have helped that there was a population imbalance between males and females, with males outnumbering females considerably for all races – for Africans by a factor of seven. The Magistrate commented that 'social conditions cannot exist where there is no family and no social bond'. Societies still flourished in the city, including in 1887 the Natal Rifle Association, the Horticultural Society, the YMCA, a swimming club, football association and eleven Masonic lodges.¹⁵

Within the White community it was becoming hard to get female domestic servants from England because of the high wages offered in London, although females with other skills were still coming, albeit in lower numbers than men, and few were unmarried or unattached and available for work. Resident Magistrate W.H. Beaumont commented in 1896 that there was very little crime of a serious nature, although he noted that there were now 'unspeakable dens of all sorts of vice into which the police dare not enter unless there is some unusual brawl or disturbance, or unless it be the occasional visit of the sanitary inspector'.¹⁶ The new Liquor Act came into force in 1896 to try to stop illicit liquor sales. Social problems such as drinking were also noted in the Edendale area, following crop failures and drought.¹⁷

The social well-being of the city was disrupted from 1899 by the South African War. While Pietermaritzburg did not experience invasion by the Boers, it was severely affected by an influx of refugees coming both from other parts of Natal and the Transvaal. This imposed serious strain on the economic resources of the colonial capital and relief committees were established to assist refugees. The Pietermaritzburg Relief Committee and Uitlander Committee opened dining rooms offering meals at low rates, and shelter and food were made available to the desperate. The Council employed men for stone breaking and road making, others were recruited for the Imperial Bearer Corps and women were used by the Imperial Hospital Corps and Red Cross for medical duties. By February 1900 it was estimated that there were 5 000 troops in the city, placing additional pressure on its resources and infrastructure.¹⁸ Following the end of the war, the departure of refugees relieved this pressure on the city's economy. Photos of the city centre show its appearance at the turn of the century.

In the report of the Corporation Chief of Police in 1908 a sharp jump in drunkenness among Africans was noted. It was felt this was exacerbated by classification by the Supreme Court of Native beer (*Itywala*) as not intoxicating. This was clearly incorrect. It had been found to be between 3 and 10% proof, stronger than European beers, and the Chief Constable thought it should be



Longmarket (now Langalibalele) Street in the early 1900s (Souvenir of Maritzburg, photographs by L. B. Jensen, S.A.P. & Co. [circa 1910]).



Zulu War Memorial (erected 1885) and Colonial Buildings, Church Street (Souvenir of Maritzburg, photographs by L. B. Jensen, S.A.P. & Co. [circa 1910]).



The rebuilt Pietermaritzburg City Hall, 1903 (Souvenir of Maritzburg, photographs by L. B. Jensen, S.A.P. & Co. [circa 1910]).

controlled along with any other liquor. He felt that the proposal going through parliament to remove its manufacture from Africans and into White hands was a move that would make things worse and interfere with African customs. He also felt that a special location should be created for Africans to live in. No murders were committed that year, compared with seven the year before, and no rapes. Drunkenness was by far the most common offence, with 2 000 arrests, of which 329 were White men and 1 087 African men. The Chief Constable was retrenched the following year, apparently due to financial constraints. The acting Chief Constable reported that there was a great decrease in drunkenness, immorality and breaches of the peace following implementation of the monopoly system whereby the Council undertook the manufacture of and sale of Native beer instead of issuing licences. The beer was manufactured at approximately 3% alcohol. Moneys received from the system were paid into a Native Administration Fund to be used for administrative costs, establishing a native location and schools, hospital accommodation or other objectives in the interests of the African community. The Council manufactured beer at the togt (labour) barracks and established several beer houses regulated by by-laws that were open from 8.00 am to 8.00 pm. African females and boys under 15 years old were not allowed to be supplied with beer or enter the beer houses. The former limitation, amongst other things, gave rise to initial boycotts. Illegal shebeens, frequented by 'low class native women',¹⁹ were stamped out and prevented within a five-mile radius of the city. The double standards of the time are interesting: females were to be completely prevented from drinking alcohol, whereas men were encouraged to drink from as early as 8.00 am as an income-generating measure. Municipal beer production was found to be profitable and the building was extended despite the continuing bypassing of the system by 'low class whites', who bought liquor and sold it to Africans, thereby undermining the Native Beer Act and its controlling monopoly.²⁰ A Native eating house was added to one of the beer houses: it aimed to provide good meals at reasonable rates in clean premises.

It is noted that alcoholism and drunkenness were similarly serious problems in England at the time: in 1908 there were 100 000 public houses. An attempt by the government to close around a third of them drew such fierce public resistance that it failed. Gaols held 62 882 people for drunkenness and it was the major social problem in England.²¹

A police report in the last year before Union estimated that there were nearly 200 White waifs in Pietermaritzburg. However, this did not degenerate into the industrial child labour of England, the climate being more congenial

and the industrialisation far less severe, so they were described as 'able to engage in healthy outdoor pursuits'.²² Comment on the social conditions of Pietermaritzburg stated that 'the majority of the natives are Christians, occupy houses, and lead civilised lives. Several have been exempted from Native law'.²³ It appears that the author was of the opinion that the urbanisation of Africans over the previous 50 years had led them to a lifestyle more akin to Whites and therefore improved. Some Africans were engaged in wagon and boot making. Serious crime was 'conspicuous by its absence' except for 14 cases of housebreaking and theft. The main crimes of the period related still to alcohol and drunkenness.²⁴ Education was promoted by the donation of 50 acres of land at Scottsville for the erection of the Natal University College, later to be the University of Natal.

Towards the end of the twentieth century the importation of Asian labour, which had commenced in 1860, ceased due to concerns that increasing numbers and prosperity would soon enable a significant voting bloc. In 1895, a tax on free Asians (those who had completed their period of indentured labour) was instituted to try to encourage them to return to India. However, many stayed and became ever more prosperous. In 1913 the Asians went on strike and the tax was stopped. This allowed them to offer themselves as togt labour at increased rates of pay.

The First World War followed and reports of the Chief Constable note that there was a decrease in criminal activity. Arrests declined from 4 363 in 1915 to 4 098 in 1916 and the vast majority were contraventions of the liquor laws. Quite severe measures continued in place to try to keep liquor out of the hands of Africans, including addition of a prohibition on its sale to Cape Coloureds. The Chief Constable also thought that licensed premises had too many entrances, with 'devious methods of ingress and egress' that made policing difficult.²⁵ Contraventions of liquor laws attracted harsh penalties, with up to two years hard labour possible for supplying or possessing liquor. Such crimes included 'supplying a bottle of rum to an Indian' and a European woman 'supplying liquor to a rickshaw boy in conjunction with immorality'.²⁶ There was a further decrease in arrests in 1917 to 3 350, then down to 2 854 by 1921, with almost no serious crime during these years – virtually no recorded cases of murder, rape, assault, housebreaking or theft. This was despite a 20% increase in population. Prosecutions in those days met with a 98% conviction rate. At that time there were 29 White and 69 African police constables and Pietermaritzburg and Durban were the only towns in the country with their own municipal police forces.

Profits from the Native Beer Fund were allocated to African schools in the borough in 1918, with an allowance of 2s 6d per scholar. By this time there was a multitude of different charities and societies in the city, including at least three orphanages, a benevolent society, the Emma Barter alms houses, and various shelters and homes for the indigent. Many of these received grants from the municipality. Payments were made to war widows and orphans of municipal employees of all races by the Council; but a strike by toggt labour in 1920 elicited less sympathy. After two weeks no increase in pay was granted and the strikers gradually returned to work. However, £800 was collected for a fund for the children of central Europe suffering after the war. The contrast between the different races in respect of labour seems curious to non-South Africans. There was a keen demand for African labour, yet the problem of unemployment among White men was reported. Clearly Whites, although unemployed and needy, could not or would not take jobs deemed to be for Africans and presumably the rates of pay would have been far too low for them to accept. Hence in 1922 the Council authorised the Borough Engineer to hire as many Whites as he could to develop the ironstone quarry at the racecourse. Rates of pay were 4s 6d for single men and 7s 6d for married men with dependants. Fifty-two White men were hired. More were hired the following year, including many unemployed artisans ranging from cabinet makers to mechanics and wagon makers to piano tuners. They were then employed to develop the new cemeteries at Mountain Rise. The cost to the town of employing White labour was £5 600, whereas had the same work been done by Africans they would have been paid just £1 870. As Africans were paid at a rate one third of what was considered a minimum living wage for Whites, it is hardly surprising that their housing conditions remained insanitary. The Mountain Rise cemetery was designed to replace the cemeteries of Commercial Road, used for Whites since 1859, the Fort Napier military cemetery and the Town Hill cemetery used for Africans and Coloureds, with a separate portion for Jews. Mountain Rise cemetery was designed to last at least 50 years, for an estimated 50 000 burials, but was still in use at the end of the twentieth century. Other municipal works added to the unemployment relief scheme included the laying out of the open air swimming pool and Woodburn sports ground, and around 70 men were engaged in 1924. On appeal to the government, a grant of 1s 9d per day per married man was contributed towards the cost of the programme. The site of the swimming pool elicited much discussion, with a petition objecting to it being anywhere but in the centre of town. However, for reasons related to water supply, on which there were constraints at the time, the site chosen was at an old quarry site in

Alexandra Park, near to the Msunduzi River, so that municipal water could be supplemented by a bore hole.

The Natives (Urban Areas) Act was promulgated by the Union Government in 1923 in order to regulate strictly the presence and movement of Africans in urban areas. Pietermaritzburg applied this through its Native Administration Department: it made regulations for the registration of native servants; the licensing of togt labourers; the Native Village; hostels and church sites (all in 1923). Municipal by-laws regarding nuisances were rewritten and published in May 1925. These were challenged in the Supreme Court by one appellant, who had been warned several times and prosecuted for a recurring nuisance. He lost the case and hence the power of the municipality to deal summarily with nuisances under the new by-laws was established. Indications of lifestyle and social conventions can be picked up from some of the by-laws of the period. The general by-laws of 1930 included such curious prohibitions as section 3.14 under which 'No person shall expose to view in any...public place or in the window of any shop...any person male or female under, or supposed to be under, hypnotic or any other influence, or any monstrosity or freak of nature or any abnormal person or animal.' By-laws included prohibitions on singing obscene songs, wearing of garments impersonating the opposite sex, begging through the 'exposure of wounds, sores, injuries or deformities', or being an 'idle, disorderly or suspicious person'. In 1931 a regulation was passed proclaiming that Africans should not be in public places in Pietermaritzburg between the hours of 10.00 pm and 4.00 am without a permit. This, according to Mayor D.C. Dick, was apparently 'enforced by the Police in a reasonable and sympathetic manner' and 'the Natives loyally complied with the new conditions'.²⁷

By this time there had been a significant movement of the White population out towards the developing suburbs. Scottsville, up on a ridge on the road towards Durban, was laid out with spacious plots where people could develop gardens of beauty as opposed to gardens for subsistence farming. Its popularity was partly due to the installation of a municipal tramway. These trams were eventually replaced by buses, on which the Scottsville Ratepayers Association requested segregation with non-Europeans limited to the back seats. Ratepayers were concerned about the possibility of spread of infection and considered it dangerous for Blacks to sit any closer for fear of catching venereal diseases.²⁸

In the mid-1920s Coloured passenger buses were introduced. They were seen as having the disadvantage of conveying Africans with ease to places out of town where liquor and beer could be obtained and hence reduced the

revenue to Council from its beer monopoly. The trade at the Camps Drift beer house declined so badly that it was closed and the building was demolished. However, a new Native eating and beer house was constructed in the centre of town. In it, long tables were rented by an African cook who produced food for sale. Other portions of the building were let for general trading purposes. Purchases of beer were limited to one only. The bizarre nature of South African legislation is illustrated by the liquor laws, which permitted Coloured persons to buy liquor in bottles, so long as they 'are not Indians or members of one of the aboriginal tribes of Africa'. People from the islands of St Helena and Mauritius, although non-European, were also permitted to buy liquor. According to the Chief Constable, a person of mixed race could not be charged 'unless it can be shown that his mother was a prohibited person not lawfully married to his father – a most difficult matter which becomes more difficult in the second or third generation'. He noted that the cost to the Corporation from trying to police these laws was enormous and he had three staff doing practically nothing else but 'keep observation on illicit liquor sellers and spend money in endeavouring to trap them'.²⁹ The difficulty in procuring liquor led young men to drink methylated spirits instead, which must have been much worse for their health.

The national White unemployment rate had increased from 2.4% in 1918 to 11.4% in 1928 and locally relief work for unemployed White men continued through the early 1930s.³⁰ The Mayor's report of 1932 states that 'unemployment and distress is to be met on every hand, and the feeling of helplessness to combat the growing need for relief increases as the weeks and months pass by'. Around 100 so-called civilised labourers were employed in the parks, hardening roads, at the quarry and at the electricity department. Interestingly, however, this was the period in which the health indicators for Europeans were at their best, suggesting that the improvements in housing, sanitation and general living conditions were protection against their relative poverty at that time. The civilised labour policy was described by the Secretary for Labour in 1935 as being one that enabled White unskilled workers to access unskilled jobs, noting that 'the lower standard of living which the Native is accustomed has hitherto kept the rates of pay and their conditions of employment for work of this nature at a level which will not enable such workers to live in accordance with the standard generally observed by civilised persons'. At a national level black workers were being dismissed, for example on the railways, to be replaced by more highly-paid Whites.³¹ In 1933 the national unemployment rate for Whites was at a peak of 27%.³² In the same

year, following representation by the Natal Indian Congress (NIC), relief work was extended to include Euro-Africans and Asians. Funds were provided by the Labour Department, the Council and through a public appeal for the Mayor's Unemployment Relief Fund. Salaries and wages to regular municipal employees were reduced by between 1% and 10%, depending on level. Dr Laidler, Medical Officer of Health (MOH) of East London, commented in 1932 on the inadequacy of wages paid to Africans to sustain life and on pauperism as the predisposing cause of sickness and disease: 'The inadequacy of Native family budgets has been proved repeatedly...for all family budgets of either class the lowest computation of foodstuffs and essentials invariably is more than the wage received by the head of the family'. He added, 'The great majority of Natives live permanently on or below the poverty line. There is no recognised organisation for the relief of Native poverty...yet poverty in its severer forms is the worst of sanitary evils. Unemployment and hunger produce, unfortunately, a cheap labour market.'³³ The Native Laws Amendment Act of 1937 brought in further controls over the movements of Africans. Later legislation restricted their choice of employment, the right to form trade unions and the right to strike.

The residents of Sobantu, built just outside the city centre for the African population, tended to be reasonably well provided for.³⁴ A clinic, administrative block, schools, a crèche and other facilities were built, along with a home for "detribalised" and indigent natives. Construction work carried out by African artisans and labour was considered a model for other cities to emulate. An African social worker was appointed and garden competitions held. A young people's club and food club were started, and assistance was given to people applying for pensions. There was a Village Advisory Board, of which two members were sent to Cape Town to attend a congress, and a referendum was held regarding domestic brewing, for which 95% were in favour. An African Cooperative Trading Society, given premises to trade as dealers in general items and fresh produce, was recognised by the Registrar of Co-operative Societies in Pretoria as the most successful in the country. However, while all these social niceties were occurring, the Urban Areas Act was being applied by the South African Police and in 1945 there were 1 300 prosecutions in Pietermaritzburg. They included contraventions such as harbouring natives, 'no permit to be in town' (981 prosecutions) and failure of employers to register. However, it would appear that Sobantu was somewhat better than the norm for South African native locations. Floyd described many as being of generally bad appearance: 'From a disorderly mass of huts locations were changed to

monotonous rows of shacks or rooms either built by the natives, Europeans or the local authority. No centres or parks were planned or developed to break the barrack-like monotony of rows of small dwellings'.³⁵

Social conditions in Edendale were commented upon from 1943 in the reports of the Local Health Commission (LHC). There were more than ten schools then, although many were dark and ill-ventilated, had inadequate water and sanitation and were overcrowded. All had free school meals, which improved the nutrition of the children. One of the main social problems in the area appeared to be the unemployment of youth and elderly women before they were old enough to qualify for a pension. Social relief was available in the form of various grants: government invalidity grants, child maintenance grants, grants from the Natal Anti-Tuberculosis Association (NATA), and pensions for women over 60 years and men over 65 years. Rates of pay for African labourers employed by the Council were increased from 3s to 3s 6d per day, still far below the rate of 4s 6d paid to single White men 22 years earlier. It was noted that by the mid-twentieth century, few Whites were very poor. Poverty became identified with non-White communities.³⁶ A study undertaken into basic income needs of an African family in Edendale in 1947 found that it required a monthly income of £13 10s to live to a basic level in terms of food and clothing. However, the average income was between £3 16s and £5 per month, and malnutrition was the main diagnosis at the Edendale Health Centre.³⁷

In October 1950 influx control was enforced, giving the City Council the right to regulate the labour supply and prevent Africans from entering Pietermaritzburg when no work was available for them. This was said to be 'very effective in clearing the City of undesirable Natives'. Restrictions on registering Africans for employment and the policy of job reservation prevented non-Europeans from acquiring skills and taking jobs as artisans and engineers as required by the Council. Soon afterwards shortage of labour was reported in the municipality both for Council duties and domestic work, and wages had to be increased considerably. It was reported that generally households preferred to employ 'boys eighteen years and younger' as domestic servants.³⁸ The city at that time could be described as being gentrified as reports talk of the introduction of ornamental plants into the parks, displays of flowers and construction of cricket pitches, bowling clubs and swimming pools. In 1950, Mayor G.C.G. Jolliffe cited the description of the city as the Garden City of the Garden Colony while discussing the establishment of the Queen Elizabeth Nature Reserve near the road to Howick. The development of the suburbs

had led to a situation by the late 1950s in which Whites enjoyed a standard of living far exceeding that of other races, and of their counterparts in Europe, with large plots of land, spacious houses, multiple recreational facilities and domestic servants for most households. Control of infectious disease and diseases of sanitation, and the healthy climate, were increasing longevity. Mortality for Whites was now due to conditions of old age, with cancer and cardiovascular disease predominating. However, the pursuit of the garden city or city of flowers was at the expense of industrial development, with little land released for industry that would have created jobs for non-Europeans. Economic life for Asians was supported basically by four companies – Eddels Shoes, Nestlé, Hulett Aluminium and Scottish Cables – and jobs and wages within those companies were dictated by race.

Senator W.J. O'Brien, on being given the Freedom of the City in 1946, had commented in his speech about the town: 'it's a friendly town, a hospitable town, a generous town, as is shown by the numerous establishments for the relief of the sick, the poor and the needy – by its support of every worthy cause'.³⁹ Certainly that culture of establishing welfare organisations became a strong feature of Pietermaritzburg society, catering for a variety of good causes, including the African population in Edendale. They are too numerous to mention, but assisted all sectors of the population including the elderly, children, alcohol and drug abusers, individuals and families in crisis, street children, the destitute, war widows, ex-servicemen, and the politically oppressed. In addition night schools provided for the education of Africans, including young people working as domestic servants. However, the apartheid government rapidly made these untenable, with a plethora of regulations limiting who could attend them and the hours teachers were allowed to work there. The Manager of the Native Administration Department commented that it made him feel 'that it will not be long before these schools will have to close down in the central city area'.⁴⁰ The curfew for Africans was amended in 1945 to include the hours between 11.00 pm and 4.00 am.

In Edendale, housing most of the African population under the LHC, the tightening of influx control meant that city residents were given precedence for jobs, while there were few economic and employment opportunities in Edendale itself. In 1943–1944, 78% of the residents were employed in Pietermaritzburg and 22% in Edendale. By 1956, only 10% found employment in Edendale. It was also noted by the Social Welfare Department of the LHC that there was widespread instability of family life. Illegitimacy was increasing, with 90% of the children referred for malnutrition having been deserted by their fathers. As

in the city there was a plethora of welfare organisations, including the NATA, the Edendale Welfare Society, Edendale and District Benevolent Society, plus the Social Welfare and Native Administration departments of the borough.

Welfare work was, however, dependent upon the interest White bodies showed in the area: it was not possible for local organisations, although enthusiastic, to raise much money within Edendale itself owing to the general poverty. In 1957 the Pietermaritzburg Child Welfare Society decided to discontinue child welfare work for Africans. This led to the creation of a Save the Babies Fund followed in 1959 by an African Child Welfare Section of the LHC. There were nursery schools (although the Department of Native Affairs withdrew its subsidy in 1956), a library and the Emuseni Home for the Aged housing 28 old folk – the only one of its type in Natal. In fact the MOH of the LHC, Dr Seymour, commented that ‘Edendale...is probably better provided with welfare services that any other community of similar size or character – comparable to many European areas and towns’ and added that there was excellent co-operation between the welfare organisations and the LHC.⁴¹ Edendale was the only Public Health Area run by the LHC that was an urban area in terms of the Children’s Act where child maintenance grants could be applied.

Social facilities in Edendale, such as playgrounds, parks and youth clubs, were established; and a YMCA centre in Georgetown, together with three football grounds. These attempts at social upliftment, however, could not totally compensate for the poverty and overcrowded, insanitary housing, and diarrhoea and malnutrition featured high on the list of causes of death, along with tuberculosis. The area in fact attracted the unemployed from elsewhere, as those unable to enter the local authority areas due to influx control had to settle there. The most accurate estimation of the mortality rate for 1958 after a LHC census, recorded a figure of 23.5 per thousand for Africans compared to 9.1 for Europeans. In 1962, 61.6% of recorded deaths of Africans in Edendale were under the age of five years.

Africans were finally permitted to buy White liquor legally in 1962. Unemployment was said to be increasing for African women at that time, not aided, according to the Director of Bantu Administration, by ‘employers who expect domestic servants to be on duty from 6.00 am to 9.00 pm daily, do all house work, washing and ironing, and speak English or Afrikaans’.⁴² For all this, the average monthly wage was R7. The average wage for an African male at that time was R21.04 per month and for gardeners just R5. Of the 45 000 Africans working in the city at this time, 35% were employed as domestic

workers. Rental for a two-bedroom house in Sobantu was R2.80 per month for the sub-economic group and around R7 in Imbali. A European clerk at that time was earning R108 per month and 53% of Whites living in Council housing schemes earned between R175 and R225 per month. The majority of Indians (95%) and Coloureds (59%) in the housing schemes earned between R60 and R125 per month. Bantu education and job reservation also meant there was a mismatch between the skills required by artisans, engineers and technicians, and the availability of skilled labour. Hence, a severe shortage of skilled workers was reported in the face of growing unemployment for Africans. Council even reported a shortage of Zulu-speaking workers for the Bantu Administration Department, in spite of the many thousands of unemployed native Zulu speakers. The national unemployment rate for Africans at this time was between 12% and 16%.⁴³ By 1970, the shortage of skilled workers was such that the Council was recruiting in England. In the same year the Bantu Laws Amendment Act introduced a monthly registration fee for employers of African females.

The 1960s were generally considered economic boom years and the amount of public housing constructed to implement the Group Areas Act reflects this. However, the method of implementation, with mass relocations of people across the city and forced transfer from a semi-rural existence into small government housing units, caused social as well as health problems. It was reported that the forced transition of Asians to single family, small, public dwellings led to a rapid and traumatic change to single and extended-single family living. Whereas previously they had enjoyed multiple and extended-multiple family life, they were now living in family units with overcrowding forcing many people to live in garages and outbuildings. This led to a variety of physical, social and emotional problems, including family violence, amongst Asians in mass public housing schemes.⁴⁴

The control of African job seekers entering the city (influx control) was handed over in the early 1970s to the newly-created Drakensberg Bantu Administration Board (DBAB). They were still subject to a medical examination, chest X-ray and smallpox vaccination. Of the 38 196 people examined in 1973, 29 060 came from the Edendale/Vulindlela area, just outside the city; 2 425 were Sotho, presumably originally from another province, and 5 184 were Xhosa, originally from Transkei. Clearly the city was a huge magnet for people seeking work, partly due to low levels of urban development in other parts of the province. The Pietermaritzburg Agency for Christian Social Awareness (PACSA) started publishing statistical information on the plight of

the African population in 1980. The first publication stated that in 1976 Whites received 66% of national income, but constituted only 22% of the recipients. Africans received 25% of the income, while making up 65% of the population. At 0.65, South Africa was thought to have probably the highest Gini Coefficient (measuring financial inequality within the population) in the world.⁴⁵ In 1978, the first mention of equal pay for different races was made with a poverty relief project employing White, Coloured and African men at R3 per day channelling streams. Job reservation was finally abolished in 1979. However, the lack of educational and vocational training provided for the Black population meant that despite high unemployment levels, recruitment from the United Kingdom was still taking place for skilled tradesmen in 1981. At that time the Council employed altogether more than 5 000 people. The economy was described as prosperous, with a degree of industrial development. The national registered unemployment rate in 1983 for Whites, Asians and Coloureds was only 1.09%, which compared very favourably with rising levels in the West (10.1% in the USA, 13.5% in Britain and 12.5% in Canada.)⁴⁶ However, at the same time it was reported that 40 children died in the city each month due to poverty, malnutrition and unemployment.⁴⁷

Social facilities were constructed in the areas of the city reserved for particular groups. In 1981 a community centre was opened for the Coloured community in Eastwood, comprising a hall and theatre complex, a social centre, a clinic and an administration block. Missing from the Council's annual reports of the 1980s is commentary on the socio-economic circumstances of the population; and the impact on the African population in the townships (these were now outside the city's domain.) Vulindlela was portrayed in the 1980s as being still very rural and traditional in appearance. Life was described as hard, without electricity or running water. Most homes were of mud. There were large numbers of unemployed and few students had completed school. The area was considered peaceful with a large number of community structures and organisations, such as burial societies and social groups.⁴⁸

Inflation was around 15–16% in 1983 and the economy deteriorated throughout the decade, the result for poor communities being increased unemployment and poverty. Council tried running a Hunger Campaign to raise funds to assist, but it only lasted two years. Various unemployment relief projects were run, such as employing men to canalise streams and other labour-intensive projects. The worsening situation is referred to briefly in the 1987 report on health, in which it was noted that alcoholism and drug abuse seemed to be on the increase, along with child abuse, wife battering

and stress as a result of unemployment. In 1988 a study by the Development Studies Research Group at the University of Natal in Pietermaritzburg put the level of African unemployment in the area at 31% and as high as 39.3% in Ashdown. Of the unemployed, 46% were under 25 years old. As the incidence of teenage drug and alcohol abuse, and glue sniffing, appeared to be increasing it was felt by the Social Worker that parents seemed to be so involved in their own overwhelming problems that they adopted an indifferent attitude to their children's behaviour. Peer pressure and lack of entertainment facilities in the poorer areas also contributed to alcohol and drug experimentation. The prevalence of unmarried mothers recorded through illegitimate births had increased to 38% for Africans, 37% for Coloureds, 14% for Asians and 10% for Whites and is indicative of social disruption. It was noted by Council that 15% of attendances at the occupational health clinics were for alcohol-related problems. The Occupational Health Service also noted that there were no canteen facilities at any of the Council's workplaces, seen as unfortunate as many staff had to leave home as early as 3.00 am to reach their workplaces by 7.00 am. Wages were still low, with domestics still receiving as little as 25% of the recommended rate in 1992.⁴⁹

A report by the Natal Midlands Black Sash described the state of the city in 1990 on the eve of the country's transformation. It indicated that although there were small signs of progress in the breaking down of rigid racial barriers, racial segregation still pervaded most sectors of the city such as local government, health, social services, government-funded education, housing, recreational facilities and environmental conditions. It stated that 'Pietermaritzburg is thus a city in crisis, with deep seated segregation and violence'.⁵⁰ A plea was made for the White city of Pietermaritzburg to recognise that the metropolitan area was one unit and that resources should be spread out to assist the remainder.

After the transformation of governance of 1994, and democratic elections for the new local authority in 1996, an Integrated Development Plan was produced to describe the status quo in the city at that time and guide its future development. In the analysis presented in 1998, it was noted that 90% of the gross domestic product of the area was produced in the former borough of Pietermaritzburg and that around 175 000 people moved in and out of the city daily. Edendale was still a dormitory residential suburb with little internal economic activity. It was estimated that the primary household subsistence level was R1 207 per month for a household of six and that approximately 30% of the households in the city, which now included the Edendale area, fell below that level. It was estimated that the unemployment rate was 30%.

The local economy was stagnating, with minimal growth. In a report by Mike Hickson in 1995 it was noted that 'Pietermaritzburg's economic welfare is significantly dependant on the operations of just eight firms. As seven of these are subsidiary plants, decisions made in distant Head Offices to move these plants away from Pietermaritzburg could result in extremely adverse effects'. Three of those were shoe factories, which were in a state of decline. A major source of employment had always been the government sector as the city was the provincial capital. However, in 1994 the capital was split between Pietermaritzburg and Ulundi in Zululand, and the migration of government departments to Ulundi caused further economic depression.⁵¹

By 2002 economic growth in the country was improving, with KwaZulu-Natal recording 2.6%. With the national and provincial government elections of 2004 the capital issue was resolved in favour of Pietermaritzburg. The relocation of government departments back to the city provided a much-needed boost for the economy and, together with a local investment drive, supported a variety of industrial, commercial and retail developments. The Employment Equity Act, promoting equitable job opportunities at all levels for all races, and policies of affirmative procurement favouring Black-owned businesses for government contracts, were starting to spread financial and economic growth through the wider city community. By 2006 the economy was experiencing an increase in the number of new businesses and claims for unemployment benefits were decreasing.⁵²

With the global economic crisis of 2008–9 the impact on socio-economic conditions in Pietermaritzburg is yet to be seen. The areas of Edendale and Vulindlela, where half of the population live, remain dormitory residential areas with little economic activity except for small shops and funeral parlours. This is due in part to complexities of land ownership that preclude large commercial developments. Time and money spent travelling in and out of the city for work continue to inhibit an improved quality of life and poverty is likely to remain to some extent, although ameliorated by the extensive welfare and social grant system. Malnutrition is now rarely seen in government health centres in the city and unemployment may be falling. It is hoped the trend for socio-economic conditions is upwards.

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THE EARLIEST BREAKDOWN of causes of death in the Pietermaritzburg area¹ is found in the 1870 report from Grey's Hospital, which recorded one death from cancer out of 29 total deaths and two from heart disease (figure 10.1) Most deaths in those early years were from infective causes (18 out of the 29). There were no deaths from cancer in 1875 and only one case of heart disease, which may be a reflection of the relative youth of the recently arrived immigrant population. By 1881 this had increased a little to three cases of cancer and five of heart disease, of whom only one died. Chronic illnesses such as cancer and heart disease remained infrequent as a cause of death in the first 50 years of the city's existence, with on average two or three deaths a year in Grey's Hospital from each. Diabetes is not mentioned as a cause of death. This may be due to a relatively healthy diet and outdoor lifestyle, but also to the fairly young population. It was noted by Dr Allen in 1898 that each successive generation of 'delicate people' appeared to improve in health and physique.²

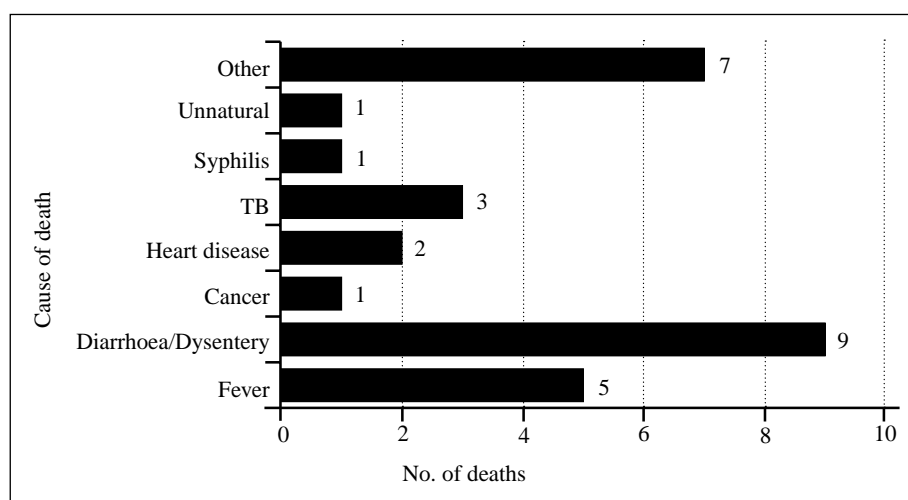


Fig. 10.1 *Causes of death recorded in Pietermaritzburg, 1870.*

In 1910 a report on the years 1907–1909 was published by the Natal Cancer Research Committee, which prepared an analysis based on the official mortality returns of Natal and the results of the examinations of pathological specimens sent to the government laboratory in Pietermaritzburg.³ At that time only Pietermaritzburg and Durban had by-laws that required a medical certificate for cause of death before burial. Registration of death was obligatory for the White and indentured Asian populations, but not for the free Asian and African populations. The limitations of the death certificates were mentioned, as they often only stated cancer without being specific and without pathological examination.

The analysis noted that the percentage of deaths due to cancer in Whites in Natal was similar to that in England and Wales, at 6.7%, with an annual cancer death rate of 0.58 per thousand people. The age distribution for the three-year period was as shown in figure 10.2

Age group (years)	Number of cancer deaths (Whites)
1–14	1
15–24	5
25–34	6
35–44	26
45–54	41
55–64	39
65–74	35
75–84	16
85–94	4
Total	173

Fig. 10.2 *Age distribution of deaths from cancer, 1907–1909.*

The most common sites were stomach (17%), abdominal/intestinal (14%), uterus (13%), tongue and oral cavity (12%), breast (11.5%), liver (6%) and skin (6%). Amongst the Asian population the cancer rate was lower than for Whites at 0.13 per thousand, attributed to the younger age of the indentured Asian population. Of these the major causes were stomach (24%), uterus (19%), abdomen/intestines (19%), skin (9.5%) and liver (7.1%). No implications could be drawn from the handful of African cancer deaths reported; only that several cases of sarcoma of the underside of the foot were reported. These were considered unusual, possibly related to the practice of walking barefoot.

Following improvements in sanitation, drainage, water supply and food handling in the city during the early years of the twentieth century, deaths from related diseases of typhoid, dysentery and diarrhoea started to decline. Information was not gathered by the municipality for African and Asian causes of death, but for Whites and Coloureds the figures show an increase in the proportion due to chronic diseases such as cancer and heart disease. This is illustrated in figure 10.3, showing the causes of death in 1914 at the start of the First World War. This increase would also have been due to the fact that early immigrants were now aging.

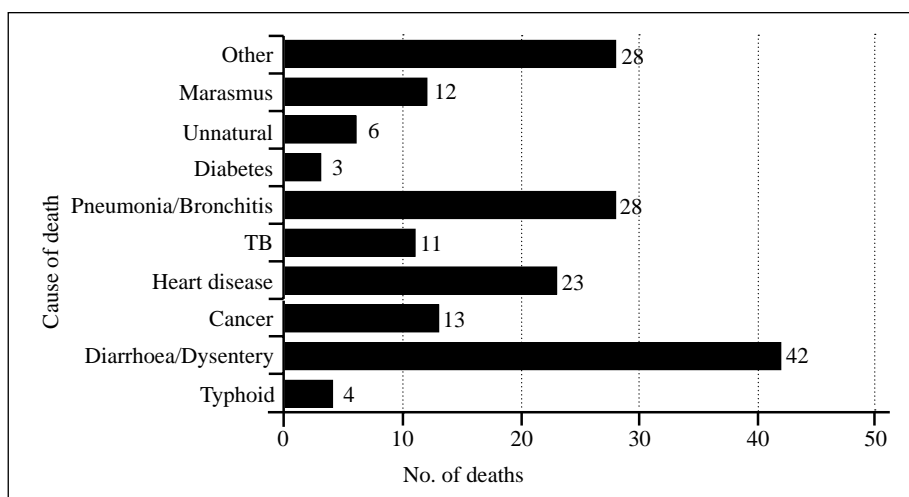


Fig. 10.3 *Causes of death in White and Coloured residents in Pietermaritzburg, 1914.*

In 1925 there were ten deaths from cancer (unspecified) amongst Whites, or 6.1% of total deaths. This gave a cancer mortality rate of 0.5 per thousand residents. There were nine deaths from heart disease, or 0.45 per thousand, and seven from cerebral haemorrhage (stroke). In 1927 there were 18 deaths from cancer amongst Whites, one Asian and two African. Twenty-nine deaths of Whites were classified as circulatory and 14 were due to developmental diseases, including old age.

In 1936 the deaths from cancer in Whites stood at 1.02 per thousand residents. The Medical Officer of Health (MOH) had started to classify the different types of cancer according to the International Classification of Diseases and showed that of the 23 White deaths from cancer, 13 were due to cancer of the stomach or digestive organs and six women died of breast,

uterine or ovarian cancer. Only one death from cancer was seen in Africans, which was of undetermined type, two in Coloured people and two in Asians. As a percentage of all deaths, cancer was of importance only for Whites at this time and this reflects the progress made in eliminating infectious causes of death for this community. Similarly, 29 (17%) of the White deaths that year were from cardiac problems. If deaths from cerebral haemorrhage (stroke) are added, this increases to 23.5% for cardiovascular disorders. It compares with 15.8% for Asians, 6.5% in Africans and 5.3% for Coloureds. There was only one recorded death from a stroke in Africans, none in Coloureds and six in Asians. There was only one recorded death from alcoholic liver disease, in a White man, and no cases in 1938. Diabetes Mellitus as a cause of death was also extremely rare.

The fact that 72% of non-European deaths occurred before the age of 45 in 1938, compared with 30% of White deaths, was noted by the MOH as an indication of the improved expectation of life for Whites compared with other races, along with the fact that Whites were more likely to die of diseases associated with old age, such as cancer, cerebral haemorrhage and heart disease. However, the percentage of deaths from these causes was increasing in all populations. By 1939 there were 35 White deaths from cancer, or 18.5% of all deaths. The total number of deaths from cancer was small, making analysis unreliable. However, the most common fatal cancers in 1943 were of the stomach or duodenum (6 or 22%), pancreas (3 or 11%), uterus (3) and breast (also 3). There were three cases of breast cancer again in 1944, which was 1.44 per thousand population or 2.72 per thousand women; and six in 1945 (5.44 per thousand women). There was only one death from cancer of the prostate and one from lung cancer. The vast majority of cancers were seen in Whites aged over 55 years. In 1946 there were five deaths, or 20% of cancer deaths, from cancer of the mouth and a similar number for lung cancer, mainly in White males over 45 years of age. Smoking habits, a risk factor for these types of cancer, are not mentioned. An analysis of cancer deaths for 1948 is illustrated in figure 10.4. The analysis is only for Whites, as there were very few deaths from cancer in other races.

By the 1950s a change in mortality patterns was starting to appear for the Asian and Coloured communities, with an increase in the proportion of deaths due to chronic disease such as cardiovascular ailments and cancer. Diabetes was still rare as a cause of death and infectious diseases were starting to decrease in importance, possibly because of improved treatment with antibiotics and a generally improved standard of living. In 1952 cardiovascular causes together

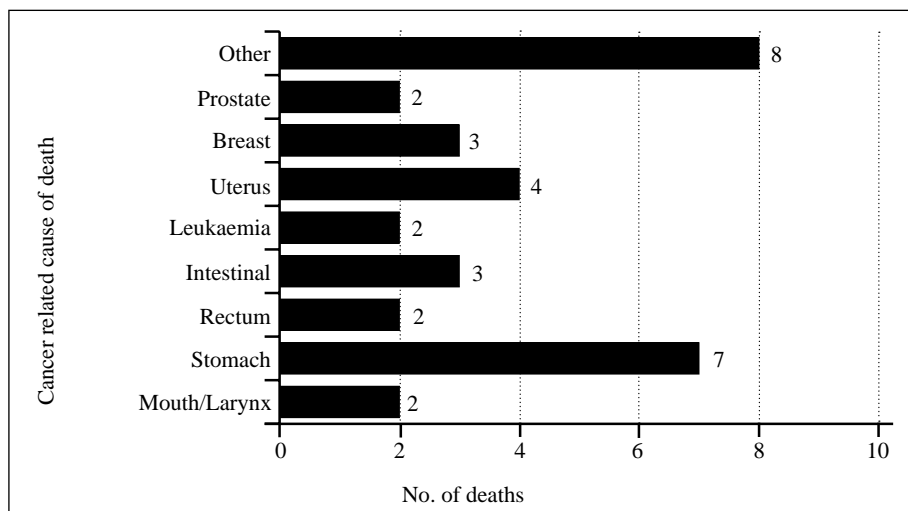


Fig. 10.4 *Number of cancer related deaths amongst White residents in Pietermaritzburg, 1948.*

with cerebral haemorrhage were responsible for 42.9% of White deaths, 28.2% of Asian, 19.4% of Coloured and 10.4% of African. The figures for Coloured deaths are too low to be reliable, but the Asian community shows a distinct increase in deaths from chronic illnesses. The figures for chronic disease deaths were low for Africans as they still died young: in 1956, 82% of African deaths were below the age of 45 years. The causes of death in 1952 are illustrated in figure 10.5.

The pattern of deaths from cancer was also starting to change, with lung cancer overtaking all other types in 1952: it comprised 22% of all cancers in Whites and 32% of cancers in White men. Most of these deaths occurred in men over 65 years and may relate to an increase in smoking which took off during the First World War. Cancer of the uterus and breast were at similar levels in White women, the latter possibly relating to the declining birth rate which, apart from the post-war baby boom, had been falling since the First World War.

For the White community of the city the high socio-economic status continued to lead to an increasing life expectancy with consequent diseases of old age. In the 1960s a similar pattern started to show for the Coloured and Asian communities. The national unemployment rate for Whites, Coloureds and Asians was under 2% for the period between 1948 and 1983.⁴ The standard of living for White South Africans compared well with any group

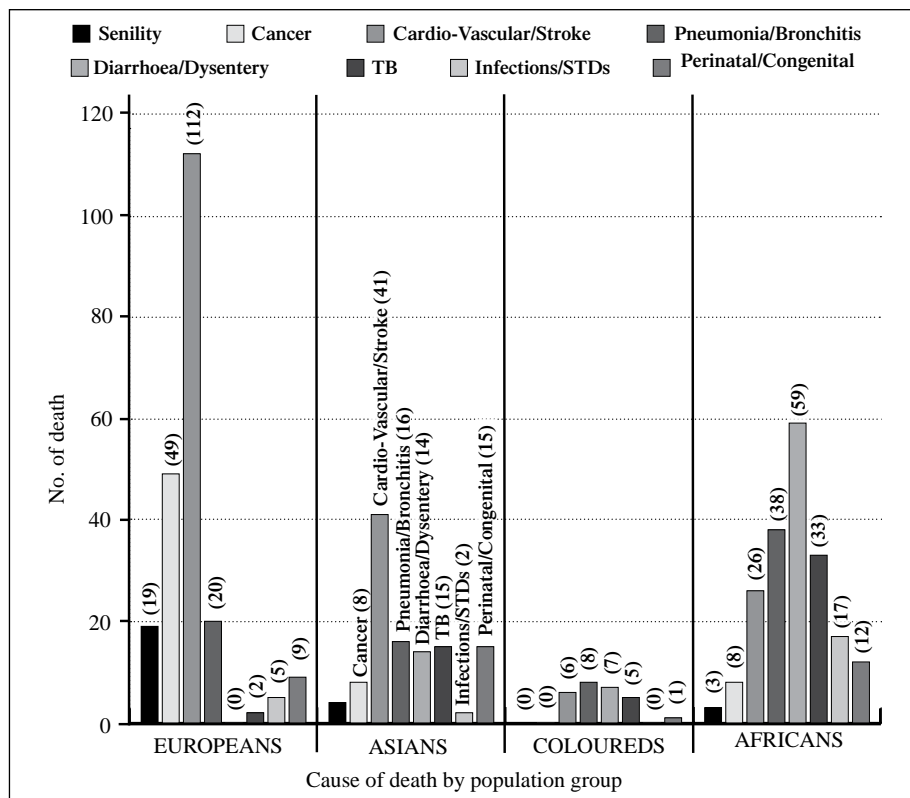


Fig. 10.5 *Major causes of death in Pietermaritzburg, 1952.*

in the world. The reasons for relatively high mortality rates for Whites were the large number of elderly dying from cardiovascular causes, cancer and pneumonia. For all races deaths in the city from tuberculosis and infectious causes had greatly reduced and cardiovascular disease was moving to the forefront. The mid 1960s was a peak period for cardiovascular mortality in the White community, with a rate of 42.9 deaths per thousand in Pietermaritzburg in 1967, when the national figure peaked at 24.5.⁵ Nationally the figure for males was twice that of females, and it was particularly high for younger age groups, with a mortality rate for ischaemic heart disease of 2.31 per thousand for males in the 25–34 age group, compared to 0.64 for their equivalents in England, in 1970. For females the rate, although lower than males at 0.52 per thousand, was still 6.5 times higher than England.⁶

By the late 1960s there was gross under-reporting of African causes of death in the borough and figures became very unreliable. Division of the

African population between the borough and Edendale made recording of precise residential addresses of the deceased, and size of population for the denominator, inaccurate. The only value in these figures is the relative contribution of different causes, rather than comparison of absolute numbers with other races. The Coloured and Asian deaths are probably well recorded, but are a smaller percentage of the total population. Unnatural deaths, including violence, motor vehicle accidents, other accidents and suicide, started to emerge as the leading cause of mortality for the African population, along with cardio-vascular disease. Diarrhoea and dysentery still featured strongly as a cause of mortality in the Asian population, causing 22% of deaths.

A breakdown of types of fatal cancer for 1972 for the whole population of Pietermaritzburg by sex is illustrated in figures 10.6 and 10.7. They show that overall for men, cancer of the lung/bronchus was the leading fatal cancer; and for women cancer of the breast and uterus were of particular importance. Deaths from cancer of the breast were reported only in White women. In 1973 an exfoliative cytology service was introduced at the newly-established family planning clinics to undertake cervical smears, which were sent to the pathology laboratory at Edendale Hospital. Only seven of the 1 373 smears examined in 1973, all of them from African women, came back positive giving a positivity rate of 1.7%. In Edendale cancer of the oesophagus was the commonest form of fatal cancer amongst the African population, causing between three and eleven deaths per year.

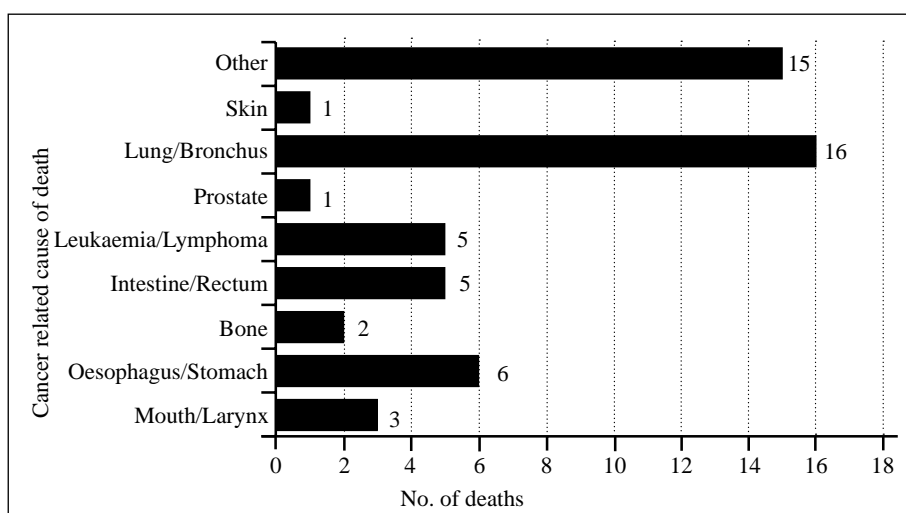


Fig. 10.6 Male cancer deaths in Pietermaritzburg, 1972.

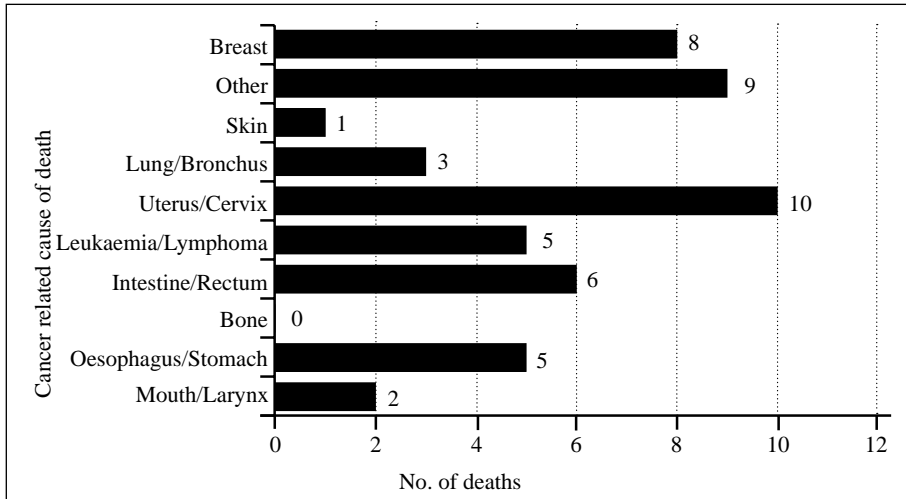


Fig. 10.7 *Female cancer deaths in Pietermaritzburg, 1972.*

Epidemiological information became more inaccurate in the late 1970s as health services were fragmented under various administrations. Mortality data was still collected from death certificates in Pietermaritzburg, which at least gave an idea as to the spread of causes of death. This showed that for Whites cancer of the lung was the most common fatal cancer for men and cancer of the breast for White women; followed by cancer of the stomach for both sexes. A percentage of cancers were of unspecified sites, but the detail with which the mortality data was analysed and coded was substantial. Possibly the most significant cause of error would have been over-classifying of cardio-vascular causes: many medical practitioners would enter mode of death on death certificates as, for example, cardio-respiratory arrest rather than the underlying cause such as cancer or another disorder. For Africans cancer was still a minor cause of death, the commonest form being cancer of the oesophagus. There were five deaths in 1979 and this was also noted to be the commonest cause of cancer among Black males in Johannesburg at the time.⁷ However, the lower overall mortality from cancer for non-Europeans may have been simply due to the fact that the Whites were an older population. Cancer of the lung was made a notifiable disease in 1979, but relatively few cases were notified compared to those picked up from the mortality data, possibly because hospitals did not consider cancer to have public health implications.

Nationally, it was also considered that mortality rates for cancer in Africans were likely to be unreliable; but the rate for cancer of the oesophagus in urban

African males was estimated at 5.4 per thousand in 1975, almost 2.5 times higher than France, the highest country analysed in an international study. Coloured males and African females also had high rates of oesophageal cancer, but the commonest cancer for Coloureds nationally was of the bronchus and lung, as with White males, although lower than those in England and Scotland, and related to smoking levels. Coloured and African women had high rates for cancer of the cervix. For White women nationally the highest rates were for breast cancer, in line with European trends.⁸

In 1973 approximately 10% of the White female population were aged over 65 years and 7.7% of White men. For the Asian population this figure was 2% for each sex. African figures were unreliable. There were now many organisations caring for the elderly White population, in particular the Pietermaritzburg and District Council for the Aged, which provided meals-on-wheels, home helps, social welfare services and a Senior Citizens Club. It also controlled several residential homes, which had long waiting lists. There were several other homes for the White elderly, both non-governmental and private, and in general there seems to have been considerable support available.

By this time mortality from chronic diseases was starting to increase nationally in urbanised Africans, relating to a population in transition. Seftel in 1977 divided these into two groups: those related to alcohol, with serious effects at the social, economic, psychological and physical levels; and those similar to Western populations such as obesity and hypertension that had attained epidemic proportions. Other conditions, such as coronary artery disease, gout, gallstones and colonic cancer were still relatively rare. Heart conditions such as rheumatic heart disease and congestive cardiomyopathy he thought resulted from either chronic malnutrition or alcohol abuse, or both. Nationally, an obesity explosion was also noted amongst urban African women. This gave rise to diabetes and hypertension; and the latter was thought to be the second highest cause of death for African adults in Johannesburg after violence. Other conditions that were appearing included peptic ulceration, appendicitis and varicose veins.⁹ Walker noted that rising socio-economic status amongst urban Africans was also associated with increasing sugar intake, and that it was also increasing in rural areas, although internationally it seemed to correlate more with coronary artery disease than diabetes. It was also noted that while obesity was higher in African than White women, diabetes prevalence was lower.¹⁰ Bradshaw and Harington also commented in 1982 upon the transition taking place within the African population in respect of cancer:

they find themselves oscillating . . . from country to town and back again owing to migratory labour patterns. Thus deep-rooted habits may be carried over from rural to urban habitats, or an obligatory environmental exposure to carcinogens may be avoided or reduced. The dynamic nature of cancer in South African urban Blacks is very evident, particularly so in the men, who move about a great deal more than the women. As a population in transition they soon acquire . . . the ills of western society such as obesity, hypertension, diabetes, coronary artery disease, alcoholism and, inevitably, an increasing rate of lung cancer.¹¹

In his annual report of 1983, Dr Peachy referred to the continuing toll of degenerative cardio-vascular disease, particularly in the White population. He commented 'many lives could be prolonged if the dietary habits and lifestyles of the City's inhabitants could be modified. Many are digging their graves with their teeth'.¹² The typical White diet contained large quantities of red meat, such as the typical South African fatty sausage known as boerewors, which contributed to an unusually high incidence of ischaemic heart disease. Peachy felt that more of the national health budget should be channelled away from curative services and into preventive primary health care. However, with those illnesses that were easily preventable by external interventions already dramatically reduced in incidence (gastro-intestinal infections, communicable diseases and so on) it was inevitable that the resulting increased life expectancy of the population would lead to an increase in conditions that personal lifestyle changes could prevent (those induced by diet, smoking or unknown factors such as various cancers.) As these self-induced ailments required long-term, expensive treatment, rather than being quickly curable like infections, increased expenditure on treatment rather than prevention was probably unavoidable. The kind of interventions that would make the greatest difference, such as national policies on alcohol and cigarettes, may have needed action beyond the remit of the national Department of Health. Peachy repeated this theme in 1985, when he stated that 'as with most Western nations the toll of degenerative disease continues to be high amongst the more affluent sections of the city's population. It is always a concern to health authorities that many people, in spite of an adequate knowledge of deleterious lifestyles, still persist in this type of living to the detriment of their health.'¹³

It was not just the White community that was affected by cardiovascular disease. The incidence in the Asian and Coloured populations was also high and seen as part of a nation-wide problem. In 1984 the mortality rate from ischaemic heart disease in Pietermaritzburg was 14.7 per thousand for Whites, 4 for Coloureds, 7.9 for Asians and 1.5 for Africans. This compared with a national picture in 1985 of 17.8 for Whites, 6 for Coloureds, 11 for Asians,

and 0.4 for Africans. In analysing the high mortality rate from ischaemic heart disease in South Africa, the national Department of Health debated the question of populations in transition from an essentially rural lifestyle and a subsistence economy to the market economy found in the major industrial settings after large-scale urbanisation and shifts with respect to their mortality profiles. It also referred to political and social pressures and pent-up anger, together with violence and unemployment, which certainly may have affected the African population in the Pietermaritzburg area. However, nationally it was noted that by 1989 mortality rates from ischaemic heart disease were declining slightly, possibly due to effective health education and adoption of more healthy lifestyles.¹⁴ It was also noted in Pietermaritzburg that from the 1980s the mortality rate from cardiovascular causes declined. Whether this was due to lower levels of cardiovascular disease through changing lifestyles, or to improved treatment options, is not clear.

An analysis of the impact of urbanisation on Zulu women found that while obesity rates were very high (and higher in urban areas than the rural) levels of hypertension were lower in urban women (7.4%) than the rural (13.7%). It concluded that the high prevalence of obesity was not related to higher rates of hypertension: this was defined as 'healthy obese'.¹⁵ However, levels of hypertension were gradually rising amongst Africans, as seen by the large number of patients attending hospital and clinic out-patient departments for this condition. The diet of urbanised Africans was becoming increasingly atherogenic, with fat increasing from 24% to 32% of total energy intake, animal protein increasing from 6% to 9%, and carbohydrate decreasing from 61% to 51%. This diet was expected to contribute to an increased risk of cardiovascular disease.¹⁶

Gradually during the 1990s data became less and less reliable. Boundaries between borough and non-borough were blurring as people from outside the area came into Pietermaritzburg to access health services and many probably lied about their addresses for fear of being turned away. So while some of the prevalent conditions and causes of death can be seen from clinic, hospital and mortality data, it becomes much harder to calculate rates, in particular for the African population. In addition, in the mortality records the category 'other ill-defined and unknown cases of morbidity and mortality' was increasing, so that in 1991 this formed 13.8% of all causes of death. The reason for this may have been that as deaths from violence increased and put greater strain on mortuary facilities for post-mortems, which were required from police in such cases, there was less time to determine the precise cause of death for

those who died naturally outside hospital. Anecdotally, forensic pathologists and other doctors certifying death reported that provided there was no obvious evidence or suspicion of foul play, they would not do a full examination but simply record 'natural causes' on the death certificate.

The only cancer that had a national screening programme continued to be cervical cancer. The policy was to target women of between 20 and 50 years, with those aged 30–39 years given highest priority. Of 1 949 Pap smears carried out in 1997, 82 were positive (4.2%), significantly up on the figure of 20 years earlier. The percentage of positive cervical smears taken from people attending family planning clinics in 1996 is shown in figure 10.8.

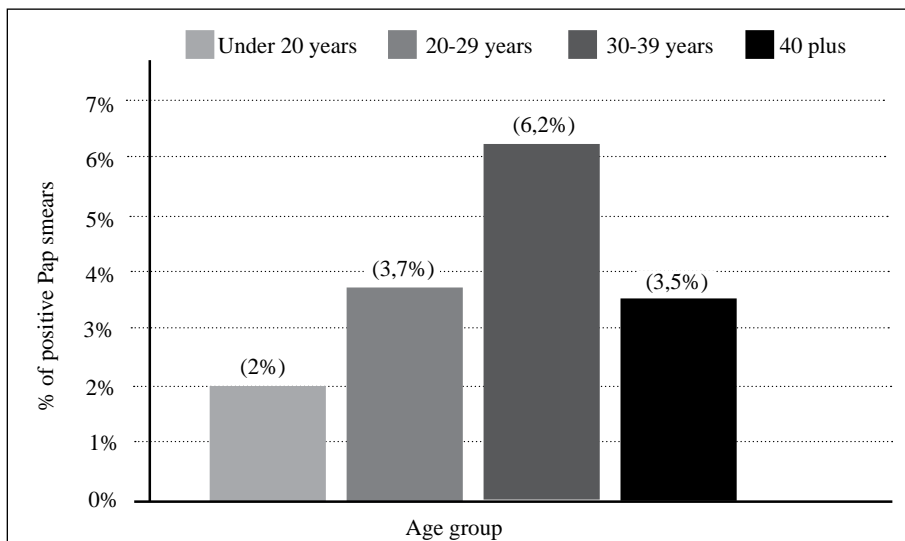


Fig. 10.8 *Percentage Pap smears testing positive for different age groups, Pietermaritzburg clinics 1996.*

At the end of the century the municipal Health Department amassed a comprehensive collection of health statistics for the greater Pietermaritzburg area with as much accuracy as it could manage. Chronic diseases, in particular hypertension, were placing a great burden on both community and health services as is shown in figure 10.9, which shows the reasons for attendance at primary health care facilities. Almost 73 000 attendances were for treatment of hypertension; a high percentage of the workload for the nurses, a significant cost in terms of staff time and medication, and a heavy toll of illness amongst the adult population.

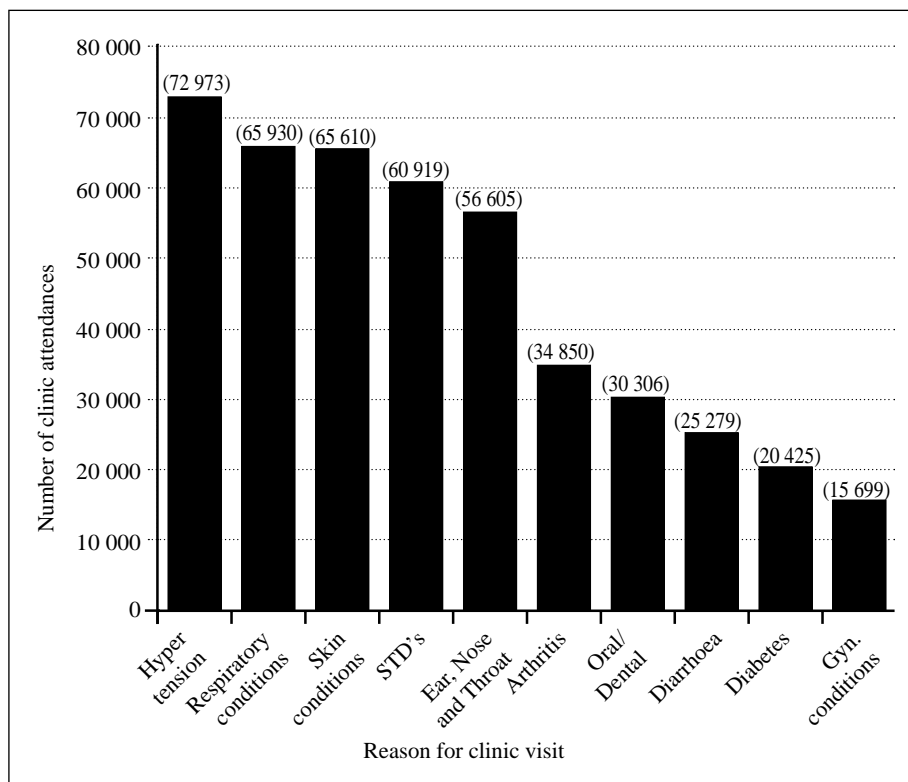


Fig. 10.9 Morbidity (disease/complaint) profile of people attending clinics in Pietermaritzburg, 2000.

The picture for deaths from all cancers in 2000 is illustrated in figure 10.10. Lung cancer was the most common fatal cancer in men, followed by the oesophagus and oro-pharynx. Nationally, cancer of the prostate was the commonest cancer for White and Coloured men (1:20 and 1:30 lifetime risk respectively), but probably had a lower fatality rate than cancer of the lung. The lifetime risk nationally for lung cancer was 1:41 for White men, 1:89 in Black men and 1:91 for Asian men. This was far lower than the rate for White English men and Americans. For African men cancer of the oesophagus was the commonest cancer nationally with a 1:39 lifetime risk. For Asian men stomach cancer had the highest lifetime risk nationally at 1:30. As the majority of Asians still lived in Natal this was probably also true for Pietermaritzburg.

For women in Pietermaritzburg breast cancer led in terms of deaths, followed by cervical cancer. This picture probably varied greatly by race, but in the new South Africa this analysis was no longer undertaken by the

city. While the mortality rate from breast cancer was extremely low at 0.41 per thousand women or 0.22 per thousand people (male and female) this compared unfavourably with other African countries, for instance Gambia at 0.34 per thousand women. In Europe the rates ranged from 3.57 (Portugal) to 7.27 (Netherlands). Nationally, the National Cancer Register gave an overall incidence of 2.1 per thousand for breast cancer in the 1990s, with the incidence more than four times higher for White women than Coloured and African women. Breast cancer was the most common cancer nationally for both White and Asian women. However the reverse picture was the case for cervical cancer, with a lifetime risk of 1:83 for White females compared with 1:26 and 1:30 for African and Coloured women respectively. The mortality rate for liver cancer of 0.28 per thousand compared with the national figure of 1–3.¹⁷

Site of cancer	Male	Female	Total (%)	Mortality rate per thousand population
Lung/bronchus	24	5	29 (14.7)	0.046
Liver	9	9	18 (8.8)	0.028
Oesophagus	12	5	17 (8.3)	0.026
Breast	0	14	14 (6.9)	0.041/thousand females
Mouth and pharynx	12	1	13 (6.4)	0.038
Cervix		11	11 (5.4)	0.032/thousand females
Large bowel	5	6	11 (5.4)	0.017
Stomach	6	4	10 (4.9)	0.015
Leukaemia/lymphoma	5	5	10 (4.9)	0.015
Prostate	8		8 (3.9)	0.026/thousand males
Pancreas	1	5	6 (2.9)	0.009
Urinary tract/kidney	3	3	6 (2.9)	0.009
Uterus		5	5 (2.5)	0.015/thousand females
Ovary		5	5 (2.5)	0.015/thousand females
Nervous system	3	1	4 (2.0)	0.006
Skin	1	1	2 (1.0)	0.003
Other gastro-intestinal	2	0	2 (1.0)	0.003
Other/unspecified	18	14	32 (15.7)	0.049
TOTAL	109	94	203 (100)	0.314

Fig. 10.10 *Cancer mortality in the Pietermaritzburg district, 2000.*

The last analysis of cause of death to be found in the municipal records is that for 2000 when 4 735 adult deaths of all races registered at the national Department of Home Affairs were analysed (figure 10.11). Collection of data was becoming ever more difficult as the Department of Home Affairs had been instructed that all recording of mortality data was to be done centrally in Pretoria and it was only with special permission that the city was still able to access the results. Each entry had to be laboriously made by hand, then coded and computer captured and the sheer numbers of deaths with the advent of HIV/AIDS made it an administrative challenge. The figures at the turn of the millennium, some 160 years after the founding of Pietermaritzburg, showed how far the city had come in terms of the public's health. The phase of diseases of filth was largely over, with typhoid, dysentery and diarrhoea no longer prominent. Most cases of adult diarrhoea were due to underlying HIV infection, rather than insanitary conditions. Similarly, the era of infectious

Cause	20-39 years	40-59 years	60-79 years	80+ years	Total (%)
Cardiovascular	92	168	232	118	610 (12.7)
Unnatural	377	183	37	5	602 (12.6)
Cancer	18	71	88	22	199 (4.2)
CVA/hypertension	35	97	178	64	374 (7.8)
AIDS/TB	1 174	316	46	7	1 543 (32.2)
Respiratory failure (including asthma, COAD)	22	55	82	16	175 (3.7)
Renal failure	22	26	31	12	91 (1.9)
Pneumonia (non-AIDS)	30	35	67	106	238 (5.0)
CNS/epilepsy	20	26	16	10	72 (1.5)
Liver failure	22	27	20	3	72 (1.5)
Diabetes mellitus	7	20	38	9	74 (1.5)
Gastro-intestinal	8	19	8	2	37 (0.8)
Septicaemia/other infections	36	31	16	3	86 (1.8)
Other/natural	109	256	197	57	619 (12.9)
Total	1 972	1 330	1 056	434	4 792 (100)

Fig. 10.11 *Causes of adult deaths in all races in the Pietermaritzburg district, 2000.*

diseases had passed: scarlet fever, smallpox, polio and diphtheria had been confined to history. What was left could perhaps best be described as diseases of lifestyle: diet, level of exercise, sexual behaviour, smoking, and alcohol consumption were probable contributors to the main fatal conditions of cardiovascular disease and hypertension, cancer, AIDS/tuberculosis, unnatural deaths, diabetes mellitus and liver failure.

ENDNOTES

- 1 Statistics on Pietermaritzburg in this chapter are drawn mainly from the annual reports of the Medical Officer of Health.
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- 3 W. Watkins-Pitchford, *Colony of Natal Report of the Natal Cancer Research Committee for the Years 1907–1909* (Pietermaritzburg: Times of Natal, 1910).
- 4 Trevor Bell, 'Unemployment in South Africa' *Occasional Paper of the Institute for Social and Economic Research, University of Durban-Westville* 10(1984): 16.
- 5 H.G.V. Küstner and A. Adam, 'A Further Decline in the Annual Mortality Rates from Ischaemic Heart Disease in White South Africans, 1963–1988' *Epidemiological Comments* 18(7) 1991: 161.
- 6 C.H. Wyndham, 'Ischaemic Heart Disease Mortality Rates in White South Africans Compared with Other Populations' *South African Medical Journal* 54(7) 1978: 595.
- 7 H.C. Seftel, 'Diseases in Urban and Rural Black Populations' *South African Medical Journal* 51(5) 1977: 121.
- 8 E. Bradshaw and J.S. Harington, 'A Comparison of Cancer Mortality Rates in South Africa with Those in Other Countries' *South African Medical Journal* 61(25) 1982: 943.
- 9 H.C. Seftel, 'Diseases in Urban and Rural Black Populations' *South African Medical Journal* 51(5) 1977: 121.
- 10 A.R.P. Walker, 'Sugar Intake and Diabetes Mellitus' *South African Medical Journal* 51(23) 1977: 842.
- 11 E. Bradshaw and J.S. Harington, 'A Comparison of Cancer Mortality Rates in South Africa with Those in Other Countries' *South African Medical Journal* 61(25) 1982: 946.
- 12 D.R.R. Peachy, *Annual Report of the Medical Officer of Health, City of Pietermaritzburg* 1983: 1.
- 13 D.R.R. Peachy, *Annual Report of the Medical Officer of Health, City of Pietermaritzburg* 1985: 1.
- 14 H.G.V. Küstner, 'Ischaemic Heart Disease Mortality in South Africa, 1985–1989' *Epidemiological Comments* 19(9) 1992: 147.
- 15 E.C. Albertse, A. Neethling and M.A. de Villiers, 'Diet and Lifestyle Differences Between Rural and Urban Zulu Women' Paper presented at the Nutrition Society of Southern Africa Biennial Congress, Cape Town, March 1990.
- 16 L.T. Bourne et al., 'Urbanisation and Diet: An Atherogenic Transition, the BRISK Study' Paper presented at the Southern Africa Nutrition Congress, Durban, 22–26 August 1994.
- 17 Freddy Sitas, 'Cancer in South Africa' *Epidemiological Comments* 23(3) 1997:4.

THE NATAL ALMANAC AND REGISTER for 1863 describes Pietermaritzburg as ‘the Metropolis’ at latitude 29° 30’ south, longitude 30° 7’ east. The altitude is given as 2 160 feet (658 metres) at the Market Square with temperatures varying from an average of around 74° Fahrenheit (24° Celsius) in February to 55°F (13° Celsius) in July. Reference is made to extensive dust, particularly in the dry winter months, but also during hot summer winds. However, compare this with the northern cities of England in the mid-nineteenth century, from which many settlers had come, as described by Charles Dickens:

A sunny midsummer day...seen from a distance it lay shrouded in a haze of its own, which appeared impervious to the sun’s rays. You only knew the town was there, because you knew there could have been no such sulky blotch upon the prospect without a town. A blur of soot and smoke...now murkily creeping along the earth, as the wind rose and fell...a dense formless jumble...that showed nothing but masses of darkness.¹

In winter this would have been worse, with the black soot of fires for heating adding to the industrial smoke. It merged with the cold, damp fog to form the dense smog that penetrated the lungs of the urban poor, contributing to bronchitis, pneumonia and emphysema, and exacerbating work-related lung conditions such as pneumoconiosis.

The atmosphere of Pietermaritzburg would have been a considerable improvement: the absence of industrial pollution; but also the warm, dry climate in contrast to the cold and damp of northern England. Holden stated in 1855 that ‘Several gentlemen who were afflicted with bronchitis in England have been greatly benefitted by a residence in this Colony. Among the natives pulmonary diseases are common and fatal, but these are...not by the character of the climate.’² The climate of South Africa was marketed to Europeans as an ideal destination for those suffering from tuberculosis (see chapter 8) as it could aid recovery at a time when no specific treatment was available. Dr R.J. Mann in 1859 wrote extensively on the climate of Pietermaritzburg and noted that ‘the climate proves, indeed, eminently serviceable to those who

manifest a tendency to consumptive disease'.³ It was noted that the climate could be considered not only better than Britain, but better than any other colony.⁴ Indeed, respiratory ailments appeared relatively rare in the early years of the city. In 1880 there were only three admissions to Grey's Hospital for asthma, and one death. This may have been exacerbated by the dust which, as one lady traveller described it in 1864, affected people thus: her 'eyes were dazzled by the heat of the air and stung by the sharp, red dust that is whirled along in sudden clouds along the unpaved roadways'. Again in 1876 there were complaints about clouds of dust, covering chairs, tables and food. Dust blew in clouds 'like a moving wall of sand'. Apparently nothing could be done at that time to the streets to mitigate the nuisance of dust in winter and mud during the rainy season.⁵ In terms of pneumonia, there were sixteen cases admitted in 1880, with nine deaths, but this was far less than other causes of illness (for example, there were 63 admissions for dysentery and diarrhoea in that year with fifteen deaths.)

In 1898 the City Medical Officer (MOH), Dr J.F. Allen, stated that 'the climate of the City and its suburbs is so healthy that...it can show a record which will compare favourably with any town or community of the same size in the United Kingdom, and most favourably with any town in South Africa'.⁶

Electrification of the city commenced in the late nineteenth century and continued into the early 1900s. Private households were encouraged to join the electricity supply and the public was educated on how to use electricity for domestic cooking and heating, together with its advantages in terms of utility, economy and cleanliness. This would have made some contribution towards reducing air pollution from smoke. Public transport at this time was by horse-drawn vehicles, trams and hand-pulled rickshas, non-air polluting save for the dust. Street trees were planted extensively, along more than eighteen miles (29 kilometres) by 1914, and large parks were laid out. In addition there was the development of plantations of wattle trees around the suburbs, with 745 acres planted in 1911 towards a target of 8 000 acres. Thirty thousand gum trees were planted on the townlands in 1912. A nursery established in the Zwartkop valley provided a vast number of tree seedlings and many were also planted around the Henley Dam. These trees would also have added to the quality of the city's air. The advent of the motor car, however, did start to have an adverse effect on air quality, with clouds of dust raised on the unsurfaced roads, together with exhaust fumes, exacerbating the already serious dust problem. A more extensive programme of tarring of roads was undertaken to try to reduce

the dust, along with the spraying of roads with water from horse-drawn vans in dry weather and the planting of grass on road verges.

The mining industry had a great impact on the respiratory health of the country, with the Johannesburg region being a magnet for job seekers on the gold mines. The principle mining in Natal was for coal, in the north around Newcastle. The Miners Phthisis Act of 1912 made provision for compensation for Whites who contracted phthisis and tuberculosis on the mines. In its first year of operation the Miners Phthisis Board made awards to 2 733 applicants. White miners were often repatriated and then given a grant of £8 per month. Fifty per cent of these miners came from England, mostly Cornwall, Devon, Cumberland and Lancashire, 11.5% from other parts of Europe, 7.5% from Australia, New Zealand, Canada and America, and 30% from South Africa. Of these 18% were from the Cape and only 1% from Natal. Most presented to the Board after three to nine years of service. The average age was between 33 and 43, and average life expectancy thereafter was less than three years. It appeared that South Africans were more susceptible than those from overseas, possibly partly because they tended to start younger – the youngest South African miner to be compensated was just 19. Those South Africans who died left on average three children per family. It was noted that in Africans phthisis and tuberculosis ran an even quicker course, with often only six to twelve weeks from onset to death.⁷

The great influenza pandemic affected Pietermaritzburg in 1918, having spread originally from America to Europe through troops fighting in the First World War. From there it spread to Spain, becoming known as the Spanish Flu, and thence to Africa affecting Sierra Leone quite severely. Brought by ships from Sierra Leone it had arrived with devastating effect in Cape Town in October and preparations were made locally for its arrival by the MOH, Dr Woods. The population was warned not to attend public meetings, the Education Department was requested not to re-open day schools which were closed, and the local authorities were empowered to close places of amusement or public gathering. A district nurse was appointed and free medicine was provided for the poor. A free vaccination station was opened and accommodation provided at the university for use as an emergency hospital; while a relief committee was formed to deal with applications for nursing, food and medicines. Over the two months of the epidemic Woods estimated that around half the Black population and one third of the White population was attacked, with a total case load of around 12 000 (34%). There were 343 deaths, giving a case

fatality rate of just under 3%. The hardest hit was the Asian community with a mortality rate of 25 per thousand, compared with Whites at three per thousand and Coloureds and Africans at ten per thousand. The national government decided to bear 80% of the costs of dealing with the catastrophe. A second outbreak occurred towards the end of June, starting with schoolchildren, and all schools were closed. This attack only lasted three weeks but had a high case fatality rate. There were 883 cases, with 31 White deaths. The effect of the epidemic on mortality rates around the country can be seen in figure 11.1.

City	Death rate per thousand population, excluding influenza	Death rate per thousand population, including influenza
Pietermaritzburg	9.3	14.4
Pretoria	10.1	20.18
Cape Town	–	22.78
East London	–	15.4
Port Elizabeth	11.09	14.8
Johannesburg	11.33	16.07
Kimberley	15.4	49.1
Bloemfontein	7.06	28.2

Fig. 11.1 *Impact of the influenza pandemic on mortality rates in South African cities, 1918–1919.*

It appears that Pietermaritzburg got off relatively lightly compared to some other cities, such as Kimberley and Bloemfontein, perhaps because it had more time to prepare. The total mortality for the country was approximately 142 000 deaths.⁸ The epidemic was the catalyst for finalising the Union Public Health Act in 1919 and the creation of the national Health Department. It also was the prompt for the Slums Act, which laid down a certain standard for housing industrial labourers, although native compounds and locations were excluded from the Act.⁹

The impact of the dusty, ill-ventilated atmosphere in schools was noted in the first report on the state of health of schoolchildren in Natal in 1918, when 78 out of 87 schools in the province were inspected. Originally the oldest school buildings were built ‘when the dread of a Zulu rising was ever present’. They were designed to form a laager if the occasion arose and hence had small windows, bad lighting and poor ventilation. Later, a more open quadrangle

design was favoured. In watching the cleaning process the Medical Officer commented that the sweeper 'was often enveloped in a cloud of dust which would give credit to a London fog in November'. He recommended covering with damp sawdust before sweeping; although sawdust was hard to come by and he remarked that it was amazing how the price would change when it was discovered the State had an interest in acquiring it. However, the health survey of 1 894 boys and 1 612 girls revealed only four boys and no girls with asthma.¹⁰

The state of the roads continued to be a problem, particularly in dry weather, as every passing vehicle raised clouds of dust on roads that were breaking up under the unexpected mass of traffic. New methods of laying and surfacing roads were being sought to cope with this development. In addition, regulations were promulgated by the City Council in 1929 to control offensive trades, which included industries with the potential to cause air pollution, noxious odours or respiratory disease. The industries listed included chemical works, tanneries, glue factories, gut-scraping works, tripe-boiling works and paper mills. Interestingly, brickworks, which were later to give rise to perhaps Pietermaritzburg's worst industrial air pollution, were not listed. Measures to be taken to prevent nuisance or danger to the public health from vapours or other discharges had to be described during any application to establish an industry. No cases of deaths from silicosis (miner's phthisis) were recorded during the 1930s and 40s, the reasons for which are uncertain given the large scale of the mining industry in the Transvaal, with large numbers of migrant workers. It is possible there were cases that were misdiagnosed as, or recorded under, tuberculosis.

In the 1930s respiratory diseases were a frequent cause of death, especially among Asians and Africans. This was attributed by the MOH largely to social factors, including poverty, starvation and poor housing conditions. He recommended action be taken to improve housing, the quality rather than the quantity of food, and temperance in alcohol consumption. In 1936 there was an epidemic of influenza during July, which particularly affected Asians and pneumonia was a major cause of death for both Africans and Asians. Thirty-nine (23%) African deaths were put down to respiratory infections, mainly lobar pneumonia, and 26%

Pneumonia: An infection of the lungs due to a variety of organisms, usually acquired by inhalation; often serious and life-threatening.

of Asian deaths. Asthma was insignificant as a cause of death at this time, and no deaths occurred from it in 1939, or in 1943, although there were seven deaths attributed to it in 1944 and six in 1950. The main respiratory cause of death remained bronchopneumonia, mainly in infants. Chronic bronchitis as a cause of death was also rare. Influenza recurred again in epidemic form during 1957: it was known as Asian flu and lasted for the month of August. There were many cases, affecting an estimated one third of the population, and schoolchildren were heavily affected. But most cases were mild and there was not as much disruption to Pietermaritzburg as elsewhere in the country. Seven deaths were recorded. In the years that followed influenza was mentioned as fairly prevalent in the winter months of June and July, but generally of a mild form without causing disruption of services, and with three to four deaths ascribed to it. It was noted over the years that mortality was usually slightly higher during the winter months for the White population; as opposed to the African population whose mortality had generally been higher in the summer, rainy season because of the higher rate of gastro-intestinal conditions at that time of the year.

There are no particular reports of respiratory illness other than pulmonary tuberculosis for the 1960s and 1970s. However, the city was growing and developing at a rapid rate, much of which was laying the foundations for future problems regarding air and noise pollution. Tyson, in an analysis of topography and the air pollution potential of Pietermaritzburg in 1964, noted prophetically that 'although Pietermaritzburg air pollution is less than that of other large cities it is likely to increase rapidly as the proclaimed industrial sites for border industries are developed'. He analysed the topographical and weather features of the city and noted how this affected the dispersion of air pollutants, such that they were trapped in a horizontal layer during the winter months. He stated that "in the case of Pietermaritzburg...where the topography acts to produce deep and regularly occurring valley inversions, the importance of inversions and their effect on concentration and dispersal cannot be over-emphasized'. Tyson warned that it would be highly desirable for future location of industry to be preceded by local climate surveys.¹¹ However his warnings went unheeded. Industry was developing in a number of specially zoned areas, including one that was to give rise in the future to many complaints about air pollution – Willowton. Situated in the valley basin, adjacent to tributaries of the Msunduzi River, the location was ill-considered from a pollution perspective as it had the potential to discharge pollutants into both the rivers and the atmosphere of residential areas. As the city grew, with the Group Areas Act and related

legislation pushing the non-European population further away from the city centre, there was an increasing amount of traffic, including the municipal bus service. The White suburbs spread further and further out due to their spaciousness with a very low density of housing and large plots. While this gave a good quality of life, the need for traffic in and out of the city grew. The traffic on the main route through the town between Johannesburg and Durban was also growing, such that a major highway was constructed by the national Roads Department. It opened in 1966. However, the impact on air pollution did not form part of the planning as it again ran through the middle of the city basin and was described by the City Engineer as 'an urban freeway in every sense of the term, in that it passes through the middle of Pietermaritzburg'.¹²

The first mention of monitoring of smog is in the Mayor's report of 1961: two sets of apparatus had been established with the assistance of the university and samples were forwarded to the Council for Scientific and Industrial Research (CSIR) for analysis. No results were recorded, however. The serious monitoring of air pollution is not reported upon until 1971, when comments were made on surveillance of smoke emissions. The control of air polluting activity, known as scheduled industries in terms of the Air Pollution Prevention Act of 1965, was under the control of the national Department of Health with which the city's Health Department liaised. All new factories in the city were checked in the planning stages in respect of potential air pollution and in 1972 four stations were set up to monitor long-term trends of particulate matter, with two monitoring sulphur dioxide. This was presumably in response to higher visible air pollution resulting from years of industrial, vehicular and residential growth. In 1972 the MOH, Dr O'Keefe, remarked on this in his introduction to the Health Department's annual report. He commented that 'there is much distress amongst the community about air and other types of environmental pollution – some of the more vociferous of these are avid cigarette smokers who are only too happy to fog the atmosphere with their cigarette smoke – endangering not only their own health but also that of the people around them'. He goes on to justify the statement: 'in a report on Air Pollution and Health issued by the Royal College of Physicians, London, in 1970, it is stated that even in heavy traffic (in London) the level of carboxyhaemoglobin (carbon monoxide bound to haemoglobin) found in the blood of those exposed to its fumes (drivers, etc) rarely reaches that commonly found in cigarette smokers'.¹³ As a medical practitioner one can sympathise with his irritation about people who blamed an external menace for their respiratory ailments rather than accept responsibility as a result of their own

bad habits. High levels of smoking in the White population were indicated by the fact that 30% of deaths from cancer in White men were due to cancer of the lung/bronchus. It appears that O'Keefe qualified in Britain and he may also have considered air pollution in Pietermaritzburg's forested and leafy suburbs as relatively insignificant compared to the highly visible, dense urban smog of England. However, his comments presumably did not find favour among the city burgesses. Noise pollution was also appearing as an issue, but there was no legislation in the Republic at that time on this issue and his department could only rely on voluntary abatement measures.

The following year O'Keefe again paid attention to the air pollution issue and described the geographic basis of the problem. Pietermaritzburg is situated in a bowl-shaped river valley, surrounded by high hills on three sides which tend to protect it from winds and increase day-time temperatures. This topography encourages

the phenomenon of temperature inversion in the dry winter months (May to August) with consequent smog formation over the City in the cold evenings and nights, which disperses in mid-morning when the warmth of the sun penetrates the layer. The smog which is characteristic of the City's winter climate is caused chiefly by the water vapour (mist) from the river valley in which the town lies, trapping the smoke particles from house and factory chimneys (and steam engines of the S.A. Railways).¹⁴

Pietermaritzburg actually had relatively light industry and hence noxious industrial chemicals such as mercury, lead and antimony were almost non-existent. However, the combination of domestic fires and rail and vehicle fumes, in addition to some industrial discharges and the tendency for grass fires during the dry winter months, had a disproportionate impact due to the unfavourable topography that trapped emissions in the central area. Twenty-four hour monitoring was carried out at three points – Ohrtmann Road, City Hall and the Pine Street swimming pool – and Council requested the government to declare Pietermaritzburg a smokeless zone. The graphs produced from the monitoring are reproduced in figure 11.2.

The Pietermaritzburg town planning scheme report of 1973 referred to the problem of air pollution. It was noted that a statutory town planning scheme should endeavour to prevent development in areas where it was clear that serious pollution was likely to occur; and locate non-polluting light industrial zones in preference to general industrial zones in proximity to residential areas. The report came to the conclusion that the problems of air pollution that occurred were insufficiently serious to justify specific action within the scheme proposals and that where problems did arise the most appropriate course of

The most significant air polluter in the city then became the brick and tile works, a scheduled industry that would continue to discharge large amounts of dense smoke through a short chimney for more than twenty years until it finally closed down. Some success was had in encouraging them to change their processes to reduce smoke output. The effect of smoke control efforts are shown in figure 11.3, which illustrates declining levels of pollution over the first four years of monitoring. The seasonality of deaths is illustrated for 1973 in figure 11.4, which shows a significant rise in deaths in the winter months for the White population. This probably relates to the elderly White population being more susceptible to cold winter weather, for chest infections, heart disease and cigarette smoking had probably rendered many susceptible to chronic bronchitis and emphysema exacerbated by smoke pollution and smog. The African community was still suffering significant mortality from gastroenteritis and related conditions, which peaked in the rainy season in the earlier months of the year. The Asian pattern is probably a combination of the two, with infant deaths from diarrhoea in the rainy months and deaths of the elderly in winter. The Coloured numbers are too small for an obvious trend to be apparent.

O'Keefe expressed the need in 1976 for an anti-smoking campaign, although he commented that those in the USA and Britain had not proved very successful, even though they had also introduced restrictive legislation. By-laws were being put forward in Pietermaritzburg to try to curtail cigarette smoking amongst shop assistants and in public places.

Environmental smoke abatement measures continued with some success during the 1970s, the municipal Traffic Department assisting by prosecuting owners of vehicles with excessive exhaust emissions. In 1979, however, the MOH was still despairing about the levels of environmental pollution created by residents

the community at large is showing very little practical interest in improving the environment in which it lives. It still pollutes the atmosphere with its haphazard smoke-producing fires; it still uses mal-adjusted internal combustion engines (particularly diesel) to make the streets unpleasant for the passersby; it still (and increasingly) assails the eardrums with its staccato buzzbikes and renders its lovely town trails almost dangerous through their abuse by motor cyclists.¹⁶

Emphysema: A chronic disorder of the lungs, common in smokers, causing increasing shortness of breath and severe respiratory symptoms over a period of months or years that may ultimately be fatal.

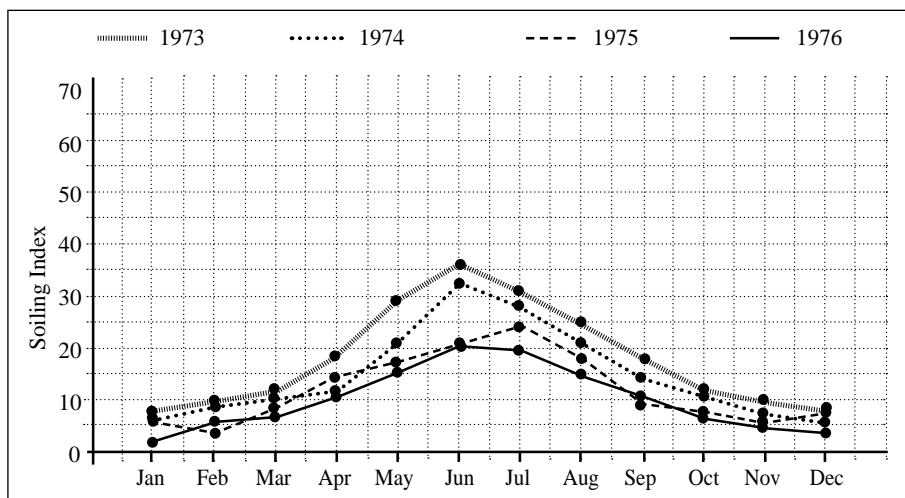


Fig. 11.3 Graph showing improvement during the first four years of monitoring smoke pollution.

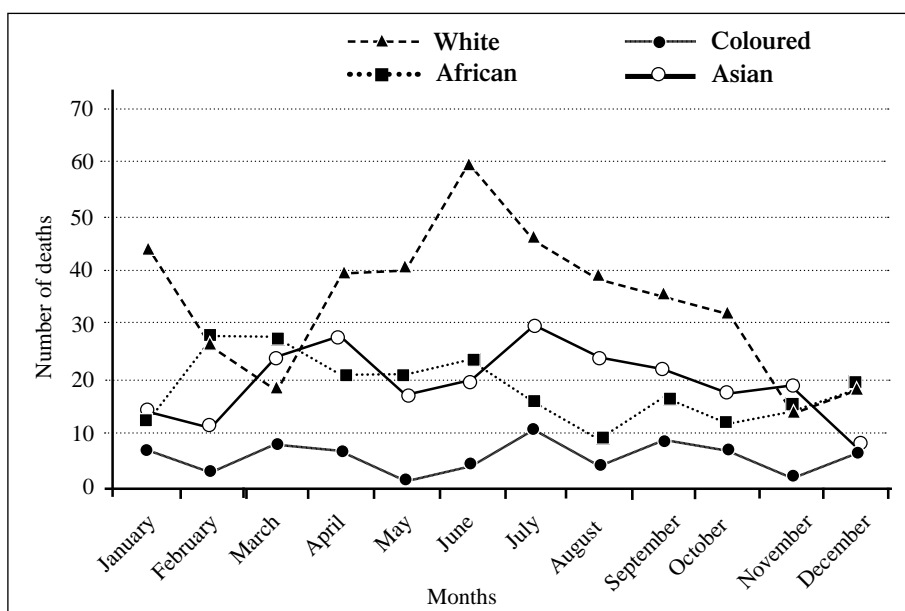


Fig. 11.4 Seasonality of recorded deaths by population group in Pietermaritzburg, 1973.

Further studies, including one by the CSIR in 1976, concluded that industries subject to smoke control should be situated at least 100 metres above the floor of the Pietermaritzburg basin.¹⁷ Two new monitoring stations were introduced, in Northdale and Scottsville, and there were at that time three smokeless zones in the city. The first applied to all new premises constructed with effect from 1975. The second, the inner city area, applied to all buildings old and new as from January 1980. The impact of smoke control measures in the first eight years of monitoring is shown in figure 11.5.

Atmospheric pollution had now dropped to 30% of pre-intervention levels, which was a significant improvement, to levels below those considered dangerous to health. The public still submitted numerous complaints, however, and a third smokeless zone was declared, extending the original inner city zone further. Steam locomotives were still occasionally used and a number of factories were served with notices to reduce smoke emissions. Burning of domestic and garden refuse was prohibited and smoke-emitting vehicles referred to the Traffic Department.

A large number of new industries had been attracted to the city as a result of government concessions and promotional activities, but these were screened by the Health Department at the planning stage to prevent air pollution

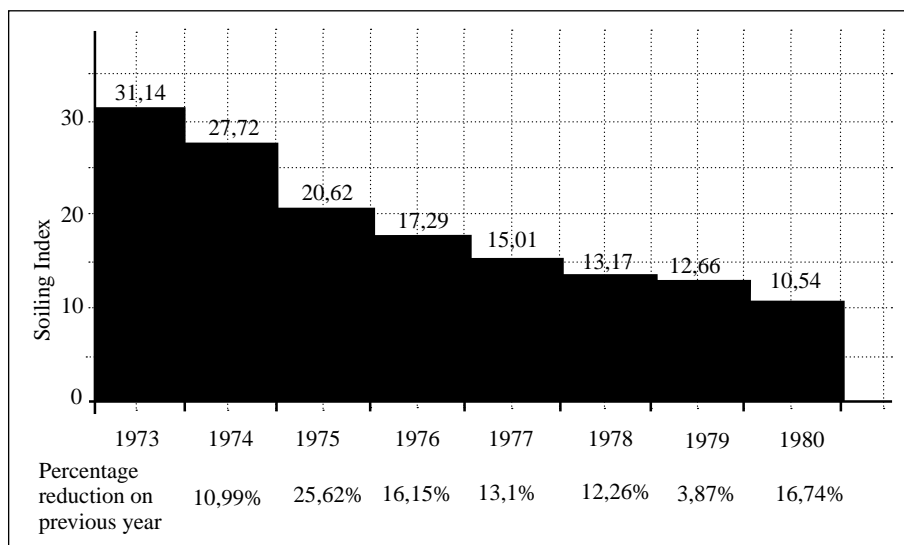


Fig. 11.5 Mean winter average air pollution according to soiling index Pietermaritzburg, 1973–1980 (Source: Pietermaritzburg Corporation Yearbook 1980).

problems. There was a slight increase in air pollution with particulates noted in the early 1980s, but at around 12 ($60\mu\text{g}/\text{m}^3$) they were still below levels considered hazardous to health by the World Health Organisation (WHO). The level of sulphur dioxide averaged around $30\mu\text{g}/\text{m}^3$. The public and press continued to complain vociferously about the problem. Much of the criticism was felt to be unjustified by the MOH, particularly in view of the great efforts his department was making and considerable progress made in lowering levels of smoke pollution. The local population seemed to focus on visible industrial smoke when according to the Health Department most smoke settling over the city on winter days was due to the burning of overgrowth and refuse. The levels of sulphur dioxide recorded are shown in figure 11.6.

In 1985 an additional monitoring station at Masons Mill showed high readings, which indicated that pollutants were drifting down the Edendale Valley into the city. MOH Dr Peachy stated that the problem was likely to continue until there had been considerable electrification of the Edendale and Sweetwaters areas.

Noise control by-laws were written in 1981 and implemented in 1984. They were based on the definition of noise nuisance as seven decibels above ambient levels. Successful prosecutions of hotels playing loud music had previously been undertaken for disturbing the peace of a neighbourhood. After

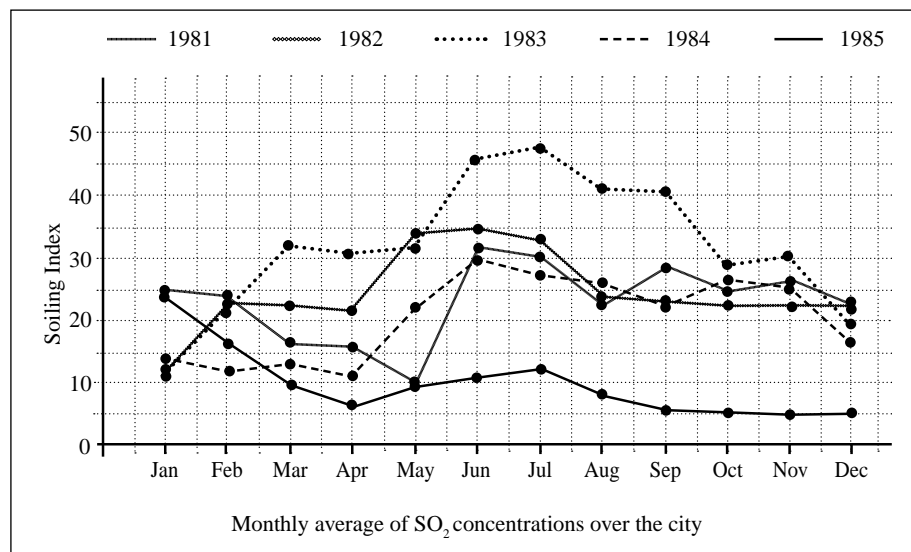


Fig. 11.6 Results of sulphur dioxide monitoring programmes in Pietermaritzburg, 1981–1985.

the by-laws were introduced complaints were received about discotheques, air conditioners, industries, barking dogs and factories. Most of these complaints were about noise late at night or in the early morning. A programme of noise control was drawn up that included limiting working hours, town planning consent, specific restrictions, building plans and certification. Noise as an occupational hazard was also addressed with surveys conducted at twenty factories in 1986. The ability of the Health Department to control noise pollution was strengthened when two staff were officially designated noise control inspectors under the Environment Conservation Act of 1989 and empowered to apply its regulations.

Monitoring of air pollution continued to expand through the 1980s with the addition in 1986 of a mobile monitoring station in a caravan able to monitor sulphur dioxide and nitrous oxide levels. Minimal levels of pollution were recorded – a 75% reduction since the early 1980s. Carbon monoxide and nitrogen dioxide analysers were obtained for the measurement of exhaust fume levels in car parks during peak traffic times. Although recorded levels of smoke had decreased by 63% since the early 1970s, public pressure mounted regarding visible pollution in the city basin during winter with industry generally being held to blame. Burning of waste and tyres in the city centre by workers keeping warm was also a problem. However, an interesting comparison of vehicle exhaust emissions on the busy Edendale Road for the months of October and November for 1985 to 1988 showed the dramatic influence of vehicle pollution on particulate levels. On 29 September 1987 the city experienced severe flooding, which washed away a bridge on the main road. Vehicles had to use another route while it was repaired and, as shown in figure 11.7, a 75% reduction in air pollution was recorded for that period.

Increasing traffic in the city had an ever greater impact, particularly along the main arterial routes of the Edendale and Greytown Roads (the latter to the Asian and Coloured residential areas) that brought people into the city centre for work. Part of apartheid planning had been deliberate limitation of access between Black residential areas and city centres in order to control population movements more easily. There was generally only one road provided into townships. One of the prices the public paid for this was increasing traffic congestion along these routes; and because the people residing in these areas were poorer and more likely to use public transport, more buses and minibuses operated with denser emissions.

The struggle against noise continued into the 1990s, with increasing numbers of complaints received. Heading the complaints were those 'lodged

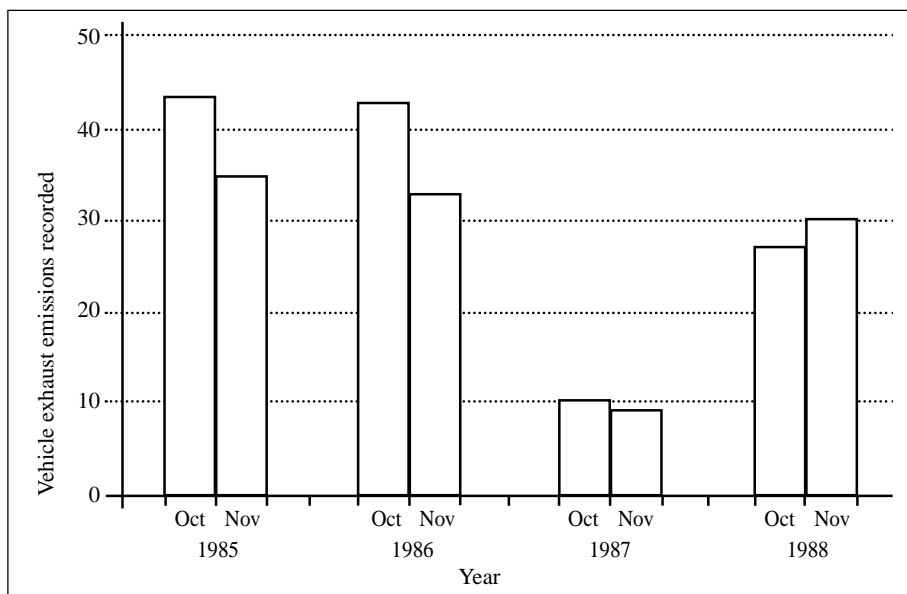


Fig.11.7 *Particulate matter from vehicle exhaust emissions recorded on a main bus route, 1985–1988.*

against discotheques which through some strange quirk of fate seem to establish themselves in areas which are extremely sensitive to auditory invasion'. Similarly, as the Chief Environmental Health Officer John Butler aptly commented, 'outdoor concerts are still proving to be a major headache'.¹⁸ Clearly some entrepreneurs were trying hard to dispel the image of the city conjured up by its nickname of Sleepy Hollow. The main visible cause of smoke pollution was now from two major industries left in the bottom of the city valley and which, being scheduled industries, fell outside the control of the Council and under the domain of the single national air pollution control officer for the province, based in Durban. Unfortunately his time was mainly taken up with the large industrial areas that had developed to the south of Durban and around Richards Bay to the north and he rarely visited Pietermaritzburg.

The Edendale and Imbali areas were estimated in 1992 to have a population of 185 000 and were still using wood, gas, paraffin and coal as their main sources of fuel. This, together with the fires of sugar cane and forests, and wild grass fires, also added to winter air pollution. The monitoring caravan had been plagued by technical problems, was expensive to maintain and ceased operating for a period until a partnership developed between the Health Department and the University of Natal in the early 1990s repaired it and

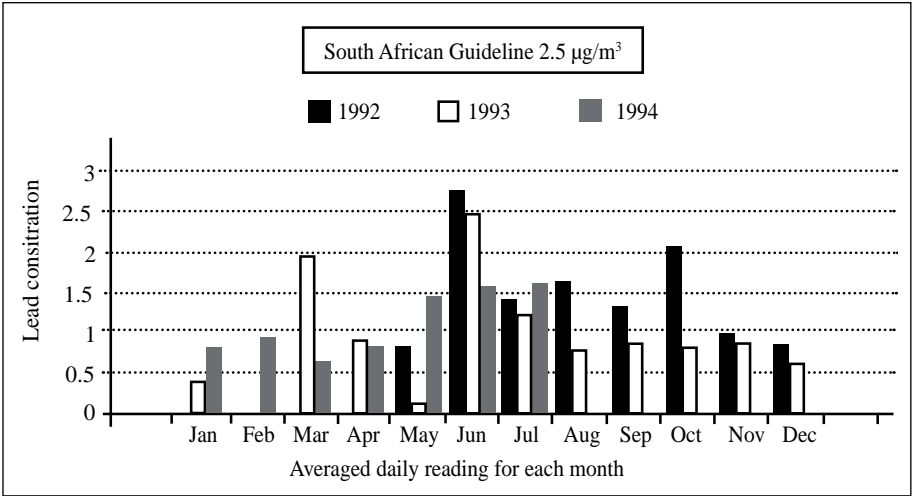


Fig. 11.8 Lead concentrations in the air in central Pietermaritzburg, 1992–1994.

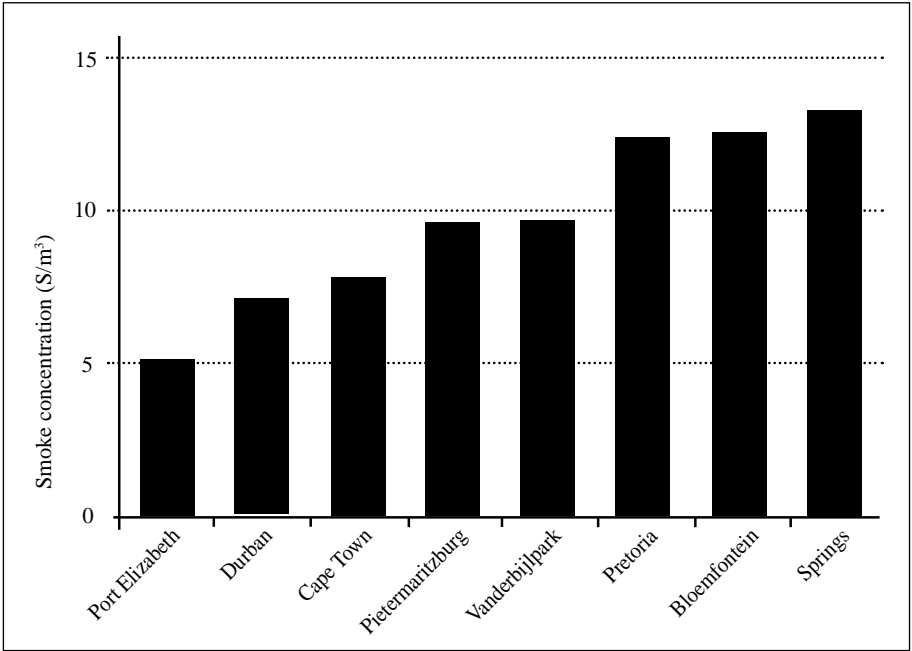


Fig. 11.9 Average winter smoke concentration in South African cities, 1977–1996.

evaluation resumed. Pollutants measured in the early 1990s included sulphur dioxide, ozone, nitric oxide and nitrogen dioxide, with sampling of lead and aluminium. Levels of lead, recorded in the first three years near the main road junction in the city centre, are illustrated in figure 11.8.

The average smoke and sulphur dioxide concentrations for other cities in South Africa are shown in figures 11.9 and 11.10. Simpson undertook extensive research in the area and confirmed the issue of the winter inversion problems. He noted that in winter months pollution plumes were trapped in a band at the top of the inversion layer with upper and lower boundaries evident and then spread out laterally with peak pollutant concentrations in the central area between 8.00 and 9.00 am. By 9.30 am the inversion would dissipate and the pollution disperse from the hollow. By midday the wind speed had increased with concentrations of fine particulates and sulphur dioxide declining rapidly with the decreased atmospheric stability and increased turbulence. Conversely ozone, as a secondary pollutant, increased at the expense of many pollutants, depending on the intensity of sunlight (ultraviolet radiation). Peak ozone concentrations occurred with the maximum temperature between 1.00 pm and

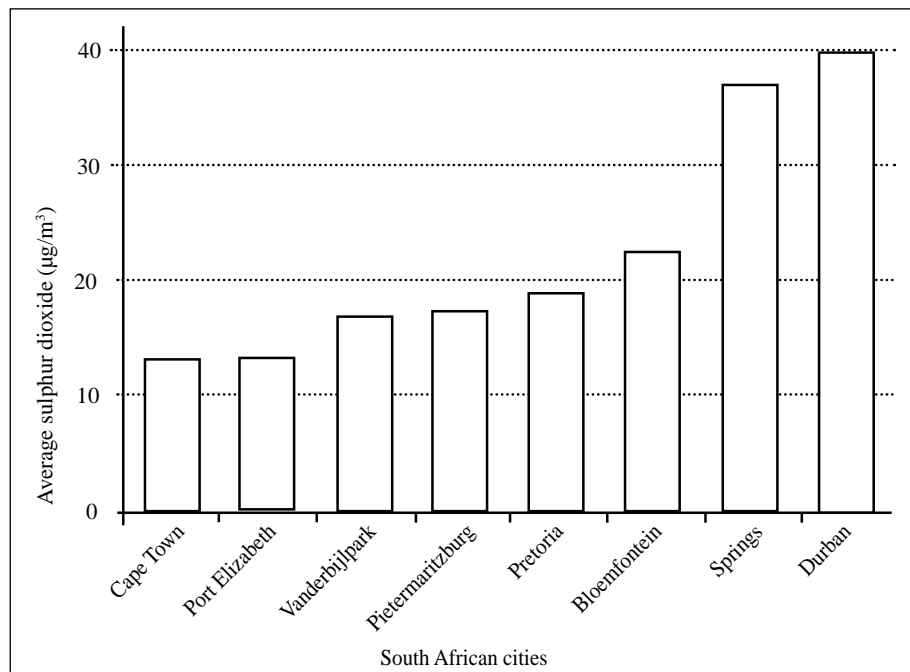


Fig. 11.10 Average winter sulphur dioxide concentration in South African cities, 1977–1996.

3.00 pm. Pietermaritzburg still had no single major source of pollutants, but they came from a variety of smaller sources including industrial emissions, domestic burning, agricultural and open space burning and vehicular emissions. Overall, Simpson noted that nitrogen oxide and sulphur dioxide levels were low by national and international standards, but smoke, particulate and ozone levels were high in winter, although below national and international guideline levels. However, while levels may not have been measurably harmful to health, Simpson noted 'the need to address air quality in Pietermaritzburg as public opinion is in itself enough reason to take action, even if ambient levels are classed as acceptable'.¹⁹

Air quality was monitored in Edendale from July 1996 and daily smoke levels were found to be low relative to other parts of the city. In that year also, after extensive lobbying of the national Department of Environmental Affairs, the city became the first in the country to be given delegated powers to control scheduled industries with its own designated Air Pollution Control Officer. This gave full powers to the city with the exception of prosecution of industries, to be done in conjunction with the national department. It was a major step forward in the control of air pollution.

In 1998, due to increasing pressure from the public regarding air pollution, an Air Quality Forum was established, bringing together environmental non-governmental organisations, the Pietermaritzburg Chamber of Commerce and Industry, the Council and the university. Extensive analysis was provided to the municipality by Simpson, who provided many of the graphs in the MOH's reports. Interestingly, despite the public outcry, it can be seen from figure 11.11 that smoke pollution levels were at only 40% of that twenty years earlier and only 16% of that first recorded in 1973. Similarly sulphur dioxide levels were only 40% of their peak in 1983, after which there had been a steep drop in 1985, followed by static or slightly increasing levels. These were far below the WHO guidelines, although it was noted that measurements were relatively high in Northdale.

In 1999 and 2000 research was undertaken into motor vehicle pollution levels, looking at the levels of benzene and oxides of nitrogen. Emissions were measured at four sites over a two-week period. It was found that benzene levels were insignificant; while the nitrogen dioxide levels, although detectable, were not dangerous. However, a limitation of the survey was that it only measured average levels, not the peak concentrations experienced in the early morning.

One of the more bizarre incidents regarding inhaled pollutants was the anthrax scare of 2001. Incidents in the United States of America, where anthrax

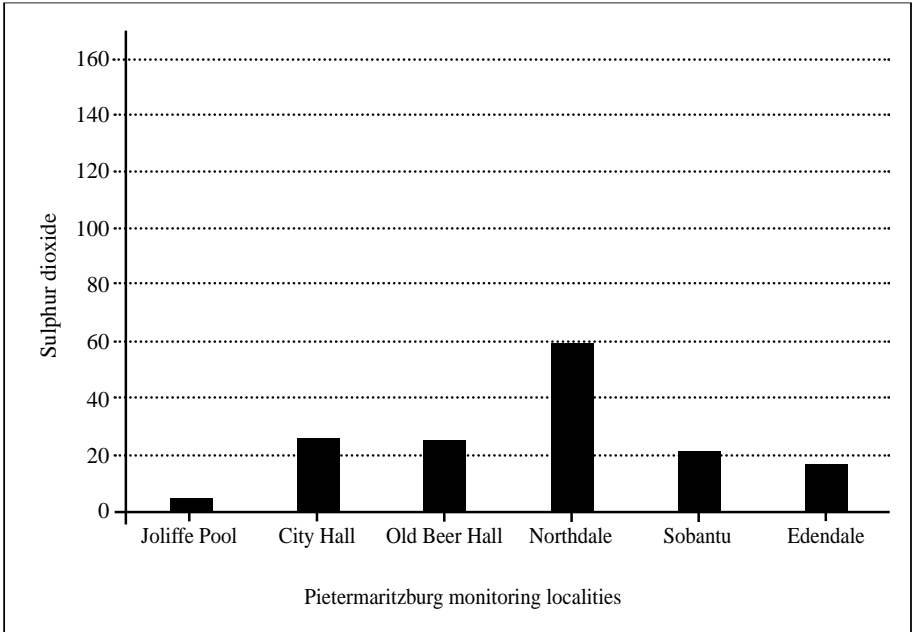


Fig. 11.11a Winter average smoke and sulphur dioxide concentrations in Pietermaritzburg, 1979–1998.

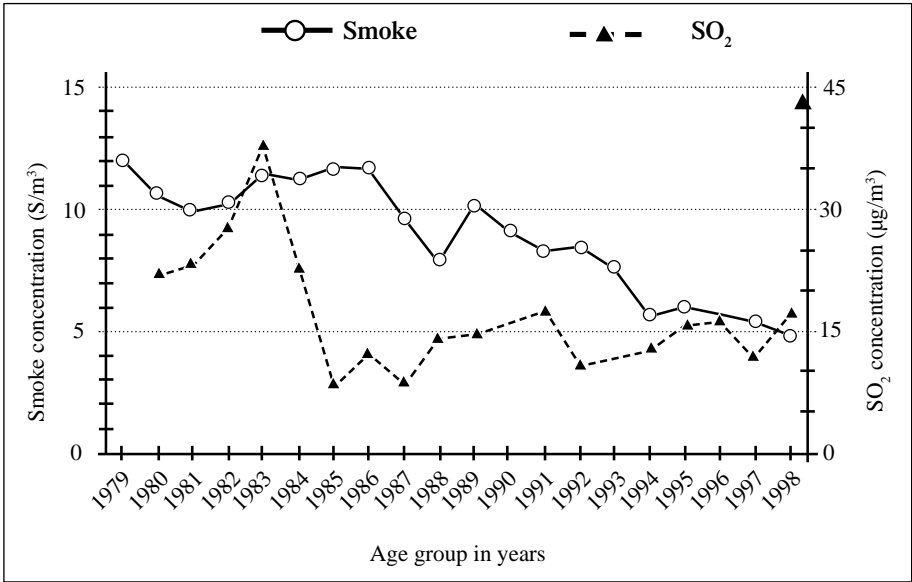


Fig. 11.11b Averaged SO₂ monitoring results in and around Pietermaritzburg, May–August 1999.

contaminated powder was sent through the post, were mimicked in South Africa with people leaving white powder in buildings, or sending it through the post, in order to create confusion and panic. Several of these incidents took place in Pietermaritzburg, necessitating a full emergency response from the police, bomb squad, municipal fire service in full biohazard suits, the city Health Department and the ambulance and emergency medical services. Eleven such incidents occurred between 22 October and 7 November 2001. These had the emergency services mounting full-scale responses at various



Air pollution in Pietermaritzburg: burning refuse and industrial emissions spread over the city.

institutions, primarily the major post office sorting depot, other government departments, a bank, a supermarket and a hospital. It appears that there were no prosecutions.

At the beginning of the new millennium air pollution levels were certainly at far better levels than 30 years earlier when monitoring and interventions began. While a few problem industries remained, as illustrated in the pictures on the previous page, their emissions were generally intermittent and most co-operated with the local Health Department in its efforts to reduce them. One of the larger air-polluting industries in the Willowton basin closed down, but the problem in the future may be from the ever-increasing vehicle traffic in the city. This is exacerbated by the major arterial route from Johannesburg to Durban, still running through the bottom of the valley, and the traffic congestion that results in the mornings from single-road entry to the city from the Edendale and Northdale areas, a direct result of apartheid town planning. The latter area experiences high levels of asthma, apparently from air pollution, although this has not been proven and remains the most problematic area from both a vehicle and industrial air pollution perspective.

ENDNOTES

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- 2 W.C. Holden, *History of the Colony of Natal* (Cape Town: Struik, 1963): 28.
- 3 J.R. Mann, *The Colony of Natal* (London: Jarrold, 1859): 61.
- 4 Legislative Council, *Selected Documents 1872–1876*.
- 5 A.F. Hattersley, *Pietermaritzburg Panorama* (Pietermaritzburg: Shuter and Shooter, 1938): 48.
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- 13 J.P. O'Keefe, 'Report of the Medical Officer of Health' *Pietermaritzburg Corporation Yearbook 1972–3*: 101.
- 14 J.P. O'Keefe, 'Report of the Medical Officer of Health' *Pietermaritzburg Corporation Yearbook 1973–4*: 97.
- 15 Thorrington Smith, Rosenberg and McCrystal, *Pietermaritzburg 1990: A Town Planning Report for the Borough* (Pietermaritzburg: TSRM, 1973).

- 16 J.P. O'Keefe, 'Report of the Medical Officer of Health' *Pietermaritzburg Corporation Yearbook* 1979–80: 157.
- 17 A.J. Simpson, *Real Time Analysis of Atmospheric Pollution and its Implications in Pietermaritzburg* (MSc thesis – University of Natal, 1994): 30.
- 18 John Butler in *Annual Report of the Medical Officer of Health, City of Pietermaritzburg 1991*: 56.
- 19 A.J. Simpson, *Real Time Analysis of Atmospheric Pollution and its Implications in Pietermaritzburg* (MSc thesis – University of Natal, 1994): 77, 130.

WHILE THE DEVASTATION OF HIV/AIDS has come to overshadow all other sexually-transmitted diseases (STDs) in importance in the twenty-first century, the incidence of others, known then as venereal diseases, was clearly highly significant in terms of their burden on the communities of Pietermaritzburg. This indicates how conducive conditions were, in terms of sexual activity and the increased susceptibility that venereal diseases bring to HIV infection, for the pandemic to take hold.

It was noted by early settlers that syphilis existed in the indigenous inhabitants, but the earliest specific reference to it was found in the annual returns of Grey's Hospital. Its 1870 report stated that 37 patients were admitted with the condition, or 14.8% of admissions. In 1875, at which time Grey's catered only for Whites of both sexes and Coloured females, there were 26 admissions for syphilis, or 11.7% of total admissions. By 1880 this had risen to 64 admissions, or 10% of the total. The large number of admissions was also due to the fact that there was no effective treatment at that time, the only one available being mercury with severe toxicity to the patient.

The high prevalence of STDs in the city was a source of much concern to the White population who lived in fear of the spread of venereal disease to their women and children from the African population. The blame fell largely on African women prostitutes, with scarcely any consideration given to male partners in their sexual transactions. The solution was seen as being more control over the women and led to a draft Contagious Diseases Bill introduced to the Natal Legislative Council in 1886, proposed in order to combat the spread of syphilis and gonorrhoea. This followed observations made by the first Medical Officer for Pietermaritzburg, Dr James Allen, of the increasing number of cases of these diseases treated at Grey's Hospital. The aim of the bill was to allow parties to report anyone thought to be a prostitute to the local magistrate, who could then order her to submit to a periodical medical examination. During the debates concerns were expressed by F.W.B. Louch, Member for Durban

I have heard that from 130 to 140 cases alone were in treatment at Grey's Hospital within three months. I also learn that there are over 200 Native prostitutes in Pietermaritzburg, and I believe that the large majority of these native women are affected with either gonorrhoea or syphilis in a very severe degree. There can be no doubt that the disease is spreading, and . . . it is throughout the length and breadth of the Colony unmanning the Native race. It must be known to any honourable members who have studied at all physiology or medicine that the natural consequences of the spread of this disease are consumption and insanity.¹

The large number of prostitutes in the city was undoubtedly related to the presence of the garrison at Fort Napier, although the blame for the disease was continually placed on the women rather than the men who entertained them. Louch added that he had heard that the fact African servants were diseased meant it was very difficult to protect White children and he believed that there were many in Pietermaritzburg who were infected by contact with their carers. White women who had the disease were thought to have acquired it from a child, although it was also mentioned that there were 23 White prostitutes of whom three were affected. Due to the depth of resistance from certain members and more liberal elements within the public the bill was thrown out. However in 1890, when there were around 30 brothels in the city of which ten included white women, a similar bill was introduced which passed with little opposition due to the strength of opinion of medical practitioners. This time it was to cover both men and women, due to fears that African male employees were spreading syphilis to White children through oral contact. The bill was later disallowed, however, by the Secretary of State for the Colonies, Lord Knutsford, who noted that the practice of compulsory medical examination of women had been condemned and given up in England.² In 1896 the District Surgeon commented that the great prevalence of syphilis was a terrible source of danger and called again for immediate legislation.³

By 1915 the Borough Engineer, James Niven, who was also responsible for public health, was expressing great concern at the growing problem of STDs. He cited the editor of the *Journal of State Medicine* who felt that at least half of all disease was due to syphilis. If other diseases were included, he suggested 'that perhaps two thirds of the diseases known to civilisation either have their

Venereal disease:

General term for infectious diseases spread through sexual contact (for example, syphilis, gonorrhoea) now termed sexually-transmitted diseases or sexually-transmitted infections.

Syphilis: An infection passed through sexual transmission, or mother-to-child, caused by *Treponema pallidum*, causing genital sores, skin rashes and some years later, if untreated, cardio-vascular and neurological symptoms.

origin in sexual disease, or that sexual disease is an important predisposing cause of them'.⁴ Niven stated that venereal diseases were spreading rapidly amongst Coloureds and Africans and suggested that they be medically treated and kept under restraint until free of infection, in the same way as for infectious diseases. He proposed the introduction of a system whereby every employer before engaging a servant should send him to the municipality for medical examination and issue of a pass. This system had been in place for some years in the Transvaal, where Africans were periodically rounded up for vaccination and examination for syphilis. The District Officer of Health for Dundee was proposing the same system. A scheme for the free treatment of venereal diseases was approved in 1922, with a ward at the Epidemic Hospital for in-patients, and a clinic for out-patients at Grey's Hospital; and about 100 patients attended in the first six months. The patients admitted to hospital were almost all non-European males with primary or secondary syphilis or acute gonorrhoea, employed in domestic service or living in poor conditions. In 1923 there were 150 patients of all races on the register for venereal diseases at the clinic held at Grey's Hospital, in the ratio of two to one, male to female. Treatment using arsenic was claimed to be effective for syphilis, but not for gonorrhoea. It involved repeated visits to hospital over a long period. In the first few years of the venereal diseases service the patients seen were as shown in figure 12.1.

Year	In-patient admissions	Out-patients register
1923	69	150
1924	44	138
1925	55	187
1927	80	259
1928	55	260

Fig. 12.1 *Patients seen with venereal diseases in Pietermaritzburg in the 1920s.*

The prevention of spread of the diseases in Pietermaritzburg in the early 1930s was thought by the Medical Officer of Health (MOH) to depend on the control of 'the infected Non-European female, both amateur and professional prostitute'.⁵ The Epidemic Hospital remained as a facility for the treatment of non-European males with venereal and other infectious diseases. Admissions increased gradually to 309 in 1936. Eight deaths were recorded in that year,

one Asian woman, five Africans (one a woman) and two Coloured men. The increase in cases was thought to be partly due to an increase in awareness brought about by a campaign by Native Health Assistants that reached outside the borough and attracted patients from far and wide through its reputation for good treatment of syphilis and gonorrhoea. One hundred and twenty three of the 309 new patients in 1936 were from within the city. The annual report of the Secretary for Public Health of South Africa for 1936 showed that more than one-sixth of all the non-European attendances at venereal disease clinics in the whole of the Union of South Africa for that year were made at the Pietermaritzburg clinic. Only Cape Town, a substantially bigger city, had a larger figure with 17 533 attendances compared with Pietermaritzburg's total of 14 301 (each new patient registered needed to return many times for treatment). Durban had 5 743 attendances.

The MOH, Dr C.C.P. Anning, raised the question: did this mean that venereal disease was more common in Pietermaritzburg and surrounding districts than elsewhere? His opinion was that the system of Native Health Assistants, who educated the community about these diseases and encouraged people to come for treatment, was the main reason that attendances were higher. Every known case in the borough was visited at home, given advice and information, and encouraged to keep returning to complete the course of treatment. It was noted that the attendance of non-European male residents was starting to fall and that those attending came earlier in the illness when it was easier to treat. The attendance of females was increasing. However, the clinic was attracting growing numbers of people from outside the city as word of successful treatment spread. In 1934, Council had instituted a system of routine medical examination of all African males entering the town seeking work and registering a contract of employment. This was seen as a valuable route to identify and treat these men, a group in which there was a 1.5–3% prevalence of venereal disease. Examination of females was voluntary, but of those seen there was 6.5% prevalence. Comparative figures were not available for the remainder of the population. Having being found infectious, procedure was to remove examined persons under escort to the Epidemic Hospital where they remained until they were no longer infectious. A certain number, described as 'not actively dangerous to their fellow beings', were sent to the clinic at Grey's Hospital for out-patient treatment.

The compulsory examination and control was in line with a national strategy, arising out of concerns raised by the White population that the

African population was presenting a threat to them from the rampant spread of syphilis. Demands had been made for the compulsory medical examinations of rural and urban Africans and a national syphilis control officer had been appointed. The national strategy focused heavily also on education based on the premise that syphilis amongst Africans was underpinned by ignorance and conduct that was labelled as socially harmful and destructive. It included pamphlets and films focusing on the dangers of syphilis not treated by Western medicine and how terrible consequences could be avoided by completing a course of injections, which at that time included salvarsan (an arsenical drug).⁶

Dr Gale, who worked in Pietermaritzburg undertaking medical inspections for venereal diseases commenting on the annual reports of the national Department of Public Health for 1936 and 1937 also referred to Pietermaritzburg as having by far the largest non-European venereal diseases clinics in the country. He made the assumption from this that the clinics there were treating a greater proportion of the venereal diseases occurring in the area they served than similar clinics in other cities. He noted that the population of the city at that time had some 8 500 African males compared with 3 600 females, the difference being due to men moving in and out for work purposes. Each male had to have a compulsory medical examination at the Pass Office upon entering the town to seek work and when registering or renewing a contract for work. He could be examined compulsorily between one and several times in a year. There was no similar compulsion for women, but employers could refuse to employ a woman unless she submitted to examination. However he was sceptical of the idea, still generally held, that Black women would infect their European charges, having never come across a case where venereal disease had accidentally passed to a child. Gale also commented on the humiliating, public 'herd' manner under which these examinations were often carried out, with men lined up one behind the other dropping their trousers for examination

Older natives, particularly if they happen to be suffering from a hydrocoele or hernia, dislike having to strip along with a crowd of young men. And, if a man does happen to have a gross and obvious venereal lesion, it is as disgusting to the others as it is embarrassing and humiliating to himself that he should be compelled to expose his condition openly.

He noted that there were more than twice as many cases detected at clinics than at the Pass Office and concluded that the methods of propaganda (public health education) were far more effective than compulsion. Of those put on treatment in Pietermaritzburg less than 5% of men and 8% of women defaulted from treatment, which compared favourably with England and Wales where the figures were 21% and 18% respectively. He estimated that

the incidence rate of syphilis infection per year in Pietermaritzburg Africans was 26.2 per thousand for males and 15.1 for females. For gonorrhoea rates were 11.7 for males and 7.5 for females. These high rates seemed to be associated with areas of poor housing and it was concluded that there was a direct relationship between bad housing, inadequate sanitary accommodation and venereal disease. Some 64% of men were under the influence of alcohol when they acquired the infection as were 48% of women. But 22% of women interviewed blamed the curfew regulations, saying they had been compelled to stay with men overnight as they could not risk arrest by walking home after the curfew had sounded.⁷

Whites were, of course, treated completely differently with no compulsion to be examined. By 1938 Whites in Pietermaritzburg requiring in-patient treatment were being sent to Addington Hospital in Durban, 93 kilometres (58 miles) away as it was felt that Grey's Hospital could not cater adequately for them. Non-Europeans continued to be admitted to the Epidemic Hospital in Pietermaritzburg. The average length of stay in hospital in those days for venereal diseases was thirteen days for syphilis and eleven for gonorrhoea (nowadays these conditions are generally treated at a single clinic visit). However, the admission period for gonorrhoea decreased due to the introduction of sulphanilamide for treatment. Five deaths were ascribed to syphilis in 1939. Contact tracing was now routine for non-Europeans and White females but not, for some reason, White men. Contact tracing was done by letter for Whites and home visits for Blacks. However, it was found in the 1940s that personal visits were more effective. Unfortunately, with White men only about one in twenty contacts was traceable due either to deliberate misinformation or the very casual nature of the contact. Analysis of contact tracing in 1948 showed that only 25% of Whites, 26% of Coloureds and 20% of Asians would divulge names of contacts or sources of venereal infection, but many seemed to give the wrong information as the contact would test negative. For most this appeared to be related to the casual nature of the contact and alcohol excess, together with the extra-marital nature of the relationships.

Admissions to the Epidemic Hospital in the 1930s for non-Europeans with venereal disease are summarised below and clearly

Gonorrhoea: A sexually-transmitted disease caused by *Neisseria gonorrhoeae*, infecting the genitourinary tract, causing irritation, pain on urination and a vaginal/urethral discharge.

illustrate a dramatic increase, the most rapidly increasing health condition of the period by far.

Year	Admissions for venereal disease
1934	219
1935	252
1936	309
1937	496
1938	815
1939	971
1940	1 264

The prevalence of venereal disease in African women examined at the Togt Office was now up to 20%, compared to less than 1% for African males. The reasons for this discrepancy were unclear. They may relate to earlier male detection, as their problem was anatomically more visible, and seeking help elsewhere before going to the Togt Office. Alternatively, as testing at the Togt Office was voluntary for women, perhaps those with symptoms were more likely to attend. At the Ante-Natal Clinic at Grey's Hospital, 18% of women tested positive for syphilis (Wassermann Reaction, WR) in 1939 and 15.14% in 1943. The treatment for venereal disease remained laborious and expensive. New treatments required four to six weeks hospitalisation, although penicillin was appearing as a promising alternative. The earliest reports from the Local Health Commission (LHC), which took over administration of the Edendale district in 1942, reported a high prevalence of venereal disease, with almost 10 000 attending its clinic in 1946. It was felt to be a contributor to a large number of deaths where the cause was unidentified. If to these 10 000 the number of 21 660 attendances at the municipal clinic is added, the massive burden placed by venereal disease on the area can be seen. However, this was partly due to the lengthy and ineffective treatment of the time, which involved repeated visits to the clinic (5–10 visits per patient) and 1 912 people were admitted to hospital. Reasons for treatment failure were regularly interrogated and it was found that 21% thought themselves cured before the course of treatment was finished; 0.5% transferred themselves to a traditional healer; 3.5% were unable to pay a doctor for follow-up treatment or had no facilities available; 1.5% said their employers would not let them attend for further treatment; and 21% had acquired another or the same venereal disease again. The remainder gave no reason. Treatment defaulters were often visited at home and attempts made to persuade them to return.

During this period it was recognised nationally that the massive social disruption occurring to African life had major consequences for the spread of venereal disease. Hawarden recognised that the migrant labour system was inevitably leading to an ‘appallingly high incidence of venereal diseases among urban natives’. It was also recognised that it would lead to an increase in juvenile delinquency and she drew attention to the need for a stable family life, normal gender distribution of the urban population and, in addition, increased wages.⁸ Brookes also noted ‘that there is a direct and terrible connection between venereal disease and migrant labour is undoubted’.⁹ Similarly Kark, working in Polela some distance to the south of Pietermaritzburg, wrote of the contribution of the industrial revolution, urbanisation and the migratory labour system leading to instability and pathology in family relationships, and which had created ‘on the one hand a set of conditions in urban areas ideal for the spread of syphilis, and on the other hand, a migrant labour force which successfully spreads this urban disease to the rural areas where social conditions are also suitable for its reception’. He recommended the establishment of African urban and rural communities based on a stable family life.¹⁰

By 1950 the situation seemed to be improving a little with Pietermaritzburg clinic attendances dropping to 19 116, LHC attendances down to 6 500 and hospital admissions decreasing by 20% over the previous year. This may have been due to more successful treatment with the introduction of penicillin for both syphilis (ten-day course, later reduced to eight days) and gonorrhoea. The decline continued through the 1950s and the dramatic beneficial impact of penicillin on the disease course and burden on health services is illustrated in figure 12.2. A similar decrease was noted in the areas under the LHC. There was also a reduction in syphilis as a cause of death – from ten in 1951 (0.15%) amongst all races, down to only one or two in the later 1950s.

Year	Hospital admissions	Out-patients
1950	2 051	19 116
1951	1 654	12 495
1952	1 312	10 157
1953	910	8 126
1954	561	4 064
1955	358	2 331

Fig. 12.2 *Impact of penicillin on hospital admissions and out-patient attendants for sexually-transmitted diseases in Pietermaritzburg, 1950–1955.*

The examination of workers at the Togt Office continued into the 1950s after 32 097 men were examined in 1950. With a rejection rate of 0.6%, of which only two thirds had any significant illness (many were rejected for being dirty), one has to wonder whether, aside from the indignity of the process, it was an efficient allocation of medical resources, although it provided a useful opportunity to vaccinate against smallpox.

The types of venereal disease seen in the 1950s are shown in figure 12.3 below.

Chancroid: An acute sexually-transmitted disease due to *Haemophilus ducreyi*, characterised by painful genital ulcers and large painful abscesses in the lymph glands of the groin.

Granuloma inguinale: A chronic sexually-transmitted bacterial infection causing gradually enlarging red swellings in the groin and genital area that can eventually spread to other organs and generalised illness if untreated.

Lymphogranuloma venereum: A sexually-transmitted disease due to *Chlamydia trachomatis*, with an initial ulcerating lesion followed by enlargement of the lymph nodes in the groin that may have a purulent discharge. Generalised illness may occur, with the swellings becoming grossly enlarged and ulcerating.

Venereal disease	Male	Female
Primary syphilis	20 (33%)	4 (13%)
Secondary syphilis	24 (39%)	17 (53%)
Tertiary syphilis	2 (3%)	3 (9%)
Gonorrhoea	10 (16%)	8 (25%)
Chancroid	2 (3%)	0
Lymphogranuloma venereum	0	0
Granuloma inguinale	0	0
Venereal warts	3 (5%)	0

Fig. 12.3 *New cases of venereal disease recorded at the Pietermaritzburg Epidemic Hospital, 1954.*

Improved treatment of syphilis with penicillin, which by the mid-1950s was down to a seven-day course, was presumably the reason for the decrease in positive tests at the Ante-Natal Clinic at Grey's Hospital, with a decline from 15.4% in 1943 to 9% in 1953. The prevalence of venereal disease amongst men examined at the Togt Office was down to 0.15%, although this was presumably based on visual examination rather than the WR test, unlike pregnant women. From 1955 the service for African women had been moved from Mayors Walk to the new Edendale Hospital and, except for the small clinic in Sobantu for those planning to deliver at home, there were no ante-natal services for Africans within the city boundary. Ante-natal WR testing by the LHC in Edendale gave a 6.4% positivity rate. Venereal disease clinics continued to be held separately for different races and genders. From around 1956 there was again a gradual increase in attendance and in the early 1960s an increase in the percentage of ante-natal patients testing positive for syphilis

was also noted. The MOH commented that an increase in venereal disease in the last few years had been noted all over the world and the drop in incidence following the introduction of penicillin for treatment seemed to have ended. An analysis of reasons for re-admission to hospital showed that 50% were for a new form of STD and 25% were due to premature stopping of treatment. In the mid-1960s the prevalence of positive WR tests at the Ante-Natal Clinic declined again and stood at between 1% and 5%, but this increased again to between 5% and 9% by the end of the decade and the numbers of new cases of disease presenting at the clinic continued to increase.

In particular venereal warts and ulcerative-type diseases such as chancroid were on the increase (figure 12.4). Patients attending often presented with more than one disease, or occasionally with a less common sexually-transmitted condition, so the percentages in figure 12.4 do not necessarily add up to 100. As most patients required multiple visits for treatment, the bulk of attendances were not for new cases. Admissions to the Epidemic Hospital continued to grow and the average length of stay by the end of the decade was 3.8 days.

Venereal disease	1964 (Hospital)		1970 (Hospital)		1971 (Clinic)	
	Male	Female	Male	Female	Male	Female
Primary syphilis	39 (39%)	7 (19%)	24 (27%)	3 (9%)	148 (20%)	22 (16%)
Secondary syphilis	39 (39%)	22 (59%)	19 (21%)	15 (44%)	180 (25%)	53 (39%)
Tertiary syphilis	0	0	0	0	3 (0.4%)	
Gonorrhoea	4 (4%)	2 (5%)	3 (3%)	1 (3%)	352 (48%)	51 (38%)
Chancroid	4 (4%)	1 (3%)	5 (6%)	0	6 (0.8%)	3 (2%)
Lymphogranuloma venereum	3 (3%)	0	3 (3%)	2 (6%)	5 (0.7%)	3 (2%)
Granuloma inguinale	0	0	0	0	6 (0.8%)	
Venereal warts	9 (9%)	1 (3%)	35 (39%)	12 (35%)	32 (24%)	4 (3%)

Note: cases of gonorrhoea alone presumably did not require admission to hospital.

Fig. 12.4 *Profile of new cases of sexually-transmitted infections in Pietermaritzburg, seen in 1964 and 1970 at the VD Hospital and at the Out-Patient Clinic in 1971.*

By 1970 out-patient attendances for venereal disease had increased to 7 000 for new and repeat attendees, but this was still far below the peak levels of the early 1950s. It peaked at 9 351 in 1972 and then started to decline following a switch to longer-acting penicillin. The Ante-Natal Clinic was now testing

for syphilis with the Venereal Disease Research Laboratory (VDRL) test and the percentage positive rate was down to between 1% and 3% for Whites, Coloureds and Asians, and to around 9% in Sobantu. An increasing source of infection was long-distance truck drivers, who passed through the city and often stayed the night on the way to the port at Durban. The changing picture of venereal disease during the 1970s was of a decline in the percentage of attendees with syphilis and an increasing number with chancroid.

The compulsory routine medical examinations for STDs in Africans seeking work under the influx control system ceased in 1979. There was also a slight decrease in clinic attendances, but the MOH noted that the same people came back two or three times a year with re-infections. Sixty-five percent of people using borough clinics lived outside the city boundaries due to a lack of facilities in the outlying areas. The profile of new cases of STDs for residents attending the clinic in 1981 is shown in figure 12.5, which illustrates that there had been a dramatic increase in cases of chancroid over the previous decade. The incidence rate for syphilis was 1.98 per thousand. Figures for other South African cities for 1980 were: Cape Town 2.81; Durban 3.95; Port Elizabeth 7.77; and Pretoria 1.37.¹¹

Disease	Male	Female	Total
Primary syphilis	142 (10.3)	69 (18.5)	211 (12.1)
Secondary syphilis	90 (6.5)	12 (3.2)	102 (5.8)
Tertiary syphilis	0	0	0
Gonorrhoea	596 (43.3)	219 (58.7)	815 (46.5)
Chancroid	488 (35.4)	53 (14.2)	541 (30.9)
Lymphogranuloma venereum	17 (1.2)	1 (0.3)	18 (1.0)
Granuloma inguinale	0	0	0
Venereal warts	45 (3.3)	19 (5.1)	64 (3.7)

Fig. 12.5 *New out-patient cases of sexually-transmitted infections in Pietermaritzburg, 1981.*

In 1982 the first two cases of what would later be called Acquired Immuno-Deficiency Syndrome (AIDS) were reported in South Africa. The condition was not made notifiable, but statistics were submitted to and recorded by the national Department of Health and published in its periodical *Epidemiological Comments*. It was noted that the disease in South Africa took two forms: one

described as Pattern 1, involving homosexual transmission and intravenous drug abuse; and another described as Pattern 2, involving heterosexual transmission, children, haemophiliacs and blood transfusion. For the first ten years the reported cases, mainly of Pattern 2 type, approximately doubled every year. The first mention in the Pietermaritzburg health reports was in 1986 when it was considered to be looming on the horizon. The following year it was mentioned that positive HIV tests had occurred in the city, but that as it was not notifiable numbers were unknown. With the benefit of hindsight it is of interest to note that usage of condoms as a method of contraception had declined by 1987 to around only 0.2% of African family planning clients, 76% using injectable contraception and the remainder taking oral contraceptives. Also relevant is the fact that the percentage of new cases of STDs of an ulcerating type, such as chancroid, had reached 36%. Attendances at what were then called STD clinics were almost 10 000, of which 70% were from outside the city boundaries. This was still less than half the peak levels of the late 1940s, when the population was considerably smaller.

In 1988, under the new MOH, Dr I. Walters, activity against the impending AIDS epidemic was stepped up. All staff underwent training in the new disease and significant health education commenced for the public. Wearing of gloves for protection was started by nursing and medical staff and counsellors were trained. A Pietermaritzburg AIDS Action Group was established with members from all sectors, governmental and non-governmental. It was in some respects ahead of its time for the country. An AIDS protocol for nursing staff, including infection control procedures, was introduced in 1990. By then attendance for STDs was rising, up 24% from the year before. This was presumably a reflection of both extreme social disruption in the African townships; and the preference for the city's clinics due to a loss of confidence in the KwaZulu-run health services during the political upheavals that signalled the beginning of the end for the apartheid era. A sign of the effectiveness of AIDS education was an increase in use of condoms for contraception, up to 9% for the White population and 4% for Coloureds and Asians. For Africans, however, it remained low at 1%, although this was an increase on previous levels. In 1990, 67 high-risk individuals attending the STD, tuberculosis and family planning clinics were counselled, of whom 27 (40%) agreed to be tested: 36% were positive. The risks were getting higher as social disruption and violence continued to lay fertile ground for STDs and 47% of attendances at the clinic were now for chancroid or other ulcerative-type lesions. Attendance at this clinic was now virtually 100% African, not because the other races did not

suffer from the disease, but probably because they went to private general practitioners.

By 1991 a new AIDS Training, Information and Counselling Centre (ATICC) had been opened and counselling and testing was offered in several municipal clinics. Overall, 14.5% of the 325 people tested that year were HIV positive; although again these were a self-selected, at-risk group. The national HIV prevalence surveys taken at ante-natal clinics showed an HIV positivity rate nationally and provincially as follows:

Year	National	Provincial
1990	0.76%	1.61%
1991	1.49%	2.87%
1992	2.69%	4.77%
1993	4.69%	9.62%

The infection rate in KwaZulu and Natal was approximately twice that of the country as a whole, and almost doubling every year. However it was at that point far behind some other African countries. In Kampala, Uganda more than 20% had tested positive in 1989.¹² Similar levels were found in Rwanda, Burundi, Zambia and Malawi.¹³ Testing of high-risk people in Pietermaritzburg clinics gave a 28.5% positivity rate amongst those tested in 1993 and 40% in 1994. While this was a high-risk group, and not referable to the population at large, the analysis is illustrative of the growing trend, as shown in the graphs in figure 12.6 for male testing. The provincial sero-positivity rate for syphilis, assessed during the national ante-natal HIV prevalence survey, was 8.5% compared with 6.6% nationally. South Africa's rate was estimated to be over twenty times that of Western countries.¹⁴ Factors that had earlier given rise to the high rates of STDs, the migrant labour system and social disruption resulting from the peculiar socio-economic and political situation of the country, were contributing to the devastatingly high HIV/AIDS rate.¹⁵

In the mid-1990s a new approach to the treatment of STDs was adopted nationally. It was considered that the clinical diagnoses made by medical and nursing staff were inaccurate, particularly in respect of the different ulcerative types and that it would be more effective to treat patients with medication covering several possible diagnoses. It was also noted that patients often presented with several different conditions at once. The approach was known as syndromic and the city's Boom Street clinic became a sentinel site for the national strategy, under the National Reference Centre (NRC) for Sexually-Transmitted Diseases, due to its high number of attendees. An increase was

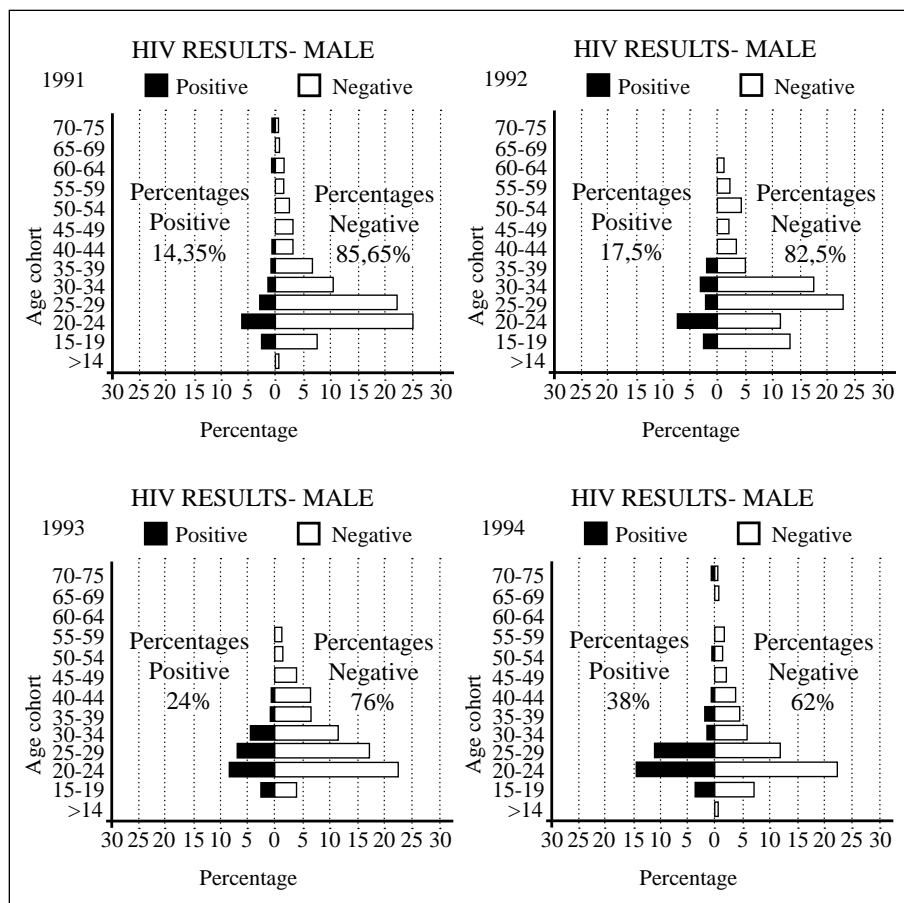


Fig. 12.6 Increase in positive HIV test results in males, Pietermaritzburg 1991–1994.

noted in 1997 that, according to Ron Ballard of the NRC, was for females due largely to an increase in vaginal discharge cases. These could have been vaginal candidiasis, often associated with HIV infection. Similarly for males, genital warts, balanitis and ulcerative genital herpes, also associated with immune-suppression from HIV infection, were increasing. Ballard was hopeful that new cases of disease, such as urethritis, and STDs in teenagers were decreasing. Ten percent of male patients and thirteen percent of female patients were teenagers in 1997, and 71% were in their 20s for both sexes. By this time, 55% of males and 60% of females of those high-risk clients who volunteered for testing were now positive.

The national strategy for HIV/AIDS included, as well as improved treatment of STDs, the training of lay counsellors, encouragement of HIV testing, the provision of extensive education and information, targeting of other high-risk groups such as sex workers and truck drivers, and the provision of condoms on a large scale. ATICC, the regional condom distributor, was handing out around 45 000 condoms per month in 1996, rising to 667 000 monthly in 1998. However, that still only equated to one or two per sexually active person.

By 2000 the United States Bureau of Census estimated that AIDS had lowered life expectancy in South Africa from approximately 65 to 55. The average age of death in Pietermaritzburg was found to be 44.5 years for females and 41.7 for males that same year. Prevalence of HIV infection in the province was 32.5% in 1998, compared with 22.8% for the country as a whole. Pietermaritzburg, a city of 570,000 people, (7% of the population of the province) was by then at the epicentre of the AIDS pandemic, with an estimated 100 000 people living with the virus in 2002 and HIV prevalence of approximately 18%. There were approximately 300 AIDS-related deaths per month and 10 000 AIDS orphans.

There was still no national anti-retroviral (ARV) programme for the treatment of HIV/AIDS. The matter had become an intensely political one: provision of medication was not supported by government and confusion reigned as to the causes of HIV/AIDS due to the lack of leadership and decisiveness from President Thabo Mbeki. The municipality embarked instead on an integrated programme with local non-governmental organisations on comprehensive prevention, counselling, nutrition support and home-based care for the sick and dying. All municipal clinics were turned into voluntary counselling and testing sites by the Chief Community Health Nurse, Gabriel Nock, ahead of provincial plans, and community-based AIDS committees were established in every electoral ward of the city under the leadership of the local councillor. At its peak the programme provided AIDS education to 2 000 adults and a further 2 000 children a month by paid community-based facilitators; and supported nineteen community-based feeding schemes each assisting up to 200 people several times a week. The programme sought and received several million rands in donor funding for various projects and met monthly with all major organisations in the city, including the Pietermaritzburg Chamber of Business, to co-ordinate and plan interventions. The programme was known as the Msunduzi AIDS Strategy and became so comprehensive, integrated and far reaching that it was held up as an example to Africa of a local authority response to AIDS by the United Nations Development Programme and received

acknowledgement from the Dubai International Awards as best practice. Following a complete municipal staff reorganisation in 2005, however, most of the momentum and innovation dissipated, with the exception of the home-based care programme and some feeding schemes. The use of paid community members for training and collaborative fund-raising projects ceased. By that time a national ARV programme had commenced in the major hospitals, but the lack of a municipal health information system after the reorganisation meant that data on the impact of this at a city level is not available.

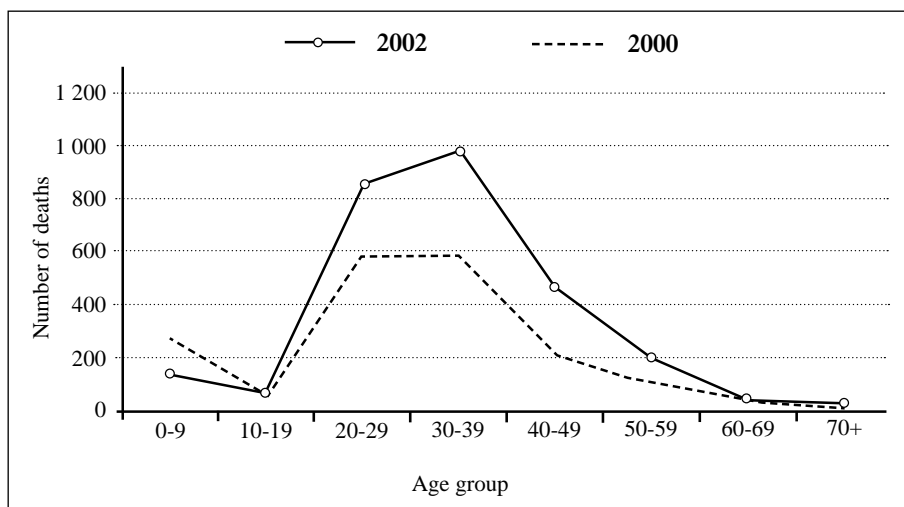


Fig. 12.7 Approximate number of AIDS-related deaths by age in the Pietermaritzburg district, 2000 and 2002.

The last mortality graph for AIDS produced for the city is seen in figure 12.7, showing the increasing impact of the disease on mortality of young people before the introduction of ARVs.¹⁶

ENDNOTES

- 1 *Debates of the Legislative Council of the Colony of Natal* 9 (1887).
- 2 Jeremy C. Martens, 'Almost a Public Calamity: Prostitutes, Nurseboys and Attempts to Control Venereal Diseases in Colonial Natal, 1886-1890' *South African Historical Journal* 45 (2001): 27-52.
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- 6 Alan Jeeves, 'The State, the Cinema and Health Propaganda for Africans in Pre-Apartheid South Africa, 1932–1948' *South African Historical Journal* 48 (2003): 111.
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IT IS GENERALLY accepted that the infant mortality rate (IMR, or the number of deaths in children aged under one year per thousand live births) is the single most informative health indicator relating to the socio-economic condition of a community. It is for this reason that this chapter dealing with infant mortality has been left to the end of this book as in effect it summarises the health situation of the people of Pietermaritzburg at any particular time. In considering the health of children and babies we see reflected the conditions of the era – political, social, economic and environmental. It is also a sensitive indicator of the availability, utilisation and effectiveness of health care, particularly peri-natal care. While information in respect of African babies is unreliable – due to home births, home burials, lack of registration and movement of people – it is still possible to discern from the detailed statistics and notes of the Medical Officers of Health (MOH) and other sources a picture of the times that indicates trends and problems. Reports from them in England showed that mortality rates for children were declining gradually during the second half of the nineteenth century, along with tuberculosis, as public health and sanitary improvements started to take effect. However, mortality rates for infants in England only really declined after 1900 along with socio-economic improvements.

The birth rates for Pietermaritzburg are recorded for the White and Coloured population only for the early years of the twentieth century. They varied from 30 to 34 per thousand people, considerably higher than their English equivalent which had fallen to 24 by 1915. This was thought to be due to increasing knowledge of contraception and abortion.¹ The IMR for Whites (together with ‘coloured persons enjoying European privileges’) were reported in the *Corporation Yearbook* as calculated by the MOH and were high initially, peaking at 167 in 1904 then dropping to 46 in 1915. The cause of death for infants is not given for the early years, although it was stated to be low from the infectious diseases of childhood. Dr J.F. Allen stated in 1898 that ‘every disease here takes a milder form than in England...especially the diseases of children

such as scarlatina, measles, whooping cough and chicken pox...the death rate from these diseases is practically nil'.² The high infant mortality rates towards the end of the nineteenth and in the early years of the twentieth century were probably due to typhoid, dysentery and gastro-enteritis. This was related to rapid population growth and influx in Pietermaritzburg that put a strain on the infrastructure, public hygiene and water supply. The improvement in the IMR over the decade seems to correlate most closely to extensive improvements in water, sanitation and drainage. By 1917 it had dropped to 39. This compared favourably with the rest of the country: the cleaning up of the city was bearing fruit. This is illustrated in figure 13.1. The infant mortality rate in other cities is given in figure 13.2.

The earliest estimation found of African birth rates and infant mortality is that of L.G. Haydon, Acting Health Officer for Natal, who reported that for the African population the birth rate per thousand from 1905 to 1910 was approximately 37.11. The overall death rate was 17.6 and the IMR was 157 per thousand live births with figures for each magisterial district between 100 and 200 per thousand. The very high IMR was ascribed to poor feeding practices, bronchopneumonia and lack of hygiene, although as this figure covered the whole province, including rural districts, the lack of health facilities in these areas must also have played a role.

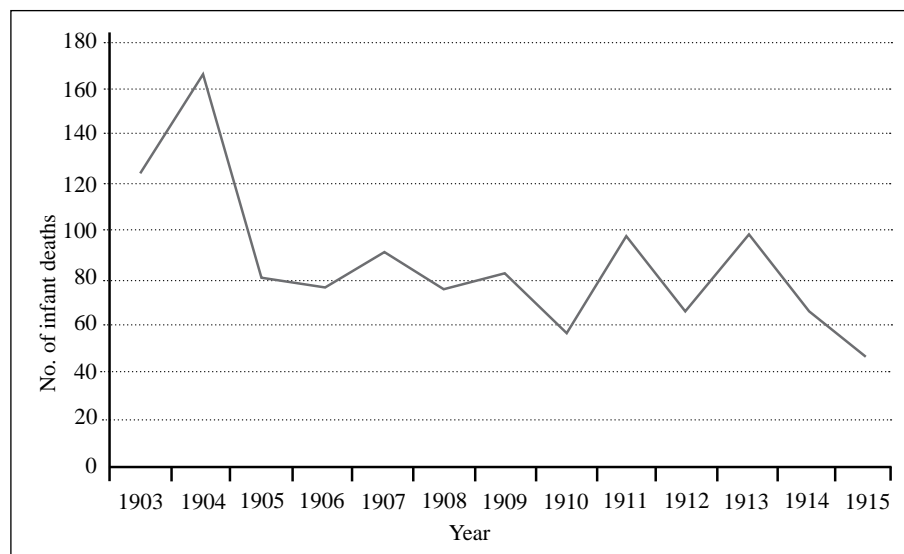


Fig. 13.1 Decreasing infant mortality rates in the White and Coloured population groups in Pietermaritzburg, 1903–1915.

City	IMR per thousand live births	
	1915	1917
Pretoria	94	87.2
East London	98.4	78.1
Durban	89.4	87.5
Bloemfontein		66.1
Port Elizabeth		99.83
Pietermaritzburg	46	38.5

Fig. 13.2 *Infant mortality rates in White and Coloured population groups in South African cities , 1915 and 1917*

The causes of death for White infants in 1916 are as shown in figure 13.3. Clearly diarrhoea, although much reduced due to the cleaning up of the city, was still a significant cause of death for all babies.

In 1920 the IMR among White and Coloured children had increased from a low of 38.5 in 1917 to 80.22. Causes of death were examined and it was found that 18.6% were due to marasmus (a form of severe malnutrition) and a further 35% to premature birth and congenital disability. The MOH suspected that the underlying cause was the high cost of living, in particular the price of milk, which was adversely affecting the health of pregnant women and children, and recommended the establishment of a depot to supply milk at low cost to the poorest families. The following year the rate dropped to 68.8, again the lowest in the country. In addition Dr Woods opened the first mothers' and infants' clinic in the Town Hall for White and Coloured children. Clinics were run by Dr Annie Ferguson, assisted by a Health Visitor, whose work included ante-natal classes, visiting new-born babies and infants at home, visiting children at risk and with infectious diseases, visits for social and welfare problems, and the mentally handicapped. A dental clinic for children commenced in 1924.

The total number of births to White residents in Pietermaritzburg in 1925, as recorded by the MOH Dr W.J. Woods, was 425, giving a crude birth rate of 22.2 per thousand people. Forty-four births were registered to Coloured mothers, giving a birth rate of 27 per thousand. By this time the definitions of race had been changed and Africans and Asians were recorded separately. The number of births to Africans was 156 and to Asians 300. This gave a crude birth rate of 13 per thousand for the African population and 41 per thousand for Asians. The birth rate for the African population was, as stated by Woods,

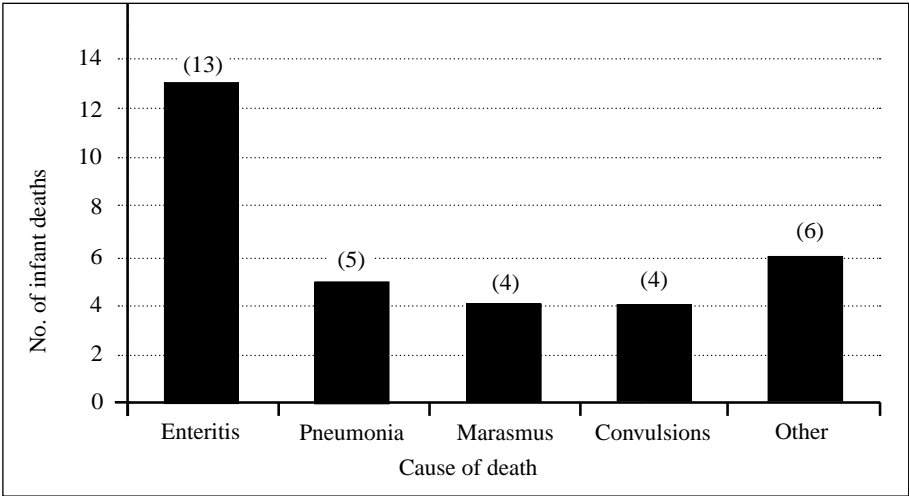


Fig. 13.3 *Infant mortality and cause of death in the White population group in Pietermaritzburg, 1916.*

artificially low due to inadequate birth registration. He calculated the IMR for Whites in 1924 at 49.9 per thousand. This compared with a rate of 51.6 in 1923. The predominant cause of infant death was congenital disease or defect at 31%. The rest of the deaths were due to diarrhoeal disease (25%), bronchitis, marasmus (which was on the decline) and convulsions. These birth rates and IMRs amongst the White population compared with other towns in South Africa at the time are shown in figure 13.4.

Town	Birth rate	IMR
Pietermaritzburg	28.1	49.9
Pretoria	23.6	76.5
Cape Town	21.9	77.4
Port Elizabeth	27.1	112.8
East London	26.5	88.9
Kimberley	24.6	77.7
Bloemfontein	20.8	81.0
Durban (1925)	19.95	83.8
Johannesburg (1925)	24.49	78.6

Fig.13.4 *Comparative infant mortality rates in the White population group recorded in South African cities, 1924.*

This indicates that Pietermaritzburg still compared favourably to most other cities in South Africa at the time for childhood health. In children aged between one and five years, thirteen deaths were registered in 1925, compared with nine the previous year. All were due to infectious or diarrhoeal diseases.

In 1927 the birth rate dropped to 19.5 for Whites. The IMR had dropped to 43.7 per thousand, the lowest recorded since 1917. However, rates published for the other races were considerably higher, at 192.3 for Euraficans and 103.6 for Asians. Infant mortality could not be estimated for Africans due to lack of birth registration. The leading causes of death were again premature birth or congenital defects in all race groups. Five White children died of diarrhoea and marasmus, a similar percentage to the other races, but the death rate for respiratory diseases was far higher for non-Europeans. The IMR was the second lowest in the country. In 1928 it was the same at 49.27, after Durban at 44.62. All cities showed a decline, however, except for Port Elizabeth, which remained at 99.5. The predominant causes were the same as in 1924, except for a significant decline in deaths from diarrhoeal diseases and marasmus. Possibly the introduction of treated water supplies in 1927 had contributed to this, along with the introduction of the Infant Welfare Clinic and supplies of milk. However, deaths from these causes in other races had increased from 16 to 28 from the previous year, or from 25% to 34% of total infant deaths, suggesting that the gains slowly being made in the health of White children were not being seen in the other races. Nationally the IMR was 75.4 for Whites in 1929, similar to the figure of 74 for England and Wales, which shows that Pietermaritzburg was well below national and international levels.³

In 1929 the percentage of deaths in White children due to congenital defects was 59%. This indicated a major shift was taking place away from the diseases of poverty and infection, towards more unavoidable causes and was far better than the national figure of around 5%.⁴ However, in the other races respiratory illnesses, diarrhoea and marasmus still featured equally prominently, although figures for the African population were very unreliable. It was noted that infant mortality from diarrhoea increased during the early summer, when there was a severe drought.

By 1931 the IMR for Whites had dropped to 35.2, again the lowest in the country. Clearly the progress made in living conditions for this group was bearing fruit, with the provision of adequate housing, purified water and sanitation. The other groups were not doing so well, with the IMR for Asians recorded at 85.2, for Euraficans at 149 and Africans at a staggering (albeit very unreliable) 678 per thousand registered births. This was certainly an

over-estimate due to the inadequate registration of births (the figure of 281 in 1935 was considered more accurate). However, with 76 deaths of infants under one year, compared with eleven for Whites, it is clear that their mortality was considerably higher. There were only two deaths from diarrhoeal disease amongst White babies compared with 32 African babies. In 1934 things were getting worse still for non-Europeans, with the IMR for Asians being up to 100 and for Coloureds 166. Of the non-European infant deaths, Dr Anning estimated that 86% were easily preventable. He stated that the aim of the Health Department 'as indeed of all civilised persons, must be the betterment of the public health and the saving of infantile lives uselessly sacrificed before the altars of ignorance and disease. The colour of the skin of the infant has no bearing on the matter.' He went on to explain that the duty of a public health department 'is not to treat the sick, the clinics are no places for the distribution of medicines, but they are the centres from which education by example and precept must spring'.⁵ A new infant clinic for Asians was started in the Aryan Benevolent Home in that year.

The first mention of the maternal mortality rate (MMR) was in 1933, when it was recorded as 5.7 per thousand births for White women, compared to 4.25 previously, and 12.31 for Asians over the previous five years. A figure for Africans is not given and the only comment in the Health Department report is that there was a high incidence of puerperal sepsis and other problems in African women brought into hospital from outside the town. In 1934 one maternal death was recorded in each of the Asian, White and Coloured communities. Maternal mortality does not appear to have been a major issue within the city: there were 51 qualified midwives working in the hospitals, as district midwives and in private practice.

In his annual report of 1936 the MOH, Dr C.C.P. Anning, made the remarkable statement that for Whites 'the infantile mortality rate of 22.4 is the lowest for any town in the world'. He went on to state that 'the infectious diseases in childhood are less frequent in Maritzburg than in most other large towns in spite of the presence in the Borough of so large a number of school children'.⁶ Other races were, however, not so fortunate. The IMR for the Coloured population remained at a very high level of 162.8 per thousand live births and for the Asian population at 114.3. The rate for the African population was estimated at 200, ten times that of Whites. It was noted that the rate of illegitimate births was high among non-Europeans and this was thought to play a role in the high IMR. The difference is strikingly illustrated by a diarrhoea epidemic that year, in which 43 non-European children died,

compared with two White. Almost all the cases came from the City East, Camps Drift, Maryvale and other insanitary areas. Anning described the chief causes of death among babies as diseases of dirt, together with pneumonia and bronchitis, and said that the wastage of non-European infant life was much the same as was the wastage of White infant life 50 years earlier. The main causes of infant mortality were, for Whites, prematurity (37%), for Africans and Coloured gastro-intestinal diseases (27.7% and 38.4% respectively), and for Asians respiratory diseases (41.4%). Anning also calculated peri-natal mortality rates at 11.2 per thousand births for Whites, 25 for Coloureds and 7.9 for Asians. Figures were not given for Africans as they would be too unreliable. The high mortality from respiratory disease in non-European children (33% in total) was attributed to overcrowding, malnutrition and slum conditions, and it was felt that proper housing would decrease this rate. Studies in Britain had shown direct correlations between overcrowding and child mortality and similar results were reported from Cape Town when comparing Cape Coloured children and White children living in different social and economic conditions.⁷

Anning noted the lack of an ante-natal clinic for Africans and Asians. However, home visits were made to all races and were increasing dramatically. In addition, milk was supplied to needy families and 36 of them were receiving it from either the municipality or the Child Welfare Society. Anning recommended that the comprehensive health and welfare needs of the pre-school child should be addressed through the establishment of nursery schools that would address the social training and development of young children. There was one in existence, but not for the poor. IMRs elsewhere in the country and overseas at this time were as shown in figure 13.5.

Town/country	Infant mortality rate (per thousand live births)
Pietermaritzburg	22.4
Pretoria	78
Cape Town	45
Port Elizabeth	61
Durban	40
Kimberley	91
Bloemfontein	65
South Africa	63

Town/country	Infant mortality rate (per thousand live births)
New Zealand	32
Australia	41
Holland	42
England and Wales	60
Canada	73
France	71
Germany	70
Belgium	89
Italy	100

Fig. 13.5 *Comparative infant mortality rates for the White populations in South African cities compared with countries overseas, 1936.*

This very low IMR was not sustained in the following years, however, rising again to 54 in 1938 (compared to 56 nationally) and 42 in 1939 for Whites, although of the seventeen deaths only two were due to infections. For Africans the IMR was recorded at a very high 283.5, although this may have been inaccurate. It was estimated that 30.5% of all African deaths and 28.4% of Asian deaths occurred in the first year of life. The Asian IMR in particular showed a frightening trend during the 1930s. While it was generally downwards for other races, for Asians the figures were:

1929	79.1
1931	85.2
1936	114.3
1938	130.3
1939	166.6
1940	187.9

Thirty-nine per cent of the deaths of Asian babies in 1940 were due to diarrhoea and gastroenteritis. This was presumably related to the increasingly insanitary conditions in which they were living (see chapter 9) with severe overcrowding and inadequate housing provision. The backlog of housing for Asians in 1937 stood at 1 937 people, or approximately 24%. This compared with 0.2% of the White population, 11% of the Coloured and 7.6% of the African, although this latter figure may have been understated due to the movement of people out to Edendale. With only 50 new houses for Asians built in this period, there

would appear to be a direct link between insanitary housing conditions and infant mortality.

In 1938 it was noted that the birth rate for Whites was gradually declining, from 22.2 in 1925 to 16.4. This was seen as a disappointing trend and was the lowest rate amongst South African cities. However, it was a sign of the socio-economic development of the community and may also reflect on the improved education and position of White women. It compared with the rate for England and Wales of 15.1. The rate increased a little to 18.7 in 1939 and 19.1 in 1940. The birth rate for Africans was recorded at 21.2 for 1939, but was probably very inaccurate due to inadequate registrations, births at home not being recorded, and the denominator of population size being both inaccurate and misleading – the population was heavily skewed in favour of males. In addition, the movement of people to Edendale (considered outside the borough) would have confused the picture further. Maternal mortality was generally relatively low at four out of 856 births and midwives were registered and supervised in terms of the Medical, Dental and Pharmacy Act (13 of 1928), which stated that in prescribed areas ‘no person other than a medical practitioner or a midwife registered under the Act shall attend any lying-in woman for gain’. Ante-natal classes were available for all women at Grey’s Hospital. The birth rate was increasing for the Coloured community, having gone from 27 per thousand people in 1925 to 50 in 1940.

By 1943 the IMR for the Asian community started to decline and had dropped to 68 per thousand live births. For Coloureds it remained stubbornly high at around 106 and for the White community it was fairly steady at 35.2. It was noted nationally that the IMR for Coloureds was consistently three to four times higher than that of Whites at this time, at levels above 130, suggesting poor standards of living and inadequate health care.⁸ Thirty-one per cent of these deaths of White babies were due to prematurity. The IMR for Africans sat at 164 (considered fairly accurate), which although very high was still down from its apparent peak of 865 in 1929 (clearly grossly inaccurate.) However, by 1945 it was back up to 210 (40% due to diarrhoea and 7.7% or four cases to malnutrition).

The birth rate in England and Wales increased from 16.1 per thousand people to 19.1 in 1946, the beginning of the post-war baby boom. By 1952 it had dropped again to 15.3. A similar phenomenon occurred in Pietermaritzburg with birth rates increasing to 27.2 for Whites and 67.2 for Asians in 1947. By 1946 more than half of the African births in the Pietermaritzburg area occurred at the new Maternity Hospital in Edendale and most births were

registered. However, the recorded birth rate of 21 seems likely to have been inaccurate. This was possibly due to the fact that the population was still heavily imbalanced, with a male to female ratio of more than two to one, and inaccuracies over addresses. The birth rate in Edendale was recorded by the Local Health Commission (LHC) as 68.4 in 1949. The true figure must have been somewhere in between. The MMR in Edendale was estimated at 3.35 per thousand live births and the IMR at 266 per thousand in 1946, which was higher than that of Pietermaritzburg and considered fairly accurate. Part of the high IMR was ascribed to the practice of giving enemas to new-born babies (according to a survey undertaken of 493 mothers by 72.4% of them.) The babies may then have presented at the clinic as enteritis. There were also inadequate weaning methods, due partly to the need for the mother to return to work and being forced to leave infants with other women or grandparents. The major reported causes of death were diarrhoea and malnutrition, with 46 and 16 deaths respectively in 1948. As a result the health service tried to supervise all children until they were one year old, and to get complete birth registrations.

The IMR for England and Wales in 1946 was 49 per thousand dropping to 40 in 1947. The rate for Whites in Pietermaritzburg dropped to 22.14, the lowest ever recorded, in 1946 showing that living conditions for that community compared very favourably with Britain. The trend was downward for all races, including a drop from 210 to 121.7 for Africans, although this had risen again to 184 in 1948. This is similar to that calculated by the LHC for Edendale which, although originally calculated at 262 for 1949, was later revised to 194 after allowing for movement in and out of the area. The causes of infant death for 1948 are shown in figure 13.6 on the following page.

Figure 13.6 shows that in 1948 Asian, Coloured and African infants were mainly dying of infections, predominantly pneumonia and diarrhoea. While for Asians and Coloureds the IMR continued to decline in the early 1950s, it remained high in Africans, in particular from diarrhoea. Asians were perhaps helped by the opening of the Infant Welfare Clinic, which the Union Health Department refused to subsidise, in the newly-incorporated area of Raisethorpe. For White infants the major causes were peri-natal and birth defects, with few deaths from infectious disease. By 1952 Asians were starting to show the same pattern of cause of death as Whites. The MOH noted that where the trend in infant mortality was downwards for Whites, Coloureds and Asians, the trend was upwards for Africans. It was particularly high in Raisethorpe and a Native Health Visitor was employed to work amongst the African population there.

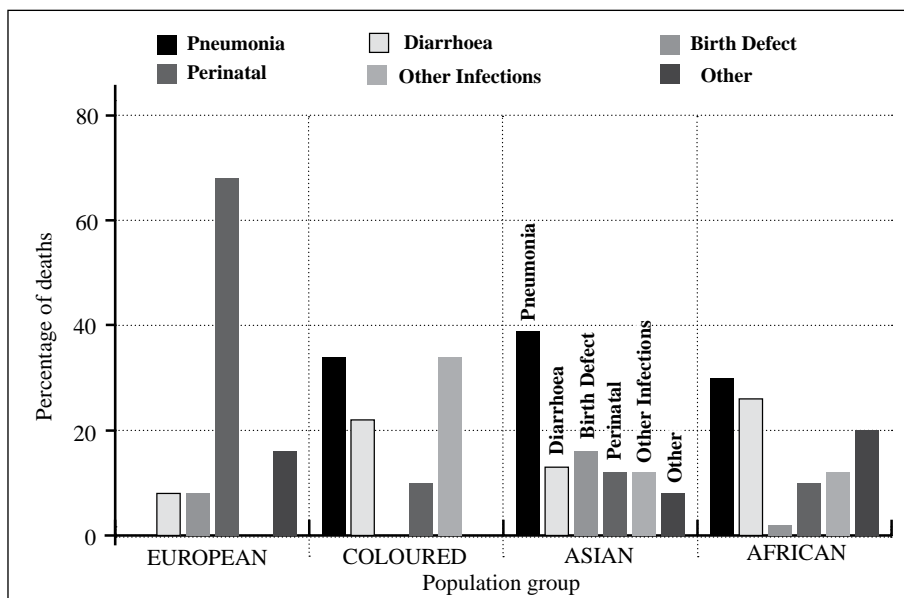


Fig. 13.6 *Percentage of infant deaths in Pietermaritzburg due to various causes, 1948.*

The IMR in England had dropped to 28 by 1952, still higher than that for Whites in Pietermaritzburg, where it had reached a low of 14.7.

Maternal mortality had been rarely reported in the city among any community. This may be due to the fact that there had been a hospital from the earliest days in 1855 with maternity services and these had been provided to all races. The restriction by law of midwifery practice to qualified medical or nursing personnel must also have helped, along with the observation that despite the presence of a qualified African Municipal Midwife, who attended 84 confinements in 1955 (there were altogether 1 114 births that year), the majority of African women preferred to deliver in hospital. However, this became more difficult after their maternity services were moved to Edendale Hospital, several kilometres beyond the opposite boundary of the city. In the greater Edendale area it was estimated that 72% of births took place in the hospital. While the MMR was high in the early years, the actual number of deaths never exceeded six in any year for all races combined and the rate rapidly declined. In 1957, for example, there were no recorded maternal deaths. However, there was presumably some under-reporting as this situation seems unlikely.

For older children one of the greatest risk factors regarding disease appeared to be attendance at boarding school: over the years multiple outbreaks of

different infectious diseases were reported from them. Scarlet fever, diphtheria, measles, typhoid and diarrhoea epidemics all occurred with some regularity in the first century of the city's existence in boarding establishments, which existed because of the lack of suitable schools in the surrounding small towns and countryside. In 1917 Pietermaritzburg was actively promoted as an educational centre and the facilities offered by schools were advertised. The city drew children from all over the province and beyond to its boarding facilities. While it may have been of some benefit to the economy of the city and the education of the children, these schools acted as foci of infectious disease and facilitated its spread into the community through the staff and non-boarding scholars. At the beginning of each term large numbers of children arrived in the city from other towns and rural areas where the control of infectious disease was less strict. Some of the more serious outbreaks are illustrated in figure 13.7, in addition to which there were regular minor outbreaks of whooping cough, diphtheria, chickenpox and scarlet fever. As well as these were outbreaks that generally affected the day scholars, such as influenza in 1957.

Year	Diseases	Total number affected
1925	Measles	58
1928	Typhoid	50
1929	Typhoid	15
1934	Diphtheria	12
1935	Typhoid	8
1938	Measles	Unknown
1939	Measles	30
1940	Measles	52
1944	Scarlet fever	142
1945	Gastroenteritis	30
1946	Measles	146
1946	Typhoid	10
1953	Food poisoning (<i>Bacillus cereus</i>)	18
1956	Food poisoning (unknown cause)	10
1980	Shigella dysentery	Unknown
2001	Encephalitis	63

Fig. 13.7 Outbreaks of disease in Pietermaritzburg boarding schools, 1925–2001.

In Edendale in 1957 it was noted that both births, and the population as a whole, were under-recorded. This would have tended to overstate the IMR due to a low denominator. The MOH, Dr Seymour, stated that 'it is unfortunate to have to record that there seems little doubt that a large proportion of forms which are filled in never reach the official registrar in Pretoria. This state of affairs makes the keeping of health statistics farcical'. He went on to say: 'the IMR at Edendale has become so ridiculous and inaccurate that there is no point in commenting'.⁹ However, by the following year, thanks to his intervention, the situation had improved. The LHC had undertaken a census of the population that had revealed an undercount of about 50% and there was a sharp increase in births registered due to improved collection procedures. The IMR was 232 for the African population of Edendale that year: this was probably as accurate as possible for that time.

The causes of infant mortality in Pietermaritzburg by the end of the 1950s are illustrated in figure 13.8. While the exact figure for the IMR for Africans

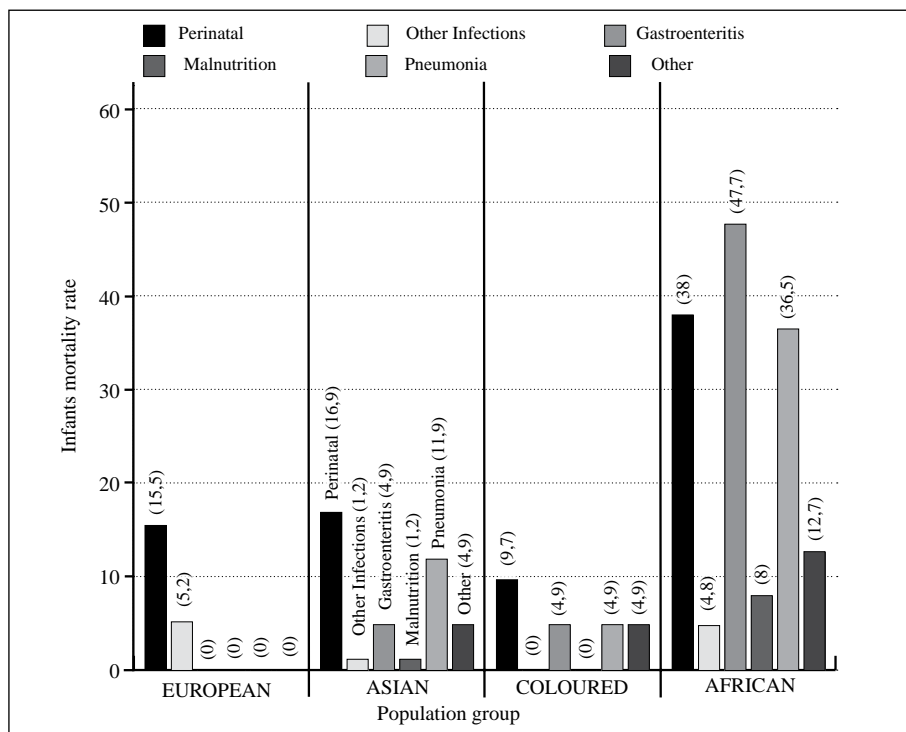


Fig. 13.8 Cause of death of infants of different population groups in Pietermaritzburg, 1959.

may have been unreliable, it certainly gives an indication of both the vast difference that had developed between the African population and other races, and of the differing causes of death. It illustrates clearly why, repugnant as it may be to perpetuate artificial notions of race, when discussing health in the South African context the dramatic disparities between the different groups would make an integrated IMR irrelevant to the salient issues of the day and hide a myriad of problems. Nationally the overall IMR for 1960 was 135.¹⁰

Through the 1960s there was little change in the relative causes of infant mortality, although a steady decline in the overall rate was evident in Asians, Coloureds and Whites, having dropped to 17.2, 23.5 and 12.2 respectively by 1969. These compared favourably with the national figures of 21.6 for Whites and 132.6 for Coloureds as measured in 1970. The national figures for Coloureds only started to decline in the 1970s and 1980s, probably due to improved nutrition, education and hygiene together with a general rise in socio-economic status and a migration from rural areas, with easier access to health care.¹¹ Large increases in attendance amongst the Asian population from the mid-1960s indicated that health services were probably now more accessible since their forced relocation to the new township of Northdale. For the African population the figures for the city had become so unreliable that they were probably useless, swinging wildly between a low of 18 in 1967 and then up to 94.8 in 1969. What is fairly certain, however, is that they were significantly higher than in other races, notwithstanding the new housing accommodation in Imbali at the end of the decade and provision of new clinics and hospital facilities. Ninety-five per cent of African births were estimated to take place in Edendale Hospital. In Edendale the MOH calculated that the IMR ranged between 218 (in 1965) and 276 (in 1970) for the years 1957–73; with the exception of 1969 when the extreme and seemingly implausible figure of 399 was reported. That these were worse figures than Pietermaritzburg is possible given that in the city a higher proportion of people lived in houses with access to piped water and sanitation, there were more clinic services, and probably a higher percentage of parents were employed, due to the influx control regulations discriminating against Edendale residents. Alternatively, it may have been that with inaccuracies around recording addresses, the truth lay somewhere in between the two figures. It is interesting to see how much worse the Edendale figures had become than those first presented by L.G. Haydon 60 years earlier for Natal. The impact of urbanisation had clearly not been beneficial for the African infant.

Neo-natal mortality was estimated at 19.6 per thousand births in 1971, ranging from 16 for Whites to 24 for Asians, 6 for Coloureds and 24.6 for Africans (as with many statistics for the Coloured population, this may be unreliable due to the relatively small numbers being considered; and for the African population this may be generally inaccurate, but indicative taken as a proportion of total hospital births.) These compared well with the national figures in 1970 of 71.3 for Whites, 29.9 for Coloureds and 67.6 for England and Wales.¹² This possibly related to the fact that the vast majority of births took place in hospital, to the extent that the District Midwife service in Sobantu was discontinued in 1978.

By 1972 population growth had emerged as a major national issue and the city Health Department was proud to be carrying out the recommendations of the national department through its family planning clinics, which were provided separately for each race in different suburbs and subsidised by central government. The Family Planning Programme commenced at the same time in Edendale, the LHC running one four-hour session per week. The vast majority of women were given oral contraceptives, with approximately 6% opting for intra-uterine devices and 9% choosing the injectable Depo-Provera. Tubal ligations and vasectomies were offered at provincial hospitals. After several years of this service the MOH's report concluded that it was making an impact on the birth rate, as shown in his graph (figure 13.9). Nationally, the same trend occurred during the 1970s, with birth rates in the city being generally slightly lower than national figures.

A study of maternal mortality at Edendale Hospital between January 1973 and December 1975 found a mortality rate of 4.5 per thousand total births (3.96 per thousand excluding abortions). Caesarean sections were done on 14.5% of women. Sepsis was the single most important cause of death at 25.4%, with teenagers most at risk and Caesarean section was the major factor associated with sepsis. It was considered that avoidable factors may have been present in 23.7% of the deaths. The rate of 3.96 per thousand was higher than that of Baragwanath Hospital in Johannesburg (2.1 per thousand) and King Edward VIII hospital in Durban (1.4 per thousand) at that time; and ten times higher than rates in western Europe. The mortality rate may have been higher than the rate for just Pietermaritzburg residents alone however, as Edendale Obstetric Unit was the referral centre for the whole inland region of the province and northern Transkei and hence had a high percentage of complicated pregnancies. In addition, a major factor influencing this high MMR was found to be attendance at an ante-natal clinic: those who had attended had a rate of

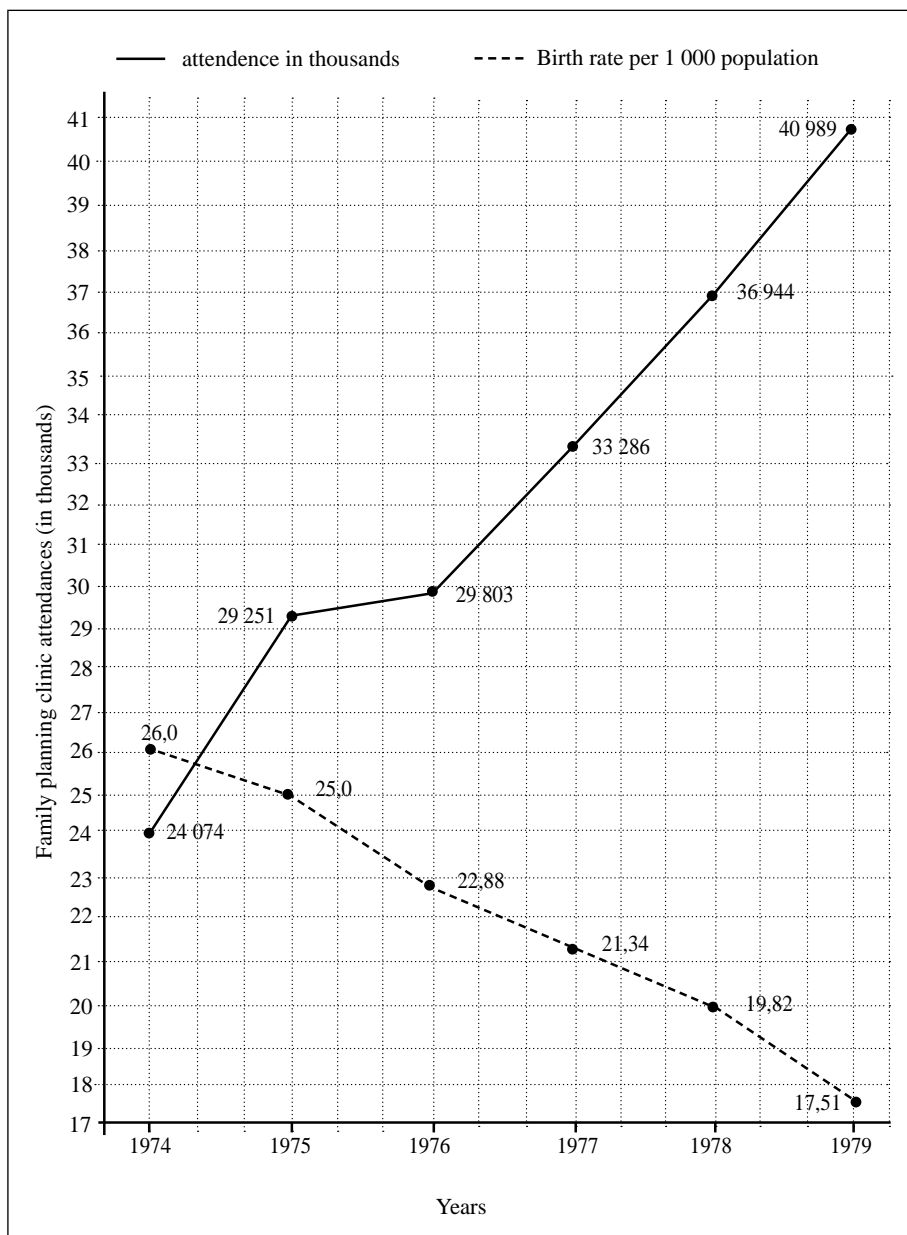


Fig. 13.9 Family planning clinic attendance versus birth rate among all race groups in Pietermaritzburg, 1974–1979.

two per thousand compared with 16.3 per thousand for those who had not.¹³ Being in an urban setting with access to ante-natal services hopefully would have led to a lower MMR for the city's women.

The types of contraceptive method used in 1984 are shown in the illustration from the MOH's annual report in figure 13.10.

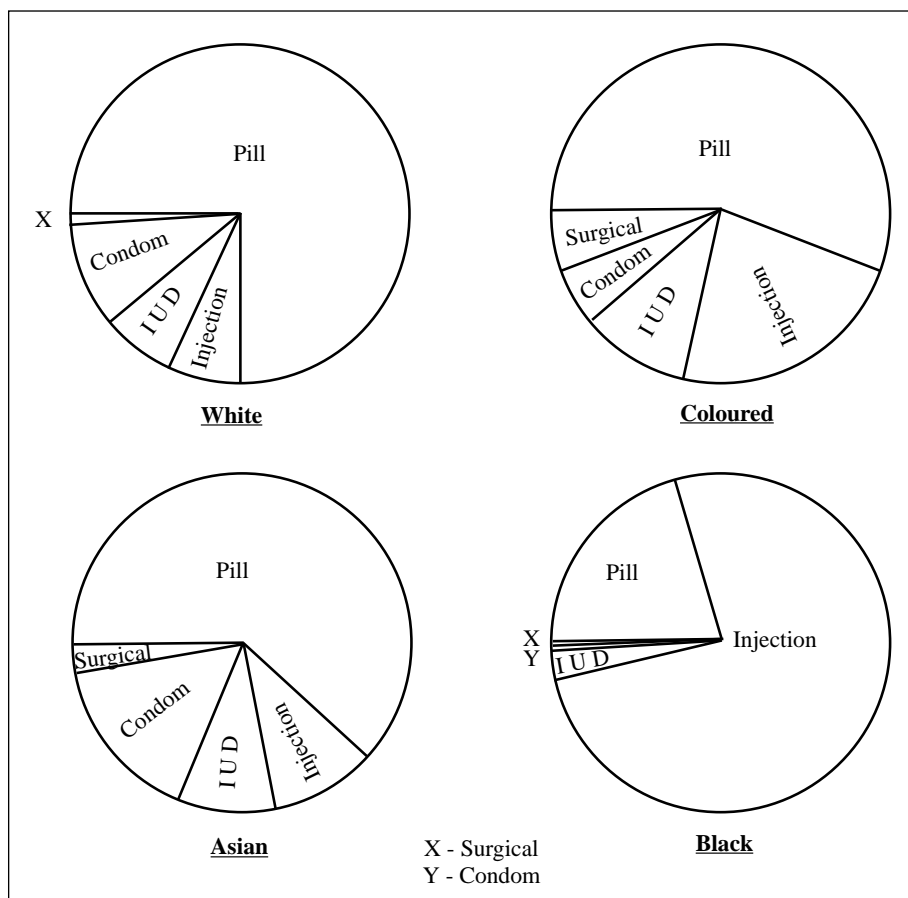


Fig. 13.10 Contraceptive methods used by family planning clients in Pietermaritzburg, 1984 (Source: 1984 MOH Annual Report).

By 1980 the pattern of causes of infant death was as shown as in figure 13.11. The African IMR, at 41.35, is inaccurate as mentioned earlier, but the percentage of deaths due to each cause may be a reasonable indicator of the situation. This figure correlates with the combined estimate for Africans in ten urban areas in South Africa of 39, including Soweto and Cape Town at 35. For

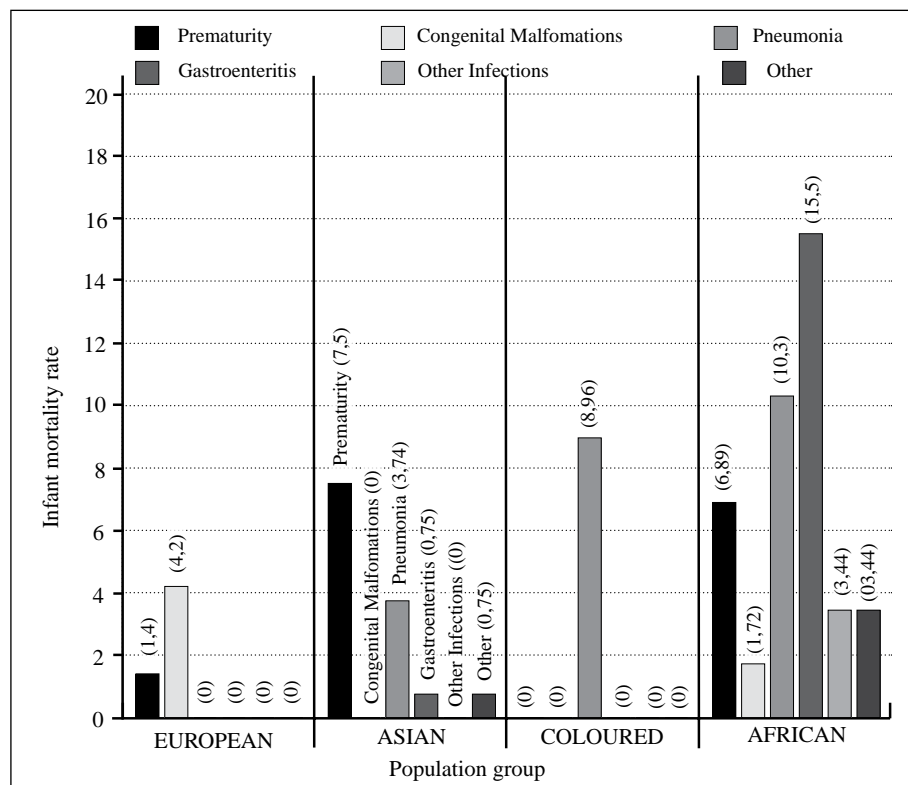


Fig. 13.11 Cause of death of infants of different population groups in Pietermaritzburg, 1980.

the peri-urban and rural communities, the national average was estimated at between 100 and 135. However, a study by a doctor in Vulindlela gave a rate of 42, which correlates closely with the Pietermaritzburg figure.¹⁴ National IMRs for Whites, Asians and Coloureds in urban areas between 1981 and 1985 were estimated at 12, 17 and 26 respectively. Pietermaritzburg compared favourably.¹⁵

The IMRs for other African countries in 1985 were: Botswana 72; Zimbabwe and Kenya 76; Congo 77; Tunisia 78; Algeria 81; Zambia 84; Morocco 90 and Burundi 119.¹⁶ South Africa was estimated at 45.9.¹⁷ Pietermaritzburg's IMR was thought to be 16.3, but this was probably low due to under-estimation of African deaths. However, the easily accessible Edendale Hospital, together with large numbers of welfare services, availability of piped water and urban immunisation programme may have made it lower than the rural areas.

The overall IMR in Johannesburg in 1988 was 14.76, which compares closely with that given for Pietermaritzburg of 15, with a rate of 38 for the African population. The national rates in 1988 were estimated at: African 80; White 11.9; Coloured 46.3; and Asian 19.¹⁸ National rates for the Coloured population were generally higher than for Coloureds in Pietermaritzburg, due to the very large Coloured population in the Cape living in more overcrowded conditions than those in Natal.

Scabies was mentioned in 1975 when steadily increasing incidence was noted in schoolchildren, along with head lice. The infestations appeared in all groups, regardless of socio-economic situation and the increase in incidence was said to 'parallel the increase in permissiveness in our society with its tendency to long unkempt hair, dirty clothes and the disinterested acceptance of squalid surroundings'.¹⁹ It appeared to affect the Asian community in particular, with over 1 000 home visits made for this problem in 1976. A campaign against scabies, focusing on Sobantu, was held the following year. While it decreased a little thereafter, it remained as a regular cause of home visits, together with head lice. The extensive pattern of home visits by the municipal Health Department continued through the 1970s and 1980s, with nurses visiting new-born babies and children with genetic conditions, various handicaps, infectious diseases, suspicion of abuse, as well as lice or scabies; and after discharge from hospital. More than 10 000 child home visits were made in 1984. Reports from schools indicated that a major problem of the early 1990s was conjunctivitis, with 1 330 cases reported in 1992. Head lice remained a large problem in Asian and White children, along with chickenpox. Most African schools did not report their statistics.

Through the 1980s records of infant mortality look increasingly unreliable. All the defined causes for that year related either to prematurity or complications of birth and intrauterine hypoxia. However, the ages of death varied from perinatal to eleven months. The latter were unlikely to be birth-related. Pneumonia and gastroenteritis were completely absent, along with other causes: it is clear that either the causes of death were incorrect, or many infant deaths were missing from the data. During the mid-1990s the city Health Department gave up the struggle to maintain what were clearly hopelessly inaccurate figures. Combined with the constantly shifting and expanding population due to urbanisation, incorporation of new areas into the municipality and relocations due to unrest, the measurement of the population base also became difficult. A similar problem seemed to be experienced nationally, as estimates of IMR varied wildly according to source. For example, in 1993 the estimate varied

from 14.6 per thousand (October Household Survey) to 81 per thousand (South African Labour and Development Research Unit Poverty Survey). However, while changing boundaries and incorporation of new areas confused the data collection and analysis process, it enabled the municipality to take its expertise, built up over 160 years of continuous experience, and services into previously neglected and under-served areas. One of the major interventions was in health education, with programmes targeting, amongst other things, crèches and their teachers. Programmes were run on nutrition, subsidy applications, hygiene, first aid, immunisation and stimulation of children.

From 1996 it is clear that the incorporation of the outlying African areas of Imbali and Edendale was making a difference. Not only were new municipal clinics opening every year in these suburbs, but more use was made of health services in the city. Annual ante-natal clinic attendance increased from 5 200 to 14 300 over the seven years 1993–9. However, the teenage pregnancy rate remained high, 19% of births being to teenagers in 1999. The nationally-designed standard Clinic Register did not contain references to ailments and hospital data gave a distorted picture as hospitals served a very wide area and saw only those too sick to be managed at the clinics. In 1999 the city Health Department did a sample survey of ten district clinics to try to gain more clarity on the morbidity profile. The results are shown in figure 13.12. One of the interesting aspects is that it shows an almost complete disappearance of the traditional infectious diseases of childhood from 50 years earlier – measles, scarlet fever, chickenpox, mumps, poliomyelitis, whooping cough and diphtheria were virtually absent. Even gastroenteritis was not common. Instead, the overwhelming majority of problems taking children to the health service were related to the respiratory tract and secondly the skin. Given that the majority of upper respiratory tract infections are self-limiting and self-treatable with over-the-counter medication, it gives cause to wonder if there was not another method of attending to these problems to relieve the pressure these clinics were facing. A profile of hospital paediatric patients in 1998 similarly showed that the commonest admissions were for respiratory problems (38%), followed by malnutrition, diarrhoea, epilepsy and tuberculosis/HIV. Unfortunately patients were generally recorded under the presenting complaint rather than underlying cause, so AIDS was under-represented in both the clinic and hospital profiles.

What was not measured anywhere was the growing number of orphans due to HIV/AIDS/tuberculosis, which was growing rapidly. While the city acknowledged the problem it was difficult to quantify and most of the initiatives

trying to deal with it, including the problems around child-headed households, were being addressed by the non-governmental organisations (NGOs) such as Thandanani Children's Foundation and the Children in Distress (CINDI) network of organisations. Thandanani was founded to assist with the increasing number of babies being abandoned in Edendale Hospital, and moved on to assist orphans in many communities of Pietermaritzburg.²⁰ Pietermaritzburg had always had a wealth of social welfare NGOs and CINDI aimed to co-ordinate their efforts to meet the needs of vulnerable children in a variety of complementary ways. The Child and Family Welfare Society reported in 2002 that 200–300 applications a month were being made for foster care grants by grandmothers who were now looking after their grandchildren.²¹ A study of child-headed households in the city commissioned by Thandanani found that such children regularly experienced hunger and eviction and were forced by circumstances to leave school. Fifty percent of 45 child-headed households studied had lost their parents to HIV/AIDS. Clearly such children were increasingly at risk.²²

The causes of death for children up to 19 years was analysed from death certificates for the 715 recorded deaths in the district in 2000. The picture was as shown in table 13.13. In 2001, with Vulindlela now brought into the municipality, it became a pilot area for the introduction of the Integrated Management of Childhood Illness programme. This, together with the Community Health Worker Programme initiated by the provincial Department of Health, placed great emphasis on community involvement.

The IMR was 26.2 overall for all races, up from 22.6 the previous year and compared favourably with the provincial and national figures of 52.1 and 45 respectively. This was considered a fairly accurate picture by the MOH and not unreasonable given that the area had by then almost universally accessible piped, treated water; clinics within five kilometres of every resident in rural and 2.5 kilometres in urban areas; high immunisation coverage rates and three large, much improved hospitals open to all races. It was thought that many of the deaths from pneumonia and diarrhoea were due to underlying HIV infection. The stillbirth rate at this time was 2.8%, neonatal mortality was 6.7 per thousand live births and post-neonatal mortality 19.5; again far better than the provincial and national rates. In 2002 the IMR had declined slightly to 21.8, which may have been due to the introduction of anti-retroviral drugs (ARVs) to prevent mother-to-child transmission of HIV infection, provision of which commenced early that year. Unfortunately later figures are not available, so it is not possible to see if that trend has continued over the last few years.

Diagnosis	0-11 mths	1-5	6-9	10-19	Total
URTI (colds, flu, bronchitis)	61.24%	48.47%	45.36%	49.81%	50.37%
Tonsillitis	1.12%	6.55%	4.92%	5.28%	5.07%
Pneumonia	2.25%	0.22%	-	0.38%	0.55%
Asthma	-	0.44%	-	-	0.18%
Gastro-enteritis	9.55%	3.93%	8.20%	3.77%	5.53%
Intestinal worms	1.12%	6.99%	3.83%	1.5%	4.15%
Eye infections	2.81%	2.18%	4.92%	1.89%	2.68%
Ear infections	2.81%	7.64%	3.83%	3.40%	5.17%
Fungal infections (throat)	1.12%	0.87%	-	0.38%	0.65%
Skin infections	14.04%	17.69%	18.58%	11.32%	15.68%
Scabies	-	0.22%	2.73%	-	0.55%
STD's	-	-	-	3.02%	0.74%
Genito Urinary	-	0.87%	1.64%	12.45%	3.69%
Injuries/trauma	0.56%	0.87%	1.64%	3.40%	1.57%
Bums	0.56%	0.87%	1.64%	-	0.74%
Malnutrition	1.12%	0.66%	-	-	0.45%
Chicken pox	1.12%	0.44%	1.64%	3.02%	1.38%
Mumps	-	0.66%	-	0.38%	0.37%
Measles	-	-	0.55%	-	0.09%
Failure to thrive (HIV?)	0.56%	0.22%	-	-	0.18%
TB investigations	-	0.22%	0.55%	-	0.18%

Fig. 13.12 A sample survey of ten district clinics of the paediatric morbidity profile (disease and other complaints recorded) in the Pietermaritzburg area, 1999.

Cause	0-1 year	1-5 years	6-9 years	10-19 years	Total
Cardio-vascular	9 (2.7%)	5 (3.4%)	4 (5.5%)	16 (9.8%)	34 (4.8%)
Accident/ assault	5 (1.5%)	19 (12.8%)	12 (16.4%)	52 (31.7%)	88 (12.3%)
Tuberculosis	6 (1.8%)	6 (4.0%)	3 (4.1%)	14 (19.2%)	29 (4.1%)
AIDS	37 (11.2%)	23 (15.4%)	9 (12.3%)	27 (16.5%)	96 (13.4%)
Respiratory failure	5 (1.5%)	0	1 (1.4%)	1 (0.6%)	7 (1.0%)
Pneumonia	63 (19.1%)	31 (20.8%)	9 (12.3%)	12 (7.3%)	115 (16.1%)
Diarrhoea/ dehydration	103 (31.3%)	31 (20.8%)	7 (9.6%)	6 (3.7%)	147 (20.6%)
Motor vehicle accident	0	3 (2.0%)	7 (9.6%)	9 (5.5%)	19 (2.7%)
Septicaemia	16 (4.9%)	6 (4.0%)	2 (2.7%)	3 (1.8%)	27 (3.8%)
Congenital abnormalities	11 (3.3%)	0	0	0	11 (1.5%)
Prematurity	16 (4.9%)	0	0	0	16 (2.2%)
Birth complications	9 (2.7%)	0	0	0	9 (1.3%)
Malnutrition	2 (0.6%)	10 (6.7%)	0	0	12 (1.7%)
Meningitis	5 (1.5%)	3 (2.0%)	2 (2.7%)	2 (1.2%)	12 (1.7%)
Epilepsy/CNS	1 (0.3%)	1 (0.7%)	5 (6.8%)	6 (3.7%)	13 (1.8%)
Other/ unspecified	41 (12.5%)	11 (7.4%)	12 (16.4%)	24 (14.6%)	103 (14.4%)
Total	329 (100%)	149 (100%)	73 (100%)	164 (100%)	715 (100%)

Fig. 13.13 Causes of death in the 0–19 year age group in Pietermaritzburg, 2000.

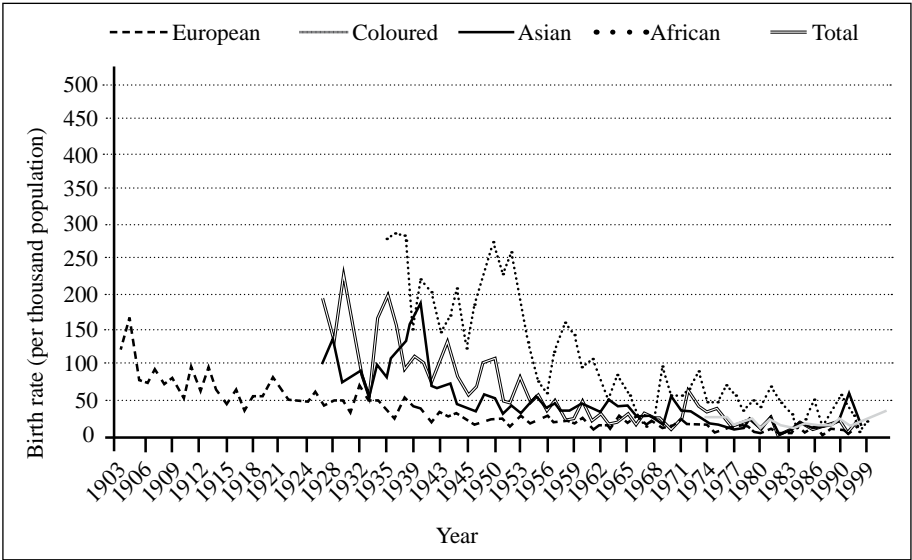


Fig. 13.14 Infant mortality rates by population group for twentieth-century Pietermaritzburg.

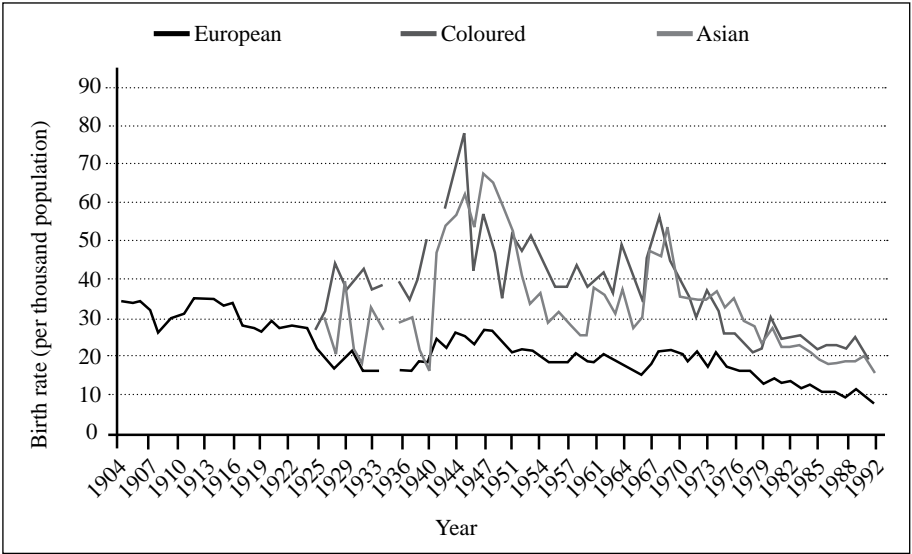


Fig. 13.15 Birth rates by population group for twentieth-century Pietermaritzburg.

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THE HISTORY OF THE HEALTH of Pietermaritzburg can be divided into several distinct periods. They begin with the first 50 years from 1838 to 1888, during which the town, developing as a large, spacious and verdant village, was notable for its healthy climate and relative absence of disease. It provided a warm and welcome contrast with the congested and insanitary Victorian England many of the immigrant population left behind, and was a place where, with a modest amount of hard work, a newly-arrived European settler could establish a generously sized property and live in some comfort. What disease existed was thought to be ‘generally the result of ignorance and carelessness’¹ and the immoderate lifestyle of the settlers. For the indigenous people also it was initially a reasonably healthy place to live, and one to which they migrated for work, although the living conditions were soon to become worse than those left behind in the rural areas, particularly in respect of housing. From mid- to late-century the legal and social restrictions would become ever harsher, and start to prevent a reasonably healthy quality of life for the African migrant workers in particular.

Towards the end of the nineteenth century the pace of urbanisation and population grew beyond the capacity of the city’s infrastructure, exacerbated by the movement of people into the city during the Anglo-Boer War. This was the period of insanitation from around 1888 to 1912. It was characterised by a very high incidence of diarrhoea and dysentery, high infant mortality rates (IMRs) and typhoid epidemics. The causes were no secret, as depicted by the graphic and eloquent descriptions of those times by individuals such as the District Surgeon and Inspector of Nuisances: disease was caused by inadequate sewerage systems, sanitation and refuse removal; and poorly-designed storm water drains that led to contamination of streets and water sources. This affected all sectors of the population, as did overcrowded living accommodation, particularly in the city centre. The situation became so dire that urgent interventions were required. These were put in place with quite dramatic results.

The policy of racial housing segregation in South African cities in general, and Pietermaritzburg in particular, arose partly as a result of the health problems experienced at the turn of the twentieth century that gave rise to the 'sanitation syndrome'.² The establishment of locations on the edge of white towns was seen as the partial solution to problems of disease and epidemics explained in racial terms.³ Alternative methods to address the fear of contamination included legislation, with Pietermaritzburg passing additional by-laws in 1901 to enforce strict quarantine regulations: for example, by-law 613: 'No person who is suffering, or suspected to be suffering, from Smallpox, Bubonic Plague, or any other contagious disease shall enter the Borough . . .' There was also a particular fear of infection by sexually-transmitted diseases from the African population.⁴

While local policy had always been to regard Africans simply as a source of labour, segregation of the races started to be more severely implemented nationally. The implementation of the Natives Land Act of 1913 was specifically designed to inhibit Africans from becoming successful, independent farmers, self-sufficient in food and able to compete with Europeans. As Lord Olivier stated in 1927

the commercialised South African of the capitalising period has taken away all the land of which he could dispossess the native; not to use but to hold for unearned increment, and to keep the native wages down, and now forbids the native by law to enjoy the emoluments of the civilisation whose conditions he has imposed upon him, and which he has founded and is building up on his underpaid labour.⁵

In some ways this summarises, and is predictive of, the effects of the legislative environment on the socio-economic and health development of the population over the next 80 years. Olivier went on to state, quoting an Economic Commission Report that 'the rates of pay of the industrialised and detribalised natives are so low that they and their families are inadequately fed, clothed and housed'.⁶ Unable to provide independently for their basic needs by agriculture, and dependent upon meagre wages insufficient to do more than barely sustain life, the African population of the Pietermaritzburg area was doomed to deteriorate further and further in terms of nutrition, housing, social amenities and health status.

The European population naturally became more and more prosperous by this arrangement, which led to a period of remarkable improvement for Whites, in particular between the years 1915 and 1940 with a move away from faecal-orally spread diseases to the diseases of old age. In England, Dr J. Kershaw, President of the Society of Medical Officers of Health, similarly described

the 1930s as a golden age in which the old enemies of infectious disease, vector-borne disease, infant deaths and bad housing were losing ground. Pietermaritzburg in particular was known for its good health, with Mayor D.C. Dick announcing proudly in 1931 that 'Maritzburg tops the world!', following an analysis by Dr J. Paterson Maclaren as a result of which he wrote that 'in low death rate (8.32 per 1,000 population) Maritzburg tops the world, next to it being Auckland (New Zealand) with 8.7 and Amsterdam and Australian cities with 9.3'.⁷

This certainly applied to the White population in Pietermaritzburg, but it was less than a golden age for other races as they had to move out from the city to suburban areas where there was inadequate provision for housing and sanitation. People in one slum area, Hathorn's Hill, were described in the same year as 'living a diseased existence in 83 dirty, rusty, iron shacks'.⁸ Low wages meant they were unable to develop their own communities and it was a time of rapid increase in the IMR for the Asian population in particular, possibly as a consequence of deteriorating housing and sanitary conditions, the major cause of infant death being gastro-enteritis. This situation was not unnoticed by the relevant officials. The Medical Officer of Health (MOH), Dr Anning, stated in 1933 that

Pietermaritzburg, situated under the most favourable climatic conditions, has long held and continues to hold the proud position of being one of the healthiest towns for Europeans in one of the healthiest countries in the world but...it remains for Pietermaritzburg to ensure that the public health and sanitary circumstances of all races within the boundaries of the Borough are equally satisfactory.⁹

As the British journal *The Medical Officer* noted of Pietermaritzburg's statistics for 1934 'the coloured population has the most unfavourable rates in everything; its cancer rate of 198 is higher than that of any part of Europe except Switzerland and Sweden, and more than double that of the Europeans living in Pietermaritzburg in whom the rate is 98. Its diarrhoea and enteric rates are ten times those of Europeans'.¹⁰ The 1930s was also a period of rapid increase in venereal diseases. This was contributed to by both the pass laws, controlling access to the city, keeping families apart and separating men from their wives; and the migrant labour system on the mines. Attempts to control disease were made by regulation and laws rather than upliftment and development. However, as the authorities realised that the deteriorating health conditions of the non-European population could affect them, there was reasonable development of health and outreach services that assisted all populations.

In the nineteenth century the industrialisation and consequent urbanisation of England, the mother country of most of the European population of the city, had led to desperately overcrowded living conditions for most people. Inadequate water supply, bad lighting and ventilation, and poor sanitation had led to ill health, lowered social conditions and crime. The mass housing programmes provided back-to-back houses with little light or ventilation that often had pit privies in the cellars. Excrement was then thrown out into the street with the household rubbish. Lewis Mumford described the conditions of the working class in England thus

in these warrens a race of defectives was created. Poverty and the environment of poverty produced organic modifications; rickets in children due to the absence of light; malformations of the bone structures; skin diseases for lack of the elementary hygiene of water; smallpox, typhoid, scarlet fever, through dirt and proximity to excrement; tuberculosis encouraged by a combination of bad diet, lack of sunshine and overcrowding.¹¹

Having left these conditions in England, the European administration had now recreated them for the African population in Edendale where there were large numbers of deeply impoverished people living in slum conditions with rampant malnutrition. Tuberculosis increased, ascribed by Brookes thus: 'the root causes of tuberculosis are to be found largely in undernourishment, inadequate clothing, long waits for transport in wet weather with no shelters provided, and crowded housing conditions'.¹² The severe deterioration in conditions in Edendale, largely ignored by the Pietermaritzburg Council, resulted in the provincial government establishing an administrative authority, the Local Health Commission (LHC), with a compulsory financial contribution from the Council, to make an attempt to clean it up. This situation was common throughout South African cities: the Medical Officer of East London stated it thus in 1932: 'A class of urban natives, subject to all the effects of overcrowding without the knowledge to combat them, have been produced by the white man for his own purposes. Conditions of overcrowding, lack of playgrounds, inefficient education, lack of trading facilities in a segregated, watertight compartment, produce tuberculosis, venereal disease and pauperism in a vicious circle.'¹³

The period from the early 1940s was that of infectious diseases – smallpox, scarlet fever, polio, diphtheria and measles, along with sexually-transmitted diseases (STDs). The infectious diseases were a post-Second World War phenomenon that could have been related to the movement of people during and after the war, bringing back new strains of infection. Diseases that had rarely been seen, or had been of minor significance, suddenly appeared in

dramatic epidemics, one after the other. Each was finally brought under control through medical, scientific intervention – antibiotics or vaccine. The urbanisation factors that encouraged explosive epidemics, such as a dense population with large numbers of schoolchildren and boarding schools, were also factors that helped the city to gain control – immunisation measures could be efficiently put in place to reach the target populations. This is seen in the fact that outside the borough boundaries, in rural areas, diseases such as diphtheria and polio, brought under control in the city by vaccination programmes, still occurred quite frequently. Health services continued to develop as new clinics and hospitals were opened, although the fanatical separation of all services by race added greatly to the complexity and inefficiency of their delivery.

The late 1950s was the era of increasing control over infectious disease through immunisation and antibiotics. Immunisation brought down smallpox, diphtheria, polio and, in later years, measles and there were dramatic improvements in morbidity from STDs through the introduction of penicillin. The decline in deaths from tuberculosis, due to antibiotic treatment, was similarly dramatic, although there was an increase in new cases, particularly in the Edendale area. Medical advances, such as improved out-patient treatment regimens and mass miniature X-ray screening, also reduced the burden of large patient numbers on health services, allowing the staff more time for home visiting and preventive outreach programmes in communities. Housing conditions continued to improve for Whites, but overcrowding amongst non-Europeans increased as a result of minimal housing construction. This was mainly due to the impact of apartheid legislation, in particular the Group Areas Act, which placed legal constraints on housing development, together with inequalities in wages that precluded non-Europeans from the means to construct their own modern housing. While influx control limited rural migration into the city proper, natural population increase caused severe overcrowding. The only option for those affected by influx control, or naturally expanding families, was to settle in peri-urban areas such as Raisethorpe, Pentrich and Edendale. However, gains were still seen in mortality rates during this antibiotic and vaccine era.

Diseases of insanitation continued in the areas outside the borough where, despite some humanitarian efforts from the LHC, lack of piped water supply and inadequate sanitation continued to cause illness and death from typhoid, gastroenteritis and related conditions. Extensive feeding schemes and welfare services made some impact on malnutrition and tuberculosis. It is notable that when issues pertaining to the African population in Edendale were raised,

the context was frequently only in the potential threat posed to the White population of Pietermaritzburg. The consequences of rapid population growth and urbanisation for health were replicating what had been seen at the start of the twentieth century but as Edendale, unlike Pietermaritzburg before it, had no hopes of being marketed as a health and recreation resort, and as it was largely out of sight of the city burgesses, its lack of development was of little consequence to those in authority. One of the major differences in development between Edendale and Pietermaritzburg was that due to the artificial limitations put on African wages and trade, the population did not experience the general increase in wealth that marked the city proper and were hence unable to develop the area gradually for themselves.

The late 1960s and early 70s were characterised by a massive drive to build housing, both public and private, for all groups in their separate, designated areas and achieve social engineering of the population on a scale that appears both fantastically bizarre and outrageously expensive. Clearly the national economy was booming to be able to pay for such developments and a number of new health programmes such as cervical smears and more extensive family planning services were also introduced. The latter fitted in with the principles of population manipulation of the National Party's apartheid ideology. Mass movements of communities by race from one side of the city to the other created further social and economic disruption to people's lives. Health concerns such as overcrowding and slum development were used as an excuse to move people,¹⁴ yet big families were placed in small homes, after removal from the large homesteads or smallholdings they had previously owned. The administration of the African population was removed from the local authority, so that by the 1970s, with infectious diseases coming under control through vaccination and antibiotics, and memories of the menaces of the first half of the century such as typhoid, dysentery, smallpox and malaria fading, there was no longer a feeling of danger from dread diseases, thus allowing poverty and underdevelopment to continue in the locations. Disease only received priority attention in the African population where it had the potential to spread to Whites: such was tuberculosis, which reached an all-time low in 1985. Africans in Edendale were out of sight and out of mind in places where few Whites had cause to go, and intermingling or communication between populations was strictly controlled.

There was always, however, the sense of some compassion for the underprivileged populations from the city Health Department reports and certainly extensive health services were provided by the borough on a fairly

equal basis to all population groups. Hospital services were also provided to all races by the provincial and national government. However, there is frequently a sense that the reason for development is a perceived threat to the White population: the suggestion to electrify Edendale was not to assist the African population there, but reduce the level of air pollution flowing down the valley to the city from open fires. The move from family planning to population development in the 1980s was another typical example: development was promoted for the sole reason of limiting African population growth rather than humanitarian reasons. Notwithstanding this, however, one has the sense that, had the city been left to control the development of its own population without the malign and controlling influence of the national government, the position for all races would have been considerably better. Even without democratic representation it seems that much more of the necessary infrastructural development would have occurred had limits, constraints and malicious racial policies not been imposed upon it, and had the African population been able to remain under local government. Housing reports continually emphasised problems of overcrowding, statistical surveys were regularly undertaken, and the analysis of issues was rigorous, and generally objective if paternalistic, particularly in the later decades.

By the 1980s and 1990s the political situation was far different. Change was in the air, and with it came the end of apartheid legislation such as the Population Registration Act, the opening up of health services to all races, and the end of influx control that had held back the natural tendency of people towards urbanisation. The unrest and political violence of the final years of apartheid, so violent that at one time 60% of African deaths were due to violence or accidents, brought with it economic and social deterioration. One indicator was a very high teenage pregnancy rate: 24% of the births at Grey's, Northdale and Edendale Hospitals in 1992 were to teenagers. Given the emergence of HIV and AIDS it could not have come at a worse time. While education programmes were conducted, there was intense suspicion of any initiative run by a government institution that had any suggestion of population control, and the facts of the disease were viewed with scepticism and mistrust by many. This, combined with an escalating prevalence of STD, much of which was of an ulcerative type, extreme poverty and unemployment, grossly overcrowded homes, widespread tuberculosis and under-nutrition, contributed to what was to be the greatest health challenge the city had ever faced – the HIV/AIDS/tuberculosis epidemic.

By the time transformation and integration arrived, the city was faced with addressing a backlog of years of underdevelopment in Edendale, and later Vulindlela. There was no additional ratepayer income, these areas being too poor to contribute significantly. The magnitude of problems facing the local authority was so vast and complex that it was hard to know where to begin. The national Reconstruction and Development Programme identified priority areas, in particular housing, health services, water, sanitation and electricity, and the rush to deliver in great quantities led to a degree of innovation and experimentation. Much of this worked, but some led to further problems.¹⁵ For example, the 'wire-wall housing' used to re-house victims of the 1995 Christmas floods later failed and in 2008 the houses had to be rebuilt. Home ownership with title deeds was poorly understood, and many homes changed ownership informally, perpetuating problems of legal title to property. However, great strides were made: 14 000 houses were built, eight new clinics opened, and water and electricity supplies extended over the municipal area.

At the end of almost 170 years of existence where do we leave Pietermaritzburg in terms of health status? The final reported statistics in an annual report are for the year 2002, the last full year completed by the last MOH of Pietermaritzburg, before internal restructuring abolished the post and caused the city Health Department to be led by a 'manager' without health qualifications. The full set of health status indicators over the last four year period are shown in figure 14.1. The city returned to professional health management in 2009, with the appointment of its first qualified African health department manager, Dr Nkosi.

It is likely that, without the HIV/AIDS epidemic, Pietermaritzburg would still be considered one of the healthiest places to live, at least in South Africa. With an abundance of government health facilities, equitably divided between all sections of the community; comprehensive piped water coverage and electricity; a high immunisation coverage rate removing the threat of the infectious diseases of old; an absence of natural threats such as malaria; a reduction in air pollution; a better educated society and job opportunities improving, it is likely that health indicators for the whole population would be moving towards those of the more affluent Northern hemisphere countries. In addition limited hostel accommodation, together with the long history of land ownership and family settlement in Edendale, had caused fewer of the migrant labour-related problems present in rural areas and more industrialised

South African cities. However, it remains at the epicentre of an epidemic more difficult to conquer than all those which have come before – an epidemic too slow in onset to cause the kind of alarm needed to arouse a dramatic response; and an epidemic too dependant on human behaviour to be managed by external interventions alone.

Indicator	1999	2000	2001	2002	KwaZulu-Natal	National
Crude death rate per thousand people	7.6	8.2	11.7	10.8		
Birth rate per thousand people	19.3	19.4	19.3	20.7		
Population growth rate	1.2%	1.1%	0.76%	0.99%		
Fertility rate per thousand women, 15–44	77.8	77.3	77.3	73		
Fertility rate per thousand women 15–49	71.3	71.0	70.8	70.6		
Still birth rate	2.4%	2.8%	1.8%	2%		
Neonatal mortality rate per thousand live births	3.3	6.7	8.9	5.1	23.2	15
Post neonatal mortality rate per thousand live births	19.3	19.5	27.7	16.7	28.9	25.6
Infant mortality rate per thousand live births	22.6	26.2	36.6	21.8	52.1	45
Child mortality per thousand children surviving to one year	14.7				23.6	14.7
Under 5 mortality rate per thousand live births	37	38	51	33.3	74.5	59

Indicator	1999	2000	2001	2002	KwaZulu-Natal	National
AIDS-related mortality rate per one hundred thousand people*	93 – 233	234 – 353	349- 474	345- 488		
TB mortality rate per one hundred thousand people	65.5	104.4	167	178.7		
Cancer mortality rate per one hundred thousand people	42.8	31.4	52.5	33.2		
Suicide rate per one hundred thousand people	11	12.2	12.3	8.3		
MVA fatality rate per one hundred thousand people	19.4	19.4	11.7	10.5		
Deaths via homicide per one hundred thousand people	35.1	54.9	44.6	46	57.3	45
Average age at death : female (years)	44.5	43.8	45.6	44.7		
Average age at death : male (years)	41.7	42.1	42.1	42.1		
Maternal mortality rate per one hundred thousand births	70.6	93.1	21			150

Fig. 14.1 *Health status indicators for Pietermaritzburg, 1999–2002.*

The rapid growth of HIV infection and disease in the city compared to other parts of the country was fuelled by many factors, two of which at least may be related to its situation: first its location on the main route between the port of Durban and the industrial centre of Johannesburg, which led to large numbers of people passing through such as long-distance truck drivers; and second, and more recently suggested, is the fact that the predominant indigenous community, the Zulu nation, was one that did not practice male circumcision, shown to be protective against HIV infection. This unfortunately may have led to increased vulnerability to infection in the male population. The impact of AIDS on overall mortality by age over the two decades from 1984 to 2003 is shown in figure 14.2.

A household study of eight wards across the city in 2007 found that minor conditions related to hygiene and water, such as diarrhoea, dysentery, scabies and skin ulcers, were not highly prevalent. However, 31% of 170 households reported serious illness in the family in the previous month and many reported a member with a chronic cough, suggestive of tuberculosis. Thirty-six deaths had been experienced in the previous year, the average age of death being 42 years. The commonest age of death was just 25 years old and 44% of deaths were in the 18–35 age group.¹⁶ The major impact on the families was loss of income and the burden of caring for the dying person that fell mainly on family members, including schoolchildren.

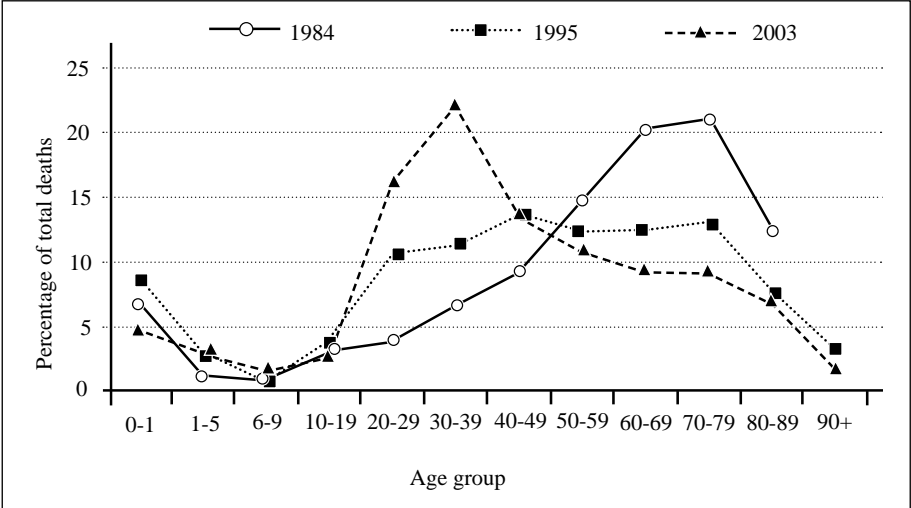


Fig. 14.2 Age at death (all population groups) in the Msunduzi Municipality; 1984, 1995, & 2003.

The underlying factors behind the key health problems at the turn of the millennium also had their foundations in the development of Pietermaritzburg, in particular the peculiar social and economic structure of the apartheid city. Legally-enforced poverty, through lack of access to adequately paid employment, legally-driven overcrowding with strictly controlled and limited housing provision and political repression that bred anger and violence, drove the majority of the population towards particular lifestyles and diet. It is only in the latter 10–15 years that inroads have been made into these problems.

What does the future hold for Pietermaritzburg? It is likely that the development of infrastructure, housing, health and municipal services to the peri-urban and rural areas around the city proper will continue, as the city remains with a reasonable capacity to deliver, albeit perhaps at a slower rate than in the first ten years post-1994. As the national economy grows, so hopefully job creation will continue with racial equality of salaries and improving wages. Such developments will, most likely, bring the same benefits to health in terms of infectious and contagious disease as have already been seen in the majority of the population. One would expect, therefore, that infant mortality and life expectancy will improve and that health problems will move towards those of longevity and lifestyle, with increases in chronic and degenerative diseases such as cardio-vascular disease and malignancy. However, the picture with regard to HIV/AIDS and tuberculosis, particularly drug resistant tuberculosis, does not look promising, as incidence rates remain high. While South Africa now runs an extensive anti-retroviral treatment programme, the impact on life expectancy and other diseases has yet to be fully understood, when aspects such as programme financial sustainability, treatment adherence and drug resistance are taken into account. We can only predict that the future health of the people of Pietermaritzburg hangs in the balance and hope, for their sakes, that future challenges are met with skill, knowledge and commitment by the authorities who have the power to influence it – so that one day a future Mayor can once again proclaim that, in respect of health at least, “Maritzburg tops the World!”

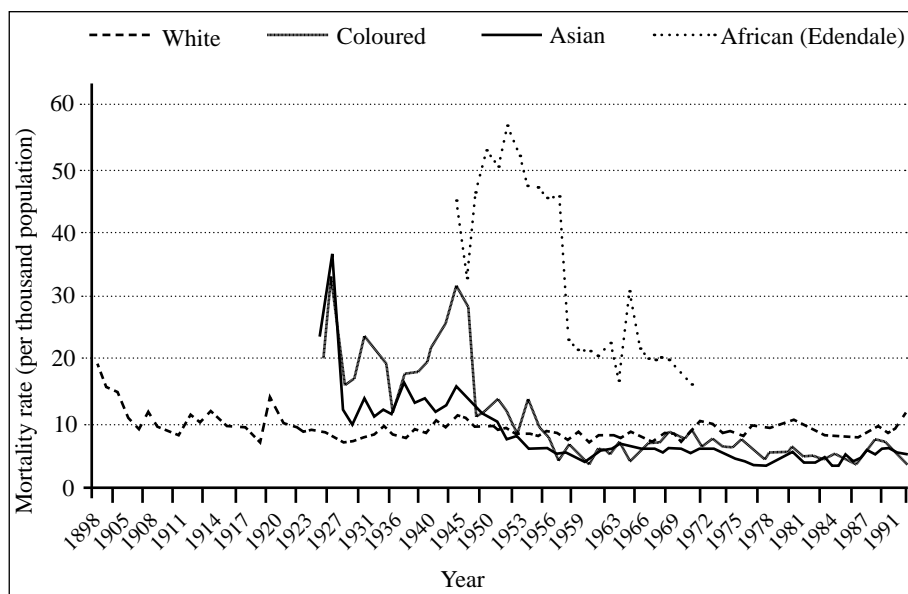


Fig. 14.3 Mortality rates in different population groups per thousand people, 1898–1991.

Figures for the African population are considered too inaccurate except for those recorded in Edendale by the Local Health Commission.

ENDNOTES

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MEDICAL OFFICERS OF HEALTH, PIETERMARITZBURG

1878–?	Dr J.F. Allen
1906–1931	Dr W.J. Woods
1932–1936	Dr C.C.P. Anning
1937	Dr B. Maule Clark
1938–1971	Dr M. Maister
1971–1980	Dr J.P. O’Keefe
1981–1989	Dr D.R.R. Peachy
1989–1994	Dr I. Walters (Regional MOH, 1994–1997)
1994–2005	Dr J.J. Dyer

Appendix A

Data tables for figs 1.5, 1.9 and 6.4

Year	European	Coloured	Indian	African	Total
1914	15 000		6 681	8 793	30 474
1915	15 000		6 681	8 793	30 474
1916	15 000		6 681	8 793	30 474
1917	15 487	1 009	7 411	8 870	32 777
1918	16 731	1 038	7 604	9 515	34 888
1919	16 482	1 222	7 444	8 958	34 106
1920	16 925	1 270	7 293	9 067	34 555
1921	17 695	1 402	7 203	10 627	36 927
1922	18 400	1 450	7 300	10 600	37 750
1923	18 482	1 436	7 769	11 975	39 662
1924	18 538	1 564	7 837	11 955	39 894
1925	19 122	1 628	7 301	11 982	40 033
1927	19 309	1 609	7 337	12 974	41 229
1928	19 560	1 685	7 251	13 114	41 610
1929	19 928	1 695	7 175	13 319	42 117
1931	20 060	1 861	7 758	12 770	42 449
1932	20 300	1 802	8 035	12 886	43 023
1933	20 583	1 938	7 902	12 142	42 565
1934	21 012	2 055	8 046	12 946	44 059
1936	20 690	2 167	8 597	13 185	44 639
1938	21 500	2 148	7 934	11 240	42 822
1939	21 630	2 071	8 874	10 946	43 521
1940	21 108	1 722	8 828	10 239	41 897
1943	20 996	1 594	9 241	9 124	40 955
1944	20 877	1 534	9 345	8 151	39 907
1945	20 825	1 491	9 480	7 783	39 579
1946	24 970	2 443	10 312	14 204	51 929
1948	26 420	2 744	10 860	15 844	55 868

Table of data for Fig. 1.5 Pietermaritzburg population 1914–1948.

Year	European	Coloured	Indian	African	Total
1948	26 420	2 744	10 860	15 844	55 868
1950	27 930	3 084	11 438	17 660	60 112
1951	29 690	3 250	15 885	19 010	67 835
1952	30 740	3 439	17 321	20 143	71 643
1953	31 830	3 642	18 887	21 372	75 731
1954	33 530	3 968	21 500	23 336	82 334
1955	34 700	4 201	23 450	24 750	87 101
1956	35 880	4 455	25 100	26 243	91 678
1957	37 130	4 718	27 280	27 820	96 948
1958	38 430	4 997	29 650	29 500	102 577
1959	39 770	5 291	32 220	31 300	108 581
1961	39 600	4 783	22 300	28 260	94 943
1962	40 050	5 000	22 700	28 000	95 750
1963	41 150	5 200	23 450	29 100	98 900
1964	42 430	5 383	24 240	30 250	102 303
1965	43 480	5 586	25 060	31 440	105 566
1966	44 700	5 794	25 890	32 690	109 074
1967	45 930	6 013	26 770	33 980	112 693
1968	47 210	6 238	27 660	35 330	116 438
1969	48 520	6 474	28 570	36 740	120 304
1970	43 899	8 083	33 623	30 444	116 049
1971	44 760	8 804	35 860	31 070	120 494
1972	45 350	9 312	37 560	48 179	140 401
1973	45 940	9 850	39 580	50 330	145 700
1974	46 550	10 419	41 040	43 773	141 782
1975	47 150	11 022	42 900	42 894	143 966
1976	47 770	11 740	44 840	44 495	148 845
1977	47 410	12 332	46 870	45 785	152 397
1978	48 890	13 041	48 570	47 152	157 653
1979	49 360	13 796	50 960	48 780	162 896
1980	51 000	11 000	50 000	46 600	158 600
1981	55 000	13 500	64 000	25 000	157 500
1982	55 500	14 000	65 000	25 000	159 500
1983	57 800	14 400	67 900	25 700	165 800
1984	59 250	14 840	69 940	26 240	170 270
1985	60 700	15 310	72 040	27 159	175 209
1986	62 160	15 780	74 130	27 806	179 876

Year	European	Coloured	Indian	African	Total
1987	63 620	16 260	76 200	18 660	174 740
1988	65 080	16 730	78 260	19 180	179 250
1990	68 010	17 660	82 300	20 183	188 153
1991	69 470	18 120	84 280	20 667	192 537
1992	70 930	18 570	86 220	21 630	197 350
1995					209 430
1996	61 516	16 233	68 469	288 782	435 000
1997					445 000
1998					465 000
1999					485 000
2000	61 516	16 233	68 469	424 579	573 843

Table of data for Fig. 1.9 Pietermaritzburg population 1948–2000.

Year	Motor vehicle accident fatality rate (per 1 000 population)	Murder rate (per 1 000 population)
1945	7.5	2.5
1946	0.0	22.7
1948	—	—
1950	1.8	1.8
1951	15.0	9.0
1952	10.3	14.7
1953	11.2	7.0
1954	26.4	4.0
1955	4.9	7.3
1956	8.0	10.3
1957	4.4	5.5
1958	11.3	2.1
1959	15.6	12.7
1961	16.6	1.8
1962	12.6	3.1
1963	11.5	2.1
1964	13.1	1.0
1965	2.9	5.9
1966	22.7	0.0

Year	Motor vehicle accident fatality rate (per 1 000 population)	Murder rate (per 1 000 population)
1967	12.8	7.3
1968	14.2	3.5
1969	15.5	5.2
1970	9.1	0.8
1971	25.0	2.6
1972	12.1	3.6
1973	13.7	3.6
1974	15.5	8.2
1975	12.5	10.6
1976	16.1	14.6
1977	15.1	28.9
1978	19.0	49.7
1979	18.4	49.4
1980	14.1	79.2
1981	25.9	46.7
1982	23.5	16.5
1983	15.7	30.1
1984	7.2	30.2
1985	13.5	20.6
1986	19.4	9.7
1987	15.6	20.0
1988	23.5	22.9
1990	26.2	34.6
1991	36.1	97.3
1992	46.7	169.8
no data for period 1993–1999	–	–
2000	22.0	55.0
2001	11.7	44.6
2002	–	45.9

Table of data for graph (Fig. 6.4) comparing death rate (per 1 000 population) from motor vehicle accidents with death rate (per 1 000 population) by murder, Pietermaritzburg 1945–2000 (no data for 1993 to 1999). .

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GLOSSARY

ANTHRAX

An infectious disease due to *Bacillus anthracis* that occurs in grazing animals and is transmitted to man through the skin, inhalation of spores or eating contaminated meat; giving rise to skin, pulmonary or gastro-intestinal disease.

BILHARZIA

A parasitic disease caused by *Schistosoma* flukes, of which the *haematobium* form occurs in the KwaZulu-Natal area. They penetrate the skin from freshwater (while bathing) and infect the bladder causing genito-urinary symptoms and bleeding. Certain freshwater snails are intermediate hosts.

CHANCROID

An acute sexually-transmitted disease due to *Haemophilus ducreyi*, characterised by painful genital ulcers and large painful abscesses in the lymph glands of the groin.

CHICKENPOX

An acute viral disease caused by the varicella-zoster virus, usually beginning with mild general symptoms followed by a characteristic itchy, vesicular rash. Generally mild.

CHOLERA

An acute infection of the bowel due to ingestion of the bacteria *Vibrio cholerae*, with profuse, watery diarrhoea, dehydration and collapse; often fatal if untreated.

CONJUNCTIVITIS

An acute inflammation of the conjunctiva of the eye, caused by viruses, bacteria or allergy, producing redness, irritation and discharge.

DIPHTHERIA

An acute infectious disease due to *Corynebacterium diphtheriae*, which lodge in the tonsils and naso-pharynx, causing a characteristic grey membrane to form that may obstruct breathing and can go on to cause heart failure.

DYSENTERY

An acute infection of the bowel characterised by profuse watery, blood-stained diarrhoea with systemic symptoms, caused mainly by *Shigella* bacteria or *Entamoeba histolytica*, amongst other organisms.

EMPHYSEMA

A chronic disorder of the lungs, common in smokers, causing increasing shortness of breath and severe respiratory symptoms over a period of months or years that may ultimately be fatal.

ENCEPHALITIS

An acute inflammatory disease of the brain due to viral infection that may cause fever, headache, decreased level of consciousness and seizures.

ERYSIPELAS

A superficial skin infection caused by streptococcal bacteria often affecting the face, leg or arm, with fever and general illness.

GASTROENTERITIS

A general term for disturbances of the gastro-intestinal tract with diarrhoea and abdominal pain, often caused by infection by various bacteria or viruses.

GONORRHOEA

A sexually-transmitted disease caused by *Neisseria gonorrhoeae*, infecting the genito-urinary tract, causing irritation, pain on urination and a vaginal/urethral discharge.

GRANULOMA INGUINALE

A chronic sexually-transmitted bacterial infection causing gradually enlarging red swellings in the groin and genital area that can eventually spread to other organs and generalised illness if untreated.

INFECTIOUS HEPATITIS

An infection of the liver caused by a variety of viruses or bacteria. Hepatitis A virus spreads by faecal-oral contact, carried by contaminated food and water, and may occur in epidemic form. Hepatitis B is typically spread by sexual activity or contaminated blood, and takes a more chronic form.

IMPETIGO

A superficial bacterial skin infection characterised by pustules and itching, crusting lesions, often affecting the face, arms and legs and common in children who may spread the disease through scratching.

KWASHIORKOR

A form of malnutrition due to protein deficiency, with affected children showing signs of oedema (swelling), flaky skin rash, thinning of the hair and retarded growth.

LEPROSY

A chronic infectious disease caused by *Mycobacterium leprae*, which affects skin and nerves. If untreated it may, over a number of years, give rise to damage and deformity particularly to the limbs and nose. Although not very infectious, the deformities caused sufferers to be socially stigmatised.

LYMPHOGRANULOMA VENEREUM

A sexually-transmitted disease due to *Chlamydia trachomatis*, with an initial ulcerating lesion followed by enlargement of the lymph nodes in the groin that may have a purulent discharge. Generalised illness may occur, with the swellings becoming grossly enlarged and ulcerating.

MALARIA

An infection by malarial parasites, spread by the bite of *Anopheles* mosquitoes, characterised by chills, fever, sweating, anaemia, headaches and muscle pains. Typically has a relapsing cause; and may be fatal.

MALTA FEVER (BRUCELLOSIS)

An infectious disease caused by *Brucella* bacteria, with acute fever, followed by relapses of fever and vague aches and pains. The organisms are usually transmitted from infected animals such as cattle, sheep and goats.

MARASMUS

A form of malnutrition due to inadequate energy intake, giving rise to wasting, weight loss, hunger, growth retardation and loss of fat and muscle.

MEASLES

A highly contagious acute viral disease often affecting children, with cough, fever, conjunctivitis and a typical rash. It may give rise to serious complications, for example pneumonia in poorly-nourished children with low resistance; and occurs in epidemics..

MENINGITIS

Inflammation of the meninges of the brain or spinal cord that may be due to a variety of organisms. Symptoms include fever, stiff neck, headache and vomiting with change in consciousness, coma, seizures and death.

MUMPS

An acute contagious viral disease usually causing painful enlargement of the salivary glands, particularly the parotids, common in children between five and fifteen years.

PLAGUE

An acute, severe infection in either bubonic (enlarged lymph nodes) or pulmonary form, due to infection with *Yersinia pestis* bacteria transmitted either by bite of an infected rat flea or inhalation; and with a high death rate.

PNEUMONIA

An infection of the lungs due to a variety of organisms, usually acquired by inhalation; often serious and life-threatening.

POLIOMYELITIS (POLIO)

An acute contagious viral infection spreading rapidly where sanitation and hygiene is poor, giving rise to fever, headache, and sore throat, which may be followed by the severe paralytic form. Usually involves children and young adults.

RABIES

An acute, viral infection of the central nervous system spread through the saliva of rabid animals, characterised by spasms, inability to drink, paralysis and death.

RUBELLA (GERMAN MEASLES)

A contagious viral diseases, usually mild, with general illness and rash, of importance mainly due to causing congenital defects in infants born to mothers infected during early pregnancy.

SCABIES

A parasitic infection of the skin by the *Sarcoptes scabiei* mite, which causes burrows, itching and often secondary bacterial infection. It commonly infests hands, wrists, elbows and genitals, transmitted by skin-to-skin contact amongst children or in overcrowded conditions.

SCARLET FEVER

An infection caused by Group A streptococcal bacteria, causing characteristic rash, sore throat and fever.

SMALLPOX

An acute, highly-infectious viral disease causing a characteristic blistering rash, frequently causing devastating epidemics in the past, but now declared eradicated.

SYPHILIS

An infection passed through sexual transmission, or mother-to-child, caused by *Treponema pallidum*, causing genital sores, skin rashes and some years later, if untreated, cardio-vascular and neurological symptoms.

TETANUS

An acute infection by the toxin of *Clostridium tetani*, through either contaminated wounds or the umbilicus of babies, characterised by severe muscular spasms with a high death rate.

TUBERCULOSIS (TB)

A chronic, recurrent infection usually of the lungs, but may involve any other organ of the body, due to *Mycobacterium tuberculosis*. Infection is either by inhalation or ingestion.

TYPHOID

Infection caused by ingestion of *Salmonella typhi* bacteria, leading to severe gastro-intestinal and systemic illness.

TYPHUS

Acute, febrile infections due to various *Rickettsia* organisms, spread mainly by lice (epidemic form, *Rickettsia prowazekii*) or rodent fleas (murine typhus, *Rickettsia typhi*).

VENEREAL DISEASE (VD)

General term for infectious diseases spread through sexual contact (for example, syphilis, gonorrhoea) now termed sexually-transmitted diseases or sexually-transmitted infections.

VIRAL HAEMORRHAGIC FEVER

A term for a group of viral infections causing severe fevers with generalised bleeding, frequently serious, often spread initially from animal hosts via insect or arthropod vectors. Secondary spread sometimes occurs from person-to-person in devastating outbreaks (eg Dengue haemorrhagic and Crimean-Congo haemorrhagic fever).

WHOOPING COUGH (PERTUSSIS)

An acute, highly infectious disease caused by the *Bordetella pertussis* bacteria, characterised by a severe spasmodic cough that ends in a prolonged inspiration or whoop. May be serious in children and spread in epidemics.

YELLOW FEVER

An acute viral infection transmitted by the bite of an *Aedes aegypti* mosquito characterised in severe cases by bleeding, jaundice, vomiting, convulsions and severe fever; sometimes fatal.

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