

heaps of cowdung, and then spreading the results on the rocks to cool. Not understanding what they were about we approached them, when, to our surprise, an old crone picked up a lump of this delectable material, put it into her mouth and consumed it with evident satisfaction, muttering, as she saw our unfeigned surprise, 'Salt, salt; good, good!' and then we realised that here they use the extract of nitre from the ash as their substitute for salt, the commodity of life for which they have the greatest craving, but which it is hardest to obtain.

In the afternoon we went to pay a visit to the chief, who received us in a sort of inner fortress surrounded by a wall, through an opening in which, about three feet high, and covered with large slabs of stone, we had to creep. He is a grey-haired, refined-looking man, with manners very like, and not the least inferior to, an Arab sheikh. He sat surrounded by his councillors, and we all set to work to clap hands vigorously. By this time my wife had learnt to clap hands in the female fashion, namely, crosswise, whereas previously she had disgraced herself by clapping like a man, with the fingers straight upon one another; but, of course, the intricacies of savage etiquette can only be acquired by practice.

After a little conversation had passed between us, a woman, one of the chief's wives, made her appearance, bending her body humbly, and carrying a large pot full of *wa-wa*, as they term beer in this part of the country. This she presented to her lord and master

on bended knee, after having previously drunk a little herself, to convince us that there was no poison in it; then the chief took a drink, then his councillors, and finally it was handed to us. We found it was lovely beer, very potent, and after our long abstinence from anything so intoxicating, as exhilarating as the air.

We were much struck by the courteous manners of the natives here. One man, on receiving a present, bowed low and scraped the ground with his feet. There is something about these people which points distinctly to a higher form of civilisation having existed amongst them at a former time; and when one reads Dos Santos's account of the Mocarangas of Monomatapa of his day, one cannot help feeling that they are the remnant of that higher civilisation about which the early Portuguese travellers tell us so much.

'The Portuguese,' says Dos Santos, 'did not enter the king's presence, like the Kaffirs, with deep obeisance, only with bare feet;' and in a curious old treaty published in the Portuguese Yellow-book, and purporting to have been made between the Monomatapa chief Manuza and Manuel Gomes Serrao in 1629, the following stipulation is inserted:—

'The ambassadors who shall come to speak with him shall enter his Zimbahe covered and shod (with boots on their feet) and with their arms at their sides, as if they were before the King of Portugal. He shall give them chairs upon which to sit, and they shall not be submitted to the ceremony of the clapping of hands.'

Chipunza has another name, Chipadzi. The exact relation between these two names we were unable to ascertain; Chipadzi, however, I believe to be the old dynastic name of the chief. His Zimbabwe, or place of sacrifice, is about a mile from the present village, at a spot called Chittakette, or the Chipadzi's old town. To this place we were to be taken on the morrow. We found it an interesting old spot, buried in trees and with tomatoes and tobacco plants all amongst the ruined walls. It evidently had had a wooden palisade around it, which had sprouted and produced the venerable trees, and it had an inner fortress with walls encircling it, and low gateways through, with large stone slabs over them. It is an excellent specimen of this rough style of fortress: the walls are from six to eight feet thick, with loopholes out of which to shoot, built with no attempt at keeping even courses, and with mortar. Within the fortress are the remains of huts and granaries, as if the place had not been abandoned for very many years.

Just outside is Chipadzi's tomb, with a tall stone erected over it, and the surrounding ground is covered with tombs. This spot is called the Zimbabwe by the natives, where they sacrifice annually to the Maklosi of their ancestors.

We spent two days wandering amongst the granite rocks around Chipunza's kraal, and we found evidence of a vast population having lived here at some period. Nearly every one of the granite *kopjes* is fortified with walls, and on some of them we found

graves of cement similar to those we saw at Nyanger rock; and on the hill just behind Chipunza's kraal a tall stone is erected on a pile of stones, the object of which nobody seemed inclined to tell us.

How long ago it is since these walled towns were inhabited, and who inhabited them, is, of course, a mystery. There is, however, no evidence of any great antiquity about them; the mortar may have stood for a few centuries, but not more; and from the evidence given us by the Portuguese, above quoted, from the continuity of certain names and many customs, and from the fact that the present inhabitants still retain a certain knowledge of stone building, I think it is a very reasonable assumption that this was one of the great centres of the so-called Monomatapa Empire.

After leaving Chipunza's kraal, and crossing the River Rusapi, a ride of two hours brought us to Makoni's kraal. Makoni, chief of the Maunga tribe, is still one of the most powerful potentates in this district. He, too, calls his town Zimbabwe, and it is doubtless the same spot occupied by Makoni, chief of the Maungo, one of the great vassals of the Monomatapa that Antonio Bocarro tells us about three centuries ago.

It is probably the highest inhabited spot in Mashonaland, being 5,200 feet above the level of the sea, just at the edge of the high plateau, where it breaks into the serrated ridges of Manicaland. The town covers a very large area of ground, being a

conglomerate mass of huts and granaries surrounded by a palisade. We spent about an hour resting there at a sort of public meeting-placesurrounded by a wall, where the inhabitants collected in crowds to stare at us. Most of the men had very large holes pierced in the lobes of their ears, into which they would insert snuff-boxes of reeds, decorated with black geometric patterns, and other articles. The women are all girt with the same bark-fibre garments which we had seen worn in 'Mtoko's country. Accompanied by a swarthy rabble, we climbed a rock behind the town, from which we got an exquisite view down into the valleys of Manica, bearing eastwards—a view of rugged mountains tumbled together, of deep valleys and running streams—a view such as one would get when descending from the Alps into the plain of Italy. Chief Makoni never came to see us, and as our time was limited we had to hurry away without making his acquaintance.

Almost immediately on leaving Makoni's our road began to descend, and we entered upon a series of richly wooded gorges, flanked by gigantic granite cliffs. On one of these pinnacles, about the height of Makoni's own kraal, is perched Chigono's village, occupying a most wonderful position. How they ever manage to drag up here a sufficiency of water and the necessaries of life is a marvel. One thing they have in perfection is climate. We found it hot and stuffy in the valleys, but in their mountain eyries the Kaffirs enjoy the most perfect air that it is possible to breathe.

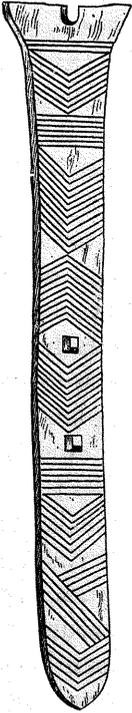
On the third day after leaving Chipunza's, one of our men had the good luck to shoot an antelope, an event which was hailed with delight by all in our camp. We had never in our lives been so long without meat, and the want of it was beginning to be felt by all. On the fourth day we crossed the Odzi River, the boundary between Mashonaland and Manicaland. It is a fine stream even here, with a good body of water even at the end of the dry season, on its way to join the Sabi River, just where we touched it a few weeks before. At the point where we crossed the Odzi the stream was sixty feet across, and the bed is at least one hundred yards wide, and when the rains are on it must be a terrible obstacle. Even as it was we had to unload the donkeys and carry their burdens across, which means, when the afternoon is advancing, a halt for the night.

A ride of twelve miles brought us next day to the kraal of 'Mtasa, the most powerful of all the Manica chiefs. He is the paramount lord of the Nica tribe, which gives its name to the country, and dwells in the heart of the most mountainous district we had as yet traversed. A mass of mountains, known to the natives as Mount Yanya, occupies the heart of his country. 'Mtasa's kraal itself is over 4,000 feet above the sea level, and above this the rocky mountains tower 2,000 feet at least. Here, though not actually as high as Makoni's, you feel much higher, looking down into the deep valleys below, and seeing no high plateau behind you. Amongst these moun-

tains lie numerous scattered kraals, excellent grazing-ground for cattle, and from marauding neighbours 'Mtasa is free. Nevertheless, during the last two years poor 'Mtasa has had rather a bad time of it, being the bone of contention between the Portuguese and English chartered companies. Early in 1891, in the very centre of this kraal, a small English contingent captured Andrade, Gouveia, and the representatives of the Mozambique Company, and now the British flag floats over it.

'Mtasa's kraal is quite one of the most extraordinary ones we had yet visited, being a nest of separate villages, each surrounded by its own stockade, hidden away amongst granite boulders beneath the shade of a lofty mountain. It is almost impossible to form any idea of the exact extent of this place, so hidden away is it amongst trees and rocks, and so intricate are its approaches; but, if report tells truly, which it does not always do in South Africa, it is one of the largest native centres in the country. We wandered up to a village the first afternoon, a considerable climb from our camp. Little groups of natives sat chattering under the shade of open huts, or just roofs on piles, the rudimentary form of the café or the club: there were pigeon-cotes on piles in all directions, and at every turn we found ourselves blocked by palisades, which caused us to retrace our steps; so, as we intended to stay another day here, we contented ourselves with gazing at the magnificent view, the peaked heights of the Yenza range, the

deep wooded valley below with its dashing stream, and far away in the horizon the distant blue Manica mountains. Certainly no kraal we had as yet visited enjoys such excellent views as 'Mtasa's. The huts here are large and roomy, at the side they have two tall decorated posts to support shelves for their domestic produce; most of them have two doors, and with the dense shade of many trees above them they are exceedingly picturesque.



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On our second visit to the kraals we met 'Mtasa's son, who regretted that his aged father was ill just then, and had gone away for change of air. We took leave of him, and climbed up through rocks and through palisade after palisade, shutting off the various kraals from one another; one of these we entered by a curious gateway made by swinging beams, and penetrated into the headquarters of the old chief. By this time we noticed that the people began to glare at us unpleasantly and audibly to grumble. Seated in rows on the rocks, they chattered to us like angry monkeys, but we went on without heeding them. One man, with a bayonet fixed on to his rifle, followed unpleasantly close behind us; and then, as we were about to penetrate into what I suppose formed

their innermost recesses, 'Mtasa's son, who, by the way, had had more beer than was good for him, came up to us in hot haste, and peremptorily commanded us to depart. Again he reiterated the statement that his father was away, and during his absence none could see the royal kraal; so, somewhat crestfallen, we turned back again and saw no more. Afterwards we were informed that the old 'Mtasa was there all the time, but, as he had suffered so much lately from the conflicting interests of England and Portugal, he thought it best not to see us, for fear we might make him sign some new treaty against his will.

Of all the natives we had met during our wanderings, those of 'Mtasa's pleased us least; they appeared to us to be completely wanting in all delicacy of feeling, and had to be driven by force from our tents. They seemed to us to be an ill-bred, impudent race, and though their home was so lovely we left it without regret. Somehow, too, our visit to 'Mtasa's kraal was altogether unsatisfactory; we left it with the consciousness that there were mysteries in it which we had not yet explored. At the very last moment, just as we were packing up our things, I chanced to see on a rock close by our camp some more of the Bushman drawings, grotesque figures of men with bows and arrows and deer grazing, in the usual colours of red and yellow. I feel confident that in the massive mountain behind the kraal some more fortunate travellers will find objects of interest which

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will well repay investigation. We have distinctly unpleasant recollections of the place, as we have also of a certain dangerous slippery drift or ford across the River Odzani, which we found about half way between 'Mtasa's and the B.S.A. camp at Umtali. We had to take off our shoes and stockings and lead our horses across the slippery rocks; they, poor things, slipped at every step and trembled with fright. As for our donkeys, they subsided altogether, and had to be unloaded and almost carried across.

CHAPTER XII

THE JOURNEY TO THE COAST

WE reached Umtali on October 24, just a month after leaving Fort Salisbury. We were distinctly weary and wayworn, and having had but little food of late we partook of the refreshments kindly set before us by the officers of the Chartered Company with, to us, unparalleled heartiness. At Umtali we pitched our tents near a stream with every intention, as time would permit, of taking a few days of rest and retrospect before starting on the arduous journey down to the coast.

We had now travelled through the greater part of Mashonaland, as, I suppose, the new country must inevitably be called; we had studied the archæology and anthropology of the districts through which we had passed with all the diligence that hard travelling and hard work would allow. Mr. Swan had constructed a map of the route from observations and hearings taken at every possible opportunity by day and by night; and at the same time we had formed opinions on the country from our own point of view, perhaps all the more unbiassed because we were not

in search of gold, neither had we pegged out any claims for future development.

That the country is a magnificent one, apart from gold, I have no hesitation in saying. Any country in such a latitude, and at such an elevation, well watered, with prolific soil, healthy and bracing, if ordinary comforts are attainable, could not fail to be. The scenery is in many parts, as I have previously described, very fine ; there is abundance of timber, excellent prospects for cereals, and many kinds of ore exist which will come in for future development ; and gold is there too. On that point I am perfectly satisfied ; whether in large or small quantities, whether payable or unpayable, is a matter which can only be decided by years of careful prospecting and sinking of shafts, not by hasty scratching on the surface or the verdict of so-called ' experts ' after a hurried visit. That gold was there in very large quantities is also certain, from the vast acres of alluvial soil, turned over, and the countless shafts sunk in remote antiquity.

To carry out what is necessary for this possible future development, or, perhaps, to speak more correctly, resuscitation of this country, an easy access is indispensable, and the great check to this progress hitherto has been the absence of railways in South Africa on the eastern seaboard, the natural and easiest entrance to the country being in the hands of the listless Portuguese. Progress is impossible with Kimberley as a base of operations and a thousand miles *trek* over difficult and swampy roads before

the scene of action is reached. In Western America the railway is the first thing, development comes next; and inasmuch as the Chartered Company have tried the converse of this—to put the cart before the horse, to use a familiar simile—they have met with innumerable difficulties at the very outset.

Having entered the country by the weary waggon-road through Bechuanaland, and having left it by the now somewhat arduous Pungwe route, I can confidently affirm that this latter is the only possible route; and I now propose to describe it as it at present exists, feeling sure that in years to come, when the railway hurries the traveller up to Umtali, when the venomous tsetse-fly no longer destroys all transport animals, when lions cease to roar at night, and the game has retired to a respectful distance, a back glimpse at the early days of this route will be historically interesting.

Umtali is the natural land terminus of this route, as Beira is its legitimate port. Umtali, so called from a rivulet which flows below it, was, when we were there, a scattered community of huts, now brought together in a 'township' at a more favourable spot, about five miles distant from the former site, which township the British South Africa Company hope to call Manica, and to make it the capital of that portion of Manicaland which they so dexterously, to use an Africander term, 'jumped' from the Portuguese. Of all their camps Umtali was the most favourably situated that we visited, enjoying delicious air, an immunity

from swamps and fevers, lovely views, and many flowers. On the ridge, where the camp huts stood exposed to the violent and prevailing blasts of the south-east winds, which descend in furious gusts from the surrounding mountains, stood also the guns taken from the Portuguese, nine in all, and presenting a formidable enough appearance, until we learnt that they were useless then, for the pins were abstracted before capture. Far away on the hill slopes were the huts of the original settlers; the bishop's palace likewise, a daub hut standing in the midst of a goodly mission farm. The hospital, with the sisters' huts, crowned another eminence, and the newly made fort stood on the highest point, from which glorious views could be obtained over the sea of Manica mountains, the rich red soil and green vegetation, so pleasant a change to the eye after the everlasting grey granite *kopjes* of Mashonaland and its uniform vegetation.

Of ancient Portuguese remains there are several in the neighbourhood of Umtali fort, where centuries ago the pioneers held their own for awhile against native aggression. To-day, if you dine at the officers' mess at Umtali, you find evidences of Portugal of another nature. You sit on Portuguese chairs and feed off Portuguese plates obtained from the loot at Massi-Kessi; and when the governor of that district came to pay an amicable visit to the governor of Umtali, they had nothing to seat him on save his own chairs, nothing to feed him off save his own plates, and nothing to give him to eat save his own tinned

meats. But Portuguese politeness rose to the occasion, and no remarks were made.

Crossing a stream below the fort, we found ourselves amidst a collection of circular daub huts and stores, on either side of what a facetious butcher, who dealt largely in tough old transport oxen, had termed in his advertisement 'Main Street.' Here you might pay enormous prices for the barest necessities of life, and drink at old Angus's bar a glass of whisky at the same price you could get a bottle for in England. Scotch is the prevailing accent here, and I think the greatest gainers out of Mashonaland, in the first year of its existence, were those canny traders who loaded waggons with jams and drink, and sold them at fabulous prices to hungry troopers and thirsty prospectors. Old Angus was a typical specimen of this class, a sandy-haired little Scotchman, well up in colonial ways, who kept two huts, in one of which eating, drinking, and gossip were always to be found; whilst the other was divided into three bare cells, and called an hotel.

Such was the first Umtali, primitive and fascinating in its rawness. Now these huts are abandoned to the rats and the rain, and a new Umtali of doubtful expansion has been built five miles away.

Our journey from Umtali to Beira was one which required much forethought. First, we had much luggage, which we did not wish to leave behind or bury on the way, as others had been obliged to do; secondly, my wife did not feel inclined to do the one

hundred and eighty miles on foot, through heat and swamp, in tropical Africa; and thirdly, the Kaffir bearers were scarce, and especially—at that season of the year, when their fields wanted ploughing—apt to run away at awkward moments. So the services of the homely ass were brought into requisition. The ass would die of the fly-bite, everyone told us, but not until it had deposited us safely in Beira. Consequently our eleven asses were retained in our service and considered in the light of the railway tickets of the future, to be used and thrown away. It seemed horribly cruel, I must admit, to condemn eleven asses to certain death; but then, what are animals made for but to lay down their lives to satisfy the requirements of man in his dire emergencies?

A cart was constructed on two firm wheels, the wonder of its day. Eight donkeys were harnessed therein, with gear made out of every imaginable scrap. Three donkeys trotted gaily by its side, to be brought into requisition in case of sore backs and other disasters; and one wet evening we despatched our hopeful cart with our blessing on its road to the coast. *It would take three or four days getting by the waggon-road to Massi-Kessi, whilst we could cross the mountains in one.* So next morning, we on foot and my wife on horseback, started by the mountain road for Massi-Kessi, and got there as evening was coming on. A good walk in any of the mountainous districts of the British Isles would have been just the same. A drenching mist obscured every vision, the paths

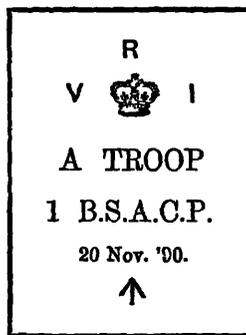
were slippery and uneven; occasionally a glimpse at a stream with bananas waving in the mist, or at a Kaffir kraal, would dispel the homelike illusion, and bring us back to Africa again. Towards evening the aggravating mist cleared away, and gave us a splendid panorama of the surrounding mountains as we approached Massi-Kessi and entered the valley of the River Revwe. Just here we walked for miles over ground which had been worked for alluvial gold in the olden days, the soil being honeycombed with low holes, and presenting the appearance of a ploughed field with circular furrows.

Certainly the Portuguese, or rather the Mozambique Company, are to be congratulated on the possession of such a paradise as this Revwe Valley—fertile in soil, rich in water, glorious in its views over forest-clad mountains; and it is not to be wondered at that they keenly resented the temporary appropriation of it. Massi-Kessi and its neighbourhood are rich in reminiscences of the Portuguese past; the new fort, where the new company has its store, was built out of the remains of an old Portuguese fort, around which you may still pick up fragments of Nankin porcelain, relics of those days, now long since gone by, when the Portuguese of Africa, India, and the Persian Gulf lived in the lap of luxury, and fed off porcelain brought by their trading-ships from China. Higher up in the mountain valleys are forts and roads of this occupation. As in the Persian Gulf, as in Goa and elsewhere, the Portuguese influence van-

ished in East Africa after her union with Spain and the consequent drafting off of her soldiers to the wars in Flanders; barely a phantom of her former power remained to her in the province of Mozambique. A few futile expeditions under Barretto, Fernandez, and others were destroyed either by the natives or by fever, during one of which the legend is still told that the defenders of this fort of Massi-Kessi were obliged to cast bullets out of gold nuggets when cheaper material came to an end. After this the inland country was practically abandoned to the savages. Old treaties existed but were not renewed; lethargy seemed to have taken entire possession of the few remaining Portuguese who were left here, a lethargy from which they were rudely awakened by the advent of the Chartered Company. What better argument do we want for the reoccupation of this country by a more enterprising race than these forts abandoned and in ruins, and the treaties with savage chiefs long since neglected—consigned to the national archives? The little episode of Massi-Kessi is certainly one which deserves to be engraven on our national records, though it arose from a mistake, and the ground gained had ultimately to be abandoned; nevertheless these facts do in no way detract from the bravery of the Chartered Company's men.

Forty Englishmen of troop A, under the command of Captain Hayman, were stationed about 1,500 yards from the fort at one o'clock on the day of the fight. Messengers were sent from the Portuguese bidding

them retire, but Captain Hayman said his orders were to the contrary, and he could not. Thereupon the Portuguese force, mustering 150 white men and 300 blacks, advanced, and the action began. At five o'clock they retreated, with many killed and wounded, but not one single Englishman suffered. Next morning our troops were surprised to find that the Portuguese flag was not up, and on marching to the fort they found it abandoned. Here it was that they took the guns we had seen at Umtali and 110,000 rounds of ammunition. The victorious troops pushed on as far as Chimoia's, and would have driven the Portuguese out of the country had they not then been met by orders to retreat. Massi-Kessi was also eventually abandoned, and by the recent treaty is included in the dominions of the Portuguese Chartered Company. In the store, however, one of the B.S.A. troopers carved the following memento of his visit before taking his departure:—



The tradition of good living is still maintained by the Portuguese officials at Massi-Kessi. Never saw I a greater contrast in seventeen miles than that offered by the fare provided at the British camp at Umtali, and that placed before us by the kind Portuguese commandant at Massi-Kessi; here we had six courses of meat and excellent wines, and other, to us, unwonted luxuries. They have farms for vegetables, and many head of cattle around; they have their natives under complete control, and make them work; they build large roomy huts, but the commandant's apologies because we had to sit on wooden boxes, not on chairs, made us blush, for we knew that the said chairs were there once, but now were gracing the British mess-room at Umtali.

When speaking of roughing it in the interior, the want of food and the necessaries of life, Commandant Béthencourt was slightly sarcastic. 'What strange people you English are to do such things!' he said. 'We Portuguese might, perhaps, do them for our country, but for a Company—never!'

Now we started in good earnest for the coast, refreshed by our three days' rest at Massi-Kessi under the kind roof of the Portuguese; our cart had arrived, and our eleven donkeys and men looked fit, despite the evil road they had had to traverse.

Two roads from here were open to us to Beira—one by the Pungwe, the other by the Buzi River. We hesitated somewhat in our choice, for the latter we

were told, was less swampy, and the fertile district of Umlivan would have interested us—where they grow the best tobacco in these parts, and the prospects of which for agricultural purposes, they said, are brilliant; but, as the season was growing late, and the rains might come on any day, we decided on taking the quicker and more frequented route. Moreover, we were anxious to witness for ourselves the calamities which had befallen Messrs. Heany and Johnson on their pioneer route, and to form our own opinion as to its possibility for the future.

Our first halt was at the Mineni River, a tributary of the Revwe, which we reached after an easy journey, marked only by the upsetting of our cart when we least expected it, an accident which occurred for the first and only time. The Mineni is a rapid stream, flanked by rich tropical vegetation, with graceful bamboos and lovely ferns overhanging the water; it supplied a deficiency we had long felt in Mashonaland scenery, namely, water in conjunction with mountains and rich vegetation. The greens are peculiarly vivid here, and the red young leaves of some of the trees give the appearance of autumnal tints, and form a feature peculiar to African landscape. In its rocky bed we dared to bathe without fear of crocodiles, an ever-present terror to those who venture into the sluggish sandy pools of Eastern Africa.

Messrs. Heany and Johnson undoubtedly did good work in preparing their road, for which work we probably are the only people who are devoutly thank-

ful, for ours is the only wheeled vehicle which has traversed it in its entirety since the single pioneer coach went up to Umtali, after infinite difficulty and weeks of disaster, with such sorry tales of fever, fly, and swamp, that no waggons have since ventured to repeat the experiment. The trees which they had cut down, and the culverts which they had made over the *dongas*, assisted us materially, and we stepped along our road right merrily.

The farther we went the more reason we had to be thankful for our frail cart and homely asses. Others we passed in dire distress whose bearers had deserted them, and who could not find more: we overtook one party holding solemn conclave as to what they should throw away, what they should bury, and what they could possibly manage to take on. Boxes, containing liquor, clothes, and other commodities which could be dispensed with, are frequently found on the road, telling their tale of desertion by bearers and acute misery of the possessors.

He who first started the evil plan of paying these dark bearers in advance ought for ever to be held up to public obloquy. The Kaffir, doubtless, has been often cheated by the white man, for many unscrupulous individuals have traversed this road from Umtali to Beira, and the black man was wise in his generation when he insisted on payment before undertaking the journey; but now he has too dangerous an opportunity for retaliation, of which he takes frequent advantage, and many are the cases of deser-

tion at awkward points. A white man, stricken with fever, had to pay his bearers over and over again before he could persuade them to go on; the Sisters on their way to Umtali were deserted at Chimoia; and at the season of the year when the fields are to be ploughed they develop a still greater tendency to this unscrupulous behaviour.

The Portuguese manage their affairs far better than we do. Troops of so-called convicts are shipped from their West African provinces to those on the east coast, and *vice versa*, so that in both places they have ready-made slaves to carry their baggage and their *mashilas*, or travelling hammocks. The Portuguese word is law with their black subjects, whereas the unfortunate Englishman has to pay 25s. or 2*l.* for a bearer, who will carry sixty pounds, but will desert when the fancy takes him. Furthermore, the Englishman dare not treat his nigger as he deserves; if he did, he would be had up at once before the Portuguese magistrates, and be sure to get the worst of it. Before the Pungwe route can be made available, even for the lightest traffic, this order of things must cease. The native bearer is undoubtedly a fine specimen of humanity. He will carry on his head weights of surprising size, which it requires two men to lift up to its exalted position; he runs along at a rapid pace, and does his twenty-five to thirty miles a day with infinite ease; and if the desertion and payment question were settled, there would not be so many thousands of pounds' worth of valu-

able stuff spoiling at Beira, and much wanted at Umtali. Each chief ought to be compelled to supply a fixed number of bearers at a fixed tariff, and cases of desertion should be severely punished. But the way to do this is not clear as yet, for the Portuguese do not wish it, and to the British mind this form of compulsory labour might savour too much of slavery.

With our cart we did eighteen and twenty miles a day; quite far enough for the pedestrian in this warm climate. The first hour's walk, from 6 to 7 A.M., was always delicious, before the full power of the sun was felt; the rest of the day was atrociously hot, especially when our road led us through steaming tropical forests and rank vegetation. Luckily for us at this season of the year the long grass in the open *veldt* was all burnt, and the stifling experience of walking through eight or ten feet of grass and getting no view whatsoever was spared us.

Shade for our midday halts was always precarious. African trees have the character of giving as little shade as possible, and this we found to be invariably the case. Luckily, water is everywhere abundant, and we could assuage our thirst with copious draughts of tea.

The native kraals on this road are highly uninteresting; the inhabitants are wanting altogether in that artistic tendency displayed in Mashonaland, which showed itself in carved knives, snuff-boxes, and weapons. A chief named Bandula occupies a com-

manding position on a high range which we passed on our left, at the foot of which flows a stream called the Lopodzi, which delighted us with its views over the Nyangombwe Mountains, and offended us with its swampy banks, where the frogs croaked as loud as the caw of the rooks in our woods at home.

Chimoia's kraal is a sort of half-way halt, where all waggons are now left before entering the much-dreaded 'fly belt;' and here my wife parted reluctantly with her horse, and transferred herself and her saddle to the back of one of the three loose asses which accompanied our cart. Most people seem to have two or three asses in their train, for fear of being utterly helpless in case of the desertion of their blacks, and all are prepared for their ultimate demise, either by the violence of the lion or the bite of the fly. One ass at Chimoia's distinguished itself by seizing its master's sugar-bag, and consuming it and its contents with all the greater avidity when the master and his stick turned up. All laughed; but all who had experienced the great calamity of being without sugar in this land felt deep compassion for the victim.

Chimoia's is a scattered kraal, poor and destitute: clusters of round huts with low eaves, and doors through which one has to crawl on hands and knees.

We could get no meal here, as everyone had told us we should, and when talking over our supplies the faces of our men grew long and anxious; and if

it had not been for the kindness of other white men whom we met on our way down, famine would have been added to our other discomforts; but good fellowship and spontaneous liberality are the characteristics of all those Englishmen who have been up country, and at one time or another known what it is to be without food. At Chimoia's ends the pleasant traffic in beads and cloth, which for months past had kept our money in our pockets. Here a rupee is asked for every commodity; and some day surprising hoards of these coins will be found in the Kaffir kraals near the coast, for they never spend them, neither do they wear them as ornaments, and it is a marvel to all what they do with them. The vegetation is very fine around Chimoia's, and the land appears wonderfully fertile. On the top of a strangely serrated ridge of mountains behind the village is a deserted Portuguese fort, and a flagstaff with nothing floating therefrom.

Beyond Chimoia's the streams grow more sluggish, and emit more foetid odours, suggestive of fevers. Ragged-leaved bananas, bamboos, and tree-ferns luxuriate in all these streams, which work their way in deep channels, or *dongas*, across the level country.

The fall is now scarcely perceptible, and the long flat belt which girdles Africa is entered, the much-dreaded low *veldt*, teeming with swamps, game, and tsetse-fly. At one time you are walking through a forest of bamboos, making graceful arches overhead with their long canes, and recalling pictures of Japan ;

at another time you go through palm forests, and then comes a stretch of burning open country; and at night-time, for the first time, we heard the lions roar. We lighted huge camp-fires and trembled for the safety of our eleven donkeys, for which animals lions are supposed to have a particular predilection.

Mandigo's kraal is twenty-four miles from Chimoia's, and to us was equally uninteresting and equally unproductive of the much-needed supplies. Some say the fly only begins here, and certainly we saw none ourselves till after Mandigo's; and from here to Sarmiento we saw plenty of it. The tsetse-fly is grey, about the size of an ordinary horse-fly, with overlapping wings. Our donkeys, poor things, got many bites, and we felt grieved at their prospective deaths. We provided them with the only remedy of which we could hear, namely, a handful of salt every night; but how this is supposed to act in counter-acting the bite of the fly I am at a loss to imagine.

Certainly this fly has many peculiarities. All domesticated quadrupeds—horses, oxen, and dogs—die from it when brought up country; whereas zebras, buffaloes, and native curs flourish amongst it with impunity, and its bite has not so much effect upon human beings as that of a common midge.

Ample evidence of the ravages of this venomous insect are visible on the roadside. Dozens of waggons lie rotting in the *veldt*, bearing melancholy testimony to the failure of Messrs. Heany and

Johnson's pioneer scheme. Everywhere lie the bleaching bones of the oxen which dragged them; and at Mandigo's is an abandoned hut filled to overflowing with the skins of these animals, awaiting the further development of the Pungwe traffic to be converted into ropes, or *reims*, as they are usually termed in South Africa. Fully 2,000*l.* worth of wag-gons, we calculated, as we passed by on one day's march, lies in the *veldt*, ghostlike, as after a battle.

Then there are Scotch carts of more or less value, and a handsome Cape cart, which Mr. Rhodes had to abandon on his way up to Mashonaland, containing in the box-seat a bottle labelled 'Anti-fly mixture,' a parody on the situation.

But the greatest parody of all is at Sarmento itself, a Portuguese settlement on the banks of the Pungwe. Here two handsome coaches, made expressly in New Hampshire, in America, for the occasion, lie deserted near the Portuguese huts. They are richly painted with arabesques and pictures on the panels; 'Pungwe route to Mashonaland' is written thereon in letters of gold. The comfortable cushions inside are being moth-eaten, and the approaching rains will complete the ruin of these handsome but ill-fated vehicles. Meanwhile the Portuguese stand by and laugh at the discomfiture of their British rivals in the thirst for gold. Even the signboard, with 'To Mashonaland,' is in its place; and all this elaborate preparation for the pioneer route has been rendered abortive by that venomous

little insect the tsetse-fly. In his zeal to carry out his contract, Major Johnson committed a great error and entailed an enormous amount of misery when he telegraphed that the Pungwe route was open, and circulated advertisements to that effect, giving dates and hours which were never carried out.

Heaps of people, for the most part poor and impecunious, flocked to this entrance to their Eldorado, and after waiting without anything and in abject misery at Chimoia's had to return to Mapanda's, where the condition of affairs was desperate—people dying of fever, the doctor himself ill, and no food, for the Portuguese governor of Neves Ferreira, Colonel Madera, boycotted the English and forbade the natives to bring them provisions. Assistance was brought to them by Dr. Todd, of the *Magicienne*; but many died, and the rest, disappointed and penniless, had to return to Capetown.

The River Pungwe is imposing at Sarmiento, its bed being nearly two hundred yards across, and the view of the reaches up and down from the verandah where the Portuguese governor has his meals *al fresco* is fairly striking. But the Pungwe is imposing nowhere else where we saw it, being a filthy, muddy stream, flowing between mangrove swamps, relieved occasionally by a tall palm and villages on piles; the surroundings are perfectly flat, and its repulsive waters were until lately plied only by the tree canoes of the natives. Crocodiles and hippopotami revel in its muddy waters, and on its banks game is abundant

enough to satisfy the most ardent sportsman. Deer of every conceivable species are to be seen still quietly grazing within shot of the road; buffaloes, zebras, lions, hyenas, wild pigs, nay, even the elephant, may be found in this corner of the world. Disappointed as the sportsman may have been with the results of his exploits in Mashonaland and the high *veldt*, he will be amply rewarded for the fatigues of his journey to Beira by finding himself in a country which would appear to produce all the kinds of wild animals that came to Adam for their names. One herd of zebra, numbering about fifty, stood staring at us so long, at a distance of not more than a hundred yards, that we were able to photograph them twice. The flesh of the zebra is eatable, and we, with our limited larder, greatly enjoyed a zebra steak when one was shot. A little farther on a *gnu*, or blue *hartebeest*, as the Dutchmen call it, stood and contemplated us with almost as much curiosity as we manifested in seeing him so near our path. But, for my part, no amount of game or quaint tropical sights would compensate for the agonies of the walk from Sarmento to Mapanda's across the shadeless burning plain, beneath a torrid, scorching sun. Now and again we got shelter from the burning rays beneath the wild date-palms, a very pleasing feature in the landscape, varied by the fan-palms, with their green feather-like leaves and bright orange stalks, covered with similarly coloured fruit. When ripe the fruit becomes dark brown, like the cultivated date; and though we ate quantities, we did

not get very considerable satisfaction from the consumption. Then a few delightful moments of repose would be passed by a sluggish stream, almost hidden by its rich jungle of shade; but on these last days of our long tramp we did not care to delay, but pushed on eagerly to reach the corrugated iron palaces of Mapanda, where we should find the river and the steamer.

Mapanda's is, indeed, a sorry place: not a tree to give one shade, only a store or two, built of that unsightly corrugated iron so much beloved by the early colonists of South Africa, and a few daub huts. It is a paradise only for those who arrive weary and worn from the interior, and for the sportsman, affording him a *pied-à-terre* in the very midst of the land where 'the deer and the antelope roam.' It has, however, certain points on which it justly prides itself. Firstly, it is the only spot for miles around which is not under water when the floods are out, for the banks of the Pungwe are fairly high here. Secondly, the river is navigable up to here for small steamers, even in the driest season; and, uninviting though it is at present, Mapanda may have a future before it.

We had three days to wait at Mapanda's before the little steamer *Agnes* would come up to take us away, and these three days were not without their excitements.

Three lions penetrated one night into the heart of the camp, and partially consumed three donkeys

—not ours, we are thankful to say, but those of a wicked Polish Jew, who had given infinite trouble to the English there, by causing an innocent Briton to be arrested by the Portuguese on a charge of theft; on which account he (the Jew) was well ducked in the Pungwe, and no one was sorry when the discriminating lions chose his donkeys for their meal; nay, many expressed a wish that the owner himself had formed part of the banquet. The next night the three lions, which had been lurking during the day in the jungle by the river, came to visit us again, with a view to demolishing what they and the vultures had left of the Hebrew's donkeys. One of the three visitors was shot, but he got away, and we heard no more of them.

Opposite the British colony at Mapanda is a large island forty miles long by twenty at its widest; this island is formed by the Pungwe and a branch of the same known by the Kaffir name of Dingwe-Dingwe. The island is perfectly flat, covered with low brushwood here and there, and long grass. It abounds in game; and on it the chief Mapanda has his kraal, having removed thither when the English came to settle at his old one on the banks of the river. One day we devoted to visiting this kraal, performing part of the journey in a native canoe which we borrowed—just the hollow stem of a large tree—which oscillated so much under our inexperienced hands that we momentarily expected it to upset and hand us over to the crocodiles; so we effected a hasty

landing in the swampy jungle and proceeded on foot.

Mapanda's own village consists of only eight bamboo huts, built close to a tall palm-tree; in the centre of the huts is a raised platform, on which the grass-woven granaries of the community are kept. Beneath, in the shade, lay idle inhabitants, and from it were hung the grass petticoats and jangling beads which they use in their dances. I entered one of the huts on all-fours for inspection, and as I was engaged in so doing a terrified woman inside tore down the frail wall and made a hurried exit at the other side. I am told by those outside that the effect was most ludicrous. No wonder these dusky beauties are somewhat afraid of the white man, as hitherto they have dealt only with the Portuguese, who pride themselves on amalgamating well with the natives. In choosing a wife the Portuguese is not at all particular as to colour, nor is he a monogamist, as he would have to be in his far-off country. This we discovered for ourselves at Neves Ferreira, the Portuguese settlement on the Pungwe, about six miles below Mapanda's, where, beneath tall bananas and refreshing shade, the authorities of that nation pass a life of Oriental luxury which somewhat scandalises the strait-laced Briton.

There are several little kraals on the island belonging to the sons and relatives of Mapanda, all built on the same lines, and in visiting which we made ourselves insufferably thirsty, so that a good drink of Kaffir beer, or, as the Portuguese call it,

'millet wine,' was highly acceptable. It is much more potent than the beer they make up country, and if it were not for the husks therein, and general nature of fermented porridge it presents, one might fancy it champagne. Here, too, they make palm wine, tapping all the neighbouring palm-trees for the sap, which is highly intoxicating, and of by no means a disagreeable flavour. At Mapanda's we bade farewell to our donkeys and our cart and our conductor, Meredith, who had been with us and served us faithfully ever since we left Kimberley, ten long months before. He returned to Fort Salisbury with the cart, and wrote to inform us of the miseries of his journey owing to the rains, which brought fever, and the demise of the donkeys before the end of the journey.

The voyage from Mapanda's to the sea at Beira would be indescribably monotonous were it not for a few interesting features afforded by the stream itself. The tide here comes up with a remarkably strong bore, or wall-like wave, reminding one of the same phenomenon in the Severn at home. We heard it murmuring in the distance like the sighing of a rising wind; as it approached us the roar grew very loud, and finally the wave floated our stranded steamer almost in an instant.

Sandbanks are the bane of the navigator of this stream. On his last voyage our captain had been detained for three days on one, and we passed a Portuguese gunboat which looked as if it would remain there till the end of time. Our fate was a mild one:

we were only on a bank for a few hours, until the bore came up. These sandbanks are constantly shifting, and the captain never knows where they may next appear; consequently slow speed and constant soundings are the only safeguards. Crocodiles innumerable bask on these sandbanks, and in the stream itself hippopotami raise their black heads and stare at the strange animal which has come, and which will shortly cause the extermination of their species in the Pungwe.

Beira itself is the Portuguese word for a spit of sand, and is a horror of corrugated-iron domiciles on a bare shadeless sandspit at the mouth of the Pungwe. There is no drinkable water to be got within three miles of the place, and we paid half-a-crown a bucket for a very questionable quality of the precious fluid. Nobody washes himself or his clothes in anything but the sea during the dry season. On the last day of our stay at Beira (November 23) the heavens were opened and rain fell in torrents. Never was rain more welcome; pot, pan, and bucket were placed in every direction, and the extortionate water vendors had to retire from the field.

Where the eye does not rest on sea or sand it wanders from Beira over miles of flat mangrove swamps. The heat was scorching; when you walked you sank ankle-deep in sand at each step. Of all places Beira is the most horrible. When a Portuguese merchant goes to his office he is borne by four tottering negroes in his *mashila*; the Englishman walks and

does most of his own work for himself, for the very good reason that he can get nobody to do it for him. This labour question is one of vital importance in Beira, and if ever it is to be a port of note the present order of things must be altered.

Yet, in spite of the fever, the heat, and the sand, Beira must go ahead, as nature has provided it with an excellent harbour, a rarity on the east coast of Africa. This is the only harbour for the proposed railway to the interior, which is to have its terminus on the opposite side of the harbour to Beira, nearer to the mouth of the Buzi, and will run along the flats between that river and the Pungwe. Until this line is made, I think few of those who have come down this road will care to return and face the discomforts of another foot journey through the fly country and the swamps. Perhaps it will be two years before this line is completed, and it must be done by the co-operation of the two interested companies, the British South Africa and the Mozambique. Between Massi-Kessi and Umtali it will cost a considerable amount of capital if the hills are to be tunnelled. On the flats the swamps will cause difficulties: fevers will play havoc with the labourers, and the rivers and the *dongas* will have to be bridged.

When this line is completed, I feel confident that Mashonaland will rapidly go ahead. There are in it all the elements of prosperity; and we may yet live to see the glories of the ancient ruins revived under other auspices, for long centuries have not altered the love of gold inherent in mankind.

APPENDICES

APPENDIX A

Notes on the Geography and Meteorology of Mashonaland

By ROBERT M. W. SWAN, Esq.

CENTRAL MASHONALAND consists of elevated granite plateaux, varying in height between 3,000 and 5,000 feet. Through the surface of these plains rise groups of isolated little granite hills which are most remarkable and varied in form, and which sometimes attain an elevation of 1,000 feet above their base, but more frequently they are about 400 feet high. Generally they are composed of enormous broken blocks of granite, but often they are dome-shaped and of one unbroken mass of rock, and suggest the idea of huge bubbles on the surface of a molten mass. The summits of the latter kind of hills are, of course, quite inaccessible. They are not hills left in relief by the denudation of the surrounding country, but, judging from exposed sections of some that I have seen, they have been elevated by a force acting at a comparatively small distance below the present surface, and they are older than the stratified rocks of the country.

On the granite plateaux one meets with patches of stratified rock—of quartzites and schists, and rarely some crystalline limestone. Magnesia, too, is sometimes present,

notably at Umtali, and in the steatite which occurs near the Great Zimbabwe, of which many of the objects found in the excavations were made. The strike of the strata is generally east and west, and the various patches arrange themselves in several fairly continuous lines running across the country in the same direction as the strike. These semi-continuous deposits or belts of stratified rock are generally two or three miles wide, and in them occur the gold-bearing quartz reefs. The most southerly belt that I know of in Mashonaland proper passes by Fort Victoria, and probably crosses the Sabi River about latitude 20°. The next large one passes by Umtali and the 'Mfuli River, where it crosses the waggon-road, and so on to Hartley Hill. This belt includes Mount Wedsa, the highest mountain in Mashonaland. Next in order comes the Mazoe deposit, which perhaps also includes the Kaiser Wilhelm gold-field. These deposits are all fairly similar in nature, but no fossils have been found in them, and their age has not been determined. They probably represent a continuous sheet of stratified rock, all of which has been denuded away except the above-mentioned belts. They generally present a rugged surface, elevated in mountain ranges, which often rise 1,500 and 2,000 feet above their base, and, although they are nearly always steep, they are rarely precipitous. These mountains are regular and beautiful in outline, and refresh the eye after it has grown wearied of the grotesque forms of the granite hills. The soil on the stratified rocks is more fertile than it is on the granite, and the vegetation is more charming; the very coarse grasses of the granite soils being replaced by many flowering plants.

The ruins which have just been described are all built on granite, but are generally within a short distance of the quartz formation; and the ruins at Zimbabwe are situated four miles from the southern edge of the quartz belt. At Zimbabwe we found little clay crucibles in which gold had been melted,

and an accumulation of quartzite rock which had been obtained from the casing of a quartz reef. I carefully tested this rock for gold, but could only find a very minute trace ; so I conclude that it had been rejected as too poor for treatment. While at Zimbabwe, whenever I could spare time from the excavations, I made excursions to the quartz belt, and searched for old workings and gold reefs. I found one reef carrying a small quantity of gold, but no old workings. Since then, however, rich gold reefs have been discovered about twenty miles to the north-west of Zimbabwe, and from these probably the ancients obtained their quartz. The quartz formation near the little ruin at the Mazoe River has been much worked for gold, and the Manica belt seems to have been even more exploited. Where the high plateau breaks down at Massi-Kessi an enormous amount of alluvial has been worked. The old people must have obtained, from both the alluvial and the reefs, a great quantity of gold to repay them for the work that they did, and there is no reason to suppose that they have exhausted the reefs ; indeed, I have seen at the bottom of old workings the reef continuing and carrying visible gold.

Besides gold reefs, these quartz belts contain much iron ore and some manganese. In two isolated patches of the quartzite formation at the Doroba Mountains, near the Sabi River, I found great masses of rich magnetite and hematite, and on the top of Mount 'Nyaguzwe, near Fort Victoria, there is also a mass of magnetite ; in fact, so very abundant is iron ore, that compass bearings can rarely be taken with safety from hills in the quartz formation. Along the right bank of the Sabi River, near Mount Wedsa, are many native villages, whose one industry is iron smelting. They obtain the ore from Mount Wedsa, which is renowned far and wide in Kaffirland as an iron-producing mountain. The mineral they select is not very rich, and is consequently more easily

smelted, and it contains some manganese. The iron they produce is very pure, and is consequently soft and easily fashioned into weapons and tools. Their anvils are simple blocks of hard diorite, on which they hammer with another smaller block.

The tributaries of the Sabi River flowing near Zimbabwe have been ill-defined on previous maps. The 'Mpopotekwe joins the 'Mtelekwe and the 'Mshagashe flows into the united stream a short distance south of Zimbabwe. This river, under the name of the 'Mtelekwe, then flows into the Lunde, and not to the Sabi direct. The Tokwe joins the Lunde farther north. The most interesting geographical work that we did was on our expedition to the Sabi River, and on that from Fort Salisbury to 'Mtoko's, and down by Mangwendi's and Makoni's country to Umtali. On our journey to the Sabi we crossed a great many of its western tributaries; and as the same streams rose near the waggon-road, and we crossed them pretty far down their courses, we were able to lay down their direction for a considerable distance with certainty. The Sabi River itself, in latitude $19^{\circ} 15'$, we found was placed twenty miles too far west in former maps; and from the information which I gathered from the natives, in the latitude of Zimbabwe, it must be about fifty miles farther east than it is placed in these maps. This river, where we struck it, was a considerable stream flowing rapidly over a rocky bed. It had fallen about 1,800 feet from its source near Fort Charter, and had 2,700 feet more to fall before it reached the sea. When it has received all the tributaries we crossed it must be a very big river.

Going from Fort Salisbury to 'Mtoko's we crossed many tributaries of the Mazoe River, which were either not shown at all in former maps, or were most inaccurately placed. We recrossed these streams again farther up returning from 'Mtoko's to Mangwendi's. I also got excellent views of them

from the various mountains which I ascended so that I was able to lay them down in my map with certainty. To the eastward of 'Mtoko's we could see the high *veldt* breaking into mountain ranges as it descended towards Gouveia's country.

Approaching Mangwendi's, and also going between Mangwendi's and Chipunza's, our way lay along a very high watershed, on the western side of which rose some of the eastern tributaries of the Sabi River, the most important of which was the 'Maheke. At Makoni's we reached the highest part of the plateau, and this is, with the exception of some villages on Mount Yenya, the highest inhabited part of Mashonaland. From Makoni's to Mount Yenya the country is broken; and the descent is very rapid, but on the east of our route the descent is still more rapid and the mountains more imposing. On the north side of Mount Yenya flows the Odzi River, which is there a very considerable stream. Mount Yenya is a most imposing mountain and the highest in Mashonaland, with the exception of Mount Wedsa. It rises to a height of 5,800 feet above sea level, and within 300 feet of its summit are several villages which own a considerable number of cattle. It probably represents the Mount Doe which the Portuguese place on their maps about this part, and which they say is 7,900 feet high, for certainly there is no mountain near Mount Yenya of equal height. Between Umtali and Massi-Kessi the country is extremely mountainous, and the scenery is the grandest that we saw in Mashonaland. We lost 1,400 feet in height between these two places. A short distance after leaving Massi-Kessi we crossed the Revwe River, and our way lay along a watershed about 2,000 feet high. This watershed is thickly wooded, and is traversed sometimes by deep ravines. On the left hand the streams flow to the Pungwe River, and on the right to the Revwe and the Muda and Mutuchiri Rivers.

Approaching Sarmento, the country falls rapidly to nearly sea level; and thence to the coast we traversed a flat alluvial country through which the Pungwe River sluggishly flows. This swampy level country swarms with game, especially towards the end of the dry season, but the vegetation is not nearly so luxuriant as one would expect, and some parts of this country are quite bare.

I have been careful throughout to spell the native names in accordance with the rules laid down by the Royal Geographical Society. The sound of the Bushman clicks which occurs so often in the names of places and in the names of tribes derived from the names of places, but most frequently of all in the names of rivers, is slurred over by the present tribes, and represented by a combination of letters. As I know of no rule for the spelling of these sounds, I have represented them by an inverted comma and the consonant nearest in sound. In maps of Africa north of the Zambesi these clicks are generally spelt in this way, although the comma has often dropped out, as in words like 'Nyanza,' 'Mpwapwa,' 'Mvumi;' but south of that river cartographers have been less accurate, and have often used various vowels instead of the comma. I have used such mis-spellings of the native names only when they have been long established and passed into constant use: as 'Umtali' and 'Inhambane.'

A point of interest in the remote history of the country and of the ruins which we examined—for the old people doubtless entered the country by this coast—is the growth of the land at the mouth of the Pungwe River and around Sofala. From about Sarmento down to Beira one passes over a low alluvial country which has been slowly encroaching on the sea for ages. I am sorry that in the rush to the coast I did not have time to collect data to enable me to form any idea of the quantity of mud deposited from the waters of the Pungwe in a given time, but its waters hold in suspension a

great quantity of fine clay derived from the decomposition of the granite in its basin, and this is deposited where the river enters the sea. The distance from Sarmento to Beira as the crow flies is sixty-five miles, so that at some period the road to the interior must have been shortened by this amount, and even in early historical times some part of the journey across the low fever belt would have been saved. The site of ancient seaports will now be far inland, so it need not surprise us that remains of these ports have not yet been found.

Owing to frequent absence from camp, I was unable to read the thermometer and barometer as continuously and regularly as I could have wished, but the readings which I did take give us some idea of what the climate at Zimbabwe was in June and July last year. We arrived there on June 6, after a week of south-east winds, high barometer, and rain and mist. The wind then gradually fell and the barometer with it, and we had three weeks of fine calm weather. The barometer reached its minimum on June 27, and at the same time the difference of the readings of the wet and dry bulb thermometers was at its maximum. The air was then very dry and the sky clear, with light north winds which were evidently local in origin, and the temperature at night fell below freezing-point, so that in the morning we saw a light deposit of hoar-frost. Immediately after this the barometer began to rise, there were light south-east winds, the atmosphere became moister, and on July 4 the south-east wind had increased considerably in strength, and some rain fell. From this time until the end of our stay at Zimbabwe, on August 2, the barometer slowly rose and fell, its range being limited to about three-tenths of an inch; and whenever the south-east winds blew at all strongly the barometer rose and we had mist and rain. We had during this period generally about a half-day of rain each week.

At first sight it seems surprising that we should have windy wet weather with a high barometer, but we must remember that the only winds which can bring rain to Zimbabwe, at least in winter, are the south-easterly winds, and these, like all other winds blowing towards the equator, increase the atmospheric pressure. Zimbabwe is situated on the edge of a plateau about 3,400 feet above sea level. The country breaks down gradually towards the south and east and more rapidly towards the west, while towards the north it rises gently until after about 100 miles it attains an altitude of nearly 5,000 feet. The west winds, if they do blow, have to traverse the continent and the high country about the sources of the Limpopo before they reach Zimbabwe, so that they will deposit their excess of moisture for the altitude of Zimbabwe before reaching that place; and the northerly winds will tend to increase in temperature, and consequently in dryness, after falling from the high country towards the north; so that westerly and northerly winds will not part with moisture at Zimbabwe. The predominant winds in this latitude are the south-east trades, and they, carrying their moisture from the Indian Ocean, are forced to rise as they pass over this country, and they consequently expand and are lowered in temperature and so deposit much of their moisture on this edge of the high plateau. A similar winter climate seems to prevail in most parts of Mashonaland, the edges of the plateaux receiving most of the moisture. Manica is situated much nearer the sea than Zimbabwe, and the country there falls much more rapidly towards the east (it falls 1,400 feet in ten miles near Umtali), and consequently the rainfall there is heavier. Fort Salisbury is better situated for a dry winter, for it is in the middle of a high plateau, and the south-east winds will have parted with most of their surplus moisture for that altitude before they reach it. The driest time of the year in Mashonaland is from August to November. I may

mention that the greatest difference I observed in the readings of the wet and dry bulb thermometers was 24° F. at the Mshabetsi River, at an altitude of 2,140 feet, on May 13 at 2 P.M.; the readings being 64° and 88° respectively. At Zimbabwe during June and July the difference in readings varied from 0° to 20° F., and the dew point sometimes fell to 32° F. at midday. The extreme range of shade temperature in the two months was 46° F.

APPENDIX B

List of Stations in Mashonaland Astronomically Observed, with Altitudes

By ROBERT M. W. SWAN, Esq.

Stations	Latitude			Longitude			Height ¹ feet
	°	'	"	°	'	"	
Mafeking	25	51	1	25	41	0	—
Ramathlabama River	25	37	57	—	—	—	—
At Pan	25	30	13	25	8	15	—
Kanya, 11 miles S.S.E. of	25	7	2	25	8	15	8580
Kanya	24	58	30	25	16	0	3750
Molopolole	24	25	30	25	21	0	4020
Molopolole, 4 miles N. of	24	21	30	25	21	30	3872
Klippan, $\frac{1}{2}$ mile N. of	24	17	12	—	—	—	4020
Kurumurwa	24	8	33	—	—	—	3570
Khemi	23	50	8	—	—	—	3490
Boatlenama, 15 miles S.E. of	23	42	20	25	35	30	3540
Boatlenama	23	32	30	—	—	—	3400
S. of Selinia Pan	23	27	11	—	—	—	3120
N. of Selinia Pan	23	20	51	26	8	15	3050
Near Hataloklu Vley	23	15	4	26	10	53	3140
S. of Shoshong	23	8	47	26	19	30	3160
Near Shoshong	23	4	0	26	28	0	3310
At stream	23	1	57	26	41	30	3260
Near Mahalapsi River	22	57	41	26	51	15	3240
Chuloan Vley	22	46	0	27	6	30	3010
Palapwe	22	37	30	27	18	0	3160
At Lotsani River	22	32	45	27	21	30	2740
At Lotsani River	22	33	53	27	34	0	2430
At Lotsani River	22	32	37	27	46	45	2450
Near Elibi Fort	22	32	55	—	—	—	2300
Near Elibi Fort	—	—	—	—	—	—	2230
At Muralla Vley	22	32	55	28	10	30	2290
Makwenje River	22	26	56	28	21	30	2275
Pakwe River	22	15	20	28	24	15	2400

¹ The heights have been obtained with aneroid and boiling-point thermometers, and with the exception of that of Zimbabwe, where we stayed some time, are only approximate.

ASTRONOMICAL OBSERVATIONS, WITH ALTITUDES 399

*List of Stations in Mashonaland Astronomically Observed,
with Altitudes—continued*

Stations	Latitude			Longitude			Heights
	°	'	"	°	'	"	feet
Marapong River	22	7	88	28	81	0	2230
Matlaputa River	22	8	89	—	—	—	—
Maklutsi Camp	22	0	42	28	88	15	2010
Maklutsi River	21	58	20	28	41	0	1870
Metsimachokwan River	21	49	55	28	52	0	1920
Semalali	21	53	2	29	0	40	2080
Baobab Spruit	21	53	17	29	14	0	—
Fort Tuli	21	55	20	29	20	15	—
Ipagi River	21	51	59	29	86	15	—
Sigabi River	21	43	58	29	42	30	—
*Maingwan River	21	39	7	29	48	15	1720
*Mahabetsi River	21	26	22	29	57	15	2140
Mount Yanda	21	21	57	30	6	15	2330
Bubye River	21	20	80	30	14	0	2090
*Nyamanda	21	11	84	30	23	15	—
Mount Host	21	9	10	30	80	20	2250
Near Nwanetsi River	21	5	16	30	88	30	1910
Near Nwanesti River	20	59	23	30	41	0	1880
Near Mount Ibonda	20	49	49	30	42	0	2130
Lunde River	20	41	6	30	44	45	1970
Near Naka Mountains	20	35	54	30	45	0	2180
*Mlala	20	27	9	30	47	30	2580
Tokwe River	20	23	5	30	53	30	2380
Providential Pass	20	11	11	30	57	45	3090
Fort Victoria	20	7	53	31	0	0	3380
Zimbabwe	20	16	30	31	7	30	3340
*Mahagashe River	20	8	40	—	—	—	3200
Makori	19	38	29	30	58	30	4200
Chekatu	19	38	49	31	3	0	4100
Gona	19	36	52	—	—	—	4350
*Msingana	19	31	30	—	—	—	3650
Kutimasinga's	19	33	19	31	37	0	3250
Lutile	19	34	12	—	—	—	3600
Matindela	19	30	23	31	51	45	3350
Near Mount Wizinde	19	17	0	—	—	—	3250
Near Mwariri River	19	14	56	32	2	45	2900
Mukubu River	19	8	45	32	4	15	2700
Sabi River	19	7	40	32	1	30	2900
Ampsai River	19	6	41	—	—	—	2950
Zamopera	19	0	17	31	39	15	3660
Mafusaire's	18	56	26	—	—	—	3950
East of Smet's Kraal	18	51	25	—	—	—	—
West of Kwende's Kraal	18	43	25	31	25	45	4220