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'Of Oxford Bags and Twirling Canes': Native Anti-Malaria Assistants, The State and Popular Responses to Malaria Epidemics in Early Twentieth Century Zululand

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When I was young many of these diseases were unknown because the white man had not penetrated into the land. The more he digs himself into the land and the life of the people, the more trouble and diseases we have. [First Old Man]

Disease is deliberately caused by the white man to decimate the race, to undermine our well-being, to impoverish and compel us to serve as his labourers. Disease never comes of itself. It is caused. [Third Old Man]

H.I.E. Dhlomo, Malaria.(1)

In June 1932, during the height of a severe malaria epidemic, Zulu families in the sugar-cane farming district of Eshowe chased Native Malaria Assistant Nicholas Bhengu away from their homes as he attempted to distribute quinine and advise them about anti-malaria precautions. In his report to Dr. George Park Ross, a former district surgeon in Zululand and now Assistant Medical Officer for the Union in charge of the anti-malaria campaign in Natal and Zululand, Bhengu warned that hundreds were dying from malaria infections and thousands more were suffering from fevers and yet people refused to listen to official entreaties to protect themselves.(2)

Near the sugar-cane estates in coastal Mtunzini, Malaria Assistants Richard Tshabalala and George Dube claimed they could no longer carry out their work because of people's hostility to the Government. They reported that Africans perceived the Department of Public Health's (DPH) efforts to reduce mosquito larvae breeding areas by pouring slicks of paraffin into streams and water supplies as a white means of 'poisoning' the Zulu in order to take their land and cattle.(3) Rumours that malaria was caused by white settlers and that quinine caused sterility and abortions spread rapidly through Zululand.(4) It is hardly surprising that Africans were suspicious of the state's apparent indifference to their plight. Dr. J.A. Mitchell, the Director of the DPH, for example, responded to public criticism of the Department's slow and ineffective response to the 1929-1933 epidemic by arguing that 'You cannot expect us to put quinine into the Natives' mouths.'(5)

The story of malaria epidemics in twentieth century Zululand highlights the tensions not only between African society faced with the rapid penetration of commercializing white agriculture, capital and the state, but also between mission-educated 'progressive' Africans employed by the state and the Zulu who were struggling to lessen the impact of intensified South African state intervention in the rural areas during the 1930s and 1940s. It is perhaps not surprising, given the increased susceptibility to disease that Africans experienced partly because of their impoverishment, that the worst epidemic followed a period of extreme drought during the world-wide depression. It is significant, however, that the area of malaria endemicity in Zululand expanded and epidemics recurred with increasing frequency in the first half of the twentieth century with the rise white commercial sugar-

cane farming. Paradoxically, as health officials improved their bio-medical understanding of the epidemiology and treatment of the disease, increasing numbers of Africans suffered from it.(6)

MALARIA IN ZULULAND

Although malaria existed in the near sub-tropical coastal areas of Zululand at low levels of endemicity in pre-colonial times, the impact of white settlement and particularly the rise of sugar farming in the twentieth century created the conditions for epidemics of increasing severity. Prior to the expropriation of African lands in southern districts from 1905-1910, Africans had scrupulously avoided areas known to harbour mosquitoes.(7) With the advent of wide-scale commercial farming, however, thousands of African families were forced into low-lying bushveld areas on the coast putting them at risk of infection.(8) Moreover, the sugar farmers' reliance on imported non-malaria-immune labour and the appalling conditions which prevailed on the sugar estates spread the disease throughout Natal and Zululand.(9)

Malaria in Zululand far surpassed other health problems such as tuberculosis and influenza as a major public health concern facing the Department of Public Health (as it then was, a sub-department of the Department of the Interior) Despite severe epidemics in 1905, 1919 and again in 1915-16, however, both an understanding of malaria and responses to it were limited in Zululand. It was not until into the 1920s and the rise of the white sugar planters as a political force that any serious attention was given to African labourers who died from malaria. From that time, epidemics of varying intensity occurred in, 1923-24, 1929-32, 1935-36 and 1944-46, and yet the state did not make malaria a 'notifiable disease' requiring medical officers to keep records of its incidence and report mortality rates until 1938.(10)

Randall Packard has clearly shown the links between malaria epidemics and changes in the political economy of Swaziland.(11) Swaziland shared a number of important features with Zululand including changing settlement patterns, drought and famine, African impoverishment and increased rates of migrant labour. As Packard argues for the Swazi, so too in Zululand, malaria epidemics and attempts to control them were a product of the 'subordination of [Zulu] economic interests to those of South African and local [white] settler capital.'(12) In Zululand, however, both the form and content of epidemics differed. While, as Packard has shown, malnutrition conditioned susceptibility to malaria, the sugar industry's ruthless exploitation of non-immune labour in Zululand was chiefly responsible for both the epidemic occurrence of malaria and its rapid spread.

Malaria, an infection caused by various single-celled protozoans of the genus *Plasmodium* is transmitted to man by the *Anopheles* mosquito.(13) Ideal conditions for the reproduction of the most common vectors in Zululand, *Anopheles funestus* and *Anopheles gambiae*, the former favouring stagnant pools (as small as a cow's hoof indentation) the latter in slower sections of streams, ensured that most of the warm and wet areas of lower-lying Zululand were potentially endemic with malaria.(14) The life cycle of the human malaria parasite includes two phases of growth and development; one phase in humans alternates with one in female mosquitoes. The mosquito is known as the primary host; man is the secondary host.

People who survived attacks of malaria developed a relative immunity, that is subsequent infections produced milder symptoms with the same number of parasites in the blood. However, the fact that relapses occurred showed that the immunity was incomplete. When the immunity wore off, the parasites remaining in the body could multiply and cause a new attack months or even years later. Malaria struck quickly with an incubation period of between eight and thirty days depending on the strain. Symptoms included severe attacks of fever lasting up to three days and repeating themselves at regular intervals. Other complications included aches, fatigue, anaemia, vomiting, delirium and often led to renal failure, coma and death. Each of the three major species of *Plasmodium* that cause malaria in Zululand (*P. falciparum*, *P. Vivax* and *P. ovale*) has several different strains. The strains, while more or less limited to a particular area, are immunologically distinct. Acquired 'immunity' was thus effective only against the particular strain that caused the original infection.

People who survived infant and childhood infections remained resistant to, but not necessarily immunized against the local strain. However, although they exhibited no symptoms they could act as carriers, and spread the disease through local mosquito vectors to any non-immune person who moved into the area. A person immune

to one malarial strain could still suffer illness if a new strain was imported into the area, or if they moved to an area where a different strain was prevalent. Thus, epidemics of malaria occurred when new strains of *Plasmodium* were introduced to regions with a suitable vector, and when new breeding grounds for the mosquitoes were made available. These factors were particularly important for the spread of the disease and its exceptionally heavy toll on migrant workers on the sugar plantations.(15)

Although malaria in Zululand was by no means unique to sub-tropical South Africa, for it extended at low levels of endemicity along coastal Natal and into parts of the northern and eastern Transvaal bushveld, the rapid increase of infections north of the Thukela river played a major role in both the spread of the disease and responses to it. Moreover, malaria in Zululand did much to shape both African and white perceptions of the region and segregationist discourse. In early 1915, for example, Dr. G.A. Park Ross, then stationed in Nquthu as a district surgeon, warned of an impending epidemic. Referring to a serious outbreak of malaria in 1905, he stated:

It has been shewn [*sic*] that Zululand is the focus from which these epidemics originate and further that the systematic eradication of fever in Zululand is the only means whereby this province may be free from the menace of these epidemics. The responsibility of the Native is therefore greater than it would at first sight appear.(16)

The view of Zululand as a dangerous epicentre, which was in many ways justified, albeit for very different reasons than cited, persisted through the first half of the twentieth century. Despite medical professional's repeated criticisms of the sugar industry's role in the generation of malaria, little of this information filtered through to the public. By 1929, on the eve of the most severe epidemic recorded, the white farmer-supporting *Natal Mercury* newspaper criticised the government for failing to control the problem and expressed white fears that the disease would soon reach the city of Durban, 150 kilometers south of Zululand: '...we must face the plain fact that a malarial reservoir has been allowed to accumulate in Zululand which may burst its present confines and spread havoc beyond'.(17) Moreover, the sugar lobby was instrumental in shifting public attention away from its own responsibility for spreading epidemics and onto the DPH.(18)

LABOUR AND MALARIA

The failure of white sugar-cane planters to improve working conditions in the 1920s led to a major crisis in their labour supplies in the 1930s. Undoubtedly the greatest problem relating to labour during this period was malaria. Zululand planters accepted state and medical recommendations for the importation of 'malaria tolerant' labour since they defined health problems in terms of inherent African immunity or lack thereof, thus deflecting attention away from prevailing poor working conditions. Packard has similarly argued that the Chamber of Mines definition of 'tropical' workers provided the south African gold mines with renewed sources of labour without incurring the costs of reform.(19) Although tolerance to particular strains of malaria does not necessarily imply complete immunity, crude statistics and expert medical opinions of the day suggested a definite difference between the resistance of Mpondo workers from the Transkei and that of local Zulu and Mozambiquan labour. (20) Suffering from malnutrition and overwork, migrant Mpondo workers on the cane estates without previous exposure to malaria succumbed to the disease in their thousands.

While non-tolerant labour succumbed more quickly to malaria than did the Zulu, both groups suffered high rates of mortality when working for long periods in the sugar industry. Thus, the invention of the 'tolerant' worker was only partly based on reality. Nevertheless, increasing pressure from Natal and Transkei Native Affairs Department (NAD) officials combined with mounting evidence from the DPH to curtail the recruitment of non-malaria-tolerant labour by farmers.(21)

In the early 1920s, planters, frustrated by the rapid attrition of Mpondo workers from malaria, agreed to cease active recruiting in the non-malarial south.(22) Many Cape and Transkei workers, however, still made their own way to cane farms, with dire consequences. Moreover, threats to the supply of 'tolerant' Mozambiquan migrants under the revised 1928 Mozambique Convention between the Portuguese and Union governments for the regulation of migrant labour, spurred the recruitment of Mpondo for a brief time.(23) However, the devastation

of the malaria epidemic of 1929-32 among Mpondo workers finally provided the DPH with enough ammunition to ban their employment north of the Thukela in 1935. The restriction on non-tolerant labour was reaffirmed in 1944, despite claims from farmers that malaria was no longer a threat.(24)

As a quid pro quo for the loss of Mpondo labour the planters demanded government assistance to regularise the flow of Mozambiquan labour into Zululand. With the recommendations of the Welsh-Barrett Committee, appointed to consider the shortage of labour in Zululand, malaria tolerance became the defining feature of labour sought for the Zululand cane belt.(25) Initially, the DPH attempted to restrict the flow Mozambiquan migrants south of the Mfolozi River fearing that they carried potent strains of malaria.(26) Moreover, Health officials had grave concerns that uncontrolled migration from Mozambique might include 'tropicals' from Nyasaland and areas north of 22 degrees who were carriers of sleeping sickness (trypanosomiasis) which could infect the Zululand tsetse fly.(27) In 1920, however, after assurances from Dr. Park Ross that there was no danger of the infection being transferred, and that the benefits of malaria tolerance for workers in Zululand out-weighed any hazards of spreading trypanosomiasis, the restrictions were relaxed.(28) This coincided with the reduction of non-tolerant Mpondo labour. Twenty years later, George Heaton Nicholls, a leading MP for Zululand, relied on this policy to support an unsuccessful scheme to import malaria-tolerant labour from South West Africa.(29)

Although the recruitment of the infirm and disabled was not formal policy for the farming sector; it was de facto practice, this did not prevent many farmers from railing against the poor state of labour available to them.(30) As part of a larger strategy to secure government support, or at least avoid the regulation of sugar farming, planters, competing with other employers, cried foul at every turn. They repeatedly claimed that they bore the brunt of the cost of sick labour burned out by the mines. There was, in fact, a higher incidence of malaria among workers rejected by the mines.(31) Despite regular complaints about the poor quality of the 'weary workers', however, planters steadfastly refused to improve conditions and even balked at instituting their own medical screening, ostensibly for fear of scaring off recruits, but more probably because they did not want to pay the cost.(32)

Duplicity operated on both sides of the recruitment process. While there is no doubt that many migrant workers, especially from the Transkei, suffered from illnesses contracted in the mines, planters' complaints were, in part, used to deflect criticism of their own shortcomings. In fact it was more often the case that conditions on the farms caused or exacerbated health problems. Farmers had no compunction about driving sick workers to the point of exhaustion or even death, and they encouraged employees requiring medical attention to leave the farms.(33) They sought out private recruiters who would present the sugar industry in the best possible light. Unscrupulous recruiters often misrepresented the conditions on farms, and trapped workers with cash advances and ready transport.(34) As Hobsbawm has argued, labour contractors flourish where there is a large demand for labour from a population group ignorant of conditions of employment.(35) And this was undoubtedly true on the sugar plantations of Zululand.

African perceptions of labour conditions in the cane belt were affected by the worst cases. While some farms, generally unnoticed exceptions, did provide adequate food and competitive wages, on the majority of farms conditions were appalling. Sugar farmers were notorious for exacting long shifts, often twelve or fourteen hours in the fields, and providing inadequate housing and food rations, consisting principally of maize meal with only the occasional meat, fruit or vegetable supplement, and this made workers more susceptible to disease.(36)

As the area under cane expanded and labour requirements increased, the cost of housing became an issue even for better-off farmers. Shifting demands for migrant labour were reflected in the provision of accommodation. In 1925, as official concern about malaria in the cane belt rose, Park Ross outlined a plan for the conversion of Indian indentured family housing into mosquito resistant quarters for African labourers.(37) A significant feature of the conversion was the provision of space for twelve African workers in homes built for a family of four.(38)

Yet the farmers united to resist the changes recommended by both the DPH and the NAD. According to William Beinart, Natal's NAD was largely indifferent to the plight of Mpondo workers in the cane fields;(39) nevertheless, some Natal officials, most notably Park Ross and Frederick Rodseth, Inspector of Native Labour in southern Zululand in the 1920s and later instrumental in anti-malaria campaigns, assiduously tried to convince planters of the benefits of improved working conditions.(40) The Zululand Planters' Union (ZPU), however,

cognizant of the uneconomic position of many farmers, appeared to accept the lowest common denominator as the rule for conditions of employment. Thus, it robustly declared

We cannot hope as individual planters to hold or control our labourers unless we have uniformity of treatment, not only as regards wages, food, degree of punishment, but as regards task work and advances. The schedule of wages and the scale of food, will present no difficulty provided we are loyal to each other.(41)

By the early 1920s it was abundantly clear to the DPH that the sugar industry was responsible, in one way or another, for the spread of malaria in Zululand. Park Ross, who conducted the first comprehensive survey of malaria in the Union in 1921, reported, in 1923, that increased levels of non-tolerant migrant labour housed in 'barrack' accommodation and the replacement of savannah and grassland with well-irrigated cane lands had substantially increased the incidence of malaria in southern Zululand.(42) The rapid expansion of cane lands between 1918 and 1929, from approximately 26,000 acres under cultivation to 120,000 acres, further increased the area for potential problems.(43)

During this period infrastructural development aimed at serving white cane farming also played an important role in the spread of malaria. The South African Railways (SAR) Mtubatuba-Pongola rail extension, completed in 1928 and the Nkwaleni-Eshowe side line were under intensive construction for much of the decade. The majority of the over 1100 workers employed on the rail lines were from Pondoland and Lesotho and had no tolerance whatsoever to malaria.(44) Moreover, these men were provided with atrocious standards of housing and food. During the malarial season, from October to May, the rail gangs suffered a 20 per cent death rate and nearly 50 per cent were infected.(45) Park Ross was highly critical of the diet supplied to the workers, which led many to develop scurvy and reduced their resistance to malaria. He believed that 'It was this state of matters, rather than the virulence of the malaria infection which determined the heavy mortality.'(46)

Of particular concern to Park Ross was the role of private contractors working for the SAR. While the government rail agency made some provisions for malaria prevention and care for those struck with fever, the independent contractors were effectively beyond Health Department control.(47) It was discovered, on inspection, that these companies had proved to themselves how huge disparities in housing and diet supplied to whites and Africans related to mortality and yet did nothing to improve standards.(48) More significant for the spread of malaria, however, was the fact that the non-tolerant rail gangs, always on the move up and down the coast, carried malaria parasites into previously un-infected areas where *Anopheles* mosquitoes could then transmit the disease.(49) In 1928, the combined effects of negligence in the rail construction and sugar industry prompted the first official indication of steadily increasing case rates for malaria, and the impending epidemic of the following years. The Union's malaria map, at Park Ross' insistence, was redrawn from its original 1921 limits to include new areas of Zululand designated as part of the 'yellow zone.'(50) This zone comprised areas, previously limited to coastal Zululand, where malaria infections were considered to be continuous all the year round and white government officials received the maximum 'malaria allowance'.(51) By 1933, it was clear to the DPH that, despite the reduction of breeding sites due to the drought of the early 1930s, the area of malaria endemicity was not going to recede to its pre-1929 area, and thus, the area from which future epidemics could spread had greatly increased.(52)

Increasing reliance on the cash economy also had an impact on working conditions. The Nkwaleni region Sugar farmers had, by the early 1930s adopted a practice of giving workers pay in lieu of food for each 30 day shift they worked. In many cases, Africans stricken with malaria therefore, received no food, and could not claim the extra pay since they were unable to work 30 consecutive days. Moreover, many sugar planters summarily discharged ill workers in order to avoid the cost of care while for the sick men. While the NAD sought to force white employers to provide food and adequate care for the sick, the practices of pay in lieu of food and terminating employment for the sick persisted, thus, passing on the cost of supporting sick workers onto the state.

See GNLB (Department of Labour, Government Native Labour Bureau), 389 33/84, Inspector of Native Labour to NC, Eshowe, 23 March 1932.

THE SCOPE AND IMPACT

As malaria spread in Zululand during the 1920s, setting the stage for the worst epidemic yet between 1929 and 1932, a clear pattern developed in morbidity and mortality. Migrant workers on the cane plantations suffered the highest rates of infection and death. In descending order, but with increasing rates, others affected included: impoverished local day labourers from the Zulu 'reserves' adjacent to the cane belt, people forced into low lying marsh lands or along rivers and finally 'poor whites' working in the reserves. The majority of whites with good health and ready access to quinine, suffered very little.

The 1929 malaria season caused havoc in the cane belt. Work at most major mills and plantations was seriously disrupted as the majority of African labour suffered from fevers and general malarial debilitation. At Hulett's Amatikulu mill hospital, which provided rudimentary health care for the local cane workers, in-patients with malaria rose from one in January of 1929 to forty in May.(53) In June, as the cutting and milling season approached, cane farmers, many experiencing up to 90 per cent worker absentee rates, were unable to maintain production.(54) Some farmers attempted to cut and transport cane to the mills themselves in a vain effort to meet production quotas. Similarly, work at the Candover cotton estate, in the Ubombo lowveld, came to a virtual standstill as 75 per cent of the African work force was down with malaria.(55)

Despite mounting deaths, reaching over 3,000 in the Natal and Zululand cane belt by late 1929, white farmers refused to improve labour conditions.(56) As the epidemic eased during the cooler, drier months of July and August of 1929, white farmers continued to demand heavy work from cane labourers still nursing the after-effects of infection. Through the winter, reports of relapses and deaths among workers from post-malarial cachexia (a profound physical weakness caused by prolonged fever) were made with alarming frequency.(57) Near-drought conditions during this period were responsible for general malnutrition and a serious wave of scurvy affecting much of the population. Still, white farmers were determined to salvage some productivity from the season at the expense of the labour force. Referring to workers suffering relapses in the cane belt the District Surgeon at Mtunzini warned that:

... unless planters and others realise that such cases require to be immediately released from their contracts the death toll will be worse than has been suffered by them from malaria. Yet now [the farmers] are trying to make cachectic boys work and the results of this are seen in that fact that four died yesterday in the hospital and our numbers have risen higher than during the height of the epidemic.(58)

Most farmers, however, expecting the government to take full responsibility for the effects of the epidemic and its aftermath, remained recalcitrant. Moreover, they exacerbated the problem by increasing the recruitment of non-tolerant foreign labour. Most local Zulu workers, acutely aware of the appalling conditions in the sugar industry, actively avoided the cane belt during the epidemic.(59) Consequently, more men from the Transkei and Lesotho, often unsuspecting of the conditions, were recruited by plantations to work alongside migrants from Mozambique who had higher resistance but may have been carriers.(60) Despite the potential dangers, farmers were encouraged in this process by none other than Dr. Park Ross. During the brief winter respite in the epidemic of 1929, Park Ross, probably under pressure from the state, contradicted his earlier recommendations and advised one local farmer in Eshowe that 'as fresh infections [were] unlikely...it would be quite safe for foreign labour to come up'. He further claimed, mistakenly and much to the cost of migrant workers thereafter, that southern Zululand was not a very malarious area compared with the north and that future outbreaks would depend more on rainfall than on the number of 'carriers' in the district.(61)

Although the epidemic lessened through most of 1930, with only 500 deaths recorded for that year in Zululand, partly owing to the government distribution of free quinine, by the end of the year the effects of drought and depression led to a heavy toll among replacement migrant workers. Moreover, the incidence of malaria was far more widespread than ever before, stretching with the movement of labour into the Transkei and southern Natal as well as high up into Ladysmith and Weneen.(62) While there was no evidence directly linking Park Ross to the sugar lobby's efforts to downplay the epidemic, he accepted both increased foreign recruitment and a cover up of death rates. In 1929, the magistrate at Mtunzini openly complained that newspaper reports claiming

mortality from malaria in Zululand was greatly exaggerated were patently false. Noting that nearly every household in his district was badly hit with infections he admonished that:

There is nothing to be gained from concealing the truth; on the contrary it may lead to more victims who could avoid the disease by remaining from the district until health conditions are more normal.
(63)

When the worst of the 1929-33 epidemic had passed, however, Park Ross ignored such sentiments. Upon reviewing reports from magistrates for malaria mortality, he wrote to Sir Edward Thornton, the Secretary for Public Health, complaining that the statistics had been enormously inflated and recommended that the 'inflammatory evidence' not be made public or their 'jobs will become impossible.'(64) The figures finally made public were dramatic reductions of those submitted by various magistrates and mission hospitals. While the DPH, at Park Ross' behest claimed mortality to be no greater than 10,000 for the whole of Natal and Zululand the true figures showed at least 21,000 (7,676 of which were in Zululand alone) dead.(65) This is not to suggest that Park Ross was entirely callous about the epidemic among Africans. Indeed, he normally displayed great concern for both reserve dwellers and foreign labour. It was for this reason, though, that the convergence of interests between the sugar lobby and the some members of the DPH was all the more significant.

Efforts to downplay the severity of the epidemic, however, were not successful. The huge scope of disruptions to the sugar industry forced the sugar lobby and its powerful parliamentarian, Heaton Nicholls, to pressure the government to take responsibility for labour health care in the cane fields.(66) Forcing the issue into the public arena did lead to improved anti-malarial work from 1931 (see below). Still, the epidemic continued to take its toll. While The distribution of quinine and vector control in Zululand undoubtedly lessened the severity of the epidemic the continued depression ensured that many thousands more were stricken. Between 1932 and 1934 over 70,000 people were reported as sick by Park Ross' Malarial Assistants. Moreover, the more than 2,200 deaths recorded in the same period were, again most probably, only a fraction of the total.(67)

As the drought eased in late 1933 and people started to recover from the worst effects of the world-wide economic depression, mortality from malaria slowly dropped. While much of this improvement was a product of intensive vector control, it led to the development of false hope in the DPH. Park Ross optimistically claimed in June of 1934, 'It is in my opinion that we are within sight of getting malaria out of the Native Reserves [except in the far north].'(68) He did, however, admit that the real problem remained white farms where inadequate vector control and appalling living conditions for workers perpetuated the risks of infection and death. Moreover, the continued importation of non-tolerant labour meant that increasing numbers were at risk. There is evidence to suggest that just prior to the promulgation of regulations governing the flow of non-tolerant labour into Zululand (part of wider labour control legislation dealing with Mozambique) in 1935, there was a rush on recruiting from Pondoland and Lesotho.(69) Consequently, following a drought in 1935-36, another severe malaria epidemic struck the southern districts and hit labour on the cane fields particularly hard. Deaths in the sugar industry were recorded at a shocking rate of 18.47 per thousand workers, considerably higher than mortality among workers from Zululand on the Rand mines.(70) By the 1936-37 season, however, owing to intensified spraying campaigns and an overall improvement in reserve agriculture, the rate again dropped to 8.36 per thousand workers.(71)

Through the late 1930s and into the 1940s, malaria in Zululand appeared to be under control. Park Ross's efforts and the tireless work of his malaria assistants improved the rates of morbidity and mortality. Fewer than fifty deaths a year were recorded for the period from 1937-1944.(72) In 1944 to 1946, however, a milder epidemic surfaced in northern Zululand where, previously, higher levels of tolerance had moderated the effects of epidemics. Despite repeated calls from Park Ross no accurate statistics were collected for African mortality at this time.(73) It appears, however, that the recrudescence was caused by the settlement of non-immune white farmers in the Hluhluwe-Mtubatuba area.(74) The movement of local Zulu labour from the higher reaches of northern districts down to the new cane fields in the north during the drought of 1944, moreover, led to a widespread epidemic in Nongoma, Mahlabatini, Ubombo and Ingwavuma. The Benedictine mission hospital at Nongoma reported treating at least sixty cases of malaria a day during this period.(75) It was not until after 1946, and the aerial spraying program against nagana and malaria that another and more prolonged period of relief was achieved.(76)

CONTROL AND TREATMENT

Settler Public opinion stressed the need to use western-educated Africans in the campaigns:

'... the Native who has adopted European civilization should be encouraged by every possible means to use his knowledge and find scope for his acquisitions amongst his own people rather than in European centers' *Natal Mercury*, 12 June 1929.

But the article further notes that these men should be within a 'subordinate medical service.' Thus, this was seen as a way to provide scope for the African petty-bourgeoisie in the rural areas and prevent them from seeking footholds in the white urban areas.

Owing partly to the dramatic effects and rapid spread of infection in the labour force and partly to the readily available means to combat the disease the anti-malarial campaign compared favourably with other public health measures. This is not to suggest that the efforts of the DPH, and certainly not those of the sugar farmers, were commensurate with their means or ability. Despite the recognition of the devastating potential of epidemics as early as 1910, responses were exceedingly slow in coming. Moreover, from 1913, imported indentured Indian labour was phased out of the sugar industry in Natal and Zululand because of South African immigration control, Indian Government objections to the harsh treatment of their people and, more importantly, a major strike by Indian workers which crippled the sugar-cane estates.(77) Consequently, the Indian Immigration Bureau ceased funding three hospitals in the sugar-cane belt. By 1927, only the ten bed Amatikulu mill hospital and the Empangeni Native and Indian Hospital, with twenty beds for malaria cases, remained open with financial support from the largest sugar company, Hullett and Sons.(78)

Prior to the 1929-32 epidemic local health officials and mission doctors relied on erratic quinine supplies to fight off the worst effects of infection. During the 1915 epidemic most magistrates in the affected districts complained that quinine was not readily forthcoming despite repeated requests in advance of the malarial season and assurances of ample supplies.(79) Instead of improving delivery of the inexpensive quinine pills, however, the District Native Commissioner for Zululand, J.Y. Gibson directed his staff to conserve pills by issuing only ten at a time to entire families.(80) Moreover, most people were highly suspicious of the newly introduced government medicine and preferred the ineffective range of 'jalap' purgatives (herbal concoctions used to treat fevers) provided by Zulu inyanga (herbalists).(81) Insufficient education of the public by medical professionals often led to improper use of medicines. A number of deaths from people using permanganate to combat fevers were reported and, although, many people accepted quinine pills they refused to ingest them, and instead, draped them over huts to ward off mosquitoes.(82)

It was not until the worst effects of the epidemic in 1929 that the DPH, under increasing pressure from both the sugar lobby and the public, made a concerted effort to control malaria. Controversy over responsibility for control measures, however, seriously undermined early action. In 1929, Park Ross instituted a program of increased quinine distribution through all available agencies including magistrates, farmers, mission bodies and his small army of Malaria Assistants. Attempts to bring sugar farmers in line with accepted labour practice under the Native Labour Regulation Act of 1911 proved difficult. While white farmers agreed to distribute quinine, they refused to improve conditions claiming malaria was primarily harboured in the reserves and was thus a problem for the NAD.(83) Similarly, the Inspector of Native Reserves for northern Zululand complained about the 'impossibility' of convincing local cotton farmers to take malaria precautions for workers when the government did nothing in the reserves or for their own employees.(84)

The worsening epidemic forced the state and the farmers to combine resources to combat malaria. Between 1930 and 1931 two distinguished foreign academics were employed to report on malaria in the Union. After his tour of malarial zones, Sir Malcolm Watson, of the Ross Institute in London, reported that, in keeping with current views in the U.K, control should be based at community level and was the responsibility of the farmer. Moreover, he believed that the government should merely act in an advisory capacity.(85) After initial hesitation, the sugar lobby, perhaps in the hopes of a more favourable report, agreed to put up half of the fee for Professor N.H. Swellengrebel of the League of Nations Health Organization Malaria Committee, Dr. S Annecke of the

DPH and Dr. B. De Meillon of the South African Institute for Medical Research to study the issue.(86) Most of Swellengrebel's recommendations were discussed and adopted for implementation during a combined DPH and NAD conference in 1932.(87)

The most important methods of control to come out of the conference, many of which had been used by Park Ross and his colleagues, Drs. Annecke and Cluver already, were incorporated in Natal Provincial Ordinance No. 11 of 1932. While maintaining the supply of quinine and tonic pills for cachectics, new measures were introduced for vector control and carried out by local malaria committees. Although the sugar lobby voiced opposition to the committees which it feared would leave the financially strapped farmers out of pocket, the DPH held firm. Thornton, addressing the Natal Agriculture Union, argued that insufficient local government structures in the rural areas made the committees indispensable. He further stated that while the government was prepared to undertake considerable expense to help eradicate malaria it would not depart from the policy that it was a local disease and its prevention was therefore 'a matter for local individual and communal efforts.'(88) Park Ross later added to this policy by hinting to the Chief Native Commissioner, H.C. Lugg, that sugar farmers could be brought into line by threatening labour supplies if they failed to improve conditions.(89) Nevertheless, from 1933, the failure of local farmers to provide the means for control and the absence of adequate central government funding forced the Natal Provincial Administration to provide an annual vote of £3000 for malaria control.(90)

The NAD, initially reluctant to finance campaigns in the reserves owing to the belief that malaria was confined to migrant labourers, joined the effort only when its jurisdiction was threatened. While the campaign was most vigorous in the white cane-farming districts, Swellengrebel and Park Ross recognized the need to implement better controls in the African areas.(91) Proposals for the extension of malaria committees to the NAD controlled districts, however, met with strong opposition from the Secretary for Native Affairs, Major Herbst. Claiming the whites-only committees would invite African opposition he advised J.M. Young, Natal's Chief Native Commissioner, who was initially amenable to the proposals, that '...the Department could on no account allow a board of Europeans beyond the control of this Department to exercise any official functions in the [African] Reserves.'(92) Thereafter the department co-operated fully with Park Ross.

Targeting the malaria vectors through an intensive program of 'species sanitation' initially entailed larval control in breeding areas. Since the most common vectors had predictable habits (a discovery of Swellengrebel's) a combination of proper drainage in specific risk areas and 'oiling' standing water with kerosene or pyrethrum was effective in terms of both reducing mosquitoes and cost.(93) As the local white malaria committees supervised the drainage of collected water in and around the cane belt, African malaria 'spotters' scoured the reserves for likely breeding grounds. These measures proved inadequate to deal with the numerous breeding sites resulting from heavy rains in late 1931. Park Ross then experimented with a strategy for fumigating in African huts in the reserves. Following the findings of Drs. Annecke and De Meillon which revealed a 'tropism for confined spaces' in *A. funestus*, he ordered a massive hut-spraying campaign with Pyagra to kill adult mosquitoes.(94)

Hut-spraying proved so effective that, by the late 1930s, it superseded the 'oiling' strategy, (though African resistance to the latter undoubtedly played a part) and remained the principle means of control until D.D.T. spraying in the late 1940s.(95) Still, DPH prestige put Africans at further risk in the late 1940s. When land was needed for the settlement of people from congested areas of Natal the NAD considered the less populous areas of Ubombo and Ingwavuma. Ignoring the recommendations of Professor Swellengrebel, who advised against disturbing local immunity, the Secretary for Public Health downplayed the risks in the region and in agreeing to the proposals stated, '... it would imply inability to control malaria if we were to advise against the settlement of humans in any area'.(96)

The ambiguity in wider patterns of African dealings with the state were evident in their involvement in the anti-malaria campaign. People were highly suspicious of official motives for malaria control and with good reason. Local officials did not lose sight of the advantages for social control afforded by the epidemic. In 1932, J.M. Young, ordered NAD officials to encourage the removal of huts situated in low-lying areas to break the chain of infection which often spread from valleys to higher land. His purpose was

...not only to reduce Malaria but also, as far as possible, to bring about order in the Reserves and locations as is desirable from other points of view [ie. the systematic allocation of land for settlement control and the improvement of African agriculture], and malaria [was] being used for propaganda purposes towards this end....(97)

Furthermore, Young recommended that, regardless of local need, people be prevented from the indiscriminate removal of trees because the removal could increase ground seepage breeding pools.(98)

***In anticipation of resistance from some families, Young instructed his officials that the removals could be forced on people under existing Public Health regulations (Proclamation No. 123/31 for the containment of malaria). Nevertheless, in keeping with the emerging ideology of segregation which relied on paying deference to what whites perceived to be established African custom, he further noted that this would be '... in conformity with the old Native custom of periodically moving out of Malaria-ridden valleys, it is thought that a little pressure and advice in this direction will not be unduly resented.' CNC Young to all Ncs, 26 Sept, 1932, CNC 17A, 13/4/2.

People often responded to anti-malaria works with suspicion and antipathy. During the height of the depression, despite constant attempts to explain the benefits to people, only local prison labour was available for drainage works in Mtunzini.(99) Moreover, Africans in Eshowe, Nongoma and Nquthu feared that by planting 'government' trees in a program designed to reduce marsh breeding sites they would lose rights to land.(100) Resistance was only overcome when officials agreed to 'deed' the trees to those who planted them.(101)

Control measures for malaria had to operate against the backdrop of economic deterioration in the reserves. Some control measures dovetailed with the state's wider programmes for 'betterment' in the reserves which focussed on land conservation and stock limitation. Other plans, however, had to contend with core features of the reserve economy. In 1932, the District Surgeon at Nkandhla recommended that irrigation furrows made by Africans along the Thukela river be removed to reduce breeding sites for mosquitoes. The Native Commissioner rejected the advice stating that this would ruin the only local agriculture to survive the drought and lead to great opposition.(102) Similarly, it appeared that the small breeding pools created by millions of cattle-hoof tracks throughout Zululand would give a fresh impetus to the drive for stock limitation schemes. In 1939, however, the new Deputy Chief Health Officer, F.P. Cluver, defending the importance of cattle to the Zulu stated that it would be impossible '...to abolish or impound the cattle as this would [lead] to violence or even rebellion on the part of the natives.'(103)

Africans were confronted by complex range of measures which elicited suspicion. Although quinine pills were widely available free of charge from government officials through the 1930s and 1940s, many people would only accept intravenous liquid quinine from district surgeons in the mistaken belief that it was more effective. Attempts by officials to gauge the effect of the epidemic were frustrated by local chiefs. Rumours abounded that the epidemics were part of a white attempt to steal away more valuable land.(104) It was not surprising then, that Chief Mfungelwa in Eshowe continually understated the number of deaths in his ward, fearing that to reveal more would allow the state to justify the expropriation of more land. Moreover, people believed that the hut-spraying and 'oiling' of streams were designed to poison people in the cane areas in order to take over their land. These tactics were ascribed to 'Dutch people from Vryheid' (the source of hundreds of farm tenant evictions in the 1920s) and then associated with millinerian beliefs of a manifestation of the deceased Zulu King, Dinuzulu, at the upcoming unveiling of the Shaka (founder of the Zulu state) memorial in Stanger. (105)

The role of local malaria assistants was fraught with complications. As the front-line workers in the campaign against malaria they were the focal point through which official policy was refracted and opposition aimed. On the one hand, these men competed against inyangas (herbalists) and sangoma (diviners) for popular support. (106) On the other hand, educated Christians tended to respond favourably to African malaria workers and their provision of westernised health care. Victor Ngcanu of Eshowe believed that '...they have a big pull over other kinds of health helpers. They are our people. We know them; they are relatives, friends or acquaintances of ours...' (107) For the majority of people, however, the malaria assistants represented heretical turncoats.

The NAD and DPH relied on African members of its own administration to out much of the work of distributing medicine and propagandizing the anti-malaria campaign measures. Thus, chiefs and officially recognized induna, Local African constables, cattle dipping tank supervisors and other government-salaried workers were local health facilitators as far as malaria was concerned. What all these people had in common was they were perceived to be the local agents of the interventionist state. For their part, the chiefs and African civil servants saw their participation in the campaign as a means of shoring up their rapidly dissipating authority. In a context where migrant wage labour and radical opposition politics was transforming the consciousness of Zulu youth, the patriarchy believed they could win back popular support if they were seen to be responsible for fending off the epidemic. Moreover, some chiefs felt they had to participate in the campaign, not only because of official demands, but also to pre-empt other sectors of society from garnering the influence which might be ascribed to those with the offer of a cure. One chief in Eshowe, reportedly claimed that 'if I do not have the pills (quinine tablets), then the people will not come to me, but will go to the mission station and they will never come back to the ancestors if the amaKholwa have a cure.'

Where the administration did rely on un-official support, it was through the largely western mission-educated African ministers and evangelists who plied their trade in health and spirituality throughout the southern reserves.

J. and J. Comaroff, *Of Revelation and Revolution*, Vol. 2, *The Dialectics of Modernity on a South African Frontier* (Chicago, 1997), esp. chp. 7, "The Medicine of God's Word," pp. 323-364.

Comaroffs speak of the effective conjunction of healing and the message of evangelism '... since it gave easily justified motives for intervening in local lifeways [and] ...healing the sick offered ready physical means to their spiritual ends.

Nevertheless, white society and state officials agreed that Africans who had 'adopted European civilization and education' should be encouraged to serve their own people in the reserves rather than seeking a niche in the urban areas. In this way whites hoped to divert politically active and 'troublesome' Africans from the cities.(108) Although Park Ross had attempted to enlist the support of inyanga in the anti-malaria campaign, NAD officials believed they were responsible for fuelling popular resentment of state intervention and spreading rumours of white responsibility for the epidemic. The Department therefore felt that by supporting the employment of educated Africans as anti-malaria assistants it could drive the inyanga from the reserves, thereby reducing popular opposition to the state.(109) By 1935, the DPH had increased the mission-educated African anti-malaria staff to sixty assistants and 150 vector-control labourers.(110)

Izinyanga: Reported to be spreading rumors that quinine pills were a white tactic to poison Africans, and that the pills caused sterility. Many of these men, supported by their chiefs further claimed that the epidemic and the government's handling of it were aimed at wiping out the Zulu in the heavily populated southern districts to get their land and cattle to allow for expanded white sugar cane production. *Natal Mercury*, 5 June 1929.

On the whole local white officials remained antagonistic to the Izinyanga. Some local Ncs Suggested that the NAD should refuse to issue any new licences to Africans wishing to practice as herbalists, or that they set the fee for the licence so high that Africans could not afford it, and thereby, they claimed they could extinguish the 'witchdoctors'. GES 565 36/12 B, minutes of NCS meeting with CNC, 10 July 1929

The DPH, however, undermined the effectiveness of the assistants by appointing many of them from the ranks of African NAD stock inspectors and veterinary assistants at the same time that the NAD increased its cattle-dipping (for disease prevention) tax.(111) Thus, the Zulu were suspicious of state motives for malaria control, and those of the generally wealthier salaried assistants, when they coincided with attempts to reduce African-owned cattle herds as part of an unfulfilled country-wide effort to control soil erosion and improve African agriculture.(112) It is not surprising, then, that most Zulu preferred to rely on the inyanga for treatments, even when these included dangerous combinations of quinine and emetics.(113)

*** African quinine distributors were sent on their rounds either with stock inspectors, or were stock inspectors themselves. SO when the state implemented new sock dipping rates or promulgated revised ways of counting

stock, they did so through people who were also supposed to implement stock control and taxation measures which the Zulu resented. GES 565 36/12 B Superintendent of native Reserves, F. Rodseth to Park Ross, 25 June 1929.

Distribution of quinine, in 1929, was means tested. Before an African could receive quinine, other than that which they paid for, they had to prove 'indigent status'. In cases where they could pay for it, they had to prove they could not get it at a 'reasonable price' elsewhere. This had the effect of Africans having to publically profess poverty in order to receive medical help. *Natal Mercury*, 12 June 1929, interview with Park Ross

Induna Simon Ngema recalled that his father refused free quinine from local officials and missionaries in Eshowe because he felt it associated them with poor people. Even though they did not have cash on hand to pay for the medicine, and could have requested it free, he chose not to because then everyone would think he was poor and reliant on the government. ORAL INTERVIEW

DPH made conscious decision not to distribute the quinine through the chiefs and headmen, but rather educated Native assistants. In some cases, then the chiefs hampered the assistants by limiting their access to the reserves. Chief Manzolwandhle of Eshowe, for example refused permission for assistants to work in his ward until the Inyanga agreed there was nothing more they could do. Manzolwandhle had asked assistants to give him the quinine. They refused because they claimed only they knew how to administer it. THUS the chief lost a new source of prestige. SEE *Natal Mercury*, 12 June 1929, interview with Park Ross, and ORAL interview and GES 565, Rodseth to Park Ross, 12 May 1929.

QUININE DEPOTS: Police stations, White-owned farms, Mission stations, white-owned stores, and NAD posts. ALL the places Africans associated with white domination. At each site, SUPPLY always EXCEEDED DEMAND claimed Park Ross in the above *Natal Mercury* article.

Report noted of similar campaigns against malaria in India and East Africa had been successful precisely because they had developed distribution networks which included local headmen and village elders, and thus stressed the need to use local Chiefs in Zululand. See GES 565 26/12 B, copy of letter in *Rand Daily Mail* regarding the epidemic and marginal notes by CNC, 9 July 1929.

By June of 1929, the NAD and DPH embarked on new program to distribute quinine to Africans at their homes/kraals.

African Assistants were frequently driven from the reserves, especially in more conservative northern districts, by local chiefs and inyanga(114). It was, perhaps, the fact that social cleavages were heightened during the depression and epidemic and these enhanced popular opposition to the employed assistants. As the superintendent of reserves and chief liaison for the malaria campaign, Frederick Rodseth, observed of some of the assistants:

It may sound ridiculous but it is nevertheless a fact that the type of Native who wears his cap at an angle, sucks a pipe, sports Oxford bags and twirls a cane is not the type used to handling the raw Native and does not inspire confidence.(115)

The assistants were, however, the crucial link between the state anti-malaria campaign and the people. Nicholas Bhengu, the assistant assigned to the Mtunzini district, was able to overcome some Zulu prejudices against quinine in a dry form by mixing powdered pills with lemon juice.(116) The assistants were Park Ross's eyes and ears with regard to the reception of the campaign. Bhengu reported regularly on the flood of rumours that the 'oiling' strategy was believed to be a tactic to poison water supplies and helped to overcome some local resistance.(117) Nevertheless, the Zulu remained suspicious of state motives, and moreover, made every effort to avoid employment on the sugar estates notorious for harbouring malaria.

In the final analysis, it has been argued that malaria epidemics and responses to them in Zululand need to be seen in terms of the penetration of capitalist agriculture and the role of sugar-cane farmers in defining the problem. The convergence of interests between the state and sugar farmers to limit expenditure on public health measures

and a failure to improve working conditions in the cane belt, however, proved costly in terms of both the attrition of workers and African resistance to state intervention to control the disease. Despite strides in bio-medical understanding of the disease, efforts to define the problem on the basis of worker tolerance and a shift to 'immune' labour, malaria persisted. It was, moreover, significant that the reluctance of either the state or commercial farmers to accept responsibility for controlling malaria was, in part, the cause of both the spread of the disease and an increase in the frequency of epidemics.

African suspicion of official motives reflected their wider concerns about white desires to control land and labour in Zululand. The DPH's reliance on African health workers served to heighten tensions between the majority of Zulu and the state because many of the anti-malaria assistants represented the very forms of 'progress' which rural Africans perceived as threatening. It was unlikely, however, that even greater state intervention could have overcome the underlying problems of impoverishment and African susceptibility to malaria given their subordinated position in South African society. The failure of the anti-malaria campaign in Zululand must therefore be seen in terms of African perceptions of white capitalist agriculture in the sugar industry and the state within the wider context of industrialising South Africa.

Endnotes>

1. For this and other perceptions of malaria epidemics in Natal and Zululand as refracted through the eyes of a mission-educated African see the play 'Malaria' by the celebrated Zulu author H.I.E. Dhlomo in his *Collected Works*, edited by N. Visser and Tim Couzens (Johannesburg, 1985), pp. 267-287, p. 285.
2. See Natal Archives Depot, Pietermaritzburg (NAP), Chief Native Commissioners second series (CNC -A) 15A, 13/2/6 (9), Bhengu to Superintendent of Native Reserves, Eshowe, 20 June 1932. and see *Ibid*, NC Melmoth to CNC 20 May 1932.
3. See CNC 16A 13/2/6 (9), F. Rodseth, to Park Ross, 2 May 1932. For Rodseth's role in the anti-malaria campaign see his *Ndabazabantu: The Life of a Native Affairs Administrator* (Johannesburg, 1984), pp. 65-70.
4. For the endemnicity of malaria in nineteenth century Zululand see A.T. Bryant, *Zulu Medicine and Medicine Men* (Cape Town, reprint, 1966), pp. 24, 189. Information about the rumours is based on oral interviews conducted by the author with Sister Carina Ariebe, Benedictine missionary, St. Alban's, Nongoma. Born 19 Aug. 1900, interviewed 15 Sept. 1993, Mr. P'oyi Enoch Zulu, retired farm labourer, Makwagaza, Eshowe. Born 1915, interviewed 12 July 1993 and Mr. Tamuza S'gwili Qwabe, sugar-cane farm labourer, Kwa Bulawayo, Eshowe. Born c. 1922, interviewed 14 Sept. 1993. See also the *Natal Mercury*, 5 July 1929 and South African Central Archives Depot, Pretoria (CAD), Department of Public Health series (GES) 565, 26/12B, Rodseth, to Park Ross, 25 June 1929.
5. See the *Natal Mercury*, 9 July 1929.
6. For comments on this see for example S. Javett 'Malaria- notes on some conditions in Zululand', *South African Medical Journal* (SAMJ), Vol. 8, Jan. 1934, pp. 55-57.
7. See for example the statements of Mayinga Ka Mbekhezana and others on the main considerations in the selection of home sites in C.de B. Webb and J.B. Wright, (ed.s), *The James Stuart Archive of Recorded Oral Evidence Relating to the History of the Zulu and Neighbouring People*, Volumes 1-4 (Pietermaritzburg and Durban, 1976-1987), Vol. 2, pp. 257-258. For the Zulu's pre-colonial experience with malaria see Bryant, *Zulu Medicine* p. 24.
8. For the specific areas of risk see the Report of the Joint Imperial and Colonial Commissioners: Zululand Lands Delimitation Commission, 1902-04, (ZLDC), NAP, NCP, Vol. 8/3/65, especially pp. 268-270 and the appended

map. See Also Aran MacKinnon, 'The impact of European land delimitations and expropriations on Zululand, 1880-1920' M.A., Natal, 1990, ch. 3.

9. For the role of sugar production in similar historical processes see S. Mintz, *Sweetness and Power: the place of sugar in modern history* (New York, 1986).

10. In contrast, tuberculosis, which killed less than twenty people a year in Zululand prior to the 1930s had been notifiable since 1922. For the declaration of malaria as notifiable see DPH Public Health Notice No. 1720/1938. For the impact of TB see R. Packard, *White Plague, Black Labour: Tuberculosis and the Political Economy of Health and Disease in South Africa* (Pietermaritzburg, 1988), esp. pp. 335-340.

11. See R. Packard, 'Maize, Cattle and Mosquitoes: The Political Economy of Malaria Epidemics in Swaziland' in *Journal of African History (JAH)*, Vol.25, 1984, pp.189-212.

12. *Ibid*, p.211.

13. Most of the following discussion on malaria is based upon: G.O. Cowan and B.J. Heap, *Clinical Tropical Medicine*, ch.. 1; J.S. Gear, C.F. Hansford and R.J. Pitchford, *Malaria in Southern Africa*, Pretoria, 1981, and M. Coetzee et al, of the South African Institute for Medical Research, 'Distribution of mosquitoes belonging to *Anopheles gambiae* complex, including malaria vectors, south of latitude 15S.' *South African Journal of Science (SAJS)*, Vol. 89, May 1993, pp. 227-231.

14. See N.H. Swellengrebel, S. Annecke and B. De Meillon, *Malaria Investigations In Some Parts of The Transvaal and Zululand* (South African Institute For Medical Research publications, No. 27, Vol. 4, Pretoria, July 1931) pp. 245-274. This report can also be found in U.G. 28-'31, Department of Public Health Report for 1931.

15. For the migrant labour issue in Zululand see A.H. Jeeves, 'The Zululand Sugar Planters, the Gold Mines and the Scramble for Labour in South-East Africa, 1906-1940, unpublished paper delivered to the Canadian Association of African Studies Annual Conference, York University, Toronto, May 1991, A. de V. Minnaar, 'Labour Supply Problems of the Zululand Sugar Planters, 1910-1939, *Journal of Natal and Zulu History (JNZH)*, Vol. 12, 1989, pp. 53-72 and W. Beinart, 'Transkeian Migrant Workers and Youth Labour on the Natal Sugar Estates, 1918-1948' *JAH*, Vol. 32, 1991, pp. 41-63.

16. CNC 193 166/1915 Park Ross to CNC 16 Feb. 1915.

17. *Natal Mercury*, article entitled 'A Health Conscience', 9 July 1929, among collection of clippings on malaria in GES 565 36/12B, 18.

18. See for example *Ibid*, letter from the South African Sugar Association to Park Ross, 18 July 1929, G.H. Nicholls, *South Africa in My Time*, pp. 93-101 and passim and Killie Campbell Africana Library, Natal, MS. Nic, G.H. Nicholls papers, files KCM 3301 and 3303, undated manuscript notes on the Zululand sugar industry.

19. See R. Packard, 'The Invention of the "Tropical Worker": Medical Research and the Quest for Central African Labor on the South African Gold Mines, 1903-1936', *JAH*, Vol. 34, No. 2, 1993, pp. 271-292. See also A. Butchart, 'The Industrial Panopticon: Mining and the Medical Construction of Migrant African Labour in South Africa', Institute of Commonwealth Studies, University of London (ICS) Health and Empire Seminar, 3 June 1994.

20. See A. MacKinnon, '"Weary workers" and the epidemiology of malaria in Zululand, 1900-1950', paper presented to the CRCSA workshop, Kingston, Canada, Nov. 1994; J. Gear, C. Hansford and R. Pitchford, *Malaria in Southern Africa* (Pretoria, 1981); P. Prothero, *Migrants and Malaria* (London, 1965) ch. 3; D. le Sueur, B. Sharp and C. Appleton, 'Historical perspective of the malaria problem in Natal with emphasis on the period 1928-1932; *South African Sugar Journal (SASJ)*, Vol. 89, May 1993, pp. 232-239; J. Brain, '"But only we Black men die": the 1929-1933 malaria epidemic in Natal and Zululand', *Contree*, Vol. 27, 1990, pp. 18-25; N.

Swellengrebel, S. Annecke and B. De Meillon, 'Malaria Investigations in Some Parts of the Transvaal and Zululand', *SAIMR*, Vol. 4., No. 27, July 1931, pp. 245-274 and S. Javett, 'Malaria' pp. 55-57.

21. See my "Weary workers".

22. See KCAL, MS KWA, Kwambonambi Planters' Association papers, KCM 53366, minutes of meetings, 13 Dec. 1922, p. 7 and 5 Sept. 1924, p. 46. See also *SASJ*, Vol. 5, No. 2, 1921, p. 179.

23. For a useful discussion of the negotiations surrounding the Mozambique Convention see A. Jeeves, 'Migrant Labour in the Industrial Transformation of South Africa, 1920-1960', in Z.A. Konczacki, J.L. Parpart and T.M. Shaw (ed.s), *Studies in the Economic History of Southern Africa*, Vol. II (London, 1991), pp. 105-144, pp. 109-121.

24. CAD, Native Affairs Department series (NTS) 2213, 379/280, Secretary for Commerce to Secretary of the Sugar Association, 17 Nov. 1944.

25. See the NAD, Report of the Departmental Committee appointed to Enquire into and report upon certain questions relating to Native Labour in Zululand, the Transkeian Territories and the Ciskei (Pretoria, 1935) found in NTS 2202 315/280 and NTS 2213 214/280 for minutes of evidence.

26. See *Ibid* and NTS 2211 379/280, Part I, General Manager of the Witwatersrand Native Labour Association, (WNLA) to SNA, 24 Nov. 1924, and see Minnaar, 'Labour Problems', p. 63.

27. *Ibid*, CNC to SNA, 23 April 1925 and SNA to CNC, 26 May 1925. See also a report on sleeping sickness conference in South Africa by Dr. J. Mitchell, Secretary for Public Health, in *MJSA*, Vol. 4, No. 5, 1920, pp. 226-235 and *SASJ*, Vol 4, No. 8, 1920, pp. 733-735.

28. *MJSA*, Vol. 4, No. 5, 1920. According to Dr. David Evans and Dr. R. Warhurst of the Department of Parasitology, University of London School of Hygiene and Tropical Medicine, it is possible for the human strain of trypanosomiasis to cross-infect vectors and then spread the disease to a new human population, though why this did not occur in Zululand is not clear. See also H. Mulligan, *Trypanosomiasis: The African Illness* (London, 1970). I am grateful to Drs. Evans and Warhurst for this information.

29. NTS 2213, 379/280, Nicholls to SNA, 27 May 1941. For Nicholls' life and influence in South African politics see his autobiography, *South Africa in My Time* (London, 1961).

30. A. Jeeves, 'The Politics of Public Health in South Africa. The Sugar Industry and the Malaria Epidemic of 1923-1935.' paper presented to the CRCSA, Annual Research Workshop, 1991, p. 2.

31. See for example the comments of G. Patrick, President of the ZPU, before the Natal Provincial Hospital Commission contained in *SASJ*, Vol 9, March 1925, p. 229 and NTS 2211 379/280, Part I, comments of C. Dent representing the ZPU to the Minister of Native Affairs, 18 Dec. 1933 and a review of this meeting with G. Heaton Nicholls in the Zululand Times, 12 Feb. 1934. For the higher incidence of malaria among mines' rejects see Packard, *White Plague*, fn. no. 19, p. 337.

32. See KCAL, KCM 91/15/5, minutes of Gingindhlovu-Mtunzini Farmers' Association meeting, 12 Dec. 1929.

33. CNC 17A 13/2/4, Deputy Chief Health Officer to CNC, 31 July 1937, and 17 Sept. 1937 and see, evidence before the *South African Native Economic Commission*, 1930 (*NEC*), evidence of F. Rodseth p. 1943 Much the same picture was given for Natal estates in the 1920s by Beinart in 'Transkeian Migrant Workers'.

34. *NEC*, evidence of Rodseth, p. 1941.

35. E. Hobsbawm, *The Age of Capital, 1874-1884* (London, 1977), p. 235, quoted in S. Marks and P. Richardson, 'Introduction' to *International Labour Migration. Historical Perspectives* (London, 1984), Intro, pp. 1-18, p. 12.

36. The issue of poor housing and particularly food rations on the cane estates was taken up by a number of government officials. See for example Rodseth's comments to the Gingindhlovu-Mtunzini Farmers' Association, KCM 91/15/5, 12 Dec. 1929, his evidence before the *NEC*, pp. 1938-1945 and his *Ndabazabantu*, pp. 59-60, CAD, Native Farm Labour Committee, evidence of Mutiwampela Nkwanazi, Empangeni, p.1, Luke Gumede, Empangeni, pp.2-3, and Msongelwa, Ingwavuma, p. 3.
37. For the use of Indian labour in Zululand and their later removal see below and F. N Ginwala, 'Class Consciousness and Control: Indian South Africans, 1860-1946' (Ph.D., Oxford, 1974), ch. 3 and M. Tayal, 'Indian Indentured Labour in Natal, 1890-1911', *Indian Economic and Social History Review*, Vol. 14, No. 4, 1977, pp. 519-547.
38. G. Park Ross, 'A standard house plan for Coloured Labour and details of its conversion to Mosquito-proof quarters', in *SASJ*, Vol 5, May 1925, pp. 349-352.
39. Beinart, 'Transkeian Migrants', pp. 13-14.
40. KCAL, MS Kwa, KCM 53366, Inspector of Native Labour's address to the ZPU, 10 Dec. 1929, and a very useful review of the department of health regulations governing the housing of labourers on the sugar estates in *SASJ*, Vol 20, Aug. 1936, pp. 493-497.
41. CAD, Government Native Labour Bureau (GNLB), 253 357/16 (77), extracts from ZPU meeting, 12 June 1918.
42. See CNC 16A 13/2/6/(9) Park Ross to Secretary for Public Health 1 June 1929 containing a copy of his report dated 28 Nov 1923; le Sueur, Sharp and Appleton, 'Historical perspective' pp. 232-34; Brain, '"But only we Black men die"', pp. 18-25 and for the problems of irrigation and disease see F. Cawston, 'Effective control of Bilharzia and Malaria in Natal' *SASJ*, Vol. 28, Feb. 1944, pp. 77-80.
43. See U.G. 53-'19 Union of South Africa, Agricultural Census of the Union for 1918, p.20 and for 1930 figures see the census for 1931, U.G. 12-'32, table 11.
44. See *NEC* evidence of J. Erlandson, representative of the Umfolozi Co-operative Sugar Mill, p. 6277.
45. GES 565 36/12B See memorandum by SAR Chief Civil Engineer to Department of Health 17 Sept. 1926.
46. *Ibid*, Park Ross to Minister of Health, undated, Nov. 1926.
47. *Ibid*, and see *NEC*, evidence of Park Ross, p. 6102-03.
48. GES 565 36/12B, Park Ross memo, Nov. 1926.
49. *Ibid*, Dr. Annecke to Secretary for Health, 11 May 1929.
50. See CNC 16A 13/2/6/(9) Park Ross to Secretary for Public Health, 27 June 1928.
51. See le Sueur et al, 'Historical perspective', p. 232.
52. See for example Park Ross' report in U.G. 30-'33, Report of the Department of Public Health for 1933, pp. 25-28.
53. GES vol 565 36/12B, Report on Malaria epidemic in Stanger, Eshowe and Mtunzini for 1929 by Dr. S. Annecke, and Dr. G.D. English, 11 June 1929.
54. *Ibid*, Park Ross to Secretary for Public Health, 1 June 1929.

55. GES 2628 6/56 M, Report from the Inspector of Native Labour for Northern Zululand, G.F. Kirby, 31 Jan 1929.
56. *Ibid*, report of deaths from malaria, Natal and Zululand, undated table.
57. GES 565 36/12B Park Ross to Thornton, 8 July 1929 and 25 August 1929.
58. *Ibid*, District Surgeon, Mtunzini, to Magistrate, Stanger, 24 June 1929.
59. Evidence of Mr. Simon Ngema and Mr. Tamuza S'gwili Qwabe, both of Eshowe. Oral interview conducted by the author in Eshowe, 9 and 14 Sept 1993.
60. Beinart, 'Transkeian Migrant Workers.'
61. GES 565 36/12B Park Ross to Mr. H.A. Koch, 14 June 1929.
62. le Sueur et al, 'Historical perspective', p.234.
63. GES 565 36/12B, Magistrate's report, 11 May 1929.
64. GES 2628 6/56J, Park Ross to Thornton, 12 Sept. 1932.
65. *Ibid*, table of mortality rates for the period Nov. 1931 to June 1932 submitted by magistrates.
66. See for example GES 565 36/12B, Review of parliamentary proceedings dealing with the malaria issue in Natal and Zululand Aug. 1929 to Aug. 1932. See especially Nicholls' questions to the Minister for Public Health and News clippings from various South African newspapers contained in this file.
67. GES 2628 6/56 M, table of Native Malarial Assistants reports for the period 1931-1939, undated.
68. CNC 16A 13/2/6, Park Ross to CNC 9 June 1934.
69. *Ibid*, 29 March 1934, Park Ross to CNC. For the restrictions on Transkeian labour see variously: Transvaal Chamber of Mines, *46th Annual Report*, (Johannesburg, 1935), pp. 104-110 and, NAD, 'Report of the Departmental Committee appointed to enquire into and report upon certain questions relating to Native Labour in Zululand, the Transkeian Territories and the Ciskei, 1935 and NTS 2202 315/280 passim for evidence before this Committee.
70. *Zululand Times*, 4 Nov. 1937 re control of malaria in Zululand.
71. *Ibid*, and see below for the effect of hut spraying and see U.G. 59-'37, Bureau of Census and Statistics, *Agricultural Census No. 16 for 1936*, p.15 and *Official Year Book of the Union of South Africa, No. 18 for 1937*, recorded rainfalls for Zululand, p.11.
72. GES 2628 6/56N, Table of reports from malaria assistants for the years 1931-44.
73. *Ibid*, and see le Sueur et al, 'Historical perspective', pp. 236-37.
74. GES 2628 6/56N, Dr. Cluver, to GES, 3 May 1946 and see letter from Hluhluwe and Northern Zululand Farmer's Association to Provincial Secretary, 9 March 1946.
75. Evidence of Sister Friegard and Sister Carina Ariebeel of St. Alban's Mission, Nongoma, oral interview conducted by the author, 15 Sept. 1993.
76. Evidence of Mr. N. Otte, Acting Native Commissioner at Ubombo, 1946-48, oral interview conducted by the author. Mr. Otte noted that upon his return from service in WWII, he had lost his malaria allowance owing to

these control measures.

77. For a discussion of the strike at Amatikulu see Beinart, 'Transkeian migrant workers', J.D. Beall and M.D. North-Coombes, 'The 1913 Disturbances in Natal: The Social and Economic Background to "Passive Resistance"', *JNZH*, Vol. 6, 1983, pp. 48-81 and Minnaar, 'Labour Supply Problems', pp. 54-56. For a discussion of Indian indentured labour in Natal see Tayal, 'Indian Indentured Labour' pp. 519-523. For a fuller discussion of the decline in Indian agricultural labour in Natal see V. Padayachee, S. Vawda and P. Tichman, *Indian Workers and Trade Unions in Durban: 1930-1950*, University of Durban Westville, Institute for Social and Economic Research, Report No. 20 (Durban, 1985), pp. 20-25. I am grateful to Peter Alexander for drawing this work to my attention.

78. See *SASJ*, Vol. 10, June 1926, p. 387; Vol. 10, July 1926, p. 453 and Vol. 16, Oct. 1932, p. 587-589.

79. CNC 193 166/1915, Magistrate Mtunzini to DNC, 26 April 1915 and Magistrate, Lower Umfolozi to DNC 24 April 1915.

80. *Ibid*, DNC circular of 10 June 1915 and see CNC to DNC, 2 June 1915.

81. *Ibid*, Park Ross to CNC 16 Feb. 1915.

82. GES vol 565 36/12B, Park Ross to Secretary for Public Health, 8 July 1929 referring to the past practices of Africans since 1910. Mr. N. Otte reported seeing many huts in Ubombo and Ingwavuma with strings of quinine pills wrapped around them. Oral Interview conducted by the author.

83. CNC 16A 13/2/6 (9) Park Ross to NC Eshowe, 1 Sept. 1932 and see GES 565 36/12B Secretary of the South African Sugar Association to Park Ross 18 July 1929.

84. GES 2628 6/56 M Report from G.F. Kirby, 31 Jan. 1929.

85. GES, DPH, Annual Report for 1930, Annexure C.

86. GES 2628 6/56J, D. Eadie Secretary of Sugar Association to GES, 13 July 1932.

87. The proceedings of the conference can be found in CNC 17A 13/4/2.

88. KCAL, Records of the Natal Agriculture Union, KCM 30026, Thornton to NAU, 18 May 1933.

89. CNC 16A 13/2/6/, Park Ross to CNC, 29 March 1934.

90. CNC 16A 13/2/6/9, Provincial Secretary to CNC, 14 Oct. 1933.

91. CNC 16A 13/2/6, Park Ross to CNC, 29 March 1934.

92. *Ibid*, SNA to CNC, memorandum on the 1934-35 malaria season, 12 June 1934.

93. Swellengrebel, 'Malaria Investigations', p. 249 ff.

94. CNC 17A, 13/4/2, Park Ross's Report to the malaria conference, 12 June 1932, and see Thornton to Park Ross, 10 Sept. 1932.

95. le Sueur et al, 'Historical perspective', pp. 237-38.

96. GES 6/56 N, Secretary for Health to SNA, 17 June 1947.

97. CNC 17A 13/4/2, CNC's circular, 26 Sept. 1932.

98. *Ibid.*

99. GES 2628 6/56 J, Director of Prisons to Secretary for Public Health, 25 Nov. 1932.

100. CNC 16A 13/2/6/ (9), Agricultural Supervisor to Director of Native Agriculture, 19 May 1936.

101. *Ibid.*

102. GES 565/36/12C, Dr. Coswald Brown to NC, 18 May 1932 and NC to DS, 20 May 1932.

103. GES 2628 6/56 M, Cluver to Secretary for Public Health, 11 March 1939.

104. CNC 16A 13/2/6, proceedings of the Malaria conference, 4 July 1932, p. 4.

105. See CNC 16A 13/2/6 (9), NC Melmoth to CNC, 20 May 1932 and CNC 16A 13/2/6 (9) Report of Malaria Assistant Bhengu to NC Mtunzini, 5 June 1932. For a further discussion of this issue see S. Marks, *The Ambiguities of Dependence In South Africa* (Johannesburg, 1986) p. 95 and CNC 72A N1/1/3/32 Part II. It was believed that Dinuzulu was going to stop the spread of white activities which were aimed at forcing the Zulu into oblivion to take their land. *Ibid*, E.D. Beale to CNC, 12 Dec. 1932 and undated memo by Beale on malaria.

106. There is not the scope within this article to consider the role of African herbalists (izinyanga) and diviners (abangoma; colloq. isangoma) during the epidemics but it is an area in need of research. See GES, 135, 153/1, GES 565, 36/12B and NTS, 9310, 1/376, Native Medicine Men and Women, Natal and Zululand, 1919-1942. For official hostility to the herbalists see for example U.G. 49-'29, Report of the Department of Public Health for the year 1929, pp. 34-35. Provision for controlling and licensing Izinyanga was made under the Medical Dental and Pharmacy Act, No. 13 of 1928 and amendments of 1935 and 1937.

107. *NEC*, evidence, p. 1914.

108. *Natal Mercury*, 12 June 1929.

109. *Ibid*, 5 July 1930.

110. CNC 16A, 13/2/6, DPH Memorandum on department anti-malaria measures, 12 Dec. 1934.

111. SAB, GES 565, 26/12B, Rodseth to Park Ross, 25 June 1929.

112. For the stock control programmes in Zululand and their wider relevance see my Ph.D. thesis 'Land, Labour and Cattle: the Political Economy of Zululand, c. 1930-1950' University of London, 1996, chs. 2,7.

113. GES 565, 26/12B, Rodseth to Park Ross, 25 June 1929 and the *Natal Mercury*, 12 June 1933.

114. See for example CNC 16A, 13/2/6/9, Memorandum by Dr. F. Kevekordes, 18 Nov. 1932 and GES 2628 6/56J, Thornton to Public Service Commission, 6 Sept. 1932.

115. CNC 16A 13/2/6 (9), Rodseth to Park Ross, 2 May 1932. For a further discussion of this class and their dress see P. La Hausse, 'The Message of the Warriors. The ICU, the Labouring Poor and the Making of a Popular Political Culture in Durban, 1925-1930' in P. Bonner, I. Hofmeyr, D. James and T. Lodge, (eds.), *Holding Their Ground: Class, Locality and Culture in 19th and 20th Century South Africa* (Johannesburg, 1989), pp. 19-57, p.34.

116. CNC 16A 13/2/6 (9), Bhengu's report, 5 June 1932.

117. *Ibid.*

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