



other of two tribes, the well-known Gonds and the Bhuryas.\* To what other well distinguished tribe these last are most nearly affined I cannot say. Their only language is a bastard form of Hindi, and they do not as a rule understand the language of their close neighbours the Gonds. In appearance they reminded me of the Souras, who are among the lowest in the scale of races. It is not improbable that they are identical with a small tribe met with in Palamow, and called by Colonel Dalton Bhuihars.† Both the Gonds and Bhuryas are very migratory in their habits, constantly passing from one hill-side to another, where they cut down the forest and sow pulse, Indian corn, and millet, between the fallen and partially burnt logs. This *Dhya* cultivation, as it is called, is of course very destructive to forests, and to this cause it is in a great measure due that India at the present day is so ill-provided with timber, and is compelled to import sleepers for the railways from Australia and elsewhere. The Forest Conservancy now established in the Central Provinces will no doubt in due time result in India being able to supply her own wants to a great extent; but for the present the mischief has been done and the growth of Teak, Sal, and some of the other timber-trees found in these forests is slow. In many places I found the maps of only a few years back afforded but little guide to the present habitations of these Gond and Bhurya nomads. The places that had known them knew them no more, and hamlets and clearances were met with where none were represented to exist.

From Chargaon I descended again to the coal mines at Mopani. Owing to the steepness of the pass it was necessary to send the elephant down unladen, the baggage being carried by coolies. I merely mention the above facts to show the difficulties

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\* Captain Forsyth, in his work on the Highlands of Central India, speaks of "Baigas," as inhabiting these regions with the Gonds. Daily I heard the name pronounced, and I have written it as I heard it, phonetically, and I have never, at any time, though familiar with the Baigas in Sirguja, met with any people whom I identified as such in the Satpurus.

† "Descriptive Ethnology of Bengal," p. 133



connected with the exploration of such a region of hills and deep valleys.

*January 11th.—Mopani to Birman Ghât.*—To-day, in company with the manager of the Mopani coal-mines, I went to visit and report upon a copper deposit which had been discovered and opened up by him on an island in the bed of the Narbada, close to Birman Ghât. A drive of nine miles from a station on the railway, called Kareli, brought us to the Narbada river at Birman Ghât, where there are several Hindu temples. Here an unexpected sight met our eyes. The banks of the river were crowded with numbers of pilgrims who had assembled in order to be present at some Hindu festival, and also for the purpose of bathing in the sacred river. The great display of colour in the costumes—turkey-red predominating—afforded a somewhat novel sight to me, accustomed to the appearance of crowds in Bengal where bright colours are seldom seen. Our tent was pitched on a commanding bank on the south side of the river, from whence we watched the assembling of the pilgrims. Each family party on arrival sought out for some unoccupied place upon which to encamp. A temporary bridge of boats across the river made both sides readily accessible, but for some reason the clay banks and masonry steps on the northern side attracted more people than the sands on the southern. Every ledge on the clay bank had its occupants, and very effective patches of colour were thus produced. On the sands on the southern side of the river booths were being erected for the accommodation of the petty merchants who were busily spreading out their wares. All the people had the appearance of being bent upon enjoying their outing. I have omitted, I find, to record the particular nature of this festival, but it was one of the minor sort. A very considerable *melā* or fair, is held here later in the year, when the assembled visitors number many thousands, and come from far distant parts of the country. On these occasions it is the custom of the European officials of the neighbouring stations to form an encampment and spend a week or so together. Close to this place the bed of the Narbada discloses pebble conglomerates,



which are of great interest to the geologist, from the fact that in certain spots they have yielded bones of extinct species of mammalia, and at Bhutra the important discovery in these beds of stone implements, of undoubted human origin, was made by Mr. Hacket, of the Geological Survey; thus affording incontestable evidence of the existence of man at a time when now extinct species of elephant, *Stegodon*, rhinoceros, horse, *Hexaprotodon*, *Tetraprotodon*, deer, buffalo, wild cattle, tiger, and bear inhabited this region. The remains of the deer and buffalo shew a very close affinity, if they are not identical, with species found existing in India at the present day. It is considered that these remains indicate a Post-pliocene age for the gravels.\* In the afternoon we visited the copper deposit upon which a trial excavation had been made. The ore, as I then saw it, permeated a thickness of about six feet of an argillaceous schist, and did not form a true lode; it chiefly occurred as the blue and green carbonates, azurite and malachite, but specimens of the grey and red oxides of copper were also to be seen. Assays of specimens of these ores gave results varying from 21.2 to 47.8 per cent. of metallic copper. Subsequently a large sample was sent to England (to Swansea I believe), and its sale paid all expenses, and it seemed at one time probable that the mine might be the means of developing a new industry in the Narbada Valley,† but as I have heard nothing lately on the subject I presume this has gone the way of the majority of such discoveries in India. While we were present I noticed that the workmen had some difficulty in restraining the pilgrims from walking off with samples of the handsome blue and green mineral. When our backs were turned we heard that they did a brisk trade in what natives might easily be persuaded to believe was a valuable medicine. Whether any cases of verdigris poisoning occurred in consequence we did not hear.

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\* *Vide* Lydekker—"Records of Geological Survey of India," Vol. IX., p. 87.

† "Records of Geological Survey of India," 1874, Vol. II., p. 62.



On the following day we returned to Mopani, and I spent another day in further examination of the mines, the result of which, together with some general remarks on the financially very important question of the coal resources of the Narbada Valley, I shall give at the end of this chapter. But here it will be convenient to mention one class of operations which were being conducted by the manager of the mines. The small area of coal-measures in which the mines are situated has been much disturbed by faults, and is completely cut out on the south by an east and west fault, and the edges of younger rocks are in consequence brought into contact with the coal-measures. By a number of borings it was sought to ascertain what the thickness of these younger rocks might be, and consequently at what depth coal might be looked for. But in the making of these borings, an unexpected—and, practically, very serious—difficulty arose, in consequence of the instruments having to traverse enormous beds of conglomerate, the hard boulders in which not only blunted, but sometimes broke, the cutting tools, thus rendering further work impossible. The manager fully and justly relying on the certainty that the coal must be below, though it might be at a depth of from 500 to 800 feet, or even more, it was decided to give up the borings, and to sink a shaft, without any further exploration. Such a shaft, with a timber lining, was accordingly started, and carried down to a depth of some 60 or 70 feet successfully, when, after passing through solid rock, the miners encountered a running quicksand, which, with the appliances available, proved quite unmanageable, as it swallowed up everything put into it. At length the manager was reluctantly compelled to relinquish the idea of sinking the shaft any further; but, anxious to save as much as possible of the timber, commenced removing it. A European overseer, who had been at the bottom of the shaft superintending this work, requiring a saw, came to the surface, and went off to his house to fetch it. On his return, he found a vast crater where the shaft had been. Not only had the men who were below at the time been engulfed, but several who had been seated or working at the winch above, and a sweetmeat-seller, with





his stock-in-trade, had simply been carried down in the general subsidence. In all, about seventeen lives were, I believe, lost in this terrible catastrophe, and not a vestige of any of the victims of any kind was left above the surface.

Subsequently an attempt was made to carry down *pari passu* with the excavation, an enormous cylinder of bricks, twelve feet in diameter and two feet thick, and resting on an iron "crib," which, as it was undermined all round, gradually subsided till the quicksand was again reached; and the whole thing, ultimately, I believe, got tilted out of the perpendicular and had to be abandoned, after a considerable outlay had been incurred; thus, for the time at least, putting a termination to the hopes which had been entertained of a vastly increased area of workable coal being opened up.

From Mopani I marched westwards to a fine village called Bara, and thence southwards to Sali Chowka, in the Valley of the Dudhi. In this neighbourhood I heard of game being about, including a tigress with a cub; and at night, two animals—hyænas, I believe—had a battle royal not far from the tent. A little bull-terrier, called Topsy, which I bought at Jabalpur, and whose name will again appear in these pages as the heroine of an adventure, here developed a talent for finding peacock in the jungle, and helped me to kill several.

*January 18th.—Sali-Chowka to Bamini.*—Fixing Bamini as the head-quarters of my camp, I had to make a series of expeditions, each lasting for several days, into the hills, with a very much reduced establishment. The work proved intricate, and the difficulty of moving from point to point very great. The prevailing rock throughout a great portion of this tract is trap or basalt, and the absence of the steeply-scarped faces of sandstone which are seen elsewhere, produced a very different type of scenery. Teak grows in some abundance on this trap soil, which also supports a rank grass that attains a height of six feet. But, as a whole, the jungle on the trap is much thinner and lighter than it is on the sandstone.

In one of the rivers in this country, near a spot where the



water tumbled over a layer of columnar basalt, I met with the Malabar whistling-thrush, whose occurrence I have already mentioned in Sirguja. Curiously enough, it had just occurred to me that the situation was one eminently suited to the habits of the bird, when I heard its whistle, and soon after saw it flying up stream, well out of range. Occasionally I startled sambar in their mid-day lairs; but it was not always possible to get my rifle in time from the hands of my lagging men. However, I shot one stag, which had been lying concealed in the grass on the banks of the river Sitariva.

*January 27th.—Ankawara to Bamini.*—To-day I returned to my main camp from the hills, and in the evening the Raja of Hurra came to pay a visit. He is a Gond or Gore, pure and simple, his family not having undergone the refining process I have elsewhere spoken of as producing Rajputs from an aboriginal stock. He called himself a Gore, not Gond; but the two names are, as I have already suggested, in all probability interchangeable. He offered to provide a beat for me on the morrow, he being himself on a shooting trip. He assured me that there were gaur—or, as they are here incorrectly called, *Bun Bhainsa*—in close proximity to the village Ankawara, where I had last been; but the people there, whom I had particularly interrogated on the subject, had declared there were none. But I had heard a tiger roaring while there, and also the monkeys swearing at him as he passed along in the evening.

*January 28th.—Bamini.*—To-day I had a beat with the Raja, the result of which, though he had placed me in what he considered the best place, was that he shot a sambar while I saw nothing. On a second occasion upon which I went out with him precisely the same thing happened, and he expressed what I believe was genuine sorrow that he had not been instrumental in obtaining for me a shot; but one of the villagers came up to me in a confidential way, and explained the whole thing in a manner perfectly satisfactory to himself and those of my servants who heard him. It was that the Raja being a Gond, a dweller in the forest, was endowed with magic power over the animals, and





drew them all to himself. Although on pleasure bent, the Raja had a frugal mind: for the people who beat for him complained that, with the exception of a quarter which was sent for my consumption, every scrap of the venison was "jerked" and packed up to be taken to his home as a store for the summer. This they looked upon not unnaturally as very mean conduct.

My regular work was now interrupted by its having become necessary to point out, actually on the ground, the spot at which the new trial borings in the Dudhi valley were to be commenced; the points selected being near the villages of Maneagaon and Khapa. The boring at one of these localities was ultimately carried down to a depth of nearly 700 feet without the coal-measures being reached. Some years later a series of observations were made\* on the temperature in these bore-holes at various depths; the general result being that below a depth of 60 feet there was an increase of 1° F. for every 66 feet in depth. The bearing which such observations have on the question of a heated central nucleus to the earth will be perhaps sufficiently obvious to the general reader not to necessitate further remark.

One day about this time I rode over to Mopani to see how the shaft was progressing, and while going round the works I noticed that on an iron bolt which was used to connect some timbers a large perforated pebble was in use as a "washer." On removing it I found, as the first glance at it had suggested, that it was really an ancient stone implement that had thus been applied to a modern purpose. I heard that it had been picked up on the surface close by, and had been used as a handy substitute for a "washer." Subsequently I received news from the manager that a precisely similar one had been found. The form, which, as will be seen by those experienced in stone implements, is similar to that of objects which have been found

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\* By Mr. H. B. Medlicott, F.R.S., Superintendent of the Geological Survey of India.



in many far-distant countries, is figured and described in Appendix B.\*

*February 7th.—Chargaon to Umeria.*—Having settled the matter of the borings, I was now free to continue geological work, and for that purpose to-day entered the Denwa valley, in the hills surrounding which, as the event proved, there was occupation for me for many days. This valley has been very fully described by the late Captain Forsyth in his able and interesting work on the Highlands of Central India. He has pointed out how the geological structure has had a marked influence on the vegetation, and again how the fauna is affected by the vegetation, and still further he alludes to a curious fact regarding the distribution of the inhabitants which seems to be likewise connected with it. Umeria occupies a nearly central position in the level portion of the Denwa valley. On the east there are irregularly-shaped hills and scarps which are intercepted by a broad valley; to the south a low ridge, formed of basalt rocks and clothed with teak timber, rises close to the village, while some miles beyond it the lofty buttressed scarps of the Motūr range give the valley the appearance of a huge amphitheatre, a natural colosseum. It requires but a very limited amount of geological knowledge to enable the observer to distinguish the hills and plateaus formed solely of sandstones from those into whose composition basalt also enters. The latter gives definition and angularity to the outline, while the former, owing to the unequal erosion to which they are subject, have a ragged and irregular profile no less marked than picturesque. On the west of the Denwa valley rises the mighty mass of hills which culminates in the Pachmari plateau. On the morning following my arrival at Umeria, at sunrise, a glorious effect was produced as the rays of light fell on the variegated, pink and white sandstones exposed on the faces of the steep scarps and cliffs which in these hills rise from their deep green

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\* Since the above was written I have seen two remarkably fine ring-stones of very similar character fixed on wooden handles, which were brought from the Solomon Islands, where they are used at the present day as war maces.





forest environment. On the north of the valley the hills are low, but the view is limited by a well defined forest of regularly growing sal trees. Captain Forsyth has pointed out that in this region sal is alone to be found on a sandstone soil, or rather on soils which are not derived from basalt. As I have elsewhere pointed out, this rule is not of universal application; I have met with cases, in Chutia Nagpur and elsewhere, in which sal flourishes on trap rocks. Captain Forsyth points out that in this isolated patch of sal forest there occurs a single herd of the Barasingha deer,\* and that within its limits the common red jungle-fowl † is found, instead of the rival species *Gallus Sonneratii*, which alone occurs to the south and west. These two animals, together with the wild buffalo, are characteristic examples of the fauna of the great eastern and northern sal forests. The remains of buffaloes in the Narbada bone-beds already alluded to, sufficiently proves the former existence of the animal in these regions. Captain Forsyth's conclusion is that this outlier was once in connection with the main sal tracts of the Vindhyan range, and that it became detached simply by the deforestation of the intervening Narbada valley. The same writer has recorded that a Kolarian tribe called Korkus range with the commencement of the isolated patch of sal forest; the bulk of the Kolarian tribes being found within the limits of the great eastern sal forests. This coincidence is, I believe, in all probability due to a wandering branch of the Kols having selected the locality in consequence of the presence there of their old familiar and almost sacred tree, the sal. Parallel cases might be given of settlers in America and Australia in search of a habitation seeing something in the natural features of the new country which reminded them of their far-distant homes, and caused them to select particular spots upon which they conferred the well-remembered names of their former homes.

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\* *Rucervus Duvaucellii*.† *Gallus ferrugineus*.



*February 13th.—Harmung to Khairi.*—It had again become necessary for me to leave my camp below, and for a few days preceding this date I had remained at a Bhurya hamlet, called Harmung, which is perched in a commanding position on the edge of a cliff overhanging a valley in which are situated the sources of the Dudhi river. In every direction deep canyons and gorges with vertical bounding cliffs of sandstone might be seen penetrating back into the great mass of the hills.

This morning, as I was peaceably smoking a cigar on my way to work, and while passing along a narrow path between two small hills, I heard a rustle in the jungle close by, accompanied, as I thought, by a grunting sound. On looking up the small hill on my left, I could at first discern nothing among the clumps of bamboos; but perceiving a very peculiar expression on the long-drawn countenance of one of the coolies who accompanied me, I rushed to his side, and followed the direction of his glances, till my eyes fell on a bear scrambling about over the rocks. Seizing my rifle, I gave him a shot with the right barrel which made him howl; but the second shot with the left was a palpable miss. On my firing it Mr. Bruin charged down the hill straight for me, and I had only just time to turn him with two charges of No. 8 shot, which he received at close quarters in the face. His retreat gave my chuprasi, who stood his ground manfully, time to find and hand to me a couple of bullet cartridges. The first of these which I fired caused the bear to make another savage and desperate charge, but the second knocked him over, and he soon after collapsed. I then looked for the two coolies who had accompanied me, but at first could not see them; presently I caught sight of them at the tops of two very slender trees, which they had swarmed up to a safe height with astonishing agility. The conduct of the chuprasi in not bolting deserved and received much commendation, and also something more substantial. Had he not given me the shot-gun at the proper moment I should almost certainly have been killed. How quick the whole affair was may be judged from the fact that at the end of it I found the cigar still in my mouth. The bear was very large and heavy, and it took





eight Bhuryas five hours to carry the carcase about five miles to camp. In the evening, on my return from work, I superintended the skinning, and after my bullets had been removed there was found to be still another, which proved to be a hammered (not cast) mass of lead. It had been completely encysted in tissue, where it lay on the shoulder, and had doubtless been there for many years, since it had been fired from the matchlock of some native shikari. The way in which my spherical bullets, driven by about four drams of powder, had spread into jagged masses of lead, afforded the strongest evidence of the superiority of that kind of charge over conical bullets with a less quantity of powder. The Bhuryas were provided with knives in order to take off the skin, but they soon discarded them in favour of their small axes, which having removed from the handles, and placed their thumbs in the hafts, they employed with much greater efficiency than they could the knives, with the use of which they were not very familiar. I could not help thinking that the axes so employed represented the stone skin-scrapers of pre-historic times.

The skin and skull fell to my share in the division of the spoils, the grease to my men, and the meat to the Bhuryas; but there is still something to be told about the mortal remains of that bear. After the meat required by the Bhuryas had been cut off, the carcase was flung away at a distance of one hundred yards or less from my sleeping tent. Not long after dark my dogs began to bark, and I concluded that jackals or hyænas had come to the carcase. Several times I went out of the tent in order to see what the visitors were, but the night was very dark and I failed to distinguish anything. On the following morning, after the camp had started for Umeria, I struck back into the hills to look up a tract which I had left unexamined. I had not proceeded very far before I came upon the tracks of an old tiger and a cub, leading in the direction of the tent. A few hours later I returned to the same spot, and then tracked up the footprints into close proximity to where the bear's carcase had lain. I had already noticed in the morning that it had been removed. With the aid of vultures and crows I at length found it in the middle



of some long grass, and as there was no sign of its having been dragged along the ground it was evident that it had been carried by some animal which could have been none other than the tiger. I then, too, heard for the first time that during the night a cow had been nearly dragged out of a cattle enclosure not far off, but that the tiger had released it on the men in charge setting up a shout. Had I known all this in time I should have remained on the spot for another day, hoping to get a shot in the evening; but my camp was already far away and I had to follow it up. There was every reason for believing that the tiger and cub had eaten a portion of the dead bear before the attack was made on the cow. At one time it was supposed that tigers would not touch carrion; but this is now known on the most complete evidence to be incorrect, and that moreover they will eat bodies of animals, which have not been killed by themselves, even when in an advanced state of decomposition. On arrival at camp at Umeria I heard that during my absence a cow had been killed close at hand by a tiger in the daytime, and that my jemidar had sat up over the carcase, which was visited by the tiger in the afternoon. He failed however to hit, though he had three shots at it, as the tiger did not move off at the first report, but actually, so the jemidar said, stood up on its hind legs against a tree in order to see whence the noise proceeded. I here picked up a local shikari who promised to show me at least one tiger, and for many nights we had cattle tied up as baits, but they were not touched, though one had been narrowly examined by a tiger, whose footprints were found the next morning. At first there was some difficulty in obtaining cows or buffaloes for the purpose, as no one would sell. However, a *gwala*, or herd, brought two buffaloes on loan, as he expressed it—not to sell, which would be an unlawful act for a Hindu. The contract entered into was that I should give him a present for the loan, and that if, by any chance, any accident should happen to the buffaloes, the present should be proportionately increased. Soon after these terms had been agreed upon, a Brahmin arrived from a long distance, having heard of the *gwala's* intention. With clasped hands he besought that one of





the buffaloes, which he said was his own property, though left in charge of the gwala, should be made over to him. He said that 500 rupees would not tempt him to allow it to be used for such a purpose. On its being made over to him he rather coolly asked for a supply of powder, shot, and caps, for his own sport. This request I did not comply with, but asked him how he could expect help from me when he gave none to me.

On my way to work at dawn, I used to visit the baits with my rifle on full cock; but always found them either grazing or placidly chewing the cud. The fact of my having work to do on this, as well as on many other occasions, interfered with my chances of successful sport, which generally requires one's undivided attention. The shooting the bear, and the incident I am about to relate, occurred merely as chance and unexpected episodes in the course of my usual work.

*February 22nd.—Jamundunga.*—While walking under the shade of some trees which bordered the Denwa river, my chuprasi called my attention to the fact that a small herd of sambar was crossing to our side just behind us. As I took my rifle they first caught sight of us; but as they were more than half-way across the boulder-strewn stream, they made a rush forwards, and as they did so I selected one, a doe, not noticing at the moment a young stag which was in the party, and hit her fair in the shoulder. Together with the others, however, she bounded to the bank, while I, in the excitement of running to meet them, fired the second shot over their backs. As it was evident from the great splashes of blood that the doe was badly hit, we climbed the hill where they had all disappeared, and soon came up with and despatched her.

At Jamundunga I heard that somewhere on the southern slopes of the Mahadeo or Pachmari hills there is an elephant at large which escaped from some Raja's possession, and that it has formed a strange alliance with a herd of bison or gaur. The gaur are notoriously fond of feeding on bamboo-leaves, as also are elephants. According to my informants, this elephant pulls down the lofty shoots of bamboos, so enabling the gaur to obtain



an amount of this food which would otherwise be inaccessible to them. In return they keep a good look out for enemies, and give timely notice to the elephant of the approach of danger. Subsequently, on trying to obtain some information about the whereabouts of the gaur, I was told that they had left this neighbourhood in consequence of a herd of them having been driven by the villagers down a narrow valley which terminated abruptly at the edge of a steep cliff. Several were said to have plunged over this, and to have been dashed to pieces on the rocks below. Altogether this valley and the surrounding hills contain, I think, a greater abundance and variety of game than any tract of equal extent which I have been in. As the jungles opened up with the fall of the leaf and in consequence of the fires, I frequently caught sight of deer and nilgai, and occasionally an ominous rustling in the bushes betokened the flight of some large animal startled by the noise of my approaching footsteps.

About this time the Chief Commissioner of the Central Provinces, Mr. Morris, passed through Umeria with a large army of followers, on his way to his summer residence at Pachmari, after a long tour to the most distant part (Sambulpur) of the wide area under his jurisdiction. As he did not remain for a second day at Umeria, I was obliged to postpone visiting him until I should be able to ascend to Pachmari.

*March 2nd.—Jamundunga to Jhot.*—I had again to leave my main camp behind in order to visit some rugged and difficult country to the south, on the slopes of the Motur plateau. My small tent was pitched at a Bhurya hamlet, near which I shot a specimen of the Madras tree-shrew (*Tupaia Elliotti*), to which I have already alluded. A few days previously I had shot two specimens of the Malabar whistling-thrush, which therefore ranges with the tree-shrew much further to the north in the peninsula than had been previously supposed. The bearing which these facts possess on the general question of the geographical distribution of animals I have already described in Chapter VIII. I shot a number of other interesting birds in this neighbourhood, including a good series of a beautiful little bush-quail (*Microperdix Blewitti*, Hume).





*March 5th.—Jamundunga to Pachmari.*—To-day I started to pay my first visit to the sanitarium of Pachmari. Riding from Jamundunga to the foot of the Mahadeo hills, I commenced the ascent on foot at the Tara Ghât. After we had accomplished about half the distance the path, which we had, I believe, taken by mistake, became very bad and steep, and my horse began to slip about and cut himself against projecting masses of rock. At last we put him at one spot where he completely lost his footing and rolled down the slope, being only arrested by the trunk of a tree. As he was much bruised and shaken, I sent him back to camp, and continued my climb upwards for another two miles or so, after which we reached a level road in process of construction, by which we arrived at the station, five miles distant, without further difficulty. As there was no public bungalow I was at first rather at a loss where to bestow myself; but it was not long before I discovered a haven of rest with a former acquaintance, the private secretary to the Chief Commissioner. House-room was then rather scarce, and several of the heads of departments of the Central Provinces were consequently living in tents. Since that time, I believe, great improvements have taken place, and Pachmari has become the regular resort of officials from Nagpur during the months of March, April, and May, when the dry heat below is of such a particularly trying nature. In short, it was at that time intended to make Pachmari to be for the Central Provinces what Simla, Naini Tal, Darjiling, the Nilgherries, &c., are to the respective provinces and governments in which they are situated.\*

Under the most favourable auspices I was enabled to see and hear of the many advantages and beauties which the place possessed. The Chief Commissioner, Mr. Morris, took me to several of the principal sights, and as he had at that time more thoroughly explored the tract than anyone else, the two days I

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\* A project to expend £250,000 on Cantonments was at that time, I believe, under consideration, but has not been adopted.



remained there were very profitably and pleasantly spent. Even the Andeh Koh, a deep-cut canyon or ravine, which Captain Forsyth had stated in his book to have baffled him, and to be quite inaccessible, did not prove to be so to Mr. Morris, who had not only explored it himself, but had succeeded in exhibiting its weird recesses to a small party of ladies. The main level of the plateau is about 3,600 feet above the sea, or not more than half the elevation of the average Himalayan stations. But it is sufficient to produce a very considerable difference in the temperature, and the greenery and freshness of the vegetation after the dust and blackness of the burnt jungles below, must ever prove grateful sights to the visiter. Beautiful avenues and drives, several miles in length, have been laid out, traversing the park-like scenery of the plateau. To the west rises the massive sandstone peak called Dhupgurh, the summit of which is 4,380 feet above the sea. In the most unexpected corners one comes upon waterfalls or well-wooded glens, and a little research in the latter reveals the existence of tree-ferns, which, though of small size, are of considerable interest and beauty. I cannot lay claim, however, to having made this discovery myself, as I was shewn the dried fronds by a lady, to whom all the credit is due, the fact having been previously quite unknown and unsuspected by Indian botanists. I found that the Malabar whistling-thrushes were not uncommon near the station, and I was told that they increase in numbers as the rivers dry up below with the advance of the hot weather. Thus, since both this bird and also tree-ferns occur in the Nilgherries, the appropriateness of the title the "Northern Nilgherries," which has sometimes been applied to Pachmari, will, perhaps, not be disputed. The great want of Pachmari is a branch line of railway connecting the foot of the ascent with the main line of railway. I entertained a hope that the result of some of the borings might prove the existence of coal in a position which would be the means of furthering a project to construct such a branch line; but, so far as I have yet heard, none of these borings have been carried out to a successful issue.





*March 7th.—Pachmari to Delakheri.*—To-day I returned to my camp below, descending by the Kanji Ghât towards the north-east of the plateau. It took me just seven hours' steady walking, under a hot sun, to accomplish the distance, which was little short of twenty-five miles.

Three days later, on the 10th, I received letters and a telegram from Chindwara, where I had sent to post, ordering my immediate return to Calcutta. Accordingly I had to countermand the march I had intended to make southwards to the Motur Plateau. Two forced marches brought me northwards to the railway station at Bankheri, where I broke-up camp, and early on the following morning was *en route* for Calcutta.

In passing through Behar from Patna to Lakeserai I saw in the railway-stations and sheds, glutted with bags of rice, abundant evidence of the famine operations. The true history of that famine, if presented as an unvarnished tale, would contain some curious reading; but as I have no personal knowledge of the subject, I shall refrain from further remarks about it.

I shall conclude this section with a brief sketch of the coal resources of the Narbada Valley. The general geology of the area is of too complicated a character to be disposed of in a work like the present, and reference should be made, by those interested, to the recently published *Manual of the Geology of India*.

The Satpura field, the principal portion of which is covered by a great thickness of rocks belonging to formations younger than the coal-measures, has a maximum length of 110 miles, and a maximum width of forty miles, with an area of about 2,500 square miles.

On the northern margin of this tract the coal-measures are alone exposed at Mopani,\* but further west some of the tribu-

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\* The seams at Mopani are :—

1	Inferior Coal . . . . .	12'	not worked.
2	Good Coking Coal . . . . .	20'	has been on fire.
3	Good . . . . .	3' 4"	} These are worked together.
4	10 feet Good . . . . .	12'	



taries of the Narbada, as the Tawa, which traverse the mass of hills, have laid bare coal-measures in the bottom of the valleys.

The Mopani coal-field has for many years been worked by the Narbada Coal and Iron Company; but, as the area of working-face in the mines is limited, and, as I have explained, the efforts to increase it have all hitherto failed, the amount of coal raised has rarely exceeded 1,000 tons per month, and this amount, though the railway company pays ten rupees a ton at the pit's mouth, or from three to four times what is paid in Ranigunj, is barely sufficient to cover working expenses. The consequence is that the railways in Western India are, at present, chiefly worked by English coal, since there is a point where the rail-borne cheap Ranigunj meets the sea-borne English coal at equal prices. This point is, of course, not a fixed one, as it oscillates with the price of English coal and freight, the price of Indian coal, and its carriage remaining nearly constant. The high cost of fuel in the Bombay Presidency, and Western India generally, which results from this state of things has not only justified the expenditure on borings which have been made to prove the extension of the coal-measures under the younger formations, but would justify a still further expenditure in the future. The matter is one, indeed, of Imperial importance, and it would be a cause for regret if it were allowed to drop, as, under skilled guidance, there is good reason for believing that favourable results will be obtained.\*

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\* Since the above was printed, news has been received from India of coal having been proved to exist to the south-east, and it seems probable that an extensive field will be opened-up.—*Vide* "Records of the Geological Survey of India," Vol. XII., p. 95.





## CHAPTER X.

## SECTION 2.

## BILUCHISTAN AND AFGHANISTAN. AGRA AND DELHI.

1874.

DISCOVERY OF COAL IN AFGHANISTAN—APPOINTED TO REPORT ON IT—CALCUTTA TO MULTAN—MIAN MIR—MULTAN TO MOZUFFERGURH—FLOODS—HEAT—THE INDUS—DERA GHAZI KHAN—RIDE TO SAKHI SARWA—THIRST—ASPECT OF THE OUTER RANGES OF THE SULIMANS—ASCENT OF THE SULIMANS—REACH CAMP—OUR ESCORT—BILUCH MARES—START FOR THE INTERIOR—A BILUCH “CITY”—THE LUNI PATHANS—THE KISS OF PEACE—FIRST TRACES OF COAL—THE ROLL OF OUR ESCORT—THE COAL—WILD SHEEP AND GOATS—BEARS—THE CAMP—RETURN MARCH—BILUCH MARKSMEN—ASCEND JANDRAN—A SAMPLE RAIDER—THE KETRANS—HOSTILE NEIGHBOURS—KAFILAS—THE EXEMPT—ANCIENT POTTERY HEAPS—A SPY AND HIS VIEWS ON POLITICS—GEOLOGY—OUR TAIL OF FOLLOWERS DIMINISHES—EVIL PREDICTIONS OF A RENEWAL OF TURMOIL AND RAIDING—A CHIEFTAIN IN DISGRACE—FLOODS—RETURN TO DERA GHAZI KHAN—DELHI—IRON PILLAR—AGRA—SEKANDRA—WOLF-REARED CHILDREN—THE TAJ—SIMLA.

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TOWARDS the end of June, 1874, correspondence regarding the discovery of coal by Major Sandeman, in the country of the Luni Pathans, about 100 miles west of Dera Ghazi Khan, led to a proposal that an officer of the Geological Survey of India should be sent to report upon the prospect of coal being found there in sufficient quantity to be profitably worked for the supply of the steamers and railways of the Indus valley. Although the locality was actually situated in Afghanistan\*—the Luni Pathans

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\* A recent map represents the Luni Pathans' country as not belonging strictly to Afghanistan.



being more or less subject to the Amir of Cabul—Major Sandeman was sanguine as to the satisfactory adjustment of the political difficulty in connection with the opening out of a mine.

The climate of the Derajat\* in July enjoys a somewhat evil reputation, and the Government of India most considerably declined to *order* any geologist on this mission, but granted permission to whoever might be selected by the Superintendent of the Survey to proceed or not at his own risk. The offer being made to me, was gladly accepted, as an opportunity of visiting such remote regions, beyond the British frontier, was not likely to recur, and the trip promised to be one of great interest, in spite of *désagrémens* inseparable from a journey at that time of year. The fact that I should not be alone, and the confidence that as I had already borne a good deal of exposure to extreme heat, I should now be capable of enduring as much as my companions, encouraged me not to hesitate about my decision. I therefore immediately made my preparations, and left Calcutta by train for Multan on the night of the 3rd of July. By travelling straight through, I reached Lahore at noon on the 6th. As the train for Multan does not leave until the evening, on account of the excessive heat by day, I employed the time at my disposal in visiting the city of Lahore and its neighbourhood. I shall not, however, here pause to describe what I saw, but continue the account of my journey. At 5.30 p.m. the train left for Multan. The carriages on this line—very different in construction from those in which I had come through from Calcutta to Lahore with great comfort—were divided into narrow compartments, and heavily cushioned, being apparently cunningly devised to intensify the sufferings of passengers. A slow rate of progression, frequent and long stoppages, and an abundance of flying sand, proved to be causes of further discomfort and irritation. I, the only European

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\* The Derajat is the strip of low-lying ground, *trans* Indus, at the foot of the Suliman range.





passenger in the train, passed a terrible night, and the natives seemed to suffer almost as much, as at every station the cries for water were unceasing.

For most of the way the soil is sandy, and only supports scattered bushes of species of *Capparis*, *Acacia*, *Euphorbia*, &c. Towards Multan, however, where there is some irrigation by means of Persian wheels, I saw crops of Indian corn, millet, tobacco, &c. The view of the cantonments at Mian Mir, across the bush-scattered sands to the south of Lahore, was most dismal. The change afforded by frequent trips to the hills can alone render existence bearable in such an abominable climate, and with such depressing surroundings. I arrived at Multan in the morning, and remained there during the day; but, owing to the heat, could not do much sight-seeing. I was met there by a native police-orderly from Dera Ghazi Khan, a most intelligent fellow, who made for me all the arrangements necessary for my subsequent journey. In the afternoon we took the train for Sher Shah,\* the then terminus of the line, on the banks of the Chenab river. By the same train the Governor-General's agent and some other of the European officers of the flourishing native State of Bhawalpur, went down to a steamer which was awaiting their arrival. They kindly offered to put me across the river, but the flooded state of the opposite bank would have made it impossible to near the land, so that I crossed in the common ferry-boat, having for fellow-travellers a party of natives of all ages and sizes, who were grievously afflicted with boils. Landing on a slip of dry ground, I then had a mile's ride over a flooded road, to where a couple of gigs were in waiting, into which myself and goods were stowed. After a few miles' drive we reached the travellers' bungalow at Mozuffergurh about dark. The heat inside this building was simply unbearable; provision

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\* I see by a recent statement that the navigable channel of the Chenab river has, with the well-known inconstancy of Indian deltaic rivers, left the neighbourhood of Sher Shah altogether, and that the landing-place of steamers is now about six miles off.



was, however, made for this state of things by the erection of punkahs in the open, under one of which I passed a few hours, tossing about, and unable to sleep. At three o'clock we again started in the gigs, but before reaching the Indus were compelled to ride, as the flooded state of the country prevented wheeled vehicles traversing the road. The mail-boat carried me across the regular channel of the river. At this season it was possible to sail straight to the opposite bank to a place called Patun. In the dry season the channel is divided into two by a wide *chur*, or island of sand, which necessitates tiresome transhipment. The position of this *chur* was marked by the tops of the bushes of Jow (*Tamarix*) which grow upon it. At Patun, I was met by the Assistant-Commissioner of Dera Ghazi Khan, who drove me into that station, which was five miles distant. I was astonished to find the station so green and bright-looking. This is in consequence of the admirable system of irrigation, for the rainfall amounts to only about five inches per annum. The flooding of the Lower Indus is seldom due to local accession of water, but is generally attributable to the sudden melting of great masses of snow at the sources. During the year 1878, these floods were on a very destructive scale, and much damage was done to Dera Ghazi Khan.

Frontier politics I found furnished the officers of the Punjab frontier force with an unceasing topic of discussion. In several of the bungalows, maps showing the outposts of the Russians might be seen, with all the latest available information duly recorded on them.

It had been my original intention to press on, the night of my arrival at Dera Ghazi Khan, so as to join Major Sandeman's camp on the top of the Suliman range without delay, but I had earned a night's rest, and as it was necessary to fortify myself for a sixty miles' ride, I thought it better to defer my departure till the afternoon of the day following. The morning was spent seeing the sights of Dera Ghazi Khan, including the jail, in which there were a number of murderers of both sexes, belonging to the Biluch and other tribes. The radial arrangement of the buildings





forming this jail reminded me of the Menagerie at Schönbrunn, near Vienna.

Leaving the station at 4 p.m. I reached Sakhi Sarwar, thirty-two miles distant, at about 8.30. The horses provided for me were the property of the Police-Sawars, one of whom accompanied me as orderly from relay to relay.

A short distance from Sakhi Sarwar, I was met by the head man, who had ridden forth to greet me. As he held out his hand, I saw in the dusk that it contained something, and putting down my hand towards it, observed that he closed his fingers upon a coin. This was his *nasar* or formal offering, which he of course expected to be remitted, but which my action for the moment, I suppose, made him think I was going to accept. To make such offerings, and never to appear empty-handed on making a salaam, I found to be the universal custom among the Biluch on both sides of the frontier. In most parts of India, though traces of the custom are met with, it seems to be gradually dying out.

On arrival at Sakhi Sarwar I found a partly-finished two-storied rest house occupied by a motley crew of wild-looking Biluch, several of whom had to be disturbed from their slumbers in the upper verandah to make room for the cot upon which I was to rest. They did not hesitate to grumble at this ejectment, but departed to search for other quarters. I had no sooner sat down in the bungalow, than I became aware that I was afflicted with an absolutely unquenchable thirst, and that my liver had been jolted into a condition which removed all desire for food, and rendered sleep impossible. Sakhi Sarwar's reputation being so well known, at Dera Ghazi Khan, ample provision of iced drinks had been, with much forethought and kindness, prepared for me, but without avail, for after consuming an amount of claret and soda-water which I am ashamed to record, I was still thirsty, and had, before I started, to drink some of the local brackish and almost tepid water.

Sakhi Sarwar is said to be the place of which it was remarked by some native that, it being in existence, it was unnecessary for



the Creator to have made Hell also. There are, I believe, some other places which claim to have had this said of them, but its application to any of them can scarcely be more appropriate than it is to Sakhi Sarwar. The name is derived from that of a Mahomedan *Pir*, or saint of great sanctity, whose tomb close by draws many pilgrims. An annual festival in his honour, which partakes also of the nature of a fair, brings together many thousands of Hindus as well as Mahomedans.\*

The great heat of this place at night is no doubt attributable to the radiation from the closely adjoining verdureless outer slopes of the Suliman range. Those who have not seen the arid hills bordering the Red Sea, or some similar scenery, could scarcely conjure up in their minds a landscape so desolate as that presented by these uniformly brown and arid-looking rocks. Sakhi Sarwar is stated to be about 926 feet above the sea.

At about two o'clock on the following morning I rode southwards for a few miles, and then about dawn turned westwards into the Siri or Sakhi Sarwar pass, which was an old Kafilā route to Kandahar. I was mounted on a rather miserable-looking Biluch mare, but she proved a capital one to go, though the route, especially where it lay in the boulder-strewn bed of the Siri river, was a very rough one. Here my geological observations commenced; but, as the full results of my examination have been elsewhere published,† I shall not now dwell upon details, my object being rather to describe the people and general features of a portion of a tract of country to which considerable interest attaches at the present moment. The bed of the river in the plain outside the flanking range of hills, and for a distance of perhaps two miles inside it, had not a trace of water, but beyond that we came upon running water from

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\* A very complete account of Sakhi Sarwar and the fair is given by J. Macauliffe, Esq. B.A., in the "Calcutta Review," No. CXIX., 1875, p. 78.

† "Records of the Geological Survey of India," Vol. VII., p. 158.





the interior which suddenly disappears beneath the surface coincidently with a bed of conglomerate which dips downwards. Judging from the maps, this seems to be the fate of most of the rivers along this frontier, few of them finding their way to the plains, although the continuation of the *nullahs* or dried-up-water-courses indicates that they have done so formerly, or even may do so now under the exceptional circumstance of a heavy and long-continued rainfall. Such a rainfall took place a few weeks after my visit, and much damage was the result of this locally-fed flood in Biluchistan, and other parts of the Indus valley. At the end of the Siri Pass, which is about four miles long, a north to south valley opens to view in which numerous ridges formed of green and red shales or clays, and brownish sandstones, and further in, white nummulitic limestones strike from north to south. The open parts of this valley, though stony, support a certain amount of vegetation which is dwarfed and stunted in growth, but produces an agreeable appearance, after that of the dreary waste outside.

At Kudji I found a fresh horse in charge of a Biluch Sawar, and with him and Ali Bux, the police constable, who had been in close attendance upon me all through, I commenced the ascent of the main range of the Sulimans, by a track which had been opened up by Major Sandeman. Before reaching the next relay I began to feel much fatigue, and a yearning for sleep, which I was compelled to gratify, by dismounting and lying down under a sheltering ledge of rock, for an hour. When I mounted again I became conscious of serious damage to my integument, otherwise known as loss of leather, which had been caused by the steepness of the climb, and the saddle not suiting me. The rest of the journey, up seemingly endless zig-zags, to the bungalow erected by Major Sandeman as a sanitarium, at an elevation of 5,880 feet above the sea, occupied several weary hours, and it was nearly four o'clock before I got to the end of it. The slow pace, however, had the advantage of enabling me to watch and note more carefully the geological changes than I should have been able had my bodily condition permitted me to ride as fast as Ali



Bux wished. I trust I have not wearied the reader by dwelling on my physical sufferings. Any allusion to them in a formal scientific record would, of course, be inadmissible; but to conceal them in an account of this nature would be a mistake, and only tend to give a wrong impression. They constitute, however, but a trifling shadow on the memory of one of the most interesting and pleasant of the many exploring expeditions I have made in India.

At the bungalow I found Major Sandeman and Captain Lockwood, and close by were the tents of the Biluch chiefs Jamal Khan, Emam Bux, and others, with their followers, all of whom were to accompany us across the frontier. The following day it was arranged that we should remain where we were in order that I should recover from the fatigue of the journey; and on the day after, in the afternoon, we made a short march of six miles westwards, descending from the main ridge of the Sulimans into the Rukni valley, so called after a village belonging to the Hudianis, a section of the Ketran tribe of Biluch. This flat valley, which is about 3,500 feet above the sea, has a remarkably fertile appearance, being covered with a green-sward of grass, scattered about in which there are bushes of wild plum or *Zizyphus*, &c. Of this but a small portion was cultivated in the immediate vicinity of the walls of the village. Though so near to the British frontier, raiding is carried on between the tribes, and only a few months previous to our visit the *Maris*, a tribe living further to the south, had swept through the country.

Our body-guard consisted at first of about 150 Biluch chiefs with their followers, mostly mounted. The armed cavalcade presented a singular appearance with their swords, shields, matchlocks, and flowing white garments. Physically they are powerfully-built and handsome men. As a rule the chiefs shew in their bulky frames the superiority of their food and nurture over that attainable by the mass of their tribesmen. Each mounted Sawar carried a matchlock slung across his back, and a sword suspended by a more or less richly-embroidered shoulder-strap, not by a belt.





Other portions of their equipment consist of cartouche cases, brass châtelaines, from which are suspended powder measures, small horns for priming-powder, turnscraws, &c. Their commissariat arrangements are simple. A sheep's skin full of water is slung under the horse's girth, and a skin full of flour is strapped in front or behind the saddle. For days together the food of these men may consist only of lumps of partially-kneaded dough baked on the embers of wood fires. When on the raid the meat of stolen sheep is added to this simple fare.

It will be convenient here to describe the Biluch horses, of which before many days were over I had seen nearly a thousand. The true Biluch will only ride mares; a few entire horses are kept for breeding purposes, but the majority shortly after birth are simply neglected and allowed to starve, not being thought to be worth the trouble of rearing. The reason of this strange custom is simply that in their raids, the actual fighting being accomplished by stealthy assaults on foot, it is of great advantage that one man should be able to hold a score of horses which will remain quiet and not give the alarm by neighing. Geldings might answer, perhaps, but would scarcely be so docile or quiet. However this may be, the Biluch does not try them. The mares perhaps average something under fourteen hands. They are fairly fleet and as active as cats on the steep, often trackless, hill-sides. The prices—from 300 to 500 rupees—asked for them by their often ragged-looking owners, seemed to me to be absurdly high. On the following morning we started at half-past four for the Taghar valley, the route exposing rolling beds of nummulitic limestones abounding in fossils. The clear sections of these rocks, which rest upon the older sandstones that form the main Suliman range, were very instructive. The freedom from vegetation enabled one to obtain most comprehensive views of the structure. A few scattered olives were the only trees which seemed able to maintain their existence on the dry ledges. We remained in the Taghar valley and rested during the heat of the day, resuming our route at 2 p.m. From this valley, which is 3,800 feet above the sea, we had to ascend and cross a ridge by a pass of



about 5,200 feet elevation. On our descent into the Bughar valley we found ourselves surrounded by a most agreeably altered scene, in which were scattered about several walled cities\* surrounded by cultivation. I went inside one of these cities and found it crowded with miserable hovels of stone and mud, with here and there a few mats to close the apertures. Dirt, untidiness, and squalor, prevailed to an extent I hardly anticipated from the appearance of the men. At each corner of the walls was a tower looped for matchlocks. My appearance created some excitement amongst the inhabitants—especially the female portion of it—who had never set eyes on a European before.

The following day we marched to Chamarlang, having a mid-day halt at Karer. The successive valleys, which we crossed at nearly right angles, have been generally formed by denudation along the broken crests of the rolling beds of limestone, and not as might be expected in the hollows of the rolls. During the day our cavalcade, which had been steadily augmenting, was increased by the advent of the Luni Pathans, into whose country we had entered. Their general appearance was very different from that of the Biluch, and the long lances which they carried served still further to distinguish them. The manner of reception which they would give us was up to the last moment a matter of some uncertainty, but Major Sandeman's extraordinary influence and prestige served to elicit from them a sufficiently respectful greeting. The principal chiefs in Major Sandeman's suite dismounted and embraced the Luni Pathan head man, after he had gone through the form of presenting his *nazar*. This "kiss of peace," which was gone through by the whole party on the occasion of each new chief joining with his levy, merits some description. Rushing into each other's arms in a most melodramatic manner, they would both repeat the word *Khushi*, pleasure, several times. How far these demonstrations were

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\* So-called *Shahrs*. Village would be a more appropriate title.





sincere may be inferred from the fact that in less than a month afterwards the tribes represented by some of these chiefs were fighting with one another, raiding and murdering. Early the following morning we rode to the base of a scarped hill called Kuch Budi, where the first indications of coal had been observed. These proved to consist of a number of thin seams, none of which exceeded four and a-half inches, and most of which were not half that thickness—the whole being consequently quite valueless. Several other sections having been examined, we then rode on to another camp in the Chamarlang valley, close to which occurs the principal coal-seam which had been the goal of our journey, and upon which the hopes of everyone connected with the matter centered. The chiefs, who live in British territory, but exercise only a nominal authority over certain of the tribes beyond the frontier, hoped for a favourable verdict on the coal, foreseeing that were the country acquired by the British this authority would be strengthened, and might possibly become a source of profit, instead of being a mere barren honour—which involved indeed from time to time subsidies and presents to these wilful Ishmaelites. In this camp, on roll being taken, it was found that there were representatives from sixteen tribes, with their chiefs, in all about 1,500 men, about half of whom, or rather more, were mounted. Seven of these tribes were from British and the remaining nine from independent territory. There were also about 100 baggage camels, carrying supplies, &c. The elevation of this camp was about 3,900 feet above the sea. The next morning we visited the coal, and the appearance presented by some hundreds of armed Biluch perched on every coign of vantage, while I measured the seam and examined the coal, was one I shall never forget. Finding that the thickest part of the seam was only nine inches, and that the inclination or dip was  $45^{\circ}$ , it was impossible for me, in spite of the fact of the coal being of excellent quality, to pronounce other than a most unfavourable opinion. Regretfully I observed the disappointment with which the announcement was received, but there was no help for it, and all my subsequent exploration and enquiries convinced me that not



only was there no better seam elsewhere, but none even so good.\* This result was similar to that which has invariably been found to be the case where the coals occurring in the tertiary rocks on the north-west frontiers of India have been explored.

The remainder of the day I spent in examining the geology of the neighbouring hills and collecting fossils. While so employed, I met a Shikari who had shot a fine wild goat or *Markhor*. Two or three hills were pointed out to me as being inhabited by bears. They probably belonged to the same species as the animal called the *Mamh* of Biluchistan, which about two years ago excited considerable controversy in India, some writers maintaining it to be a mythological animal, others, from its small footprints, concluding that it was a monkey. A skin subsequently obtained has enabled Mr. W. T. Blanford, F.R.S., to describe it as a new species of bear, to which he has given the name *Ursus Gedrosianus*.

The day's halt appeared to be much enjoyed by the people, and not less by the mares, which scampered about in herds over the sward in the fulness of their freedom. Major Sandeman's camp occupied the centre of the valley, and the different tribes had been told off to occupy various points on the circumference of a surrounding circle about a quarter of a mile in diameter. In the vast assemblage I did not once hear anything like a squabble going on—not even high words. How different it would have been had there been only one-fiftieth part of the number of Hindustanis present! It seemed that for the time the British flag quenched all animosities, though the different chieftains could not entertain much love for one another, in consequence of old traditional feuds. Major Sandeman, however, encouraged the establishment

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\* In a letter from a correspondent to the *Pioneer* with the Thull Chotiali field force, dated April 20th, 1879, I observe that while an extract from my report is given, it is added that it was believed that I had subsequently modified my views as to the improbability of an abundance of coal being found. I take this opportunity, therefore, of saying that such has not been the case, no additional facts having been discovered which would justify my altering the conclusions arrived at from an examination of the ground.





of certain matrimonial contracts, which bid fair to heal the differences in some cases, and it was hoped would result in the war-hatchet being buried. The difficulty of bringing about such a state of accord is very great whenever one of the tribes counts a life still to be avenged.

While Major Sandeman was thus engaged in matters political, and I with the geology, Captain Lockwood was busily occupied in the preparation of an admirable sketch-map of the country. His finished work, extending over an area of about 700 square miles of previously unknown ground, has been inserted in the latest maps.\*

Our position in Chamarlang was within about sixty miles of Thull Chotiali, quite a different locality from Thull, near the Khyber Pass, which recent events have made familiar with the British public.

On the following morning (17th), taking a new line for our return, we marched to a place called Hunki, crossing a section of rocks belonging to the coal horizon, in which there were some thin layers of coaly matter. We remained there for breakfast and for the examination of the neighbourhood, and then having got thoroughly wet in a heavy shower, rode on, skirting the Karvada range, to an open and fertile valley, called Pasta Mara, crossing *en route* the old Kafila road to Kandahar. From time to time during our journey we came upon piles of stones, some of which marked the spot where a man had been shot down. Among our following there was often to be found some one able to give the history of the murder.

In the evening the Biluch showed their excellence as marksmen. A man who made an indifferent shot—none shot badly—at once became the subject of ridicule by the surrounding crowd. A small cavalry Snider-carbine of mine was much admired for its handiness, and several of the chieftains, who had

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\* I must protest against the insertion of the words "Coal cliff" in one of these, that by Stanford, on the site of the thin seams of coal, since it is calculated to convey a very erroneous idea of the true nature of the deposit.



never fired a weapon of the kind before, made capital shots with it, breaking a bottle on the ground at a distance of 150 yards.

Leaving Pasta Mara on the morning of the 18th, we rode through a series of deeply-cut gorges, about ten miles in a south-easterly direction, to the Hun Pass, where Major Sandeman and I ascended a spur of the Jandran range, to a peak about 5,000 feet above the sea. Various stories were afloat as to the marvellous sights to be seen on the summit. It was said that a Gogi or Fakir had lived in a cave there, and that his cooking-vessels, &c., were to be found turned into stone. This suggested to me the possibility of the existence of some remarkable fossils in the rocks. On arriving at the summit, after a very steep and laborious climb, we failed to find the cave, and our guides professed to know nothing about it. One of them, named Jana, a very singular-looking individual, and a notorious raider and thief, with whom we conversed, admitted the impeachment that such was his character with the most unblushing effrontery. "Yes, Sahib!" he remarked, "without doubt I am a thief."

Descending the hill, we continued our march through the Hun Pass to the Barkan Valley, which is inhabited by a tribe called Ketrans, who, as their name indicates (derived from *ket*, a field), are cultivators. This and the neighbouring valleys having a perennial supply of water, are well suited for agriculture; but, unfortunately, feuds, which interfere seriously with the course of peaceful avocations, are not unknown. The head man and the inhabitants of the village or *city* of Mir Hadji, not far from where we encamped, were on the worst possible terms with the people of another village, not two miles off, and no opportunities for mutual reprisals were lost, so that it was impossible for them respectively to move away from the vicinity of their walls, save when armed in sufficient numbers to render an attack dangerous. For, as a rule, it must be said, attacks are generally made with overwhelming numbers, when there is little or no risk of loss on the side of the attacking party; and often a man falls, basely "potted" from behind a rock, being profoundly ignorant of the presence of his assailants, be they few or many.





From this valley we first saw kafilas of pack-bullocks, with grain, travelling eastwards. Whether on account of their service as traders, or because of their effeminate natures, the Hindu merchants in these regions are never killed in the raids; with them are spared the women and children, and all boys who have not donned the manly garb, or who are, in other words, *sans culotte*. The assumption of trousers by a youth carries with it the liability to be counted and shot at as a man.

On the 19th we marched to a place called Chowatta, but owing to heavy rains having soaked the tents, &c., could not start till ten o'clock, when they were somewhat dry. I employed the morning in visiting some mounds, believed to be of great antiquity. At first sight I thought they might be Buddhistic topes, but, save some fragments of broken ornamental pottery, I saw nothing to give a clue to their nature and origin. Possibly excavation might have revealed something, but for this there was no time. In consequence of the fact that pottery is not manufactured at the present day in Biluchistan, and, indeed, can scarcely be said to be used there, this pile of broken fragments was considered a remarkable sight.\* The cooking-vessels are—so far as I saw—exclusively made of metal, and the drinking-vessels, &c., are made either of wood or leather. I also visited a garden belonging to one of the chiefs, Biluch Khan. It contained grapes, figs, and pomegranates, all of which appeared to grow luxuriantly.

A man from Thull, who turned up to-day, was admitted to Major Sandeman's durbar. His account of himself was that he had been tracking up some strayed cattle, and, hearing of our army, had followed us up. He spoke out his mind with a freedom from restraint which was particularly refreshing. Among other things, he professed incredulity as to the coal being the real object of the expedition, and said, "You are not wheeling

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\* Some ancient remains of pottery have been found in another part of Biluchistan (Mekran) by Major Mockler; in association with them were various other articles, including flint knives, &c. *Vide* Proceedings Asiatic Society of Bengal, 1877, p. 157.



about the country for nothing. We know full well that the Sirkar Angrez (English Government) is hankering after Kandahar and Kabul, but we will never submit to be called by the hated name of Ryots, nor will we be the servants of anyone, though we may perhaps consent to render you our assistance, should you at any time require it." How these prophetic remarks, made five years ago, have been fulfilled by recent events it is, perhaps, needless to point out.

The geological structure of this valley was beautifully displayed in a number of admirable sections, and the nummulitic lime-stones, especially at a place called Chukerani, yielded an abundant supply of fossils.

The next day we returned to the bungalow on the main Suliman range, and remained there for three days, in which period of grateful rest I was abundantly occupied in writing out my report on the geology, and collecting and observing the few species of birds to be found at this elevation.\*

During the return march our army had gradually diminished to its original strength of about 150, as the various chieftains led off their forces to their respective homes. I was much impressed with a remark made by one of the subordinate chieftains to Major Sandeman. He said, in Hindustani, "We are sorry you are leaving the country. Henceforth turmoil and raiding will furnish the principal events in our daily lives." The event fully bore out the truth of this prophecy. One of the men—I think it was the before-mentioned Jana—said that he, with his small following, had been invited to join a raiding party, and most complacently asked for advice as to whether he should join it or not. The doubt in his mind seemed to be altogether due to a calculation which he had made of the cost, and the consequent uncertainty of its proving a paying speculation. It does not by any means follow that these raids prove profitable. Sometimes

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\* An account of these observations is published in the *Indian Ornithological Journal* "Stray Feathers." Vol. III. 1875.





the raiders are well thrashed; often they lose many of their beasts and some of their own lives, and when they arrive at home the division of spoil yields but a miserable pittance per man. After one long and wearisome raid, which was accompanied by much loss, I think I saw it stated that each man received only the equivalent of three shillings as his share.

Our return to Dera Ghazi Khan was accomplished without special incident, save that the principal chieftain got himself into disgrace with Major Sandeman for not conducting me to a place where coal had been found on the outer slopes of the Sulimans, as it had been arranged that he should on the day we descended. The following day, although the deposit was known to be insignificant, being also on the same geological horizon as that which had been examined, I wished to go to the place, but was assured that in the morning heat I could not visit the low valley in which it was situated except at an absolute risk of my life. Accordingly a messenger was sent, who brought some specimens, but did not rejoin us at Sakhi-Sarwar till the afternoon. He came back much exhausted, and told me, when I asked him what would have happened had I gone with him, that I should be still lying there under a tree.

The following night we slept at a village called Veddore, in the plain. A grateful shower of rain, of which there had been an abnormal amount, cooled the air sufficiently to render sleep possible. But we were disturbed during the night by a terrible uproar in the village, caused by the floods bursting through a retaining embankment, which necessitated all hands turning out to save the precious fluid for cultivation.

*July 29th.*—After two days' rest in Dera Ghazi Khan I started on the return journey to Calcutta, and rode to Mozuffergurh. For several miles on the eastern side of the Indus our route was through water. At one place where the mounted orderly who accompanied me was at fault we got a villager to wade in front of the horses, and I was rather surprised to observe that he left the high-road and struck across the fields and waste lands, as they, he said, were covered by a less depth of water.



At Lahore, which I reached on the morning of the 31st, I visited a large musjid or mosque in the centre of the town, and the native bazaars, which are more like those of Egypt than any to be seen in Bengal. A large proportion of the people struck me as being remarkably unclean in their persons, and the flies and evil odours which abounded rendered the visit far from pleasant.

On the following morning I arrived early at Delhi, and devoted the day, in spite of the very great heat, to visiting the various interesting sights in the city and vicinity. But as descriptions of these are to be found in many works, not to speak of guide-books, I shall, consistently with my programme, avoid describing them here. I must remark, however, that to my mind by far the most wonderful sight there, is the great wrought-iron pillar at the Kutub. It is 23 feet 8 inches long, with a diameter at base of 16.4 inches, tapering to 12.05 inches at top. These dimensions indicate a weight of 5.7 tons. The capital and a bulbous protuberance at the base would probably make the total weight not less than 6 tons. It is supposed by Mr. Fergusson\* to be 1,400 years old. It affords, therefore, evidence of

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\* In Mr. Fergusson's "History of Indian and Eastern Architecture," is to be found, I believe, the only accurate account yet published of this pillar. He writes:—"One of the most interesting objects connected with this mosque (Kutub), is the iron pillar which stands—and apparently always has stood—in the centre of its court-yard. It now stands 22 feet above the ground, and, as the depth under the pavement is now ascertained to be only 20 inches, the total height is 23 feet 8 inches. Its diameter at base is 16.4 inches, at the capital, 12.05 inches. The capital is  $3\frac{1}{2}$  feet high, and is sharply and clearly wrought into the Persian form that makes it look as if it belonged to an earlier period than it really does; and it has the *Amalaka* moulding which is indicative of considerable antiquity. It has not, however, been yet correctly ascertained what its age really is. There is an inscription upon it, but without a date. From the form of its alphabet, Prinsep ascribed it to the Third or Fourth Century; Bhau Daji, on the same evidence, to the end of the Fifth, or beginning of the Sixth Century. The truth probably lies between the two. My own conviction is that it belongs to one of the Chandra Rajas of the Gupta dynasty, either consequently to A.D. 363, or A.D. 400.

"Taking A.D. 400 as a mean date—and it certainly is not far from the truth—it opens our eyes to an unsuspected state of affairs to find the Hindus at that age





the existence of an amount of metallurgical skill at that early period which could not have been equalled in Europe a few years ago. It is only within a very short space of time that it has become possible for the iron-forges of England to manipulate equally large masses of metal. It is believed by those competent to form an opinion that this pillar must have been formed by welding lengths together; but, if so, it must have been done very skilfully, since no marks are left of any such welding. Analyses of the iron have been made both by Dr. Murray Thompson, of Rurki College, and Dr. Percy, of the School of Mines. They have found it to be pure malleable iron without alloy. I recently stated the above facts to some iron-masters in South Wales, and they expressed great astonishment, and admitted that even now it would be a matter of considerable difficulty to forge such a mass.

From Delhi I pushed on to Agra, arriving there on the morning of the 3rd of August. Having seen some of the sights of the city, I drove to Sekandra, in order to visit the Orphanage, and avail of the opportunity for the first time afforded to me of making enquiries on the spot regarding the reputed finding

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capable of forging a bar of iron larger than any that have been forged in Europe up to a very late date, and not frequently even now. As we find them, however, a few centuries afterwards using bars as long as this lât in roofing the porch of the temple at Kanaruc, we must now believe that they were much more familiar with the use of this metal than they afterwards became. It is almost equally startling to find that, after an exposure to wind and rain for fourteen centuries, it is unruined, and that the capital and inscription are as clear and as sharp now as when put up fourteen centuries ago.

"As the inscription informs us the pillar was dedicated to Vishnu, there is little doubt that it originally supported a figure of Garuda on the summit, which the Mahomedans of course removed; but the real object of its erection was as a pillar of victory to record the defeat of the Balhikas near the seven mouths of the Sindhu or Indus.

"General Cunningham was at first told that the depth below the surface was 35 feet by the man in charge. On excavation it proved to be only twenty inches. Just below the surface it expands in a bulbous form to a diameter of two feet four inches and rests on a gridiron of iron bars which are fastened with lead into the stone pavement."



of boys living with wolves as their foster parents. A year previously, as I shall presently show, I had been instrumental in drawing attention to the cases of wolf-reared children which had been reported, and I was most anxious to examine one of the boys myself. But before giving an account of the results of my enquiries, and a *resumé* of the existing literature of the subject, I wish to say, by way of preface, that I have found that this subject is one of those which the majority of people seem unable to discuss without prejudice. They make up their minds that the whole thing is a myth, before they have heard what evidence can be adduced in its favour. I am, unfortunately, not in a position to give any personal testimony of importance; all that I can do is to place the evidence available before the reader. In the first published communication on this subject which I made to a learned Society,\* I advocated, as I also do now, that the matter should, on the first recurrence of an opportunity, be most strictly enquired into, and that it should not in future be approached in the hostile and incredulous spirit which has hitherto prevailed. My paper, which was presented during my absence in Europe, met with some opposition, but subsequently saw the light in the form of an abstract. It however attracted the attention of Professor Max Müller, who, in the pages of the "Academy," pointed out the importance of the subject, and quoted a selection from the recorded cases of wolf-reared children. At the same time he strongly urged upon sportsmen, naturalists, and district officials, the desirability of carefully investigating, on the spot, the probability and possibility of such cases being true.

The story of Romulus and Remus does not by any means stand alone. There are many other gods and heroes of antiquity who are stated to have been suckled by wolves, and whose histories are regarded as wholly mythical in consequence of the presence of this element. If the case of a child being suckled and

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\* *Vide* Proceedings of the Asiatic Society of Bengal, 1873, p. 128.





reared by wolves can be established as a physical possibility by a single well-authenticated case in India, such histories will assume a totally new aspect, and will have a chance of being accepted as true in their entirety.

Shakespeare alludes to the existence of a belief in such stories :—

ANTIGONUS.

“Come on, poor babe :

Some powerful spirit instruct the kites and ravens  
To be thy nurses ! Wolves and bears, they say,  
Casting their savageness aside have done  
Like offices of pity.”

WINTER'S TALE, Act II., Scene 3, Line 185.

Most of the recorded Indian cases I believe come from the province of Oude. This is possibly in a great measure attributable to the fact that the number of children carried away and killed by wolves is greater there than elsewhere. According to a table which I possess, the loss of life in the province attributed to this cause for the seven years from 1867 to 1873 inclusive, averaged upwards of 100 *per annum*.

On the authority of Colonel Sleeman,\* as quoted by Professor Max Müller, the number of little victims carried off to be devoured is so great in some parts of India, that people make a living by collecting from the dens of wild animals the gold ornaments with which children in India are always decked out by their parents. It is said even that these people are unwilling to take part in any wholesale destruction of wolves for fear of losing their livelihood.

The *modus operandi* adopted by the wolf has been thus described†:—“Night comes on, the wolf slinks about the village site, marking the unguarded hut. It comes to one protected by a low wall, or closed by an ill-fitting *tattie* (mat). Inside, the mother, wearied by the long day's work, is asleep with her

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\* “Journey through the Kingdom of Oude,” 1858 (Vol. I., p. 208).

† Correspondent of the *Pioneer*, Nov. 25th, 1874.



child in her arms, unconscious of the danger at hand. The wolf makes its spring, fastens its teeth in the baby's throat, slings the little body across its back, and is off before the mother is fully aware of her loss. Pursuit is generally useless. If forced to drop its burden the cruel creature tears it beyond power of healing, while should it elude pursuit, the morning's search results in the discovery of a few bones, the remnants of the dreadful meal."

Shortly after this visit of mine to Agra, I read the following in the papers. The hotel mentioned was the very one at which I had stopped :—"On Saturday night while the chowkidar at Falmon's Star Hotel, was going his rounds, he observed a screen hanging before an open door moving, and something from the outside enter the house. On giving the alarm the wife of the hotel-keeper had only just time to enter a room and save a sleeping child from the mercies of two wolves which she found there."

It is remarkable that in some countries wolves rarely attack human beings. I have recently read an interesting work on Wolf-hunting in Brittany, in which the author describes the ravages committed by wolves among cattle and horses, but states that human beings are not attacked. He relates a strange but apparently well-authenticated story of a little girl, who followed up a wolf into the forest where it carried a goat which she had been tending. For six weeks she was lost; but at the end of that time presented herself at a charcoal-burner's hut. During this long period she had wandered through the wolves' strongholds, and had managed to subsist on berries. Be this story true or not, it is a fact that children are not carried away by wolves in Brittany as they are in Oude. It suggests itself that the Oude wolves are a local race of man-eaters, characterised by an exceptional liking for human flesh. That wolves in all European countries where they are found will attack and devour man, when in packs, in severe winter weather, is well known, and does not require further notice.

My attention was, in the first place, drawn to this subject by





the following extract from the Report of the Sekandra Orphanage, which, towards the end of the year 1872, went the round of the Indian papers :—

“A boy of about ten *was burned out of a den in the company of wolves*. How long he had been with them it is impossible to say, but it must have been for rather a long period, from the facility he has for going on all fours, and his liking for raw meat. As yet he is very much like a wild animal; his very whine reminds one of a young dog or some such creature. Some years ago we had a similar child; he has picked up wonderfully, and though he has not learned to speak, can fully express his joys and grief. We trust the new ‘unfortunate’ may soon improve too.”

I immediately wrote to the Superintendent of the Sekandra Orphanage for confirmation of the story, and for any further information on the subject. To this application I received the following reply from the Rev. Mr. Erhardt. \* \* \* “We have had two such boys here, but I fancy you refer to the one who was brought to us on March 6th, 1872. He was found by Hindus who had gone hunting wolves in the neighbourhood of Mynepurí. Had been burnt out of the den, and was brought here with the scars and wounds still on him. In his habits he was a perfect wild animal in every point of view. He drank like a dog, and liked a bone and raw meat better than anything else. He would never remain with the other boys but hid away in any dark corner. Clothes he never would wear, but tore them up into fine shreds. He was only a few months among us, as he got fever and gave up eating. We kept him up for a time by artificial means, but eventually he died.

“The other boy found among wolves is about thirteen or fourteen years old, and has been here about six. He has learnt to make sounds, speak he cannot; but he freely expresses his anger and joy. Work he will at times, a little; but he likes eating better. His civilisation has progressed so far that he likes raw meat less, though he still will pick up bones and sharpen his teeth on them.

"Neither of the above are new cases, however. At the Lucknow Madhouse there was an elderly fellow only four years ago, and may be alive now, who had been dug out of a wolves' den by a European doctor, when I forget, but it must be a good number of years ago.

"The facility with which they get along on four feet (hands and feet) is surprising. Before they eat or taste any food they smell it, and when they don't like the smell they throw it away."



WOLF-BOY.

(From a Photograph.)

I shall now describe the result of my visit to the orphanage. On my arrival there, Mr. Erhardt very kindly sent over for the boy to the school and he was led in by the hand. He presented an appearance not uncommonly seen in ordinary idiots. His forehead was low, his teeth somewhat prominent, and his manner restless and fidgety. From time to time he grinned in a manner that was more simian than human, the effect of which was intensified by a nervous twitching of the lower jaw. After taking a sort of survey of the room and the people in it, he squatted on the ground, and, constantly placing the palms of his hands on the floor, stretched forward in different directions, picking up small





objects such as fragments of paper, crumbs, &c., and smelling them as a monkey would do. I was told that he depends much more upon the organ of smell than on that of taste for the identification of objects,\* and his conduct while I watched him fully bore out the statement. On being shewn a guava he exhibited much excitement, writhing about and stretching out his hands for it. When it was given to him he first smelt it all over very carefully, and then holding it close to his mouth proceeded to gnaw it. He was then given some unripe *Karaunda* (*Carissa carandas*, Linn.) fruit. Having smelt them he shewed signs of uneasiness which were interpreted by those standing by as indicating a want of salt to allay the acidity—it having been given to him on previous occasions. He was a somewhat slenderly-built lad, standing about five feet three inches, and was considered by Mr. Erhardt to be about fifteen years of age, and had been then (1874) nearly nine years in the orphanage. He is described as being of a happy temperament. He has acquired some knowledge of locality and can go about the grounds by himself, but could not do so when Mr. Erhardt first took charge of the Orphanage. Without constant supervision it is found to be impossible to keep him to any work. He will for instance carry a basket while watched, but immediately drops it when left alone. The feature in his physical structure which above all others attracted my particular notice was the shortness of his arms, the total length being only nineteen-and-a-half inches. This arrested growth was probably caused by the fact of his having gone on all-fours in early life, as all these wolf-boys are reported to have done when first captured. Mr. Erhardt not having been in charge of the orphanage when this boy was brought in, could give no further particulars regarding his capture than those contained in his, above quoted, letters;

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\* In connection with this it may be of interest to quote a passage from Darwin's "Descent of Man," 1st Edition, p. 24. "The sense of smell is of extremely slight service, if any, to savages, in whom it is more highly developed than in the civilized races."



but a native guide in Agra whom I interrogated as to whether he had any knowledge of the subject, told me that rather less than nine years previously he was in the magistrate's court when this boy, the body of an old female wolf, and two wolf cubs were brought in. At that time the boy was a perfect *Janwar* (wild beast). He went on all-fours, refused all kinds of cooked food, but would eat any amount of raw meat. For some time he was kept by the Civil Surgeon of Agra, bound down on a *charpoy*, or native bedstead, in order to straighten his legs, and several months passed before he was able to maintain an erect position.

Regarding the boy which was brought to the orphanage on the 5th of March, 1872, Mr. Erhardt said that on his arrival he would not touch any food in the form used by human beings; at the same time he was too young and weak to have provided himself with any, but he would eat raw meat ravenously. Observing these facts and also sundry wounds and burns on the body, Mr. Erhardt sent for the people who had brought in the child, and then first heard that he had been smoked out of a wolf's den. While he lived at the orphanage, which was for only about four months, he used occasionally to get loose at night, when he would prowl about the ground searching for bones. Shortly after his arrival he made an effort to escape into the jungle, but was captured and brought back. During the whole time he uttered no sound save a melancholy whine like that made by young cubs. A strange bond of sympathy attached these two boys together, and the elder one first taught the younger to drink out of a cup. While the younger boy remained alive Hindus frequently came to the orphanage and applied for permission to make their salaam to him, being under the impression that by so doing they, through his influence with the wolves, would avert any loss or injury to their families and flocks. I shall now give some of the previously recorded cases.

A short notice on this subject was communicated to the "Annals and Magazine of Natural History,"\* by the late Sir

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\* Vol. VIII., Second Series, 1851, p. 153.





Roderick I. Murchison. It consists of an extract from the journal of the Hon. Captain Francis Egerton, R.N., who, on the authority of Colonel Sleeman, relates several stories of these wolf-reared children. Colonel Sleeman knew of five instances, in two of which he had both seen the children and was acquainted with the circumstances of the capture. One of these captures was made in the following manner:—"Some time ago, two of the King of Oude's sawars, riding along the banks of the Gúmptji, saw three animals come down to drink. Two were evidently young wolves, but the third was as evidently some other animal. The sawars rushed in upon them and captured all three, and to their great surprise found that one was a small naked boy. He was on all fours like his companions, had callosities on his knees and elbows, evidently caused by the attitude used in moving about, and bit and scratched violently in resisting the capture. The boy was brought up in Lucknow, where he lived some time, and may for aught I know be living still. He was quite unable to articulate words, but had a dog-like intellect, quick at understanding signs and so on." It seems probable that this was the same individual as the one mentioned in the letter from the Superintendent of the Sekandra Orphanage, above quoted. The following also occurs in Captain Egerton's journal:—"There was another more wonderful but hardly so well authenticated story of a boy who never could get rid of a strong wolfish smell, and who was seen, not long after his capture, to be visited by three wolves, which came evidently with hostile intentions, but which, after closely examining him, he seeming not the least alarmed, played with him, and some nights afterwards brought their relations, making the number of visitors amount to five, the number of cubs the litter he had been taken from was composed of. I think Colonel Sleeman believed this story to be perfectly true, though he could not vouch for it."

The following passages I quote *verbatim* from Professor Max Muller's letter in the *Academy*:—"A trooper, sent by the native Governor of Chandour to demand payment of some revenue, was passing along the banks of the river about noon, when



he saw a large female wolf leave her den, followed by three whelps and a little boy. The boy went on all-fours, and when the trooper tried to catch him, he ran as fast as the whelps, and kept up with the old one. They all entered the den; but were dug out by the people with pickaxes, and the boy was secured. He struggled hard to rush into every hole or den they came near. He became alarmed when he saw a grown-up person, but tried to fly at children and bite them. He rejected cooked meat with disgust, but delighted in raw flesh and bones, putting them under his paws like a dog. They tried to make him speak, but could get nothing from him but an angry growl or snarl.

"So far the evidence rests on native witnesses, and might be considered as more or less doubtful. But the boy, after having spent a time with the Raja of Husunpur, was afterwards forwarded to Captain Nicholetts, the European officer commanding the 1st Regiment of Oude Local Infantry, at Sultanpur. Captain Nicholetts made him over to the charge of his servants, and their accounts completely confirm what was stated before. The wolf-child would devour anything, but preferred raw meat. He once ate half a lamb without any effort. He never kept on any kind of clothing; and a quilt, stuffed with cotton, given to him in the cold weather, was torn by him and partly swallowed.

"In a letter, dated the 17th and 19th September, 1850, Captain Nicholetts informed Colonel Sleeman that the boy had died at the latter end of August. He had never been known to laugh or smile. He formed no attachment, *and seemed to understand little of what was said to him.* He was about nine years old when found, and lived about three years afterwards. He would run on all-fours, but occasionally he walked uprightly. He never spoke, but when he was hungry he pointed to his mouth. Only within a few minutes before his death, the servants relate that he put his hands to his head, and said it ached, and asked for water; he drank it and died."

"Another instance is related as having occurred at Chupra. In March, 1843, a man and his wife went out to cut their crop of





wheat. The woman was leading her boy, who had lately recovered from a severe scald on the left knee. While his parents were engaged, the child was carried off by a wolf. In 1849, a wolf with three cubs was seen, about ten miles from Chupra, followed by a boy. The boy, after a fierce resistance, was caught, and was recognized by the poor cultivator's widow by the mark of a scald on the left knee and three marks of the teeth of an animal on each side of his back. He would eat nothing but raw flesh, and *could never be brought to speak. He used to mutter something, but never articulated any word distinctly.* The front of his knees and elbows had become hardened from going on all-fours with the wolves. In November, 1850, Captain Nicholetts ordered this boy to be sent to Colonel Sleeman, but he got alarmed, and ran to a jungle.

"The evidence, therefore, of this case rests, to a certain extent, on native authority, and should be accepted with that reservation. The same applies to a third case, vouched for by the Raja of Husunpur, which adds, however, nothing essential, except that the boy, as seen by him in 1843, had actually short hair all over his body, which disappeared when he took to eating salt. He could walk on his legs, but he could not speak. *He could be made to understand signs very well, but would utter sounds like wild animals.*

"Another, a fourth case, however, is vouched for again by European witnesses. Colonel Gray, who commanded the 1st Oude Local Infantry, at Sultanpur, and Mrs. Gray, and all the officers of the place, saw a boy who, in 1843, had been caught while trotting along upon all-fours, by the side of a wolf. *He could never be made to speak,* and at last ran away into the jungle.

"A fifth case rests on the evidence of a respectable landowner of Bankipur, in the estate of Husanpur, called Zulfukar Khan. Here, too, the boy—who had been six years' old when carried off, who was ten when rescued—*could not be brought to speak* though it was easy to communicate with him by signs.

"One other statement of a wolf-boy is given by Colonel Slee-



man ; but as it rests on native evidence only, I will merely add that this boy also, when caught, walked on all-fours, ate raw meat, and smelt like a wolf. He was treated kindly ; but though he learnt to behave better and walk uprightly, *he never could understand or utter a word, though he seemed to understand signs.*

"There are other cases, but those which I have selected are to my mind the best attested. They all share one feature in common, which is of importance to the student of language more even than the student of mythology, viz., the speechlessness of the wolf-children. It was this fact, more than the bearing of these stories on a problem of mythology, which first made me collect the evidence here produced ; for as we are no longer sufficiently wolfish to try the experiment which is said to have been tried by a King of Egypt, by Frederic II., James IV., and one of the Mogul Emperors of India (*Lectures on the Science of Language*, 7th Ed., Vol. I., p. 394), viz, to keep babies in solitary confinement, in order to find out what language, if any, they would speak, these cases of children reared by wolves afford the only experimental test for determining whether language is an hereditary instinct or not."

Supposing the above stories to be true, the only suggestions which I can offer to account for the preservation of the children from the ordinary fate, are that, firstly, it may be that while one of a pair of wolves has brought back a live child to the den, the other may have contributed a sheep or goat to the day's provision, and that this latter proving sufficient for immediate wants, the child has been permitted to lie in the den, and possibly to be suckled by the female, and has so come to be recognised as a member of the family. Secondly, and, perhaps, more probably, it may be that the wolf's cubs having been stolen, the children have been carried off to fill their places, and have been fondled and suckled.

There is one curious point common to all the stories, to which attention has not been previously drawn ; it is that all the children appear to have been of the same sex—namely, boys. There is no record, I believe, of a wolf-reared girl.





I am fully aware that much has been written and said in ridicule of this subject. Not very long ago I had an opportunity of asking an eminent and well-known surgeon, who formerly resided in Oude, what he thought of these stories, and his reply was, "I don't believe one of them."

According to the law of averages, the next few years ought to produce a case, and it is to be hoped that should one occur, it may be made the subject of the very strictest enquiry by a joint committee of judicial and medical officers. Till such an event happens, I trust that my readers will at least recognise the justice of suspending judgment.

Before taking leave of Agra,\* I must say a few words about the Taj. I paid it a second visit at night, and was charmed with the effect produced by burning a few blue-lights in the interior. I then tried the echo: it is so quick, and at the same time the reverberations are so prolonged, that a sequence of notes produces a somewhat jumbled effect; but by running up or down the diatonic scale, allowing each note to gently die away before the next is sounded, the effect is really marvellous. The first echo seems to intensify the original sound, then follow a series of warbling sounds, which gradually and almost imperceptibly fade away in the glorious dome. Even should the original sound be in itself harsh and unmusical, under this mellowing influence soft and musical notes are produced. In this way it was, that when I first entered the Taj, I heard, as I supposed, a beautiful chant going on, the original source of which I found to be the chattering and squabbling of some of the attendants. Although I did not burst into tears, nor did even the moisture rise to my eyes—as, according to the guide-books, it should have done—I believe I did not fail to be impressed with feelings suitable to the occasion of this visit to what must be admitted to be the most splendid monument ever raised by the hand of man.

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\* For one of the best accounts of Agra reference should be made to "A Handbook for Visitors to Agra," by H. G. Keene, Esq. Calcutta: Thacker and Spink.



After this visit to Agra, I returned to Calcutta, but in October was directed to go to Simla, in order to take charge of the zoological and geological collections which had been made on the Yarkand Expedition by Dr. Stoliczka. His death, on the return journey, has already been recorded in these pages. The material and notes which he had so carefully amassed were not destined to be worked out by himself. However, while recognising the great loss to science occasioned by Stoliczka's death, it is satisfactory to be able to state that a series of volumes, descriptive of his researches and collections, by the ablest geologists and zoologists in India, is now in process of being issued.

For an account of Simla and Simla life, I would refer the reader to such authorities as the authors of "The Chronicles of Dustypore" and "Imperial India," &c., &c. The subject is neither within my powers nor province.





## CHAPTER XI.

## SINGHBHUM, SAMBALPUR, ORISSA.

1874-75.

WORK TO BE ACCOMPLISHED—NATIVE APPRENTICE—THE 1874 FAMINE—PURULIA—SUBANRIKA RIVER—SERAIKELA—CHAIBASSA—GOLD—ANCIENT STONE IMPLEMENTS—HO DANCERS—PACK-BULLOCKS—CUSTOMS OF THE HOS—THRESHING-FLOORS—HO MARRIAGES—IRON-SMELTERS—SAL FORESTS—URIA COLONIES—ROUTE FOR DIRECT LINE FROM CALCUTTA TO NAGPUR—GOLD-WASHERS—FEVER—BIRDS—WILD BUFFALO—SAMBALPUR—DISCOVERY OF LEAD ORE—COAL-SEAMS—SHOOT A SAMBAR WITH SNIPE SHOT—DEWAN OF KODIBUGA—WATER-BEARING STRATA—A CARNIVOROUS PLANT—THE TREE-SHREW—OFFICIALS OF THE RAIGURH RAJA—STONE-BORING SPIDERS—BEARS VISIT CAMP AT NIGHT—BEAR KILLED BY TIGER—HINGIR—PEOPLE INSOLENT—GAUR AND WILD BUFFALO—TELLINGAS, A STROLLING PARTY OF VATICINATORS—THE COAL-FIELD—SMALL GAME—ARRIVAL OF SUMMER BIRDS—MONSTER SNAKE—NAVIGATION OF MAHANADI AT THIS SEASON DIFFICULT—THE RAJA OF RAMPUR—THE URJA IN HIS NATIVE HOME—UNGUL—RAJA OF INDOLE—MEET A KANDAHARI—COMPLETE CHANGE IN THE VEGETATION—CUTTACK—IRRIGATION—NIRAJ—MUDAR SHRUB—SAIL FOR CALCUTTA.

My work for this season was to complete the geological examination of a portion of the District of Singhbhum, which I had been obliged to leave unfinished in the year 1869, and then to march on to Sambalpur in order to take up the detailed survey of the Raigurh and Hingir coal-field, the limits of which I had only roughly demarcated when I visited it in 1871.

I left Calcutta for Barakar on the 5th of November, arriving there next morning, and on the 7th started to march southwards for Chaibassa *via* Purulia. Some little difficulty was experienced in crossing the Damuda River, owing to the quantity of water still remaining in it; but the elephants managed to ford it with their loads, and the horses swam across, the men going in boats.

I was accompanied on this occasion by a native apprentice, who was to be instructed in field geology. The fact that in the



Geological Survey alone, of all Indian departments, there were no native subordinates, had attracted the attention of Lord Mayo and his Council. Accordingly it had been determined to establish a grade of apprentices, to whom the prospect of ultimate promotion to the higher appointments should be open. Owing to the arduous nature of the work, it was considered that natives of Bengal, from deficiency of stamina and manliness, were not likely to be suited to it, and therefore the appointments were offered to Sikh students of the Lahore College, who, before being permitted to go to the field, had to attend courses of lectures in several branches of science in Calcutta. This process of manufacturing geologists, of course, wholly ignored the fact that, as a rule, those who take to scientific pursuits as a profession, and certainly those who cultivate them with most success, start with a natural taste for them. Hitherto the natives, however intellectual, and however well they may have been educated in various scientific branches, have shewn but little capability for undertaking original scientific research, and, indeed, they seem to be deficient in synthetical powers to an extraordinary degree. It is moreover not uncommon to meet with really clever natives, who, when they have to describe ordinary natural phenomena, make use of the most grotesque and unreal language, rendering themselves thereby supremely ridiculous. This first Sikh apprentice, who was entrusted to my care for instruction, proved to be neither intellectually nor physically fitted for the work. He seemed to be unable to grasp the rudiments of the science of geology, and as he was physically incapable of hill-climbing, the prospects of his being of any service to the Department seemed to be slender. As he has since died, I do him no injury by saying so much, which I might illustrate by half-a-dozen stories about him in the course of the following pages; but I forbear from giving them. There are at present, however, two of his compatriots in the Survey who have done good work as fossil collectors.

At Indipur, where I made my first halt, I found the rooms of a small bungalow filled up with bags of rice, this place





having been one of the depôts for the distribution of relief during the 1874 famine. I here heard many particulars about the famine. The portion of the people upon whom the scarcity pressed most were the women, and among them chiefly the widows, of whom large numbers assembled for relief. The Hindu part of the population, as in not a few other districts in Bengal, according to the report of the Commissioner to the Government, were most unwilling to work on the roads, such work being, in their estimation, degrading to their gentility. They were, however, anxious to get whatever they could in the way of assistance, and seemed to think that it should be delivered at their doors. So far as I could learn, there had been no deaths from starvation. Had there been no relief, it seems not improbable that the same would have been the case, as the scarcity was hardly so great as to cause a real famine. Many of the local well-to-do landlords were most unwilling to subscribe to the relief fund. This was more particularly the case with the Raja of Pachete.

The following day I marched to Rugonathpur, where I remained with the officer on special duty in charge of the relief. This was the head-quarters of his circle, and was the site of several newly-built bungalows and a series of *golas* for storing the grain, much of which was still on hand, though there was then no further necessity for it, as the early crops were being reaped. A real change in the weather to-day seemed to mark the long-deferred commencement of the cold season.

I arrived at Purulia on the 10th, and remained there for a few days, making some final arrangements for the march. The lake at Purulia afforded, as on previous occasions, when I had visited the station, a great resource for occupying spare time. I derived much amusement from paddling out in a canoe to the islands and watching the proceedings of the water-birds, which roost and breed upon them in great numbers. The colony included cormorants, snake-birds, night herons, purple herons, egrets, and black, white, and shell ibises; besides these there were four species of maina or starlings, including the rosy pastor; and



among birds of prey there were kites, marsh-harriers, and a pair of fishing eagles (*Polioaetus ichthyaetus*). The young shell ibises were sufficiently fledged to fly off with the old birds to their feeding-grounds. In the adult shell ibis (*Anastomus oscitans*) the bill gapes in a peculiar way. This was, at one time, supposed to be due to attrition of the edges caused by the nature of the food upon which the bird is generally believed to subsist, and from which it has received the above name. Dr. Jerdon, however, stated\* that the bill of a young bird which he had examined exhibited the same gaping. This I did not find to be the case with any of the large number which I saw. The bills were very much smaller than in the adult birds, were conical in shape, and the edges were in distinct apposition, or slightly overlapping, throughout. The change does not appear to me to be due to any loss of material of the bill by attrition, but to a structural bowing or arching of the mandibles. This may facilitate the grasping of the round *Ampullarias* or apple-shells, and *Unios* or fresh-water mussels. Small thin-shelled fresh water snails and frogs also form a portion of this bird's food. Sundry remains of birds on the islands shewed that the eagles by no means limited themselves to a fish diet. And one morning I saw one of them strike a young shell ibis, and then, grasping its head in its claw, fly off to its perch, trailing the unhappy victim along the surface of the water.

I found in trees on the islands some nests of the snake-bird (*Plotus melanogaster*, Gmel.), so called from its long snake-like neck, which it rears high above the surface when swimming along with the rest of its body deep down in the water. The nests contained young birds, which were for the most part covered with soft white down, and, with their long necks, presented a very comical appearance.

On the 13th I left Purulia, halting first at a village called Urma, twelve miles to the south. The two following marches to

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\* "Birds of India," Vol. III.





Burma and Chondill, over a partly-made embanked road, brought me to the banks of the Subanrika, which I crossed the following day. This river, like the Damuda, containing a good deal of water, some trouble was caused by the necessity for unloading the carts and transporting the baggage by means of boats; but the elephants managed to ford the stream with their loads. At Kandra, the next halt, there is a grove of sal-trees (*Shorea robusta*), in which I found a colony of the large paroquet (*Palæornis eupatrius*, Linn.), and shot some specimens. This handsome bird is the least common of the three species of paroquet which are found in this part of the country. In the large primeval forests further south I found it to be more abundant than it is near cultivated tracts.

The next march was to Seraikela, fifteen miles. The road, though only a district one, was in much better condition than the embanked one in Manbhum, which had been for years under construction by the Public Works Department. On the banks of the Subanrika, near Seraikela, there are several groups of monumental stones, which were erected formerly by the Lurka Kols, and are similar in general appearance and character to those which have already been described and figured on page 165.

The next march brought me to Chaibassa. On this occasion I felt more than ever convinced of the auriferous character of the rocks in this part of the district. In lithological characters they are strikingly similar to some of the most prolific which are gold-producing in Brazil. There are earthy slates and shales with magnesian schists and numerous quartz veins. That they do actually contain gold there is no doubt whatever, since a section of the population make a livelihood by washing for it, as I have already explained on a previous page. Close to the station of Chaibassa I found a considerable deposit of manganese-iron ore. This may hereafter be of importance for the manufacture of *Spiegel-eisen*, should the country ever be opened-up by a direct line of railway from Calcutta to Bombay.

While at Chaibassa the Superintendent of Police gave me a remarkably fine stone adze, which presented a close re-



semblance to the peculiar forms which had previously only been known from Burmah. Subsequently I received from the same gentleman two others, one of which was also of the same adze-shape, and the other more nearly of the ordinary type of European celts. I here insert a portion of a note upon them, which I read before the Asiatic Society of Bengal.

"The large adze was found about two years ago by one Baidonath, purdhan of the village of Kyma Pattra (on the west side of the Subanrika river, and not far from that river) in his sugar-cane field, embedded in the earth about three feet or so from the surface. The purdhan's story is, that during the night preceding the finding of the implement, there had been a violent storm with thunder and much lightning, some of which flashed unpleasantly close to the village. On going into his sugar-cane field next morning he found the cane within a radius of ten feet or so all burnt, singed, and scorched-up in a most surprising manner. He considered that the destruction had been caused by lightning, as no doubt it had. His curiosity being excited by the crater-like appearance of the soil at the very centre of the circle of destroyed sugar-cane, he dug down with the view of ascertaining what might be there, and found the adze in a vertical position, edge downwards. It was then in the same condition, with broken edge, as it is now. (*Vide* Plate II. fig. 11, Appendix B.)

"The smaller adze has no particular history attached to it. It was obtained from a villager who could only say that his father—now dead—had found it somewhere in the jungle.

"With regard to the wedge-shaped stone, the Superintendent, on the authority of the Head Constable of Kokepara, states that 'it was found by a man of Guru Banda (west side of Subanrika) embedded in the very centre of the lower part of the trunk of a middling-sized Mhowa tree (*Bassia latifolia*) which had evidently been struck by lightning and split in twain from top to the very lowest extremity of the trunk.' The popular notion is that all these stones are thunderbolts. The same opinion is held by the people in Burmah regarding the very similar implements found there.





"The larger shouldered specimen is formed of dark green, excessively dense and hard, quartzite, with a wavy structure, and includes some pebble-like masses of different composition. The other shouldered adze is made of a black igneous rock, shewing a minute crystalline structure, it can be readily scratched with a knife. The wedge-shaped stone mysteriously disappeared from my possession\* and I only retain a sketch of it; but so far as I remember, it appeared to be made of the same material as the larger adze.

"In reference to the origin of these implements, their mineral composition is not, I believe, inconsistent with the view that they may have been manufactured originally in the part of the country where they were found. The source of the material from which the flakes I formerly exhibited to the Society† were manufactured occurs within the district of Singhbhum. It is a bed of dark chert-like quartzite, and from it the material of the large adze might very possibly have been obtained. Again, the very numerous dykes and intrusive masses of trappean rocks in Singhbhum may contain a material identical with that from which the smaller adze was manufactured.

"On the other hand, the close resemblance in form which they bear to the implements of Burmah cannot fail to suggest a foreign origin for them. Unfortunately the stories of their discovery given above do not help us in forming an opinion as to their antiquity. It would be of course useless to attempt any speculation, on the strength of such data alone, as to an incursion or immigration of Burmese races into that part of Bengal in pre-historic times; but the fact now recorded may hereafter be of importance should evidence of another character tending in the same direction be by any means established."

Some time after this note was published, General Sir

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\* It was probably stolen by one of my servants, who may have considered that it possessed medicinal properties.

† These are described on p. 136. Also see Appendix B., figs. 14 and 15.



Arthur Phayre pointed out to the society, *in epist.*, that the valley of the Irawadi, in Burmah, where the stone implements have been chiefly found, is inhabited by a race called *Mun*, whose language presents affinities with that of the *Mundas* of Singhbhum. Hence the probability of an early intercourse having existed, and possibly of an identity of origin between these now widely-separated peoples, becomes very great.

These facts have led me to generalise on the whole subject of the geographical distribution of stone implements in India, and to compare the results with the present distribution of the so-called aboriginal races, and the theories of their migrations into India which have been deduced from a study of their languages and customs. My paper on this subject has been published in the Proceedings of the Royal Irish Academy, and a *resumé* of it will be found in Appendix B.

While at Chaibassa I was told by the Deputy-Commissioner that, a few weeks previously, when the Governor-General, Lord Northbrook, was on a visit to Ranchi, in the adjoining District of Lohardugga, it was determined that he should be entertained by a series of characteristic dances to be performed by the different races inhabiting the Chutia Nagpur Province. My informant, anxious that his subjects the Hos should appear to advantage, gave sums of money to a number of the best dancers in order that they might obtain suitable outfits for their journey to Ranchi, and for the performance which was to take place after it. Having, as he thought, settled the matter, he was surprised to notice that the people held aloof from him for some days; but one night the male relations of the village maidens, who had in the meantime been engaged in concocting and discussing the most absurd reports, came to his house and indignantly flung all the money into his verandah, and my friend became subsequently the object of a storm of female indignation and abuse. It was not that they objected to be sold outright, but they considered that the sums which had been given them were under their value, and they accordingly considered themselves insulted. What the marketable value of a wife is in Ho land, and how the





high figure asked has resulted in there being among these people, unlike most if not all other races in India, a number of spinsters of mature age, I shall presently explain.

Beyond Chaibassa it was impossible for me to take carts, and pack-bullocks (though most objectionable) afforded the only form of carriage to be obtained supplementary to the two elephants.

Some time was devoted to negotiations with proprietors of pack-bullocks, all of whom were at first unwilling to hire out their cattle for the journey which I contemplated making. Finally, however, I concluded a bargain for eight bullocks with two men in charge of them, and on the 21st November plunged into the wild jungles which stretch between Chaibassa and Sambalpur in the Central Provinces. The march, however, was not commenced without a scene which drew an admiring circle of the populace. The bullocks had been out at grass for some time, and as each one was loaded he proceeded to kick up his heels and divest himself of his unaccustomed burthen. At last I found it necessary to appear upon the scene, and establish some system by which the beasts should be restrained. Finally they started in a somewhat orderly fashion; but at the first river I came to, as I followed an hour later, I found two of the loads, much to the injury of their contents, deposited in the water, and the bullocks scampering over the country.

During the following fortnight I was engaged in the geological examination of an area to the west of Chaibassa, which had not been quite completed on the occasion of my previous visit. The rocks all belonged to the younger metamorphic series already briefly described. Iron ore is abundant in some places; both magnetic and brown hæmatite forms were found, and manganese-and-iron ore, similar to that nearer Chaibassa, also occurs.

The people of this tract chiefly belong to the Ho or Lurka race of Kols, and I found my slight knowledge of the language of considerable use. But for communication with them I had the assistance of the polyglot Chuprasi Sidú, whose services had again been placed at my disposal by the Deputy-Commissioner of the District. The Hos are still in a very primitive state; few



of the women wear more than a cloth round their loins, and in some cases the allowance for that purpose was most limited. Ram Singh, the native apprentice, professed himself to be terribly shocked, as in the Punjab such a costume, or rather such a lack of it, is quite unknown. The custom is not due to poverty, as it is to be seen in practice by the members of families where the men are provided with a good substantial cloth, and are otherwise known to be well-to-do farmers. Near most of the villages in this tract there were a few memorial stones, but I did not observe them anywhere in great abundance. It is not unusual to see a number of men assembled for cock-fighting. The birds generally, I think, belong to a different breed from the ordinary domestic fowls. Some of them even resemble the wild birds in plumage, and it seems not improbable that they may have a strain of jungle-blood, which is possibly renewed from time to time. Hawking is also a favourite pastime with these people.

The Hos, indeed, are fond of amusing themselves in various ways, and the stronger sex appeared to me to do the smaller share of the hard work. Certainly females were more numerous than males as reapers in the fields. In some of the villages cattle were scarce, and I occasionally saw women, children, and old men employed in treading out the corn, thus performing one of the duties usually assigned to the kine. I find I have not described these threshing-floors, so may here appropriately introduce the subject. They consist of spots of ground which are specially prepared for the occasion by moistening the earth, and then spreading the resulting mud, mixed with cow-dung, evenly, and allowing it to be baked by the sun to a smooth and hard surface. At the centre a stout post is driven into the ground, round and round which from three to half-a-dozen cattle attached to one another by halters are slowly driven, the rice or other grain in the ear being under their feet. The scriptural injunction "Thou shalt not muzzle the ox that treadeth out the corn," is observed, and the cattle are permitted to help themselves at their own discretion. The grain is win-





nowed from the chaff and dust by throwing it up into the air from shallow basket-work trays, when the breeze carries the lighter portions away from the heavier, each forming separate heaps. The grain is stored, sometimes underground, sometimes in huge boxes built of mud and straw, and sun-dried; or it is placed in baskets made of split bamboos covered with a layer of cow-dung. The Sontals and some other tribes generally use ingeniously-contrived spherical baskets, three feet in diameter, which are made with straw ropes.

As I shall not have further opportunity in this volume for alluding to the Hos or Lurka Kols, I shall here point out one or two of the more salient features in their economy which may be taken as being supplementary to what I have said in preceding chapters on the same subject.

So recently as the beginning of this century the Hos were a scourge to the surrounding country. It was not until 1819 that measures were taken for their subjugation. Major Roughsedge, who was in command of the force detailed for the purpose, wrote :—"The Raja and Zemindars of Singhbhum, who are in attendance on me, have so formidable an opinion of the power and ferocity of these savages that, notwithstanding the considerable force under my command, they are much alarmed, and have made a formal protest against the danger of the march." It is related that in the subsequent operations a small party of them, with only their battle-axes in hand, stood to receive a troop of cavalry in an open plain. Few of them, of course, escaped.

Not the least interesting among their customs are those connected with marriage. Both Hos and the nearly-affined Mundas are divided into tribes called *kilis*, and a man must not marry a girl of his own *kili*. Marriages take place much later in life than in most oriental countries, and, owing to the fact that the bridegroom has to pay a considerable number of cattle—in some cases forty or fifty—the marriageable spinsters on hand, relatively to the rest of the population, are nearly as numerous in Singhbhum as they are in some of the countries of Western Europe. Elope-ments are not considered respectable. "Tell a Ho maiden, that



you think her nice-looking, she is sure to reply, 'Oh, yes, I am ; but what is the use of it? the young men of my acquaintance don't see it.' Even when a youth has fully made up his mind to marry, it may happen that fate is against the happiness of the young couple ; bad omens are seen, that cause the match to be broken off, or the father cannot or will not pay the price demanded."\* In consequence of this distressing state of things, the Deputy-Commissioner of Singhbhum, in the year 1868, convened a meeting of the head men, and it was agreed in words, though (as the event proved) not in hearts, that a lower tariff should be substituted. Two oxen, a cow, and fourteen shillings was to be the price for a maiden belonging to the higher ranks, and the same amount of money, without the cattle, for the poorer classes. It is said, however, that there has been no practical result from this conference. The old conservative parents hold out for the old prices, and their daughters remain unwedded. Supposing, however, a marriage to have taken place in spite of all obstacles. After three days of wedded life it is the correct thing for the bride to leave her husband, and for the husband to carry her home again, while she strenuously resists with kicking, screaming, and biting. This performance, which I have once witnessed, should be enacted as though there were no shamming about it. It is considered, with much probability, that this is a relic of former times, when wives were snatched from other tribes by the immigrant Hos.

At one village I found a colony of Kumars, or iron-smelters. There were about ten houses belonging to them, and the same number of furnaces. Formerly, so far as I understood, they were more numerous ; but a number of the people died during the famine of 1866-67. One of the furnaces I found to be in blast. As the people in charge of it complained of want and great hardships, I told one of my servants to give some copper coins to a small boy who was standing by, while his mother

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\* "Descriptive Ethnology of Bengal," p. 192.





worked the bellows. On the coins being produced and offered to the little fellow a most unexpected scene ensued. The child began to whimper, and his aged and decrepid father snatched him in his arms, refusing the tendered coin as though it had been offered as the price of his own flesh and blood. No explanation that we could offer had the least effect in putting matters straight. The father walked off with his child to the village, but the mother could not leave her station at the furnace. We left the coins for them to pick up at their leisure; and I fear we also left a not altogether favourable impression regarding our intentions.

The forests on these hills were very fine, and included many large sal trees, most of which, not being under forest conservancy, had been ruined for timber, owing to the practice of "ringing," to tap the tar-like *dhona*, or, as it is called commercially, *damar*. Sometimes the jungle was so thick along the tracks which my camp had to pass that it became necessary for the people to turn out of their villages to cut down the trees, which would have obstructed the loaded elephants; and in one place I was compelled to leave my camp altogether behind, and go for several days into the hills with a small tent.

Such fine forests as these were naturally not deficient in bird-life, and I here for the first time in Chutia Nagpur saw on the wing the handsome black or hill maina (*Eulabes intermedia*, Hay). The showy scarlet minivet (*Pericrocotus speciosus*, Lath.) and the large hornbill (*Hydrocissa coronata*, Bodd.) were both very common. There being plenty of dead and dying timber in the jungles, wood-peckers and *Sittas* were also abundant. I also met with the swallow-shrike (*Artamus fuscus*, Vieill.) in one large flock. It is a singularly local bird, and I have seen it on but a few occasions, and then always near dead timber in forest clearances.

*December 6th.—Orjanpur to Daraikela.*—In this neighbourhood I found that we were passing out of the region occupied by the Lurka Kols, into one where outlying colonies of Urias of the gwala or cow-keeper caste prevailed. My servants were rejoiced to meet with people with whom they could converse after a fashion. With the Hos a very few words had had to do a great deal of



duty. On one occasion I carried on for a long time a most animated conversation with an old Ho, who was most profuse in his politeness, neither of us understanding a word the other said.

It distressed me much to find that long-continued carrying of heavy loads had very seriously affected the pace at which the elephants could go. From about three miles an hour on a good road, it had fallen to two, and was now barely one and a-half. This was often the cause of serious discomfort on these long marches, as it involved tedious delays before my tent was ready.

While travelling along this road I paid a good deal of attention to the question of the suitability of the country between Chaibassa and Sambalpur, as a route for a direct line of railway between Calcutta and Nagpur, so avoiding the present circuitous route *via* Allahabad. It would be of little interest to my readers perhaps to give the details of these observations, but I may say that I embodied them in a report, in which I pointed out that there were no serious engineering difficulties to be encountered, and that the following advantages would accrue from the construction of such a line. In the first place the possession of an alternative route could not fail to be of great strategical importance. Secondly, from six to ten hours, according to the actual route taken, would be saved on the journey from Calcutta to Bombay. Thirdly, the cheap grain of the Central Provinces could be brought to the port of Calcutta. Reference to the map will show the route I propose for this new line.

*December 8th. — Derwa to Dhipa.* — The camp to-day was pitched on the banks of the Koel river. In the same grove was a colony of Dohras, their huts being mere miserable piles of branches. These people were very black and their hair was somewhat frizzled; their nostrils were much distended, but their general appearance was not of a negro or negroid type, as might hastily be concluded perhaps on a mere casual observation. Although their three-fold occupation as ferrymen, fishermen, and gold-washers, all brought them into contact with water, they were





personally in a hideously dirty and unwashed condition. In the evening I got them to wash some gold for me. The "pay dirt" was taken from a small island formed of the river drift which lay under the shelter of some ridges of rock. The quantity of gold found after several washings was almost microscopic in size, consisting of very minute specks.

The forest through which the road passed to-day was lofty and dense, and had a more tropical aspect about it than any which I had previously seen in Chutia Nagpur. Although much injury had already been done by the "ringing" of the fine sal trees, I could not but feel that it was the greatest pity that something in the way of conservancy should not be applied to this forest, with a view to its becoming hereafter a source of timber supply in the event of the railway being made.

*December 12th.—Kukuda to Garjan.*—I rose this morning with a severe headache, and before reaching Garjan had a sharp ague fit, which nearly shook me off my horse. In consequence of this attack, and in order to give the doctor a chance of treating successfully the other invalids in camp, I remained at Garjan for three days, although the locality itself was not a healthy one in consequence of the heavy mists which rose from the Brahmini river, near which we were encamped. During one of the nights some small scops owls (*Ephialtes*) had a terrific fight in the tree over my tent, and the next morning one was picked up dead as the result of the conflict. The inhabitants here were Uraon Keriahs, with a few houses of Brahmins.

*December 14th.—Garjan to Laingurh.*—Near Laingurh there are said to be some old ruins, but my weakness, consequent on the fever, compelled me to keep quiet, so I was unable to explore them. Both my horse and myself were now dead lame, and the walking I was compelled to do in order to save him nearly resulted in serious injury to myself.

*December 15th.—Laingurh to Lobloi.*—Both the above places are in the Gangpur district, and at the latter I found the residence of a relative of the Gangpur Raja. The camping-ground was one of the prettiest I had been in for some time. There are some fine



trees, and birds appeared to be abundant and in great variety. One which I shot was of considerable interest to me, as I had not previously obtained it in Chutia Nagpur; it was a species of hornbill (*Hydrocissa albirostris*), which here encroaches or overlaps into the domain of another species (*H. coronata*), which is very common in these regions, and hence onwards to Sambalpur; with it ranges another, but very different, species, the grey hornbill (*Meniceros ginginianus*, Shaw). Traces of wild buffalo were very abundant all about. Although I had been told that there were buffaloes in the neighbourhood I did not realise that they were so close by, and apparently so easy to be got at, until I was marching away, or I should in spite of my weakness have endeavoured to have got a shot at them. The next day I entered the Sambalpur district, encamping at a village called Songra, thus having passed from Bengal into the Central Provinces. I was met by two chuprasies sent to attend upon me and arrange for supplies, by the Deputy-Commissioner of Sambalpur. To-day I first met with traces of the eastern extension of the coal-field which I was in search of, but the general lie of which I had ascertained in the year 1872, when I had bestowed upon it the title of Raigurh and Hingir field.

*December 23rd.—Sasun to Sambalpur.*—To-day I marched into Sambalpur, which I found most unexpectedly—as it had not borne a good repute—to be a particularly prettily-situated station, having an unusually pleasant and sociable, though small, circle of official residents. The native town stretches for about a mile along the northern bank of the Mahanadi river, which here runs from west to east. To the east of the town lie the houses of the officials, which command a splendid view of the wide and rocky bed of the river, with hills rising in the distance beyond the opposite bank. Occasional boats traversing the narrow, rock-bound channels, and the movement of a considerable quantity of water, confer no little animation upon the scene. Further inland are situated the lines for the accommodation of the wing of a Madras regiment which is always quartered at this station.

Under medical advice I was compelled to remain in Sam-





balpur till the 4th of January, when in company with Major Bowie, the Deputy-Commissioner, I marched to a village called Jhunan, ten miles higher up the river, where operations had been in progress with the view of re-discovering a lode of lead-ore or galena, the history of which was as follows:—On my arrival at Sambalpur I was shewn some fragments of galena, which had remained in the possession of some of the residents since before the British occupation of the district in 1850. They were said to have been brought from Jhunan, where the lode had been discovered in the Raja's time, and worked to a small extent, the galena having been used as a substitute for *surma* or antimony for anointing the eyes. Suddenly, however, Narain Singh, the Raja, becoming afraid that the discovery might attract the notice of Europeans, had ordered the excavation to be stopped and the lode to be covered up and concealed. Ultimately we found the lode in the bank of the river, and some large samples of ore were taken out, in which traces of antimony and copper also occurred. On assay the galena was found to contain 12 oz. 5 dwts. of silver to the ton of lead. This, though a small percentage, would be sufficient under favourable circumstances to yield a profit on the cost of extraction. Some little money was expended in endeavouring to prove the further extension of the lode inland; but as there was no skilled miner to direct the operations on the spot, the results obtained were not satisfactory, and the matter was allowed to drop.

From Jhunan I marched a few miles northwards up the valley of the Ebe river, and soon found myself on the coal-measure rocks of the Raigurh and Hingir coal-field, the examination of which I commenced forthwith. I found the country and climate very pleasant, and, as the people were well-disposed, I experienced no trouble whatever from them.

*January 25th.—Bindichua.*—At Bindichua I ascended a sandstone hill, which had been weathered and eroded to a most grotesque shape; but I experienced much trouble in inducing the coolies who were with me to accompany me to the highest peak, which was, indeed, somewhat difficult to reach. One man



positively refused, the other two were trembling violently the whole time, and without assistance would certainly have come to grief. They excused themselves on the plea that they did not know how to climb; but I believe some superstitious fear was the real cause of their reluctance.

*February 13th.—Lukanpur.*—By this time I had discovered several seams of coal, and ascertained the probability of the field containing a tolerable supply, but not of first-class quality. The country was very hilly and broken, and much covered by forest. Hamlets occupied by iron-smelters were met with in the most out-of-the-way places, and a considerable amount of iron is exported from hence. Many of the villages were occupied by people called Kultas or Kulitas. There were also some colonies of Uraons, who had doubtless wandered hither from Chutia Nagpur.

*February 14th.—Lukanpur to Borkhol.*—To-day, when walking along the banks of the Koilar river, I suddenly came across a pool of water in which a young male sambar was lying. My shot-gun, instead of my rifle, being put into my hands, I fired into his head, at rather close quarters, two charges of No. 6 and No. 8 shot respectively, which threw him back stunned into the water, and, before he could recover, he was caught, and his throat was cut with all due formality by my Mahomedan attendant.

*February 23rd.—Kodibuga to Muchda.*—The Zemindar of Kodibuga, who enjoys the title of Dewan, is a Raj-Gond—*i.e.*, a Gond refined by an infusion of Rajput blood, and a Hindu in religion. He proved to be a fine, manly fellow, fond of sport. His appearance reminded me of the Raja of Sirguja, whom I have described in Chapter VIII. In a beat which he gave me I shot a boar and a barking deer. To the north of Kodibuga, just inside the coal-field, there is a waterfall on the Jungmur river, which is regarded as being a spot of great sanctity by the people all about.

*March 2nd.—Sambalpur.*—In this field, overlying the coal-measures, there is a considerable thickness of sandstones, the bedding of which is, for the most part, horizontal. Through these sandstones a number of rivers, which run from north to south, have cut deep gorges, and, since the sandstones are them-





selves water-bearing, the rivers contain a copious and perennial supply of water, while the rivers of the neighbouring tracts, where metamorphic rocks prevail, are dry for nearly half the year. This constant supply of moisture is not without a very visible influence on the vegetation; and I found that where the water filtered out on the faces of sandstone, a small carnivorous plant (*Drosera sp?*) was very abundant. Its sticky leaves were covered with the remains of insects.

To-day I picked up a dead specimen of the tree-shrew (*Tupaia Elliotti*, Waterhouse). Except a little blood about the mouth, it shewed no sign of injury. I had previously seen several in beats for large game, when I could not venture to shoot so small an animal. I have already mentioned in Chapter IX. that I obtained the tree-shrew in the Satpura Hills, thus proving it to have a vastly wider range in Peninsular India than had previously been known. A few days later I shot a specimen of the whistling-thrush (*Myiophonus Horsfieldi*), which, as I have also related, I found ranging with the tree-shrew in the Satpura Hills.

*March 7th.—Gudgaon to Bagchoba.*—Being now in the territories of the Raja of Raigurh, my camp was accompanied by a Muktiar or agent and some police of the Raja's establishment. I found that this Muktiar was himself receiving all the money paid by my followers for supplies brought in by the villagers. When I spoke to him on the subject he admitted that such was the case; but stated that he carefully credited the rent account of each village with the amount. Although I did not believe this altogether, still, as the practice was said to be the custom of the country, and the people made no complaints to me, I was unable to take any steps which were likely to be of much effect in altering this very objectionable system. And here I may say that I have found interference in such matters is often misinterpreted, and that an excess of anxiety to see that justice shall be done is apt to be regarded as evidence of weakness by people whose lives and traditions have made them accustomed to high-handed oppression. Your humanitarian efforts to lighten their burdens result sometimes in their refusing to bear any burdens at all,



which may leave you in an awkward predicament. Indian servants and petty officials go on the principle of asking for much in order that they may receive a little, rather than of asking for a little, knowing that they are, in response, likely to receive nothing at all.

*March 21st.—Kolam to Milupara.*—While examining the interior of a bear's cave, in a massive bed of sandstone, near Milupara, my attention was attracted by numerous small holes in the rock, which was of a loose and friable nature, and could be cut with a penknife. In the older-looking perforations I found the remains (cast skins) of spiders, and portions of web, but in the fresh-looking perforations I found bag-like webs, or rather nests, with a trap-door entrance, which small spiders closed behind them as they retreated. The holes were about the size of a crowquill, and from half to three-quarters of an inch deep. I have no doubt whatever that the holes were the result of the removal, grain by grain, of the loose sandstone, and that the spiders themselves had made them. I saw no holes unoccupied by either dead or living spiders. Since there were no webs, properly so called, these spiders probably lived by hunting the small flies, which, attracted by the bears, and the comparative coolness of the cave, were abundant on the walls. The spiders were exceedingly agile, and I found it somewhat difficult to secure specimens without having recourse to rough measures, which would have injured their soft and tender bodies. Those I did obtain were subsequently forwarded to the greatest authority in England on spiders, the Rev. O. P. Cambridge, who pronounced that they were a species of *Clubiona*, in an immature stage, and could not therefore be specifically characterised. He further expressed incredulity as to the spiders having made the holes themselves; but I am quite satisfied that they had done so.

*March 25th.—Janjgir.*—The village of Janjgir is situated in a flat valley, which penetrates for about two miles between some high sandstone ridges, covered with forest. There was abundant evidence of the presence of game, and at night two bears commenced to fight close to my tent. Hearing the noise, I rushed





out, rifle in hand, before any of the men, including the one on guard, were awakened. There was brilliant moonlight, but the shot I took at the bears failed to stop them, as they made off to their caves. On the following day I came across the remains of a bear, which the natives said had been killed by a tiger, and as a *machan* had been erected in a tree for a Shikari, who is said to have sat over the carcase of the bear in the hopes of getting a shot at the tiger, I suppose there was some truth in the story. On several occasions in this country I sat over the carcasses of slaughtered cattle, but as the tigers never visited them while I was on guard, though they sometimes did afterwards, the details would not prove of much interest to the reader.

*April 1st.—Hingir.*—This is the chief village of a small state of the same name, which is subordinate to Gangpur. As in Gangpur proper, I found the people of Hingir disposed to be insolent, and that they had made no preparations for my camp. I accordingly refused at first to accept a *dalli* which they brought as a peace-offering, after I had reprimanded them and had threatened to have them punished. Towards evening, on their earnest solicitation, I consented to receive it, thus making it impossible for me to report them. During the night I was disturbed by my dog, Topsy, making a vigorous demonstration, which was replied to by growling and spitting. On getting up to ascertain the cause, I found Topsy respectfully contemplating a wild cat, which ascended a tree on my approach, from whence I soon dislodged it.

*April 7th.—Dolunga to Laikera.*—For some days I had been seeing tracks of gaur and wild buffalo, and on arrival at Laikera, heard from some local shikaris that there were herds of both in the neighbourhood, and about mid-day, when it was very hot, they brought me word that they had marked down a small herd of buffalo in the jungle, about a mile distant. On going to the spot, I found that there were half-a-dozen buffaloes, taking a *siesta* in a sheltered glade where there was a pool of water. By careful stalking I got within eighty yards of them, and unfortunately selected an express rifle wherewith to attack them. I wounded



one, but it made off with its companions, and though we tracked it by blood for about three miles, we failed to find it. Subsequent experience with buffaloes has satisfied me that an Express bullet of 500 gauge is not well suited for killing them, a large solid ball from a heavy rifle being much more effectual. On the following evening, when roaming through the jungle on the chance of a shot at deer, I came upon three gaur or bison. They allowed me to creep within forty yards, staring intently at me all the time. I then fired again with the Express at the one standing nearest to me, which also appeared to be the largest, and hit him behind the shoulder, but they all bolted off as though I had missed, but soon stopped again, and as I fired with the other rifle the wounded one lay down. Passing him, I went in pursuit of the others, but did not succeed in stopping them. The young bull, as he proved to be, was, I found on my return, quite dead. Covering the carcase with leaves, we left it, as the sun had set, till the next morning, when I had the whole skin removed, with very great trouble, intending to have it set up in Calcutta, as mounted specimens of this animal are very rare. Unfortunately, the skin, the carriage of which, on account of its great weight and awkward size, was a source of no little inconvenience, was allowed to go to the bad during the rains. The height of this bull, measured from pegs driven into the ground at the feet and withers, was fourteen and a-half hands.

*April 11th.—Durlipali to Charbatti.*—To-day I followed the bank of the Ebe river for several miles. Owing to the reflection from the wide expanse of sand, the heat seemed to be greater than usual. Near one village on the river-side I passed an encampment of gipsy-like people, the men having beards, who called themselves Tellingas. One of the women of the party, seated on the ground, was swaying her body about, and with her hair all streaming, appeared to be working herself into a state of frenzy, probably for the purpose of performing some divination. A man accompanied or encouraged her gesticulations by playing on the tom-tom.

The Raigurh and Hingir coal-field, the examination of which





I had now completed, is the south-eastern extension of a vast tract of coal-measure and associated rocks, which, along the frontiers of Western Bengal and the Central Provinces, in all probability covers an area of about 5,000 square miles. The coal-seams which are exposed are neither very numerous nor individually of very promising quality; but the coal-measures are not only as a whole very slightly disturbed from their original horizontal position, but are much concealed by superficial deposits. The true or even approximate value of the field can only be ascertained by borings, but in the meantime it may safely be asserted that there is a fair prospect of this field proving to be of considerable value should a line of railway ever pass in its vicinity.\*

*April 13th.—Ektali.*—In this neighbourhood, which is open country to the east of the Ebe river, there are some jheels and swampy grounds, where, though so late in the season, I found snipe to be tolerably plentiful. There were also three species of teal and black-backed geese. It was quite a treat to me to get some shooting such as these birds afforded, as I had been so long in hilly forest-country, but I am not quite prepared to defend the practice of shooting water-birds at this time of year.

About this time the jungle trees were putting forth their new leaves, and the consequent freshness and greenery were very pleasant to behold, after the absence of foliage of the last six weeks. With this change I noted the arrival of the Paradise fly-catchers and ground-thrushes, whose sudden appearance at this season I have already alluded to. I also saw some flocks of the large bee-eater (*Merops Philippensis*).

Mr. Motte, who visited Sambalpur to purchase diamonds in 1766, and to whose observations I shall have to refer in the next chapter, gives the following curious account of a monster snake.

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\*For an account of this coal-field *vide* Rec. Geol. Survey of India, Vol. IV., p. 101, and Vol. VIII., p. 102.



I believe the locality is still known, though the snake has been dead for many years :—

“On my return from this place (the Ebe river), I paid a visit to the Naik Buns, the great snake worshipped by the mountainous Rajas, which they say is coeval with the world, and which at his decease will be at an end. His habitation was a cavern at the foot of a rock, at the opening of which was a plain of 400 yards, surrounded by a moat. I understood he came out once a week, against which time such as make religious vows carry kids or fowls, and picquet them on the plain. About nine in the morning his appearance was announced to me. I stood on the banks of the moat, opposite the plain. He was unwieldy—thicker, in proportion to his length, than snakes usually are, and seemed of that species the Persians called Ajdha. There was a kid and some fowls picqueted for him. He took the kid in his mouth, and was some time squeezing his throat to force it down, while he threw about his tail with much activity. He then rolled along to the moat, where he drank and wallowed in the mud. He returned to his cavern. Mr. Raby and I crossed the water in the afternoon, and supposed, from his print in the mud, his diameter to be upwards of two feet.”\*

*April 27th.—Jhunan to Sambalpur.*—To-day I marched into Sambalpur, having concluded my season's work. As it was necessary for me to return to Calcutta as soon as possible, I was unable to accept an invitation to join the Deputy-Commissioner, who was engaged in making an enormous bag of game in country about 100 miles to the south. To have joined him would have involved my remaining in Sambalpur till the commencement of the rains in the middle of June, when floods in the Mahanadi would have rendered it possible to run down to Cuttack by boat in two or three days. My original intention was to attempt the voyage at this season, but I was told that owing to the small

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\* I give the above curious tale without comment as I omitted to ascertain the local traditions on the subject.





amount of water in some of the channels it would take me about fifteen days in a very small boat of light draught to reach Cuttack. The heat reflected from the sand I was further told would be terrific, so that I determined to march by land, and selected a route *viâ* Ungul, north of the Mahanadi, which is 158 miles long, in preference to the cart-road which follows the southern bank *viâ* Sonpur and Bôd, and is upwards of 200 miles long.

*May 6th.—Charmal to Rampur.*—Four marches brought me to Rampur, which is about 45 miles distant from Sambalpur. The Raja of the place came to see me in the evening, and I found him to be a garrulous and noisy old gentleman. He asked me a number of questions about various countries and the planetary system. My exposition of the laws of gravity did not serve to convince him that men would not fall off the earth if it revolved on its axis as he had been told it did by some former English visiter. There is a story related of some Bengali school-master, who when expounding to his class the laws of planetary motion, explained to a friend that he did so only because it was a part of his duty, while from the evidence of his senses he believed the whole thing to be absurd. Among the stories told me by the Raja was one of a tiger which lived in the neighbourhood. According to his description it would have measured at least five feet high at the shoulder, and about a yard across the head. Whenever it attacked a herd of cattle it killed several before it left them. It had not then been heard of for some little time. The Raja possessed a remarkably fine breed of dogs, with which his people hunt deer during the rains. The huntsmen pursue on foot through the jungle and spear the deer when they are brought to bay by the dogs. I have not met with this sport elsewhere in India, but I understand it is practised by the Brinjaras.

*May 9th.—Nuamunda to Kutuda.*—I had now entered the province of Orissa, and made my first acquaintance with the Uria in his native home. The Urias who come to Calcutta for service, chiefly as bearers or *valets*, often make excellent and orderly



servants, whose appearance conveys but a very small idea of the rude material in the jungle. I had always considered the Bengali peasant to be a quarrelsome, noisy, untruthful, and discourteous specimen of the Indian native in the rough, but he is certainly outdone in all these respects by the Uria. They shout and yell at one another, often using most abusive language, in a way that is perfectly indescribable. Conversations about trivial matters are carried on in a key that is shrill to excess and hideous in the extreme. Anything like quiet seems to be unattainable near an Uria village. Admonitions to speak in a low tone are of no avail, and just as one has perhaps managed to fall asleep on a hot afternoon, a strident voice strikes up at a few yards distance and seems almost to penetrate one's brain, putting sleep out of the question.

The next day I marched to Ungul, which is the central town in these tributary states of Orissa. I found there a good and substantial bungalow in the occupation of the Tehsildar, or petty native magistrate. On my asking for two rooms to be placed at my disposal I was told by him that he had received permission from the Commissioner to occupy the house, and that being a Hindu with his family living with him, he could not accede to my request.\* However, he pitched a tent for me, and as he was otherwise civil I presumed he was acting under authority, and I did not find out till afterwards that the permission granted to him included the reservation that he was to give up half the house to any official traveller who might require it. At most of the other halting-places I had made use of the small rest-houses on the road, which gave a more efficient shelter from the heat than that which my tent could afford, and saved my men the trouble of pitching and striking the tent every day.

*May 12th.—Mydapur to Rasul.*—At Rasul, in the evening I

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\* I merely mention this incident in order to further illustrate what I have said on previous pages about our social relations with the natives; but it is a text on which much might be written.





was visited by the Raja of a state called Indole. Together with his brother, both of them lads, they came riding straddle-wise on a baby elephant, which they said was only three years old. It had been given them as a reward a short time before for aid rendered to the Government Kedah, or elephant-catching operations in these regions. I had some conversation here with a traveller, a native of Kandahar, who had come to India with horses. He was now on his way home, and he told me that the only money in his possession was two peiss, or about three farthings. His disgust for the Urias, their language, manners, and customs, was considerable, and he complained much of their stinginess. Though so far away from kith and kin he had a light and merry heart, and was delighted to hear me talk of Thull-Chutiali, and other places which I had been at or heard of during my visit to Biluchistan.

*May 14th.—Gulpir to Daiserah.*—During the last few marches I had been noticing a steady change in the character of the vegetation. It begins to be most apparent near Ungul, but here at Daiserah the ordinary forms of jungle trees and bushes of the interior were completely replaced by an altogether distinct type of *flora*. Rattan canes and a species of *cycad* or *zamia* were the most prominent of the new forms which I could recognise, but there were also numbers of thorny bushes of species unknown to me, which form dense thickets in which jungle and pea-fowl abound.

On the morning of the 15th I reached Cuttack, having taken thirteen days to traverse the distance of 158 miles from Sambalpur. Heartily glad was I to have reached this stage on my journey. The site of the town of Cuttack, in the angle between two rivers (or rather, to be more correct, on a delta between two outlets of the Mahanadi), is one of the most unsuitable that could possibly have been selected. It has necessitated costly revetments and other protective works on the river face, and it will hardly be believed, though it is nevertheless the fact, that a large portion of the ground on which the town is built is seven to eight feet below the level of high floods. Were there no



high lands out of the range of inundation there might have been good reason for continuing this station in the position which was probably adopted by the Mahrattas and their predecessors on strategical grounds; but since there are good sites, both to the north and south of the river, the unwisdom of the retention of this site is fully apparent. At the same time it must be admitted that it is not easy to transplant towns; and each year, with the increase of expenditure on local buildings, it becomes still more difficult to do so. The houses occupied by the official residents are for the most part substantially-built and commodious residences, many of them standing in fine compounds, which are scattered over a wide area of three miles in diameter. The irrigation works in connection with the Mahanadi river have drawn to this station a number of engineers, while it is also the head-quarters of missionary establishments belonging to several different denominations, so that the circle of English residents is more numerous and diversified than are those to be found in many stations in Bengal. The irrigation works of Orissa are included among those Indian public undertakings which, by a figure of speech in use in the Financial Department, are classed as "reproductive." A very considerable amount of capital has been sunk upon them, and since taking the water has not been made compulsory\* upon the cultivators they only pay for it when it suits their convenience to do so, and, as I was informed on the spot, the receipts did not cover the cost of collection, while the interest on the capital expended was being paid by the country generally; a state of things which might be paralleled by defraying the cost of waterworks of individual townships in England out of imperial instead of locally-raised funds.

*May 17th.—Cuttack to Niraj.*—As the steamer by which I

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\* It had not, at least, a twelvemonth ago, when I left India. But the levying of a water-rate was then being discussed, and legislation on the subject was in progress.





proposed to return to Calcutta would not leave False Point till the 22nd, I availed myself of the opportunity of paying a visit to Niraj, about six miles distant from Cuttack, where there is a weir by which the amount of water permitted to find its way into the Kajuri or southern outlet of the river is controlled. My principal object in visiting Niraj was to enquire into the truth of certain reports as to the existence of indications of coal occurring in the rocks of that neighbourhood. The result of my examination was the discovery of some black shales which did not by any means render the occurrence of coal probable. Subsequently I found some fossil plants which shewed that these rocks belonged to a series which is younger than the coal-measures, and which has nowhere been found to contain workable coal itself. An excellent bungalow at Niraj is situated in a commanding position on the banks of the Mahanadi, and from its verandah it was possible to take long rifle shots at crocodiles and garials as they lay on the edge of the sand or floated on the surface of the water.

*May 19th.—Cuttack to Taldunda.*—Owing to there not being sufficient water in the canals for the Government steam-tender to come up as far as Cuttack in May,\* it was necessary to make a journey of about twenty miles by night in a palki, to a place called Taldunda, where I went on board. At Karmassie, where we anchored for the night of the 21st, it was said that the jungles on the island contained numbers of spotted deer and some tigers, but though I took a long walk through them I saw nothing. A common shrub on some of these islands is the mudar (*Calatropis gigantea*), which yields a silky fibre that has often been favourably reported on by experts, but which has never, so far as I know, been manufactured on the large scale. The shrub is very common in many places, and there would be, I should think, no great difficulty in obtaining a constant supply of it.

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\* This month is selected for clearing the canals of weeds, and the water is kept at a low level.