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Dr. DAVID LIVINGSTONE

C O N T E N T S

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*TERNIDENS DEMINUTUS* (Railliet and Henry, 1909)  
AND HOOKWORM IN RHODESIA AND A REVIEW OF  
THE TREATMENT OF HUMAN INFECTIONS WITH  
*T. DEMINUTUS*

By

J. M. GOLDSMID

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# The Central African Journal of Medicine



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## Early Days of Bulawayo African Health and Medical Services\*

BY

JANICE AUSTIN, F.R.S.A.

In 1584 Reginald Scott described the attitude to disease of mediaeval Europe—

"For if any adversity, grief, sickness, loss of children, corn, cattle or liberty happen unto them, by and by they exclaim upon witches. As if there was no God in Israel that ordereth all things according to his will . . . but that certain old women on earth called witches must needs be the contrivers of all men's calamities . . . In so much as a clap of thunder, or a gale of wind is no sooner heard, but either they run to bells, or cry out to burn the witches."

The early pioneers in the prevention of disease in Bulawayo found themselves up against this same attitude in the primitive mind of the African. When bad luck in any form assailed an African, his automatic response was to ask himself "What have I done to deserve this?"

It was difficult for the African to see that much disease could be prevented by better living conditions, and the European had to pave the way to health education by first introducing housing schemes, sanitation, clinics and mothercraft centres, etc. However, as there were people reluctant to spend money or had some prejudices, every advance was pioneered by a few who were brave enough to voice their opinions.

Also, like all who are at first inexperienced, they sometimes made bad mistakes, such as the first local authorities did who erected native latrines at various dispersed points in the locations, only to find that those natives working in European areas found it too far to walk!

Lobengula founded Bulawayo in about 1875 and by 1889 the population numbered some 20,000. After his death (and according to some reports he died from smallpox) the orderly Matabele society broke up and many wandered off into the bush. When they returned a few years later they found they were strangers to themselves and their European masters.

Mr. Colenbrander provided temporary accommodation for the first medical trek which entered Bulawayo on 4th November, 1893. This consisted of a few huts and tents giving shelter to 16 Europeans and 20 Africans, most of the Europeans being housed in Mr. Colenbrander's "thatched

hut of sunburnt brick". The wounded Matabele had been brought by wagon from the battle on 24th October at Shangani and also from Bembesi. Bishop Knight-Bruce records—

" . . . There were many wounded, including Natives, and some female Natives from a nearby kraal were wounded. The doctors were most kind to the Natives — men and women — and worked for more than 10 hours."

When the Dominican Sisters arrived on 13th July, 1894, they found their patients on rough stretchers with coats for pillows, no tables or chairs and the tents frequently caving in before strong winds and dust storms. A sponge bath supported by assegais driven into the ground served as a table. Over this was spread a big red shawl and there were boxes to sit on.

Bulawayo has always shown an independent spirit of civic pride and self-help, and so the Memorial Hospital foundation stone was laid in November, 1894. In December of the following year the African ward was opened and the hospital was not lacking in medical men. In a *Bulawayo Chronicle* issue early in 1896 the ratio of doctors to patients was described in a letter as "too many cats to catch the mice". Dr. A. J. Levy, who was in charge, was also district surgeon; Dr. John Neil Wilson had been resident since the occupation; Dr. Maberly advertised in the *Bulawayo Chronicle* in December, 1894, and Dr. Thornton Perkin also set up practice in July of that year.

Early in 1896 Dr. Vigne, who had previously been to Matabeleland as medical officer to the forces in Col. Goold Adams' Column from Bechuanaland, began his return journey by Zederberg coach. In his diary he describes this journey as long and tedious through "intense heat and thick dust", and he arrived in Bulawayo to find a rather enthusiastic community, especially amongst the ladies, who had held a very successful "hospital Saturday", by which they had raised \$1,600 towards funds. It was this interest amongst the public for the hospital which brought about the forming of a Hospital Board with Sanitary Board representatives. Previous to this the Sanitary Board (formed in 1894) had formed a sub-committee to aid the hospital.

This first Sanitary Board had set out some location regulations and agreed to lease plots of 40 ft. x 80 ft. at five shillings per month. A European superintendent was employed. There was no control over materials or designs used in buildings, nor on the number of huts on each plot — just "huts and dwellings to be occupied by native races." A well was sunk for drinking water and a section of the river set aside for bathing and washing. The only public concern at this time was to

prevent various nuisances — “noise, dirt, prostitution, tom-toms, idleness and thieving”. However, there was concern later when some Asian and African self-employed launderers set up business with the town folk.

By June, 1897, the Memorial Hospital was far too overcrowded and the district surgeon had to re-organise his staff. He was particularly concerned about the Africans. He reports—

“V.D. is rife in the town, particularly with regard to the Natives, who are a source of great danger to the public.”

The outlook was a bit hopeless with the people still in such a primitive state of mind.

By contrast to the interest shown in improvements, the appointment of the first part-time Medical Officer of Health in 1898 was met with little enthusiasm and finally his post was abolished. This was a pity, for there had been progress in hospital development and in July, 1897, the management of the hospital was taken over by a new Hospital Board. They provided for a daily average of 20 African free patients and costs for other pauper patients were borne by the Administration. The hospital was inspected each week and a new medical policy started to take shape.

There was a smallpox scare in October, 1898, and the Mayor realised the danger of Africans returning to the five compounds from infected areas. He tried to have the Public Health Act of 1883 changed. By this Act the cost of an epidemic was to be borne by a Municipal Council and recent legislation in the Cape Colony had resulted in costs being almost entirely met by the Government. But it was some time before the Council and Government came to terms.

The first Sanitary Inspector's Report on record is that of 1899. He complains about Native labour agents using stands as uncontrolled compounds and suggested special bye-laws should be passed to stop this.

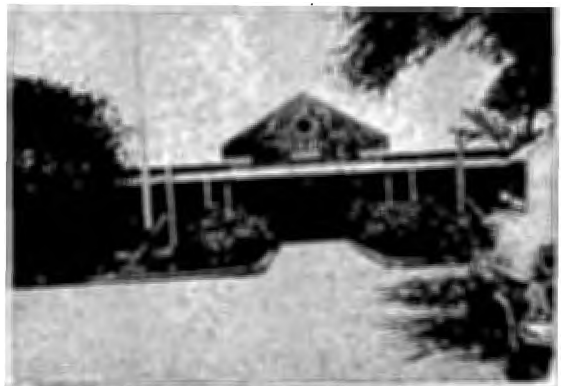
Although the African had a remarkable immunity to malaria, there were 133 cases of malarial fever this year. The Europeans became more concerned for the ill health of the African and further investigations were made into the existence of food, housing and sanitary conditions. There were constant complaints about “women living in the township”, squatters on vacant stands, and “noise and beer on Mr. Zeederberg's plot”. Various suggestions had been made to deal with loafers. In 1897 someone said all unemployed Africans should wear badges. In 1900 there came the emphatic statement that “loafing Natives should be arrested”. A cry that “all natives be decently clothed from neck to knee” was diplomatically rejected by the Government.

However, conditions gradually improved. Brick buildings, “some of substantial nature” began to appear. In 1902 it was discovered that kaffir beer possessed antiscorbutic properties, and that whilst the Africans in the mines were very prone to scurvy, those in the location were rarely attacked by it. It was not known at this stage that the particular vitamin lacking was “C”, but science had revealed to the medical men that a “property” in lime juice and orange could prevent disease.

During the depression after the South African War the Ladies' Benevolent Society was formed to “relieve and assist the deserving poor in cases of distress and sickness”. The members consisted of a number of ladies from different religions and denominations.

In his 1903 report the Chief Sanitary Inspector, Mr. John W. Mayne, mentions 10 “kaffir shelters” being demolished in the town and, despite careful examination of certain quarters of the town, insanitary conditions still occurred. There were nine reported cases of typhoid in the location and, the Medical Officer of Health's post having been abolished, Dr. Perkin was engaged when required.

In 1906 it was noted that there was a steady increase of tuberculosis amongst Africans returning from the mines. The Chief Native Commissioner in his annual report of 1907 suggested an organised medical service to combat V.D. in the reserves before the occupants came to live in the location. He recommended the establishment of dispensaries and “the civilising influence of such an institution would tend more to lessen the evils of witchcraft than any measure of legislation”. This led to the Rhodesian Native Labour Bureau being established in 1908, where Africans from mines were examined on arrival from the mines, and in this way more control was realised over the spread of tuberculosis.



Part of Thorngrove Hospital built in 1941 which is now use for male T.B. patients.



Old huts and shacks being pulled down to make way for new housing: Location 1927.

In 1910 an infectious diseases hospital was opened for Africans and called the Lazaretto. 1911 had a particularly high death rate amongst the African population — 197 deaths including 69 from pneumonia, six scurvy and 56 of cerebro-spinal meningitis. An immediate enquiry was made into the health of Africans being sent down as labourers from N.W. Rhodesia: That particular winter was the coldest on record since 1897, so it was no wonder that pneumonia struck with such force. There was also a serious outbreak of East Coast Fever.

Early in 1913 a local missionary spoke out on the necessity for even better medical treatment for the Africans, and later the Mayor reported—

“It is of the utmost importance to have a contented Native population in our midst, and I am pleased to think that people are beginning to realise this more and more.”

He went on to mention the good medical treatment now available, the accommodation provided in the location for women and girls coming to town for employment, and how the expenses incurred were “charged against the profits derived from the brewery”. The brewery was completed in April.

New African quarters were built in brick, comprising three blocks with 10 rooms each, each

room accommodating six “boys”. There were also a couple of wash-houses erected.

In 1914 a promised recreation room 88 ft. 6 ins. x 37 ft. 6 ins. was built and is part of the main beerhall today.

Quinine was at this time issued free to the Africans and Bulawayo had its share of the influenza epidemic, but not as severe as that of 1918. Arrangements were started for the building of a new Native Infectious Diseases Hospital and it was realised that the time had come for the appointment of a Medical Officer of Health. In the annual reports of 1914 the Lazaretto published its first statistics.

	European		Native	
	Smallpox	Chicken-pox	Smallpox	Chicken-pox
July 1913			1	10
Aug. „				1
Oct. „				1
Jan. 1914				2
Feb. „				12
March „				5
April „				7
May „		1		4
June „	1			14
	1	1	1	56

Chicken pox had become a notifiable disease in 1911, and as it predominated amongst the Africans was often referred to as "kaffir-pox".

The advent of successful bicycle trading in the town had in a way added to the accident hazards. In 1911 alone there were 16 Africans fined for cycling "furiously or recklessly" through the town, and by 1914 the numbers were in the hundreds!

Hygiene lectures were given this year to all races, mainly about the handling of food and control of pests. Dr. Strong read his paper on "Mosquito Plague". This adult education programme did not meet with enthusiastic response, so it was decided to concentrate on the schools. The handling of food at the market was described thus—

"The appearance of the morning market, crowded with dirty coolies and kaffirs, the unappetising way in which fruit, vegetables and butter are piled up and handled by these men, is a picture which forms a striking contrast to the well-ordered market towns where marketing is a pleasure. The whole market is unwholesome and must obviously remain so as long as the fruit and vegetable trade is in the hands of coolies, whose idea of cleanliness and sanitation are entirely opposed to European methods. Vegetables when sold are thrown on to and collected from the floor and smoking and expectorating are unchecked, there being no police official in attendance. The Market Master cannot be blamed for this condition of affairs; it is the system which is entirely wrong."

The Fly and Mosquito Pest Committee was established in 1915. Many doctors had gone to the front and the shortage in the town had become rather acute. Private doctors sent their accounts to the Council for attending sick Africans, so by arrangement the Council contributed 10/6d. to the Government for each visit made by the district surgeon.

The Women's Reform Club was founded in 1916 and did very interesting work in the political field, appealing and badgering for reforms with particular regard to health. One of its demands was the medical examination of Africans in the town. They finally succeeded in 1918 when the Legislative Council passed the Native Registration Ordinance Act requiring domestic servants applying for registration to satisfy the issuer of the registration pass that they were medically fit. At last came the appointment of a permanent Medical Officer of Health, Dr. Forrester. He immediately reviewed the housing conditions in the location and proclaimed much of it "unhygienic". He drew attention to roof gutters holding in water at the end of the rainy season and so providing excellent breeding ground for the mosquito.

Loitering on the Lazaretto grounds was made illegal and two Africans were arrested for this.

During the influenza epidemic a temporary African hospital was erected accommodating males and females, with the Lazaretto dealing only with adult males. On an average there were 546 cases, of which 170 died, but many others panicked and ran into the veld, dying on the roadside. This letter was received from the Rev. S. S. Durnan—

"I am desired by the Native men and women of Bulawayo Location to convey to the Municipal Council their sense of gratitude and appreciation for the efforts made by the Council on their behalf in combating the recent outbreak of influenza. They wish especially to thank the Council for the establishment of hospitals for both men and women and for the splendid services rendered by those who supervised them. It was entirely due to the establishment of such hospitals that so many lives were saved."

During the next five years various amenities were provided in the location, including fireplaces built in the rooms and some street lighting installed. 1925 saw the inauguration of the Women's Institute which concerned itself with health services for the Africans and brought about compulsory compensation for injuries. A \$40,000 V.D. hospital and casualty ward was established near the superintendent's office and additional latrines and wash-houses were erected in the location in 1926. There was a piped water supply by 1928 and sewerage by 1934.



Mr. Gumbo and Mrs. Edward, two welfare workers, outside the smallpox ward used as an occupational workshop. The half-completed mosaic is the work of Mr. Lazarus Khumalo, an art instructor.

In 1921 out of 27 notifications of infectious diseases only one was from the location. With a population of 2,000 in 1922, the Mayor congratulated the superintendent on his work in bringing about such satisfactory conditions. By 1925 the population had increased to 7,000 and medical examinations of Africans employed within the municipal area commenced on 5th May. The Memorial Hospital was also taken over by the Government and tribute was paid to Dr. Walter Musgrove Eaton, who had died on the 13th September, 1924.

Despite the cold winter in 1926 the public baths in the Location were very much in demand. The newly-formed Bantu Women's League objected to some old buildings being demolished because they provided accommodation for cripples and elderly Africans.

The early 1930's marked the beginnings of very active health services with the opening in 1932 of the first African clinic by the Native Welfare Society. It was situated in a small cottage and Sister Helliwell was appointed in charge. She won the confidence of the African mothers immediately and started a "lie-in" clinic for maternity cases when the clinic moved into new premises in 1933. In the beginning she had two native nurses and an orderly helping her. The orderly was "Fikosole", which means "arrived yesterday". She had visitors from South Africa, England, America, Australia and Rhodesia.

In 1934 Dr. Shennan took over as Medical Officer of Health. Here is a personality who will never be forgotten. Even the annual reports come alive with his penmanship. In 1936 he wrote—

"T.B. remains a most fatal disease in Natives, and until they can be provided with more ample sleeping accommodation than is usually the case and weaned from their dislike of fresh air, it is difficult to see how very much reduction in its incidence can be expected."

An interesting scientific fact was made known by Fox and Wilson of the South African Institute for Medical Research in 1936. Lucerne was found to contain five times more vitamin C than orange juice, twice as much vitamin E than lettuce, vitamin A and also B plus mineral salts. They reported that it had been used for human consumption in China, Turkestan, parts of Russia, America and now being used in South Africa. It was pointed out that during the winter months when vegetables may be scarce, many Africans in employment lacked in vitamin C so arrangements were made by the municipality to include one ounce of lucerne per boy with the usual ration. It would

of course be mixed with other vegetables to make it more palatable. The municipal farm provided nearly all the lucerne needed.

Dr. Shennan put pressure on the Council for a new Native infectious diseases hospital, and in a year this new building was completed in 1941. These buildings also provided better facilities for surgical treatment should the occasion arise. Bulawayo was soon flooded, however, with more and more Africans seeking employment in industry. Most people had their own personal problems during these war years and Dr. Shennan spoke of apathy amongst the public in supplying suitable accommodation for their employees. Shacks and insanitary villages sprung up in various places on the commonage, and the Africans rejected the monastic seclusion offered them at the C.M.U. and R.A.R. camps. Dr. Shennan writes—

"The celibate and unhomey existence imposed by residence in communal huts appeals to the Native as little as it would to Europeans, and those who have set up house with their wives and families in comfortable 'Huntley and Palmer' villas, their neighbours a willing source of water and the whole world for their latrine."

Overcrowding and malnutrition were followed by smallpox, and the smallpox epidemic was very bad amongst the Africans. Mass vaccination campaigns were carried out, with members of Red Cross and St. John Ambulance Brigade helping at improvised posts. Mr. Rodwell Mundia, a senior orderly at present-day Thorngrove Hospi-



Mr. Rodwell Mundia standing on the ruins of the old Lazaretto. The tree behind him was planted by him in 1947 when the building was demolished.

tal, was employed at the Lazaretto and tells of how another orderly and himself were commissioned to bury the dead behind the Lazaretto. He buried as many as seven victims in one day. He also had to care for a handful of lepers who were moved to other temporary accommodation near some large trees to the right of the Lazaretto.

In 1947 Dr. Shennan brought attention to the state of the old Lazaretto buildings—

“ . . . for nature has taken a hand and the hospital is literally falling to pieces; doors and door frames have fallen away from their setting, windows continue to perform their function of admitting air, but can no longer retain patients, and walls are bidding fair to collapse.”



Entrance to smallpox block. The iron sheeting is that taken from the old Lazaretto during demolition.

Obviously a new township was urgently needed and the funds had to be found immediately. Dr. Shennan and others of his ilk had to work very hard, discuss, argue, protest and demand, continually meeting with petty opinions and despairing attitudes. He dreamed a dream and recorded it in his official annual report—

“One day I dreamed a dream, and it seemed that Bulawayo was a perfect city, paved with gold and built of many kinds of jewels. It was 12,000 furlongs long, 12,000 furlongs broad and 12,000 furlongs high, and though unusual problems were presented to the animal transports of the cleansing department, and the building bye-laws relating to width of street and height of buildings were of necessity largely honoured in their non-observance, the city appeared to be a very perfect place. Editorial correspondence in the morning paper was thoughtful and balanced and ‘Pater families’ and ‘Indignant Ratepayer’ took no part in it. Ministers of religion preached only religion from their pulpits, and man dwelt with man in the pleasant kindly relationship which we feel should be so easy to attain where we ourselves are concerned.

“The Council was about to hold a meeting in its hall of sardonyx and chrysoprase, and with great interest I made my way within its portals. As I entered I heard the engineer state that he was dissatisfied with the state of water courses, and after he had sketched a programme for their improvement the Council, in voting the necessary funds, resolved that the work would proceed with expedition. On hearing these things I saw the line which separates the improbable from the impossible had been crossed and knew that it was only a dream.”

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## Preliminary studies on the use of Phenylene-Diisothiocyanate-(1,4) in the treatment of Hookworm and *Ternidens Deminutus* Infections in Rhodesia

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Phenylene-diisothiocyanate (JonitR)\* is a newly developed ant-helmintic intended primarily for the treatment of hookworm infections, although it also has some degree of efficacy against *Ascaris lumbricoides* (Desowitz, 1971). It is claimed by some workers that this compound is equally effective against both *Ancylostoma duodenale* and *Necator americanus* (Economy, 1968), as quoted by Botero & Perez (1970), although a recent review by Desowitz (1971) suggests that it is not as effective against *N. americanus* as against *A. duodenale*. No trials to date appear to have been carried out to test its efficacy against *Ternidens deminutus*.

#### METHODS

Patients included in this preliminary trial comprised 17 Africans infected with hookworm and nine Africans infected with *T. deminutus*. The

\*Supplied as 50 mg capsules by Hoechst Rhod. Co. (Pvt.) Ltd.





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