



Wellcome Film Project

The Zululand Mystery

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Sir David Bruce played by Leon Sinden.

Researched, Written & Adapted by Dr Billie Williams.

Directed by Anthony Palmer.

Photography by Paul Bernard.

Sound Recordist: Douglas Fisher.

Set Design: Steve Hall.

Stylist: Penny Legg.

Make up: Karen Turner.

Production Secretary: Rosemary Tilden.

Edited by Robert Fisher.

Black-and-white with colour re-enactments

Duration: 00:11:04:24

00:00:00:00

<Opening titles>

<Narration over film, unspecified narrator>

During the closing years of the last century, the people of Zululand were facing disaster. Their livelihood, which depended on their herds of cattle, was in jeopardy. The Zulus were helpless in the face of a killer disease which was attacking their livestock: a disease they called *ngana*.

Villages were littered with the corpses of valuable animals which they'd seen reduced to mere skeletons before their inevitable death, and they were convinced that this was due to their cattle eating food contaminated by local game animals. Meanwhile,

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the Europeans hunting these game animals had their own problems. Large numbers of their horses were dying; poisoned, they believed, by the deadly bite of the tsetse fly which infested the game country. Both the Zulu and hunter faced apparently insoluble problems.

<Narration over still photographs>

The governor of Zululand, Sir Walter Hely Hutchinson, was faced with a national emergency. If his people were to survive, the cause of the cattle disease, ngana, had to be found.

<Next photograph> In 1894, he arranged for a former colleague, Surgeon Captain David Bruce of the Army Medical Service, to begin a scientific investigation into the nature of the problem. The whole story is told in Sir David Bruce's Croonian Lectures delivered before the Royal College of Physicians in 1915.

<Narration by actor playing Sir David Bruce over still photograph of notice in newspaper advertising Croonian Lecture, followed by film re-enactment of Sir David writing lecture at his desk, still photograph of Sir David and his wife, re-enactment of Sir David at work in his laboratory. Film includes: views of trypanosomes through microscope, archive footage of ox wagon, African workers building railway and men with dogs. >

In this lecture, I propose to deal with one of the species of trypanosomes more in detail, describing its morphology; its pathogenic action on various animals; its carrier the tsetse fly, *Glossina morsitans*; and the reservoir of the virus, the wild game. If you will allow me a short autobiographical digression, I shall relate the circumstances leading up to the discovery.

Travelling at that time was no easy matter as the railway into Zululand had not been constructed. My wife and I left Pietermaritzburg on October 27th 1894, going by mule wagon. We arrived seven days later in Eshowe, the capital of Zululand. There, an ox

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wagon was provided and in it we trekked to Ubombo, a magistrery in the north of Zululand and in the centre of the affected district.

This was reached after a month's journey on November 24th 1894. Figure one represents the small wattle and daub hut that was provided for living in. The veranda was used at first as the laboratory, but afterwards with the aid of the natives a special hut was built.

Shortly after we arrived, some of the affected cattle were brought in by the natives. And as I had just come from the Army Medical College at Netley, where I'd been teaching bacteriology for five years, it was natural that a bacteriological examination of the blood and organs of the infected cattle should first be made. This proved negative.

About this time, 1894, the study of the blood had become popular thanks probably in great measure to Ayrie[?], and it was the fashion to make elaborate examinations of the red and white blood corpuscles. To this, the discovery of the ngana parasite was probably due. It must be remembered that these parasites are, as a rule, very few and far between, even in the blood of oxen, and also that our staining methods in those days were rather primitive. After some days of this blood examination, it began to be remarked that a curiously-shaped object, different from anything previously found in blood was sometimes seen lying among the blood corpuscles. At first, it was thought to be accidental due to the carbol-fuchsin stain which was being used but soon it became evident that it might be a blood parasite.

00:05:58:20

It was then thought that if it was, it might be motile in the living state. Fresh preparations of blood were made and after a long search, a rapidly-moving object was seen lashing about among the red blood corpuscles. At that time, I knew nothing about trypanosomes and at first thought that wriggling object might possibly be a small filaria. And there were few or no allusions to these haematozoa in medical literature at that time, but when I returned to Natal and had an opportunity of

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consulting books; it soon became evident that the rapidly-vibrating body was probably a trypanosome.

But there was, as yet, no proof that the organism seen had any cause or connection with the disease. They might well be harmless blood parasites; they were so scanty in numbers in the blood of the oxen that it might well be so. This led to trying the effect of injecting the blood of ngana cattle into horses and dogs. In these animals, disease is much more acute than in cattle and the blood swarms with the parasites. In this way, it began to be evident that these haematozoa had a causal connection with the disease. But at that time there was no suspicion that ngana and tsetse fly disease were one and the same. It was believed by everybody that tsetse fly killed horses and cattle by injecting a poison into them. Moreover, these cases of ngana were occurring among native cattle many miles away from the fly bed.

The work was being done on top of the Lebombo, a range of hills some 2000 feet in height running north and south about 50 or 60 miles from the coast. Between the hills and the sea, there was a low-lying coast plane, some parts of which were infected with tsetse flies. Now, I had read in Livingstone and other African travellers and hunters about the tsetse fly disease and was curious to know what it was like. Two young ox and several dogs were therefore sent down into this fly belt and herded among the fly for a fortnight. At the end of this time, they were brought back to the hill and it was a great surprise to find the same parasites in their blood as that found in the ngana oxen.

In this way, the fact gradually unfolded itself that ngana and the fly disease of the travellers and hunters were identical.

<Return to original narrator, over film>

The results of David Bruce's work proved to be of immense importance. He went on to show that trypanosome parasites living in the blood of healthy game animals are the source of devastating disease when carried to the blood of domestic animals by the bite of the tsetse fly, *Glossina morsitans*.



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<Narration over two still photographs in sequence>

In 1896, Bruce succeeded in shipping a dog infected with the parasite home to England, and as a result of this, the trypanosomes soon became available for investigation throughout the world. In 1899, it was named *Trypanosoma brucei* in his honour.

<End credits>

<In addition to credits listed at beginning>

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