

and weary. We drank that water, about a teacupful each, then lay back until the knowledge that there was more water not far off became too much to bear. We got to our feet with difficulty and reached the wall; we found that we had got less than half-way down the hill. The cool stairway was delightful to us, and not less so the feel of firm level stone beneath our feet. Hidden just within the lowest gate of all we found the water-bottle, so there we spent half an hour with our backs to the cool stone wall. I looked at my watch when we got there—it was four o'clock; we had been four hours and a half covering what would have been in a direct line less than half a mile.

That is really the end of the story. We had to get home, nor was it till we started off that I realised how done in I was. My spine ached from the first fall; indeed, I felt it for a fortnight afterwards; my hands were cut and burnt, and I felt as if I had been beaten all over. The steep walk down to the station seemed endless. Long before we got there we were almost as thirsty as ever, for it wanted more than one water-bottle to do us much good. At the station we sat on the edge of the platform dangling our legs for an hour before the train came in, but the time passed somehow. Never have I tasted anything like the whisky-and-soda I drank, sitting in a long chair in the verandah of the hotel.

And, after all, we never solved the problem of the possibility of climbing up a hill-fort. I do not think that we should ever have got down, but we did not choose our route—the buffaloes did that for us. Nor do I think that either Green or I are ever likely to arrive at any solution. But I take off my hat to the Mahratha who climbed the cliffs of Singhad at night.

VII.

THE SAVAGE AS SCIENTIST.

It is a popular notion that the African savage of the backveld kraals ranks little higher than the brute beast in intelligence. Living half-naked in the squalor of a mud-and-wattle hut in the remote wilds of the primeval bush, talking a gibberish that sounds to unaccustomed European ears like the jabberings of the kopje apes, soaked in weird superstitions, haunted by ghosts and demons of his own imagining, how can the brute mind of the savage be expected to glimmer with the light of intelligence that radiates from the civilised white man?

To aver that many a half-naked African may hold the keys to unsolved mysteries by which the keenest brains of science have been baffled would seem an assertion even more crazy, if that were possible, than the mumbo-jumbo with which half-witted witch-doctors, grovelling before a juju-pot, are said to delude the stupid black himself.

But the fact remains that many an epoch-making scientific truth discovered by white men during the past few years was chit-chat and women's gossip in the backveld kraals of Africa centuries ago.

The discovery that general paralysis, a disease symptomised by the degeneration of the tissues of the spinal cord and brain, and hitherto regarded as incurable, can

be cured by inoculating sufferers with malaria has been hailed as one of the most remarkable triumphs of medical research since Sir Ronald Ross, thirty years ago, discovered the connection between malaria and mosquitoes.

Yet more than four hundred years ago witch-doctors in the kraals of one Kitandu, then mtemi or chief medicine-man of the Iramba tribe, a peaceful pastoral race of savages who, to this day, live on the Daua Plateau in Tanganyika, had not only discovered that malaria was a cure for general paralysis, but they were prescribing mosquito-bite as a medicine for paralytic patients in exactly the same manner as Harley Street specialists are doing in this twentieth century of progress and enlightenment!

Harley Street, having no malarial swamp at its door, brings mosquitoes to its patients. The witch-doctors of the Iramba send their patients to the mosquitoes. Otherwise the treatment does not vary a hair's-breadth!

In practice, mosquitoes, infective of malaria, are allowed to bite the patient, injecting the germs of trypanosomes of malaria into his system. Then, in the words of Sir Ronald Ross, "the paralysis germs and the malaria germs fight to the death, and the patient recovers from malaria with a few doses of quinine."

Those words are nearly an exact translation of what Mganga Mgendu, a savage, one of the medicine-men attendant upon Kinga she Kulu, the late chief of the Iramba tribe of Tanganyika, told the writer in describing the treatment he advised as a cure for Kinga, who was suffering from general paralysis. Kinga, who was one of the most famous chiefs and rain-doctors in East Africa, refused to be moved from his kraal at Mandi on the Daua Plateau down to Sekenke in the Wembare Plains, as medicine-man Mgendu urged; and Mgendu came to

ask advice of the writer, who was then administrative officer in charge of the Iramba tribe.

Said Mgendu: "The vidudu of paralysis must fight with the pilintu of malaria so that the pilintu may be devoured: then must Kinga eat of the nzizi chungu (bitter roots), and he will be strengthened."

'Vidudu' and 'pilintu' are Iramba names for those mysterious causes of disease which get into a man's blood; they are the savage's equivalent of the civilised pathologist's trypanosomes and bacilli. Mgendu, of course, had never heard of trypanosomes and bacilli. Like most African medicine-men and witch-doctors, his medical knowledge had been handed down to him through generations of medicine-men in what is called the Kalusimo cha Atemi, or 'Orations of the Chiefs,' the unwritten history of the Iramba tribe, which dates back at least four hundred years to Chief Kitandu's reign, and which every Mniramba medicine-man and witch-doctor learns off by heart.

How Kitandu or his forbears blundered on the fact that the vidudu or bacilli of paralysis fight the pilintu or trypanosomes of malaria, only one of many remarkable discoveries reputed to him, we shall never know. But it was discovered, and the knowledge is shared by the medicine-men of many African tribes.

It is sufficiently remarkable that savages knew long before the white man that both paralysis and malaria were caused by 'germs.' Pondering the mysteries of disease in those dark days the African somehow came to realise that disease was caused by mysterious 'somethings' in the blood system. The savage could only hazard a wild guess at what those 'somethings' were. He guessed correctly. He called the mysterious agents of disease 'vidudu' and 'pilintu,' and it is astounding

to note that Kircher, the first European scientist to write on disease germs in the seventeenth century, used the same words as the African savage to describe his newly discovered germs. Kircher called his microbes 'minute living worms,' and that is literally what the Iramba words 'vidudu' and 'pilintu' mean. Vidudu are mysterious insect-like things; a pilintu is a strange unknown worm-like thing.

So that, when medicine-man Mgendu urged Chief Kinga to move from Mandi on the plateau down to Sekenke in the plains and then afterwards to eat bitter roots, that half-naked savage doctor was prescribing the most up-to-date medical treatment for paralysis based on the most recent discoveries of medical science.

Mandi on the plateau, being 5000 odd feet above sea-level, is practically free from mosquitoes and malaria; but Sekenke, two thousand feet lower down in the plains, stands in the middle of a swamp, and is one of the worst malarial districts in all Africa. At Sekenke Chief Kinga could not fail to get bitten by mosquitoes, to contract malaria, the germs of which would fight with the germs of his paralysis; then he could eat bitter roots, in other words, "a few doses of quinine."

Quinine itself, one of the most valuable specifics known to medicine, was discovered by savages before it was known to the civilised world. It was introduced into European pharmaceuticals soon after the discovery of Peru, where it had long been used by the savage forest-dwellers as a cure for malaria. But a cure was discovered quite independently by the African savage, who was denied the use of cinchona bark, which does not grow wild in Africa, and who by some remarkable process found out that the roots of various species of aconite possess curative powers in cases of malaria, inducing perspiration, reducing

fever and acting as an anodyne. But the savage went still better. Not only did the ignorant black man discover drugs that cure malaria, but he discovered what caused malaria; and that was just what the keenest brains of science could not discover.

Everybody nowadays knows that mosquito bite causes malaria. But that epoch-making discovery is not yet thirty years old. It is only twenty-nine years since Sir Ronald Ross proved to an astounded scientific world that malaria was caused by mosquitoes. And science would scarcely believe it!

But it was common knowledge in the savage kraals of Africa generations ago before the first white man ever set foot in that dark continent of ignorance and superstition.

While scientists were still grappling with the mystery, averring that marsh gases and the foul swamp miasmas caused malaria, that invisible germs floating in the air were inhaled and caused malaria, that the insidious rays of the tropical sun caused malaria, savage clay-debauded Masai and Nandi warriors roving the plains of what is now British East Africa, not only knew that mosquitoes when they bit a man gave him malaria, but they knew that the segetet tree contained a drug which cured malaria, and they took careful precautions against being bitten by mosquitoes so that they might escape infection!

Even Tap-arus-ei, the ignorant silly savage woman nursing her babe in the squalor of the Masai kraal, stirred up the greenwood fire and put her babe to sleep on the leeward side of it so that the pungent smoke should keep the mosquitoes away. Before she pulled the goat-hide coverlet over the sleeping piccanin she looked to its right wrist to make quite sure that the tingwich-pusaruk, the mosquito amulet, was firmly tied by its sheepskin thong

to the tiny arm, warding the child from being mosquito-bitten and getting malaria.

Even when the big brown hover-fly came buzzing round the baby's face, Tap-arus-ei, being a savage and wise in the ways of the things of the wild, did not kill the insect, for she knew that the big brown hover-fly pounces on mosquitoes and makes a meal of them. She knew, too, that smearing her skin with strong-smelling fat kept off the mosquitoes when she went down to the water-hole; that if by chance a mosquito did bite, you could excise most of the poison from the wound by making a deep criss-cross mark in the bite with your thumb-nail. But had Tap-arus-ei and her husband Olwach spoken of those things to the white men who were to come trekking in their country in the after years, their words would have been recorded in some traveller's diary as another comical instance of the foolish things that the ignorant and superstitious native is prone to believe.

Many tribes, not only the Masai and Nandi of Kenya, knew the cause of malaria. The Somalis knew, for a British traveller in their country was told by Somali tribesmen thirteen years before Ross's discovery that the kan'ad or mosquito was a bad insect, biting a man and making his blood boil with the fever. Chief Kitandu of the Iramba tribe knew four centuries ago, for his minstrels sang to the twang of the lusembi, a primitive calabash guitar, "Ni aza kusengila pana nu imbu; nu imbu mbii masaka masemkila!" (Do not build huts where mosquitoes live; for mosquitoes are evil, and make your blood hot!)

And that song, with others full of savage wisdom, is to be heard to this day in the kraals of Tanganyika.

How many thousands of pounds might have been saved to British settlers in Africa and elsewhere in the world

where sheep and cattle are ranched if veterinary science, grappling with the problems of cattle scourge and sheep bane in the sub-tropics, had consulted savage stock-owners and asked their opinion will never be estimated; but here, again, savages had discovered what science had failed to probe.

The cattle-owning tribes of East Africa, chief amongst which are the Masai and Nandi, who *per capita* are the wealthiest people in the world, owning hundreds of thousands of head of cattle, sheep and goats, knew long before the advent of the white man to their country that red-water scourge in cattle and heart-water bane in sheep are caused by the bite of grass ticks which infest the grazing grounds. While the world's veterinary experts dallied with this mystery, settlers in South Africa lost countless thousands of sheep and cattle from these two scourges. Yet there was scarcely a native in the span of Africa belonging to one of the great pastoral tribes who could not have gone on to any settler's farm and collected a bottleful of the ticks. The Masai and other tribes not only knew these ticks, but they gave them special names, and took the precaution of burning the grass on the grazing grounds every year-end with the object of destroying the scourge-carrying pests which took such toll of their cattle and sheep.

The bite of another tick, a small insect not unlike a shrivelled sunflower seed, and known to science as *Ornithodoros moubata* or the spirillum tick, is the cause of recurrent fever, one of the worst ills to which the white man in the tropics is prone. No certain and permanent cure for spirillum tick fever is yet known to medical science, but the savages of the west coast of Africa, the original home of this tick, found what is better than cure, and that is a means of prevention. These savages in fever-tick districts carry a pet tick in a small gourd, and at

stated periods let these pet ticks feed upon their arms and so supply their system with a natural antitoxin!

The use of toxins and antitoxins in the now familiar practices known as vaccination and inoculation is one of the comparatively modern achievements of science. Yet vaccination was practised by many African tribes long before it was thought of by white men. The Wakimbu of Tanganyika vaccinate each other against smallpox, serum from a native suffering from smallpox being injected into small cuts made on the arms, brows, or hips of healthy people who have not yet succumbed to an attack of smallpox.

In a recent case which the writer heard as a magistrate in Tanganyika, it came to light in evidence that the Wakimbu, the Isansu, the Iramba and other tribes knew how to inoculate their enemies with the deadly germs of such diseases as leprosy. And it should not be forgotten that the only cure known to medical science for leprosy is treatment with a vegetable oil, known as chaulmoogra oil, which was used medicinally by savages long before its germ-suffocating properties—it really ‘drowns’ the leprosy germ—were discovered by the doctors.

In the matter of poisons, savages are acknowledged experts, but it is remarkable to note that without any knowledge of toxicology they chose the right poisons for the right object, and did not mix poisons with the haphazard intention of merely causing death by general blood-poisoning. The poison used by the pygmy tribes of the Congo to smear the arrow-heads with which they shoot elephants and rhinoceri is prepared from a plant known to Bantu savages as urugi.

This plant when pulped yields a deadly heart poison in an impure drug containing large quantities of stropanthus. When injected into the blood system in any

crude quantity stropanthus has a violent effect upon the muscles of the heart, causing almost instantaneous death. Stropanthin, its laboratory derivative, is a drug commonly used by the medical profession in cases domestically known as ‘heart trouble.’ It is curious to speculate how the Congo pygmies, amongst the most primitive of savage races, came to discover that stropanthin was the ideal and perhaps the only wild-growing poison which would give such huge beasts as elephants almost instantaneous death from heart failure!

Strychnine, another deadly poison, is also well known to most savage tribes, being readily obtainable from various plants, the chief of which is known as kiligi. To kula kiligi is a savage expression meaning to commit suicide, literally to ‘eat strychnine,’ that deadly poison being the one that African suicides, mostly young girls disappointed in love, and wives whose marriage ideals have been shattered, take as their last sip from the tilted calabash before they tread that long dark trail which leads into the Valley of the Moon.

Turning from these practical savage discoveries in the fields of medicine, poison and pathology, to mysterious riddles savouring of occultism which perplex the keenest brains of modern science to-day, we find convincing proof that the African savage, for centuries past, has been master of the mysteries which have so far baffled white men in the arts of hypnotism, mesmerism, auto-suggestion, telepathy and, most of all, in that inexplicable psychological enigma known to science as lycanthropy, the alleged power of certain human beings to turn themselves into animals.

There is little doubt that a hypnotic eye, known to savages as jicho mbii or the ‘evil-eye,’ a cunning insight into the weaknesses of his fellow-tribesfolk, uncanny