

1. *On the Tributaries of the Nile in Abyssinia.* By S. W. BAKER, Esq.,
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ON 13th Nov. last I had the honour of reading a paper descriptive of the White Nile and its sources, including the discovery of the great lake Albert N'yanza. I have on this occasion to bring to your notice those important rivers of Abyssinia, which, totally different in their character, occupy so interesting a position in the basin of the Nile.

We have proved that the White Nile is the great stream that nourishes Egypt, during nine months of the dry season when the Abyssinian affluents are exhausted, and that the sources of that extraordinary river are concentrated in two great lakes upon the equator, which receive the drainage of lofty mountains, in a region of great rainfall extending over ten months of the year. Commencing as the Nile from these vast reservoirs, the river flows through ten degrees of flat marshes, and arrives at Khartoum, in lat. $15^{\circ} 30'$ N., as a stream emanating from morasses; the water impure, full of vegetable matter, distasteful to the palate, and unwholesome. At that point, in N. lat. $15^{\circ} 30'$, the White Nile is joined by the Blue Nile from Abyssinia, a river of mountain origin and accordingly of sweet and wholesome water: the effect of the junction of the two streams is the purification of the White Nile water; the main stream commences its course through sandy deserts, loses the vegetable matter brought down from the morasses, and continues northwards until it reaches N. lat. $17^{\circ} 37'$, where it is joined by its last tributary, the Atbara. This river is similar in character to the Blue Nile, but inferior in volume. Its importance, although secondary to the former, may be appreciated by the fact that it is the affluent which carries the entire drainage of Eastern Abyssinia to the Nile. From its point of junction, the Nile flows unaided by other tributaries through upwards of fourteen degrees of latitude, or, allowing for the winding of the river, about 1100 miles, through deserts of burning sand, until it meets the Mediterranean.

The junction of the Atbara with the Nile is the point at which the volume of the Nile is at its maximum, as the last of the tributaries has been received; from that point the river loses from absorption and evaporation on its passage through the Nubian deserts.

Upon my arrival from Cairo at the Atbara Junction on the 13th June, 1861, I was so interested with its character, that I determined to devote myself to the examination of the Abyssinian affluents before I commenced the White Nile expedition. At that

time I stood among the dome-palms upon the banks of the broad Atbara, yet vainly looked for a river. Through the interminable desert that extends from Cairo to that spot, not one drop of water flowed into the Nile; and the great Atbara, whose bed was upwards of 400 yards in width, was no longer a tributary, but was a sheet of glaring sand—a desert highway for the torrents of the rainy season.

The banks of this dry watercourse were about 30 feet in depth. A narrow belt of dome-palms and mimosas fringed the margin, beyond which all was desert; the same inhospitable solitude that characterizes the Sahara. Through this the thread of green foliage marked the river's course along the yellow dreary desert.

My route lay on the bank of the river for about 180 miles to Gozerajup. Throughout this great length of its course there was no change,—the same glaring bed of sand, steep banks fringed with trees; while at intervals a deep bend in the river's course broke the monotony of its desert-bed by forming pools, from a quarter of a mile to a mile in length. Confined in these comparatively small pools were all the inhabitants of the river, which, free in the great flood during the rainy season, were prisoners during the dry months in a narrow space until released by the rising of the waters.

It is difficult to describe the extraordinary number of living creatures thus crowded together in these deep but insignificant pools,—immense crocodiles, turtles, fish of monstrous size; and in the largest pool a herd of hippopotami added to the general congregation. This spot was Collololáb. The position was occupied by the Bishareen Arabs, who, with their flocks, had sought this welcome watering-place, and fed their famishing goats by shaking the seed-pods from the mimosas with long crooks; the seed was oily and very similar to linseed, and was greedily devoured by the animals in the total absence of green-food. The few cattle they possessed were fed upon the nuts of the dome-palm. These are in great abundance throughout the desert course of the Atbara, and support both man and beast when other supplies fail. This species of palm produces about two hundred nuts, the size of an orange, but of an oval shape. To prepare it for food, the exterior portion, which is perfectly hard and polished, is bruised between stones, and detached from the shell of the nut in the form of a brown resinous powder; this is ground into flour, boiled into a porridge, and eaten with milk; the flavour resembles gingerbread. The interior shell of the nut, divested of its outer coating, is about the size of a goose's egg; this is broken, and produces a kernel, which is known in Europe as vegetable ivory: this is roasted in large piles, then soaked in water,

and pounded in a mortar as food for cattle. In that desert land, the unfortunate cows have nothing but nuts to crack during the dry season, when the scant vegetation produced by a few showers that constitute the rainy season has been withered and devoured. The supply of milk (the Arab's luxury) is accordingly most limited. The only saviour of the country is the Atbara: the fringe of dome-palms and mimosas on its margin is the asylum for the Arab tribes who during the season of rain inhabit the desert, but who depend upon the scanty produce of the river for their existence during eight months of burning drought.

In desert countries all tribes are nomadic, not from choice, but from necessity: the changes produced by seasons necessitate changes of locality, as the barrenness of the land renders an immense surface necessary for the flocks.

On the 20th June, on my arrival at Collololab, at the camp of the Bishareen Arabs, I heard that a man had been recently killed by a hippopotamus; the hippopotamus had entered into partnership with the proprietor of a patch of water-melons by the water side, and had refused to quit. No fruit is better adapted for the mouth of a hippopotamus than a water-melon; this the animal was quite aware of, and he resented the intrusion of the Arab by catching him in his huge jaws and giving him a crunch, which dissolved the partnership. I accordingly had my first introduction to the hippopotami at that place. I found them very careless and independent. They had finished the patch of water-melons, as well as the proprietor: however, in about ten minutes I shot two, to the great delight of the Arabs, who loaded about twelve camels with the flesh, sufficient for many hundred men.

Not only were the pools of the Atbara the resort of the crowded inhabitants of the river, but they were the attractions to all birds and beasts of the desert that were compelled to travel immense distances to the only watering-place afforded throughout the Nubian desert: thus, sand-grouse arrived in thousands in early morning and evening; birds in great numbers, and of beautiful plumage, lived in the narrow woods that fringed the river; thousands of doves thronged the trees; while gazelles and wild asses—the only quadrupeds of the desert—visited the welcome pools of the Atbara.

The scene was to change. On the 23rd June, 1861, in the still night, at about 8 P.M., there was a sound like distant thunder. I had left some skulls of hippopotami to bleach upon the hot sand of the river's bed; my men rushed down the bank to save them; the river was coming down, and the rumbling noise grew louder as the stream advanced and invaded the hitherto desert bed. The flood

rushed forward, rolled over the isolated pool, and liberated the crowded inmates, and in a few minutes the Atbara was no longer a desert, but a noble river. On the following morning the river was about 20 feet deep. In that spot it was about 500 yards wide, and a turbid flood was boiling onwards towards the Nile. The rains were pouring in Abyssinia.

We followed the banks of the river through the desert, and arrived opposite Gozerajup, the only permanent village throughout the long course of the Atbara, from the Nile junction. At that point there is a peculiar hill of naked granite-blocks of about 500 feet high, shaped like a pyramid. The desert now changed its character. From Cairo to this point it had been interminable sand and pebbles; but the sand had disappeared, and a rich soil, although void of vegetation, had taken its place. Fifty miles further south, we arrived at a most fertile country, abounding in rich grass, scattered with mimosas. Herds of several varieties of antelopes enlivened the scene, and Africa was no longer a desert. We had left the Atbara on the west, and we were now advancing towards Cassala, the capital of the Taka country. The interval between Gozerajup and Cassala was occupied by the Haddendowa Arabs.

Cassala is a large walled town belonging to the Egyptians, and garrisoned by about four regiments. It is the important station of the frontier, situated on the south bank of the river Gāsh (or Mareb). There is a peculiarity in this river that is a striking illustration of the power of absorption of the soil. The natural inclination of the country tends to the north-west, which would drain the Gāsh into the Atbara river; but although the stream is nearly 500 yards in width during the rains, it is exceedingly shallow (being seldom more than 3 feet deep), and is entirely absorbed by the soil before it can reach the Atbara. The water thus absorbed is discovered in wells 40 feet deep, half-way between Cassala and Gozerajup, at a village called Soogalup. In that spot the Haddendowa and Hallonga Arabs congregate with their flocks during the drought. Although perfectly dry during the hottest months, the Gāsh is an important torrent during the rains, bringing down the drainage of the Basé country and a portion of Eastern Abyssinia.

Leaving Cassala and the fine bare mountain of granite, which, upwards of 2000 feet in height, is seen from a great distance, I travelled west for 50 miles, through a flat fertile country, of park-like character, abounding in antelopes, until I again met the Atbara at Goorassé. The river had changed its character. Instead of flowing through a flat and sterile desert upon a level with its margin, it occupied the middle of a depression about 150 feet lower

than the adjacent country, which consisted of vast table-lands of rich soil, but suddenly broken into countless ravines for about a mile on either side of the river, forming a valley of about two miles in width, full of landslips, showing the effects of the rapid drainage of the surrounding country. At that time (the end of June) the rains had fairly commenced, and an immense volume of water was tearing down the river's bed, carrying the muddy wealth of the country to enrich the delta at Lower Egypt. I am of opinion that the Atbara carries down more mud than any other affluent of the Nile, owing to the rich character of the soil through which it passes until it enters the desert. The delta of Lower Egypt that has been actually created by the Nile does not owe its existence to the action of the White Nile, but entirely to the deposit from the fertile lands of Abyssinia, brought down principally by the Atbara river.

I crossed the river at Goorasé, where we were hospitably received by the great Sheikh Aboo Sinn, who gave us a good entertainment, and supplied us with camels—one of his grandsons acting as a guide south. Aboo Sinn is the grandest specimen of an Arab. He is about eighty years of age, but as hale as a man of fifty: he is about six feet three inches in height, stout in proportion, perfectly erect, and, with his long flowing white beard, he is a model of a desert patriarch. His children look as old as himself, and his descendants are as the sand of the desert. No sheik is so revered by all the tribes of Upper Egypt as Aboo Sinn, who, although by right the Sheikh of the Shokeréyas, has been nominated the head of all tribes under the jurisdiction of the Egyptian Government. The Arabs attribute the strength of his old age to his habit of drinking two pounds of melted butter daily. This may be a hint for English octogenarians.

Travelling south for four days from Goorasé, parallel with the left bank of the Atbara, I arrived at the village of Tomâte. At this point the grand river Settite effects a junction with the Atbara on the east side.

The Settite, known in Abyssinia as the Taccazzy, although an affluent of the Atbara, is *the river par excellence*, bringing down almost the entire drainage of Eastern Abyssinia. It has the same character as the Atbara, flowing through its self-made valley, broken into innumerable low hills and ravines, and far below the level of the surrounding country. Unlike the Atbara, however, it flows throughout the year, but the stream is so reduced during the dry season, that it is fordable in many places.

The rains having rendered travelling impossible, I made my headquarters at Sofi until September; having made arrangements to

explore the Settite river and all other Abyssinian tributaries at the expiration of the wet season. The neighbourhood of Sofi partook of the general character of the country from Cassala, consisting of enormous tracts of table-land of extraordinary fertility.

But, notwithstanding the extreme richness of the soil, there is a serious drawback to cultivation on an extensive scale. In the month of June, at the commencement of the rains, the Arabs quit the country, and emigrate with their vast herds of camels and cattle to the desert at and beyond Gozerajup. At that time the country, barren in the drought, becomes a vivid green, and affords unlimited pasturage. This annual migration of Arabs and their flocks from the fertile districts is owing to two causes. A peculiar fly appears, which destroys all domestic animals. This is not the T'setsé of South Africa, but a large fly the size of a wasp, with yellow, black, and white rings upon the body. These appear in swarms at the commencement of the rains, and the virulence of their bite is fatal to both camels and cattle.

Another natural difficulty of the fertile country is the swelling of the rich loam in the great rainfall that continues for three months. The country being flat, the drainage is slow, and the rich mould, absorbing a large amount of water, swells into a mud so deep and adhesive, that travelling with animals becomes impossible. Those few Arabs who live by cultivation send off their flocks, while they remain to sow their crops of dhurra, a species of giant millet. This, with the rudest cultivation, is exceedingly productive, owing to the extreme richness of the soil. An idea of the return may be formed from the number of grains produced upon one head that was an average specimen, from which I counted 4848 corns. Cotton is also grown in small quantities sufficient for the supply of rough cotton-cloth woven by the Arabs for their own use.

At this point—Sofi—the Atbara flows between cliffs of white sandstone, in which I found fine specimens of fossil trees. I built a hut about a hundred paces from the river, from which I had a fine view of the swollen torrent, rushing along at the rate of about five or six miles an hour, and carrying with it a mass of timber, bamboo, and the wreck of forests brought down by the swollen rivers of Abyssinia. Dead elephants were frequently seen hurrying with the stream—these had been drowned in attempting to cross a too powerful current. The appearance of such a prize was the signal for a rush of Arabs from a whole village into the rapid stream: swimming to intercept the carcass, they floated with it several miles down the river before it could be secured, and ended by fighting for a division.

The appearance of the fly that drove the cattle from the country had an extraordinary effect upon the wild animals. The junction of the Settite with the Atbara formed an angle which intercepted all wild animals travelling north to avoid the fly from the south: thus herds of game were driven into a *cul de sac*, their retreat being cut off by the deep rivers. The east bank of the Atbara, opposite Sofi, was uninhabited, as it was a portion of Abyssinia contested by the Egyptians; thus it became a nucleus for game driven from the south to that point by the fly. From my hut on the cliff I had a beautiful view of the opposite country, and on one occasion I saw elephants, giraffes, and varieties of antelopes on the same day without moving from my position. On the Sofi side, the west bank of the river, there was no game, but in one herd of giraffes upon the opposite side I counted 154.

There was apparently no possibility of crossing the river, which was quite 200 yards wide, about 40 feet deep, with a tremendous current; however, the daily temptation of herds of large game determined me, and a herd of 33 giraffes in sight could not be resisted. I therefore arranged an angarep (bedstead or stretcher), and having inflated six goat-skins, I lashed them in position; upon this raft I secured my large English sponging-bath that was my constant companion; in this I sat with a couple of rifles, while four hippopotamus hunters, who swam like fish, were harnessed by ropes to my raft: these fellows swam across, towing me like Neptune in his car. We were carried down about half a mile, whisked round in several whirlpools, and at length landed safely on the opposite side. A careful stalk circumvented the giraffes, and that evening I bagged two giraffes and a hartebeeste.

Having taken a fancy to the other side, I moved my establishment over the way. This transit occupied two days, and the baggage being landed, I committed my most precious valuables to the sponging bath, *i. e.* Mrs. Baker and my best rifles. There was no great danger in thus crossing, unless a crocodile should seize one of the inflated goat-skins, which happened a few days later near the same spot. However, Mrs. Baker went safely across, and I followed as the last of the party. We now camped on the other side, on a sandstone cliff; and in this spot I made my preparations for the exploration of the Abyssinian rivers.

The last rain was on 16th Sept. The wet season had commenced in the middle of June. The country was a vivid green—the grass on the fertile table-lands about nine feet high; the Atbara was full. From that day the river decreased, the intense sun dried the earth, the grass lost its bright green colour, and gradually turned to the

palest yellow, the north wind blew, and the torch applied to the parched herbage kindled a blaze that swept as wildfire throughout the country. The scene was changed, as though a pall of black velvet had covered the ground—the country was open, and we could travel.

The Arab flocks returned, the fly had departed, neither dew nor rain moistened the scorched soil, and the shade of a tree by day, and the star-lit heaven by night, were our only roofs.

With a party of Hamrān Arabs and a few attendants, including some hunters, we followed the banks of the beautiful Settite River into the uninhabited district of Abyssinia and the Basé country. The water of the Settite was beautifully clear, flowing through a deep broken valley in a bed of exceedingly hard, white sandstone and a conglomerate of large pebbles. The average width of the river was about 200 yards. At times it was contracted between frightful precipices; at others, it extended into wide reaches; the banks were invariably clothed with trees, including the tamarind, and sometimes the gigantic baobab (*Adansonia*); some of the latter measured nearly 50 feet in circumference.

The general character of the country was a rough broken valley of several miles in width, through which the river flowed, above which were the great flats of rich table-land diversified with trees and jungles. After four days' march upstream, we arrived in the hilly country at the Basé. The highest mountain was Allatookora, about 6000 feet above the base. Continuing along the margin of the river, through this wild and beautiful country, we arrived at the great mountain-range of Abyssinia, from which issue the principal affluents of the Atbara. The Settite now flowed through a gorge between deep cliffs. The hills and mountains were of basalt and of granite; but, in many places, there were ranges of low hills formed entirely of white quartz, in some of which were small veins of galena.

This being the dry season, the trees throughout the country were as naked as those of England are during winter, the intense heat having thoroughly denuded them of foliage; the only verdure was on the banks of the river—there, the tamarind and the evergreen and dense nābbūk afforded shade and shelter for the wild animals, who, in these otherwise uninhabited regions, were the possessors of the land. The finest gum arabic, like balls of amber, glistened upon the stems of the thorny acacias; this valuable commodity was gathered by the antelopes, and by vast troops of the great dog-faced baboon, who were the only gum-collectors. Hundreds of baboons might be seen together deliberately searching for the treasure; the

mothers carrying their young upon their backs, and frequently boxing the urchin's ears for dismounting suddenly to snatch at a piece of gum that the parent coveted. The variety of game was most interesting; the river abounded in hippopotami, and, of course, crocodiles, &c.; while the shore afforded elephants, giraffes, buffaloes, rhinoceros, lions, leopards, hyenas, ten varieties of antelopes, and small game, such as guinea-fowl and francolin-partridge, in extraordinary numbers. All, except the elephant and giraffe, were collected in the vicinity of the river; those wary animals retreated to a great distance after drinking.

In this uninhabited country a human footprint on the sand by the river's side was a cause of conjecture, and instinctively brought the rifle upon full-cock. It was the hunting-ground of the hostile Basé, who, enemies to Abyssinians and Arabs, were ridden down by the latter and sabred whenever met. The origin of this extraordinary tribe has never been explained; they differ entirely from the surrounding nations, and hold by force of arms their wild country, secure in their impregnable fastnesses among the mountains. Unlike both Arabs and Abyssinians, they are black, with woolly hair, and speak a totally distinct language; although they cultivate to a certain extent, they live principally by the chase, being most dexterous hunters and trappers. The preservation of game is a tender subject in most countries, so that their quarrels with their neighbours the Hamrān Arabs, in the common hunting-ground, had ended in no quarter being given on either side. Being without fire-arms, they had fled on hearing that I was in their country, as they supposed that my party was Egyptian for the purpose of slave-hunting.

The Hamrān Arabs are their most dreaded enemies, as they are equally cunning and active as themselves, and the most extraordinary hunters I have ever seen; they attack and kill every animal with the sabre, including the elephant and the lion. I had with me a party of four brothers, who were celebrated sportsmen; thus, during some months employed in exploring and hunting throughout that country, I had opportunities of sharing in hunts that were, to my long experience in wild sports, entirely novel. The party for hunting should consist of four mounted men armed with the usual straight-bladed double-edged Arab broadsword: an elephant being discovered, he is hunted until he turns upon his pursuers. Having turned to bay, after several tremendous charges upon the hunters, which they have dexterously evaded, a man rides slowly up to the head of the elephant, while two of his comrades steal quietly behind him. No sooner does the elephant make his

rush upon the horse than his rider turns sharp away, and, looking behind him to be the judge of his own race, he reins in his horse so as to keep him within a few yards of the elephant's outstretched trunk. Absorbed with the idea of catching the flying horse, the elephant forgets his enemies in his rear. In full gallop, with wonderful agility, an Arab springs from his horse with naked sabre in hand, when close to the elephant's stern, and with a dexterous two-handed blow he at one cut severs the tendon of the heel, and in full charge the elephant is disabled and halts. As quick as lightning another cut severs the tendon of the other leg, and in about half an hour the elephant bleeds to death, thus actually killed with the sword. Accidents constantly occur when the tables are turned against the hunters, and, upon one occasion, my best man had his thigh broken by an elephant I had wounded.

In those countries life is of no great value, and in an attack upon the lion by three or four hunters, one man is generally either killed or mutilated, but the death of the lion is certain; when he springs upon one man, he immediately receives a cut across the back from a hunter who supports his comrade. One cut from an Arab broadsword, as sharp as a razor, severs the spine. Nothing is more admirable than the courage and dexterity of these Hamrān hunters. They ride down and hamstring the rhinoceros in full gallop; and, when hunting the giraffe, it is by no means an uncommon circumstance to kill five or six out of a herd. Their horses are invariably Abyssinian, seldom above 13 hands 2 inches, but hardy and active, with the great advantage of tough hoofs that have never worn a shoe. A good horse can be purchased for from ten to twenty dollars, —2*l.* to 4*l.*

Although Mahomedans, these mighty hunters, the Hamrān Arabs, are not particular as to their food. Accustomed to hunger and fatigue, they are contented with all game that falls to their lot; thus even the wild boar is eaten.

One day, after a feast upon a hog, I asked my Mussulman companions what their Faky or clergyman would say to their eating pork, as it was contrary to the Koran. "Oh!" they replied, "we have already consulted him: he says, 'Mind your Koran. If you have the book with you and *no* pig, don't eat pork; but if you have the pig, and no book, eat the pig!'"

These people have implicit faith in their Fakeers. In case of sickness they apply to the minister, and, in default of medicine, he writes upon a wooden slate a text from the Koran in ink; he then washes this off, and the inky water is administered to the patient, upon payment. The holy dose, if not effective, is repeated, together

with the fee, in a similar manner to "the draught as before" among ourselves.

Having explored the Settite, I crossed to the river Royān, another powerful torrent during the rains, rising in the mountains of Abyssinia, and tributary to the Settite; it was dry at this season, the bed having so rapid an inclination that it quickly runs out after the cessation of the rains in September. The water-mark on the banks was 9 feet above the bed, and the river being about 90 yards wide, a great volume of water is brought down by this rapid torrent. The junction with the Settite is an extraordinary spot; the Royān meets it with a great waterfall, which causes a frightful whirlpool about 400 yards in diameter, just below a narrow gorge, through which the Settite rushes close above the junction.

From this river I crossed the country to the territory of Mek Nimmur. As usual the soil was wonderfully fertile on the high table-lands, but poor among the mountains.

This Mek Nimmur was the son of the old Mek or Meleck (signifying King), who burnt Ismaen Pasha alive at Shendy. At that time the Turks were extending their rule in Upper Egypt, and Ismaen Pasha having arrived at Shendy on the Nile, a few days north of Khartoum, demanded supplies from the Arab Meleck to the amount of one thousand of every kind, including camels, cattle, &c. Accordingly the cunning Arab delivered 1000 camel-loads of straw as fodder, which he piled around the hut of the Turkish Pasha, and, setting fire to it during the night, he perished in the flames with many of his people. Mek Nimmur then fled to Abyssinia, and received from the king of that country not only a welcome but a portion of territory as a reward for his meritorious action. From that time Mek Nimmur and his sons have been at perpetual war with the Turks, constantly crossing the Atbara River during the dry season, and pillaging the country.

We were well received by this band of ruffians, and spent a week with them. I had taken the precaution beforehand to send him a polite message, accompanied by a present; and, upon our arrival, we found him a particularly agreeable robber, but rather dirty. The dirt was caused by the difficulty of washing, as the stream that supplied him with water flowed through a soil rich in copper. The effect of washing in this water produced a violent irritation on the skin; and, when I was first introduced to Mek Nimmur and a crowd of ruffians who surrounded him, they were all scratching vigorously.

I attribute much of Mek Nimmur's civility to the fact that I had introduced myself as a friend of an English traveller, who had

twenty years ago been hospitably received by his father, and who had acknowledged that hospitality in a work subsequently published under the title of 'Life in Abyssinia,' by Mansfield Parkyns.

It was a deep satisfaction to me, that the character left by an English gentleman in that wild country should have outlived so long a period. No European but Mr. Mansfield Parkyns had preceded me in Mek Nimmur's country, and the mere remembrance of his name was a favourable introduction.

On my arrival I camped under a tamarind-tree on the bank of a stream, while I sent a messenger to Mek Nimmur's abode. Shortly after, an Abyssinian arrived; he was Mek Nimmur's chief minstrel, gaily dressed in very tight white-cotton inexpressibles, a snow-white flowing robe, and mounted upon a white mule. He carried the peculiar long, curved Abyssinian sword, silver-mounted pistols, and was attended by a servant who carried an immense fiddle as large as a violincello, but having only one string. He dismounted, and in a long and loud song, with a fiddle accompaniment, he sung an impromptu ode upon my achievements in the Basé country, nearly all of which were fictions—"How we had been attacked by overpowering numbers, and how I had vanquished and slain the enemy, and rescued Mrs. Baker, who had been stolen away." This was very pretty, only not true; and a large present was expected, and obliged to be given for this display of minstrelsy.

About an hour after his departure, another greedy minstrel appeared, equally grand and imposing—a sort of second edition of the former. I positively declared against music, and, after vainly endeavouring to play his violin, which I threatened to break should he sound a note, he remounted his mule and descended the steep bank of the muddy stream to cross to the opposite side. The mule would not enter the water, fearing the deep mud; the attendant struck it behind, when a vigorous kick taking effect in the servant's chest threw him upon his back, while the same effort unhorsed the snow-white fiddler, who splashed head-first into the muddy stream. The mule dashed away at full speed, leaving the musician struggling in the brook, while his violincello floated on the surface. This was the "Lay of the last Minstrel:" we were relieved of the fiddlers, and my men burst into a chorus of laughter.

Mek Nimmur furnished me with a guide to the rivers Salaam and Angarep (or Angrab), two large torrents issuing from the great chain of lofty mountains about 20 miles distant. This splendid range of mountains has an average height of about 5000 feet, with peaks rising to about 8000 feet.

Crossing a beautiful park-like country, well watered by perennial

rivulets, we arrived at the Bahr Salaam about 30 miles distant, and continuing up the stream we pitched our camp upon the precipitous cliff above the pure stream of the Salaam at its junction with the river Angrab, of a precisely similar character.

The country was the perfection of scenery—the clear rippling stream, 100 feet below us, flowing now over pebbly shallows and between perpendicular cliffs, in immensely deep silent pools, where the hippopotami dwelt in undisturbed security. The lofty Abyssinian range of mountains was apparently close to us; bold rocky hills, cliffs, and rough undulations covered with splendid trees, formed the varied foreground. Unlike the parched country farther north, numerous rills trickled down the cliffs, the trees were green, and we felt the invigorating influence of the mountain-range from which the waters came. Above the valley of the river Salaam was the usual fertile table-land that characterises this country. All was uninhabited, the distrust occasioned by continual strife between the Abyssinians, the Turks, and Mek Nimmur, had rendered this beautiful country a deserted wilderness. I passed some weeks in hunting, and exploring the banks of the rivers Salaam and Angrab to the base of the high mountains from which they issue. The Salaam is the larger of the two, being about 160 yards broad, with an immense depth during the rainy season, as shown by the high water-mark upon the rocks. Although this was the height of the dry season (the middle of April), there was a fine stream rippling over the uneven bed of basalt rock after the junction of the Angrab, which flowed into the Atbara; nevertheless both this body of water and that of the Settite River are at that season unable to support the absorption of the sandy bed of the great river, and the Atbara below Gozerajup remains perfectly dry, its bed a desert of sand.

My guide deserted.

Having explored and hunted throughout this country, which was full of large game, I cut across towards Guddabi, guided by a mountain named Nahoot Guddabi, about 50 miles distant. Without either path or other guide, I was obliged to send a party, with camels and a large supply of water, in advance, to search for water on the road: I awaited their report, and then followed with the main party. It turned out that the country was well watered with small but perennial streams; thus we had no difficulty in travelling through the most lovely country that can be imagined, teeming with giraffes and antelopes, with a sprinkling of rhinoceros and elephants. We were well received by the Tokroori Sheikh at Guddabi in a romantic dell between the mountains, and on the following day, after a march through forest, we reached the Atbara River. At this point it was

merely about 80 yards wide, but a clear stream was running over its rocky bed; all of which, together with the larger supply from the Salaam and the Settite, was to be absorbed by the sand and evaporation before it could reach Gozerajup.

Although the Atbara is next to the Blue Nile in the volume it brings from Abyssinia, it is comparatively unimportant until it receives its great affluents the Salaam and Settite. Crossing the river, we entered, if possible, a still more beautiful country under the mountain Ras el Feel.* This was visited by Bruce, and most accurately described by him. We were now in hilly country of most fertile soil, well watered by many brooks; and although, in the countries passed through, the soil was parched and rent into innumerable fissures, here the first showers had fallen, attracted by the mountains, and the young grass was springing above the surface on the 18th April. The whole of this neighbourhood was well inhabited by the Tokrooris, a tribe of the distant country Darfur. We arrived at Gellabät, or Metemma, the capital of the country; this is a miserable town situated in a valley among the hills, but, although insignificant in appearance, it is the market for the produce of Abyssinia, *en route* for the Egyptian provinces.

The market is held two days per week. Throngs of Abyssinian traders occupied temporary sheds filled with coffee, which they sold at the rate of a piastre, or $2\frac{1}{2}d.$ per lb. Coffee, bees'-wax and honey, prepared ox-hides, raw hides, &c., were the principal exports from Abyssinia, and cotton was purchased in return. Many hundred bales were exposed for sale, and were eagerly bought up for Abyssinia. It will naturally be asked from whence came the supply of cotton. It is produced by the Tokroori settlers.

As before mentioned, the Tokrooris are natives of Darfur; fine powerful blacks, something of the negro type, but differing from all in possessing the rare quality of industry. The Tokroori is the only African tribe that I have seen in whom I can discern a future.

These people in Darfur are governed by a Sultan, who prohibits Europeans, on pain of death, from entering his dominions. They are fanatical Mahomedans, and accordingly make pilgrimages to Mecca. During their long journey from Darfur to Souakim on the Red Sea, they passed through the country of Ras el Feel; and, allured by the richness of the locality that contrasts so favourably with the parched deserts of Darfur, they became settlers, and formed a colony that is ever increasing. There are now about 15,000 men located in the country, all of whom are industrious cultivators and

* "The Elephant's Head."

traders. The women work as well as the men, and are seldom idle. They grow cotton, spin yarn, weave cloth, and, were they encouraged, would shortly extend their settlement and cultivate on a large scale all that beautiful country that I have already described between the Settite and Gellabât.

The encouragement given to these industrious emigrants may be imagined. Gellabât is claimed by the Egyptian Government, although forming a portion of Abyssinia. The Tokrooris, having settled in that country, are claimed as subjects by both Governments, and they enjoy the advantage of double protection by *paying taxes on both sides*. The Turk has but one idea of government—extension of territory to increase the number of subjects, all of whom must be taxed—a most simple and practical idea that everybody *must* pay. The future never enters the head of a Turk. *Good* government of a population means oppression and taxation: the Arab's proverb, "The grass never grows in the footprint of a Turk," painfully expresses the desolation of Moslem progress.

Thus, under this miserable rule, rich lands lie in wilderness, and a population that might become prosperous and civilised is paralysed by oppression.

Abyssinia is celebrated for a superior breed of mules. The horses of Abyssinia are in great request among the Arabs, and a considerable number are brought to the market weekly. Leaving Gellabât, we struck due west towards the river Rahad, about 50 miles distant; arriving there on foot, after the loss of two of my horses on the road through a sudden attack of inflammation, to which at this season they are subject. The Rahad is a small river, about 70 yards wide, flowing from Western Abyssinia through a dead flat of wonderfully rich soil. I met the river in about 12° 20' N. latitude, and continued along its margin for upwards of 100 miles, finding water in pools at intervals, the bed at that season being dry. I then crossed to the river Dinder—a river of similar character, but larger, and containing more water at this season. The banks were crowded by the Kunâna Arabs with their flocks, precisely as was the Atbara during the dry season. Both the banks of the Rahad and Dinder were cultivated at intervals; many permanent villages were surrounded by extensive tracts of dhurra, which was to be purchased for 10 piastres the râchel—about 2s. per 500 lbs. weight—a sufficient proof of the extreme fertility of the soil. I shot some hippopotami in the Dinder, to the great delight of the Arabs, who attacked the carcasses like vultures, quarrelling, as usual, over the meat more like a pack of hyænas than human beings. Bruce was disbelieved for asserting that the Abyssinian

preferred raw flesh to cooked. Not only Abyssinians but the several tribes of Arabs and also the Tookrooris have no objection to raw flesh; and, should a sheep be killed, they will invariably steal and swallow the kidneys while they are cleaning the inside. Although good hunters, I found a great difficulty with my people; whenever I shot a large animal, they would never leave the body to look for another until they had enjoyed their most epicurean feast. The paunch was divested of its contents unwashed, then cut up in slices, hot and reeking from the animal, and over the pile a sauce was poured—the *gall from the gall-bag!* The party would then sit round the disgusting heap and swallow piece after piece, hurrying for the largest share. The gall appears to act in a peculiar manner upon the flesh, rendering it easy of digestion. A favourite dish is the raw lungs of an animal; but this is so tough and spongy as to be unmanageable until it has gone through a certain process. The gall is poured into the main orifice of the lungs, a man inflates the mass by blowing into the orifice; this drives the gall through all the air-vessels, and the lungs immediately change colour, become nearly white, and are perfectly tender—and fit to eat.

Following the Dinder, I crossed the Rahad at its junction with the Blue Nile near the town of Abou Harraz, and, continuing along its banks, I at length reached Khartoum, having been exactly twelve months from the day I had quitted Berber.

I had thus examined all the affluents to the Nile from Abyssinia—the Atbara, Settite, Royân, Salaam, Angrab, Rahab, Dinder—to the Blue Nile.

It was the 11th of June when I arrived at Khartoum, and the Blue Nile, although very low, was slightly but steadily increasing. It will now be interesting to observe the effect of the Abyssinian rivers upon the true Nile.

It was on the 23rd of June in the preceding year that the sudden flood poured down the dried bed of the Atbara river, caused, as we have now seen, by the heavy rains of Abyssinia at the commencement of the wet season that had flooded simultaneously the Settite and Salaam, together with the head of the Atbara. At the close of June, in the following year, while at Khartoum, I saw the Blue Nile rise from the same cause, *i. e.*, the rains in Abyssinia. Thus the Atbara and the Blue Nile rose simultaneously, bringing down the drainage of Abyssinia into the true Nile. The White or true Nile at that time was not full, but was daily increasing above Khartoum; but below the junction of the Atbara a great flood was pouring down the river caused by the excess of the Abyssinian rainfall rushing suddenly into the main stream of the Nile.

The inundation in Lower Egypt commences in July and continues till the end of September. Now the last day's rain when I was in Abyssinia was 16th September, at which date the wet season closed; thus the flood came down the Atbara on 23rd June, and the rain ceased on 16th September, while the inundation of Lower Egypt occupies a similar period, allowing a short extra time for the flood to reach that country and afterwards to retire.

Arrived at Khartoum, I commenced the necessary arrangements for the White Nile expedition that is now published. Fortunately, it proved successful; but, in spite of that success, I must confess that, although the Nile sources have been discovered, I should still have remained ignorant of the actual cause of the inundations of Lower Egypt had I not previously investigated the Nile tributaries from Abyssinia.

The White Nile, of lake origin, in an equatorial rainfall of ten months, keeps up the great volume of water that nourishes Egypt; but the Blue Nile and the Atbara, of mountain origin, with a short but tremendous rainfall of three months, rushing into the main river, cause the inundations of Lower Egypt, and to their influence is due the extreme fertility of the Delta.

The PRESIDENT said he heartily congratulated the Society upon the production of this paper. It would form a most valuable appendix to the remarkable work on the Albert Nyanza, which Mr. Baker had recently published—a work which was now eagerly perused throughout the land, and which would procure for him a reputation, as a writer, exceeding that of any African traveller since the days of Bruce. The present paper was equally worthy of him, and it was interesting alike to the naturalist, the ethnologist, and to the geographer. He might add, that Mr. Baker had placed in a clear light the relations of the Atbara and Blue River to the main stream of the Nile, and had shown by actual observation that it was to those affluents that the great river owed the rich sediment which, deposited by inundations, was the source of the fertility of Egypt. Before he called for any observations upon the paper, he would ask the Secretary to read a very interesting communication from Mr. Rassam, Her Majesty's Envoy to the Emperor of Abyssinia, which formed part of a letter he had written to Colonel Playfair.

2. *Extracts from a Letter of Mr. RASSAM to Colonel PLAYFAIR.*

MY DEAR PLAYFAIR,

Korata, Lake Tsana, 22 March, 1866.

In my last letter I informed you that I had received a letter from the Emperor, in which he asked me to come up *via* Kassala; and consequently I was obliged to go to Egypt for the necessary papers from the Egyptian Government to enable me to pass through Soudan. Towards the end of September, I found myself back in Massowah, accompanied by my old companions Dr. Blanc and