

to supply their own wants without sending to Lancashire. But these things would only come slowly and it might be irregularly. The explorations which were being made into the country would no doubt help on the great work, and China would be the last part of Asia to advance in the direction of improvement. Papers such as those which had just been read served a very useful purpose, not only in keeping the attention of Englishmen alive to what was going on there, but, by being translated into Chinese, they came under the notice of the ruling classes in China, and it must inevitably follow that sooner or later their minds would be opened to the progress which had been made in the rest of the world, and the necessity there was for their keeping pace with Western nations. He was sure that the Meeting would accord a vote of thanks to Mr. Morrison for his interesting paper, and they would at all times be glad to hear more about so interesting a country. The Yellow River, which had hitherto been the one thing in China given to change, might at no distant period supply the motive for change and progress in many other directions, and not for destructive but beneficent purposes.

Journey through Central South Africa, from the Diamond Fields to the Upper Zambesi. By Dr. EMIL HOLUB.

(Read at the Evening Meeting, January 26th, 1880.)

Map.*

Introduction.—During my stay of seven years in the southern part of the African continent, I made three journeys into the interior. I have chosen for my theme this evening an account of my last journey; but before doing so, I will take the liberty of making a few remarks on the reasons which led me to go to South Africa, and on my first and second journeys into the interior. In the year 1872, I left my home at Prague, with the intention of visiting South Africa. My chief motive for doing so was the desire to gain for my native country of Bohemia a share of the honours of African exploration, and also to enrich the museums both of Austria and Bohemia with collections of the natural history and ethnography of those regions. I imagined that I had sufficient means to carry out my intention; but being entirely unknown, and unconnected with any Society, I could not obtain any support from scientific bodies, and left Prague with the sum of 53*l.*, which was lent me by a few gentlemen, and which I had to return three months afterwards. I had no great knowledge of South Africa, except from Livingstone's books, and imagined that 53*l.* would be quite a fortune. I thought rather differently when I arrived at Port Elizabeth, and had to pay the duty for my guns, for I found by that time that my 53*l.* had decreased to 3*l.* I remember very well the day on which I set my foot on the South African shore; and I must confess that it was not one of the pleasantest days of my life. I was in a country where I could not speak the language, for I was unacquainted with either English or Dutch. There I stood, with two guns, a small supply of medicine, and

* Unavoidably deferred to the next (April) number.

my diploma. Fortunately, I found in the Austrian Consul at Port Elizabeth a friend, who introduced me to several German families there, and before long I had some patients. I had tempting offers to remain in Port Elizabeth, and to establish myself in the Orange River Free State, but there were other medical men in the place, and I took my way to the newer region of the Diamond Fields, where I arrived on the 26th August, 1872. But the practice of a medical man in the Diamond Fields was not so pleasant as many people would imagine. At that time this district was very different from what it is now. At present, the people live quite comfortably in stone houses; but in 1872 the population roughed it in canvas tents. I hired one of these tents; it was about 6 feet broad and 8 feet long, and formed my consultation room, my bedroom, my dispensary, my laboratory, and my workshop, where I prepared my snakes, and stored my collections. Very often when a patient called on me in the middle of a hot day, the rays of the sun burned through the canvas just as if we had sat outside in the street, and I had to hold an umbrella over myself and my patient. It was similar when there was any rain. In this way I practised until February 1873, by which time I had earned enough, as I thought, to enable me to start for my first journey into the interior. This journey led me to the Southern Bechuana country, and the southern part of the Transvaal. After two months' travelling I returned, and practised again up to the 3rd of November, 1873, when I started on my second journey, which lasted six months, and during which I visited four of the Bechuana kingdoms, as far as Shoshong. On my return I found it rather difficult to obtain the necessary funds for my third journey, because my patients said I was in the habit of starting off and leaving them to the mercy of other medical men. However, on the 6th of March, 1875, I started on my third journey, which lasted twenty-one months; during which I visited all the Bechuana kingdoms, and the empire of the Marutse, north of the Zambesi. To give an account of this journey is the object of my present paper.

I directed my course by Christiana, Driefontein, and Houmansflei, towards the chief village of the Harts River Koranas, named Mamusa. At the Hallwater salt-pan I had the opportunity of ascertaining that the so-called "ruins of Monomotapa" (Motapa, Mosagra) are nothing but a surprising freak of nature. From Mamusa I took a northerly direction towards the course of the Upper Molapo. After passing through the village of the Mamusa Koranas, who form an enclave of Hottentots in the midst of the Bechuanas, I crossed first the southernmost independent Bechuana kingdom, that of Mankuruane, who rules the Batlapins; then towards Molapo I entered the second, that of the Barolong, ruled by Montsiwe (or Montsua).

The country between the Harts River and Molapo is flat, with a few

low forests of mimosa, but inhabited by abundance of game, such as the springbuck and' blessbuck, the white-tailed gnu, &c., and is the hunting-ground of the neighbouring tribes and of a few Dutchmen. These mimosa forests extend from about 20 miles south of the Molapo to the other side of that stream, and from thence the central part of Southern Africa is covered with woods, interspersed with salt lakes and flat open spaces, as far as the Zambesi, and even beyond that river right up into Central Africa. Between the Harts River and the Molapo there is a great number of salt-pans, from some of which very good salt is procured; these are the continuation of those between the Harts River and the Orange River, forming the southern portion of an immense chain of salt-pans and salt lakes extending from the Orange River towards the Zambesi in a straight line, ending about 100 miles south of the junction of the Chobe with the Zambesi. I found that Montsiwe had left his old residence Moshaneng, and had established himself on the south of the Molapo at a small *spruit* called Lothlakane, which is a few miles distant from the town belonging to his brother and sub-chief Molema. I was treated well by him, as I had been also on my second journey. From Molema's town I took an easterly direction, partly in order to explore the interesting valley of the Upper Molapo, partly that I might ascertain the boundary line of the Transvaal Republic in this direction.

To give in a few words the most characteristic features of the tribes among whom I travelled, I should say that the Batlapins, who could do a great deal in agriculture, and could well supply the Diamond Fields with grain, appear not to care much for work, but are greatly given to the vice of drunkenness; these people are not to be relied upon, and I must say the same also of their king. The Koranas have accepted all the white man's vices, but none of his virtues, and I think that from this cause and from their never doing any work they are gradually dying out. The Barolongs are, next to the eastern or Shoshong Bamangwatos, the best of the Bechuana tribes. To some extent they are hunters, but they are also good agriculturists and cultivate our wheat and imitate our style of European houses; and as, owing to the measures taken by the present Government at the Cape, guns and ammunition can no longer be taken into the interior, they will be all the more likely to take to agriculture, and to improve both bodily and mentally. This is the more probable, as they are ruled by a man of good disposition, who has shown true love and esteem for the English Government in South Africa.

Going up the Molapo and through the interesting scenery of the Hyeronimus Valley, I entered the district of Jacobadal, and afterwards Zeerust, a village of the Marico district, which is so fertile and so rich in mineral treasures. From Zeerust I visited Linokana, where a German missionary, Mr. Jenson, is settled, who understands agriculture, and has

and rested for a while, after a journey of 52 miles, at the next watering-place, namely, at the pool of the very extensive Magne Plateau, which is overgrown with the oily-leaved mapani-tree, and has an immense extent of good soil. My sojourn at the pools was rather unpleasant. Although I had a guide given me by the king, I was troubled by the Bamangwatos, who thought I was a hunter by profession, and have quite a dread for all such men (characteristic of these parts, from 21° 30' S. lat. northwards), which has been occasioned by some Dutch hunters, who, when staying on the plateau for some months, killed a very large number of elands, striped gnus, zebras, giraffes, and ostriches, only for the sake of their skins, leaving the flesh as food for the vultures. Since that time Khame has made a law that they shall not hunt elephants or ostriches in his kingdom any more, and of other game only as much as is needed for their food.

The next trip was to the Nokane Springs, and was still more troublesome, as I had to accomplish 72 miles before reaching the nearest watering-place. The Nokane is a spruit running into the very interesting Salt Lake Basin in the northern part of Central South Africa, which is, in fact, united to the basin of Lake Ngami. Here I must call the attention of all travellers to the numerous traps set by the Masarwa with poisoned assegais in order to kill the powerful Koodoo-buck (*Strepsiceros capensis*).

Going down to the said basin, and travelling towards the north, I observed three immense salt-pans or salt lakes increasing in size towards the north, each one surrounded by smaller ones with numerous inlets, and the forest separating them one from the other also contained an immense number of smaller pans. They are only filled with water for a short time after heavy rains. The three lakes have an average depth of from three to four feet, and are connected with Lake Ngami by means of the Zooga River, and with the Limpopo and Indian Ocean by the Chaneng (or Beautiful River), which is a tributary of the Shasha. The greatest breadth of the salt lakes is from east to west; they form a series of triangles with their points towards the west, and connecting with the Zooga or Lake Ngami River. The greatest breadth of all of them is from north to south, and on their eastern extremity. The southern lake is called Tsitane, and is about five miles across from south to north; the middle one, Karri-karri, is from 8 to 9½ miles across, and the northern one, Soa (or Shua), more than 20 miles; their length from east to west I should judge varies from 20 to 50 miles.

The geological structure of this basin is most remarkable, especially the saline incrustations in the bed of the great Kata River, worthy of especial notice. The banks of these salt-pans are covered with stiff, prickly grass. It is difficult to obtain drinking water in the vicinity; I have marked on my chart the places where it is to be found, generally deep in the forest. All the salt lakes are fed by rivers running after

rain; thus the Tsitane is fed by the Tsitane and the Nokane, and the Karri-karri by numerous streams; it has also an affluent to the N.N.E., called the Mokhotsi; the Soa receives the greatest number of affluents, the most important of them being the Nata from the N.N.E., running into the north-east corner of the lake.

Between the Karri-karri and the Soa I crossed the River Chaneng, which flows east, north-east, and south-east, and which I look upon as an affluent of the Soa, and connected through the Shasha with the Limpopo.

I hope in the following manner to explain the fact that travellers have observed the Zooga flowing sometimes to the east and sometimes to the west. When the shallow water called Lake Ngami is filled to overflowing by its western and southern tributaries, the superfluous water passes eastwards through the Zooga into the salt lakes, which, being also very shallow (especially the Soa), and not able to hold a large mass of water, throw it off towards the east. But if, on the contrary, the tributaries of Lake Ngami cease to supply it with a large quantity of water from the north-west and south, the lake sinks, and the Zooga commences its return journey: the flow towards the east not only ceases, but if the salt lakes happen to be filled by their tributaries towards the west (namely, the Tsitane and the southern and northern affluents into the western halves of the Karri-karri and the Soa), they all, owing to their equal depth, form one immense sheet of water from three to four feet deep, and pour off their waters through the Zooga. Thus, if Lake Ngami is full the Zooga flows to the east, and if the salt lakes are full the Zooga flows to the west.

Having no horses at my disposal, I was unable to ascertain whether the Chaneng River communicates with the Zooga directly, or only through the Soa. Excepting the Zooga, all the tributaries of the salt lakes flow only during a short portion of the year. The extreme shallowness of the salt lakes causes a very quick evaporation of the water. This basin is all the more interesting by reason of the tropical vegetation: many species are there first met with on coming from the south; there is also a great variety of birds. I must make especial mention of the country surrounding the mouth of the Nata River; many different species of quadrupeds are here to be met with, and I spent days in observing their habits, more particularly those of the lions, which are so plentiful that along the Lower Nata I found regular paths trodden down by them. But I must also warn the traveller to be careful when traversing this part of the country on account of the Matabele (Zulus), who yearly visit the Lower Nata to get salt, and behave very badly to all whom they meet with, whether black or white; they generally take possession of your servants, and threaten to kill them if you do not pay a ransom in different articles for the head of each one. The best thing to do is to remain in the forest about seven miles away, and send your

servants as spies, to see if there are any Matabele fetching salt. If there should be any, keep quiet and do not shoot, but continue your journey after they have departed.

Leaving the Soa, I proceeded up the Nata, crossed it, and then took a northerly direction towards the Klamaklenyana Springs (this name means "the four following each other," "springs" being understood). I thus entered a high sandy plateau, a thickly-wooded forest where there are no rivers, but thousands of pools, the greater number of which only contain water after rain, and which I named the "Sandy Pool Plateau." Where I crossed, it is 102 miles in width. From Klamaklenyana I visited the pools of Yoruah (a leap), Tamafopa (a bleached skeleton), Tamasetze (white sand), Henry's Pan, Naga-Tatolla, and Kybaka, all containing water, but the four pools at Klamaklenyana, and the three following are the only ones which contain springs. Altogether I counted 119 on my route. Here in coming from the south we met with buffaloes, elephants, and rhinoceroses for the first time. I must call attention to the fact that it is dangerous to cross this plateau from October till December on account of the growth of a poisonous lily, which kills the cattle in a few hours. After the grass has grown up the cattle do not touch this poisonous plant. I found the limits of the tsetse were from 10 to 15 miles east of the direction which I took.

On the 30th of July I arrived at the sources of the first tributary of the Zambesi, the Deykah (Daka) River, which, like most of those uniting with the Zambesi below the falls, is a perennial mountain stream. On the following day I arrived at the valley of the Pandama Tenka, where a temporary trading station was established, and where I was kindly treated by Messrs. Westbeach and Blockley, former traders on the Zambesi. Three days afterwards I started for the Chobe Valley, leaving my companion Mr. T. in charge of my waggon and property at Pandama Tenka. I took my Cape Town boy with me, and Mr. Blockley was most useful as interpreter.

Eight miles from Pandama I crossed the first boundary of the tsetse, coming afterwards to a part free from tsetse, and the second time entering a part infested by it about 21 miles south of the Chobe junction.

The whole distance was about 70 miles, of which the first part was rocky, with many valleys, the second one (about five-sevenths of the whole) wooded, with many marshy flats, and abounding in game; the soil of the valley and flats very promising for future cultivation. I remained several days on the right bank of the Chobe, about four miles and a half above the junction, waiting for the answer to a message I had sent to Sepopo, the king of the Marutse-Mabunda empire, north of the Zambesi (at that time residing in Old Shesheke), announcing my arrival and asking permission to enter and explore his territory. I