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## A FEW NOTES ABOUT THE FIVE RHINOCEROS OF THE WORLD.

BY

W. S. THOM.

In this article I propose giving a brief account of how many years ago I came upon and shot in Burma my best double-horned rhinoceros, the species known as *Dicerorhinus sumatrensis*. Before doing so, however, I trust I may be pardoned for first recording somewhat in detail, not only something interesting about this rare animal, but also a few facts about the other four remaining species of rhinoceros, all of which are as a matter of fact rapidly heading for extinction.

There are in the world only five species of rhinoceros in existence at the present time, namely the two species in Africa, both of which are double-horned, that is to say, the black rhinoceros, *R. bicornis*, and the so-called white animal *R. simus*. Both of these animals are, as a matter of fact, of a dark grey colour and stand about six feet in height at the shoulder. Then there are two species that are said to exist in Burma, namely the Lesser one-horned rhinoceros, *R. sondaicus*, which stands about five feet at the shoulder or a little higher and is now probably extinct in Burma and *Dicerorhinus sumatrensis*, the Sumatran double-horned rhinoceros, the smallest and the most hairy of all rhinoceroses, which seldom exceeds a height of more than about four feet six to eight inches. Finally there is the Great Indian one-horned rhinoceros, *Rhinoceros unicornis*, or *Rhinoceros indicus* as it is sometimes called. *Rhinoceros sondaicus*, the Lesser one-horned animal which must, I suppose, be considered to be the rarest of all the rhinoceroses was once found in Bengal, Assam, Burma, Malaya, Siam, Borneo, Sumatra and Java, but there are now probably only about twenty left in Java, and four or five in a remote corner of Malaya.

I have never seen this animal *R. sondaicus* the Lesser one-horned rhinoceros anywhere in Burma, although I have travelled and shot over almost the whole of this country, nor have I even come across any traces of it or even met anyone who had shot or even seen one. Some years ago it was said by the officers of the Burma Forest Service to exist in the Kahilu Forest reserve in the Thaton District of Burma.<sup>1</sup> I disputed this at the time and am still inclined to think, with all due deference to the views of all of the Forest officers concerned, that they are wrong and that the only rhinoceros in existence there or anywhere else in Burma is the double-horned species, namely *Dicerorhinus sumatrensis* and that as stated above *R. sondaicus* is extinct so far as Burma is concerned. I have not the least doubt that this animal, *R. sondaicus*, probably existed in this country for a considerable period in bygone years but that it has since become extinct.

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<sup>1</sup> The skull of a Lesser One-horned Rhinoceros (*R. sondaicus*) secured from a decomposing carcase found in this area was sent to us by the Forest Department and is now in the collection of the Society.—Eds.



C. B. C. writing in the *Illustrated Weekly of India* of March 1939 stated that *Dicerorhinus sumatrensis*, the double-horned rhinoceros, once had the same habitat as *R. sondaicus*, the Lesser one-horned rhinoceros, except that it was not found in Java; now however, according to C. B. C. *D. sumatrensis* survives only in Malaya and Borneo where perhaps some fifty animals still remain, but I can state on very good authority that this statement of C. B. C's is incorrect as this animal survives also in Burma where I have shot several of them during the past fifty years, and where there must be at least forty or fifty more of them still in existence. In fact I am of the opinion that there were always more of the double-horned species of rhinoceros in Burma than there ever were of the single-horned animal, namely *R. sondaicus*. Probably the reason for this is that *D. sumatrensis* have always been more difficult to get at, being essentially hill climbers invariably found only in very inaccessible places in the hills, and therefore more difficult for hunters to get at; whilst *R. sondaicus* invariably inhabit the plains and flat country, where naturally enough they are more easily followed and shot than if they had been inhabitants of the hills 'like *D. sumatrensis*. The latter, namely the double-horned rhinoceros, is also a much more active, sturdier, and more cunning animal than is *R. sondaicus*, but it is also one of the most harmless wild animals in existence. I consider also that of all the difficult and exasperating animals to follow through dense jungle *D. sumatrensis* easily takes first place.

C. B. C. states also in his article that *Rhinoceros unicornis*, or *R. indicus* as it is sometimes called, the great Indian one-horned rhinoceros, was never found outside India, Burma and the Nepal foothills, and that at the present moment less than two hundred of these animals still survive in Northern Bengal, Assam and Burma'. I personally have never heard of this animal's existence anywhere in Burma and I do not believe that it ever existed in this country. In fact I have never met anyone who had ever shot an *R. unicornis*, or even heard of one being shot in Burma.

With regard to the two African species, C. B. C. says in his article that the black rhinoceros *R. bicornis* is still fairly numerous. It is the only species still found in anything like decent numbers but even it has already died out in certain tracts which knew it in thousands a few decades ago. C. B. C. also states that the white rhinoceros, *R. simus*, is so called from its habit of wallowing in the white mud of African river beds. It is much better tempered than the black rhinoceros, feeds on grass instead of shrubs and lives on open plains. It curls up its tail on the rare occasions when it charges and the more frequent ones when it runs away.' Its timidity has made it an easy prey to human cupidity.

In 1936 Sir A. Smith saw nearly two hundred of this white rhinoceros on a single day's march in the Transvaal. Several decades later it was still so common that men like Cotton-Oswell and Gordon-Cumming—two of the greatest pioneers of African sport in which category perhaps Selous and Sir Samuel Baker might also be included—got tired of shooting it. There are now, how-



ever, only about a hundred survivors in Uganda, some forty in Zululand, and a few in the Belgian Congo and the Sudan. They do not breed until twenty-five years old, and then produce single tons at intervals of six or seven years. These remarks regarding the breeding period of the white rhinoceros apply almost equally to *Dicerorhinus sumatrensis*, the double-horned rhinoceros, except that I would say that twenty years is probably nearer the period when these two animals begin to breed, instead of twenty-five years, whilst seven months is about the period of gestation, so far as *D. sumatrensis* is concerned. I have no doubt the same obtains in the case of *R. sondaicus*, the Lesser one-horned rhinoceros, as well as to its relative the Great one-horned Indian rhinoceros, *R. unicornis*, or *R. indicus*, so far as the periods of breeding and gestation are concerned.

It is not generally known by the way that both *R. unicornis* and *R. sondaicus* have so called 'foot glands' embedded in the integument of the foot. In *Dicerorhinus sumatrensis* the double-horned animal, however, these glands are absent.

In Africa as in Asia, horn smugglers were responsible for much illicit rhinoceros destruction. These smugglers used to operate from the coast buying surreptitiously from those who kill the beasts, and then ship the horns away in Arab dhows. The traffic is very difficult to suppress but occasionally a record haul is made. Only a few years ago for example, five men were detected in an attempt to smuggle one-hundred and eighty-seven out of Kenya in one boat.

The Chinese prize the blood as well as the horn of the Burmese, the Malayan, and the Javanese species wherever found. As a matter of fact, in all the countries named above, there are only two species namely the *D. sumatrensis*, the double-horned animal, and *R. sondaicus*, the single-horned rhinoceros, except that as previously mentioned the last-named is extinct in Burma, so far as I have been able to ascertain. The Chinese use the blood and horns of the animal for medicinal purposes as well as for an aphrodisiac, whilst the horns are sometimes carved into ornaments. Strips of the hide of the African species are also converted into whips. All rhinoceros horns are of the same texture, being simply agglutinated hair which, if cut in a thin transverse section and placed beneath a microscope exhibit the capillary tubes glued together into a solid body by a horny substance. There is no material that can equal in toughness the horn of rhinoceros, and it has always been in request from time immemorial for various useful and other more imaginary purposes. The skin of the rhinoceros is exceedingly compact and dense. When stretched over a block of wood and dried and then rubbed down with sand paper and oiled, it becomes semi-transparent like clouded amber, and is also much esteemed when a square of it is mounted as a top for a tea table. The belief that a cup formed of rhinoceros horn will detect poison is both ancient and common and is thoroughly accepted by the Arabs of the Soudan.

The horns of the rhinoceros are not attached to the skull, but are merely seated upon the hard thick bone which forms a foundation slightly convex, above the nose. The skin is immensely thick



at the base of the horns and it appears bristly and rough, to a degree that would suggest gradual development into horn, which is actually the case. When a rhinoceros has been killed, and the head has been exposed in the sun to dry, the horns will fall off on the third day if struck lightly with a stick, and they exposing the foundation upon which they rested; this closely resembles the bottom of an artichoke when the prickly leaves have been removed. Although the horns would appear unsuitable for rough work, being merely attachments to the skin they are most powerful weapons of offence.

It has been asserted that the two African species and the Indian rhinoceros, *R. unicornis*, all three of which are very bulky animals and which stand much higher than either *D. sumatrensis* or *R. sondaicus*, will kill an elephant; this is highly probable if the rhinoceros had an opportunity of striking the elephant in the stomach or the flank with its horns by an unexpected attack; but no rhinoceros would have the remotest chance in actual conflict with an ordinary full-sized bull elephant as the weight and strength of the latter would be unmeasurably superior, in addition to the length and power of the two tusks. Elephants are much afraid of rhinoceros, but they are almost equally timid with other animals. A rhinoceros, again, although a sullen stupid brute is usually afraid of nothing. I am referring of course only to four out of the five species of rhinoceros and totally exclude *D. sumatrensis* as it is quite a harmless animal. We, hunters in the nineteenth century, were not presumably aware of this until we had been hunting them for some time.

I possess two small square tea tables made from the hide of a *Dicerorhinus sumatrensis* shot by me, which were mounted in fumed English oak by Peter Spicer or Leamington, England, a well known taxidermist. The base or pedestal of each of these square rhinoceros hide tea tables is composed of a single foot of the same animal. In the case of one table the hide composing the top has been denuded of the bristles, and polished and is semi-transparent like clouded amber, whilst the top of the other table is composed of the natural hide of the animal with the stiff bristles of hair left on it. I also possess three other rhinoceros feet that have been mounted by the same taxidermist, two as rose bowls, and the third as an inkstand.

These articles like other trophies of mine are now no doubt in the hands of the Japanese with my house and all my other property including my trophies, negatives, and photographs.

In the nineteenth century nearly every sportsman in India, Africa and Burma vied more or less with his neighbour as to who should first shoot the animals with the finest trophies, the result being that in many cases more animals were shot than was perhaps necessary. I happen to have the luck to hold five records so far as Burma is concerned namely (1) tiger, *Felis tigris* (2) Sambar, *Cervus unicolor* (3) Thamin, *Cervus eldi*, the brow antlered deer of Burma (4) Goral *Cemas goral*, and (5) Leopard, *Felis pardus*. The fact that I did get these five records does not mean that I went all out to get them and that in consequence I shot more



animals than I was entitled to shoot. Not at all. It is a fact that the shooting of record heads is entirely a matter of luck and nothing else. It is of no earthly use trying to tell, an experienced hunter, that it is anything more. You can boast to yourself, and to your friends that it is merely a question of perseverance, but it is nothing of the sort. I had a long conversation with the redoubtable F. C. Selous in Perth, Scotland, on the subject of big game shooting, in the year 1900, when I went home on leave for eighteen months for the first and the last time. He was by the way the original of Rider Haggard's *Allan Quatermain* and one, if not the greatest, of all African sportsmen; alas, long since gone west to the happy hunting grounds. In all the years he hunted big game in Africa and elsewhere, and amongst all the thousands of animals he must have shot, never had a single record head or record pair of elephants tusks to his name.

These exploits of course may easily be decried by the present generation of sportsmen, some of whom may not have had the luck to encounter all the thrilling experiences that have fallen to the lot of old timers such as myself for instance.

A writer in the *Burma Police Journal*, Volume III, 1940 (see bottom of page 274) writing about rhinoceros said, 'I should like to mention the extraordinary behaviour of two Sumatran rhinoceros with which I have been in contact during the past two years. In the first case a Sumatran rhinoceros walked into the middle of my camp in the Shwe-U-daung sanctuary'. (This sanctuary is situated in the Ruby Mines District of Upper Burma where I did a good deal of shooting in the eighties and nineties) 'at two o'clock in the afternoon and stopped at a range of ten feet to look at a camp follower chopping firewood. The rhinoceros showed no alarm at the sight or scent of human beings. In the second case, which concerns the rhinoceros I recently photographed in the Kahilu Forest reserve of the Thaton District, Burma, it was only after much shouting on my part, at a range of less than ten yards, that I was able to induce the rhinoceros to leave his wallow and within five minutes of driving him from the wallow he returned again and resumed his bath. Ah one stage of my attempt to obtain pictures I approached so close to the animal that I could have hit him with a long stick, and it is certain that a poacher could easily have killed the animal with a spear. 'These experiences', the writer goes on to say, 'incline one to believe, that the rhinoceros shooting exploits of nineteenth century sportsmen in this country' (namely Burma) 'were in reality stark butchery and almost devoid of any skill in tracking or approaching their quarries.'

As I was a nineteenth century sportsman whose exploits so far as the shooting of rhinoceros was concerned, could in no way be disputed, I could hardly allow that statement to pass unanswered. I accordingly wrote to the writer in question who is a forest official in Burma and asked him whether he included me as one of the nineteenth century sportsmen referred to in his article. In his reply to me he stated that he did not as a matter of fact, include me, so far as rhinoceros shooting was concerned, and that his own department (namely the forest department) was not blameless in this respect, but that he considered that Colonel F. Pollok (the



joint author with me of the book, *Wild sports of Burma and Assam* which was published by Messrs. Hursh and Blackett in the year 1900 and which is now out of print) to be one of the most guilty persons; see the stories of rhinoceros shooting in the book in question which shooting was almost always done by him from the back of an elephant'. 'However, as the writer continues truly to remark in his letter to me, 'All the writing in the world will not restore the rhinoceros population especially the *Rhinoceros sondaicus*, the single-horned rhinoceros, which must be considered to be extinct in Burma.'

I am glad in a way that he concedes this point namely that *Rhinoceros sondaicus* does not exist anywhere in Burma even in the Kahilu Forest reserve, anyway that is what I presume he means. From the very beginning of the controversy as to whether there were any of these animals in the Kahilu forest reserve I had stated that I did not think that any of them existed there at all now, although I wish it were otherwise, and that I was of the opinion that the only rhinoceros in existence there now must be the double-horned species.

Colonel Pollok should not of course have shot rhinoceros in any country from the back of an elephant, although I have no doubt they were difficult to get at in Assam as well as in some parts of India and the foothills of Nepal where there are large stretches of high dense elephant grass quite twenty and even thirty feet high which cannot be penetrated unless one is mounted on the back of an elephant. In Burma of course rhinoceros did not so far as I am aware enter high elephant grass and therefore in Colonel Pollok's days, namely in the fifties and sixties, would easily have been shot by a sportsman following on foot. As a matter of fact it is as much an offence for a sportsman to shoot rhinoceros from the back of an elephant, as it would be for him to shoot an elephant in any country in the world, from the back of another elephant, the reason being that a vital spot cannot be reached as easily by a bullet fired from a howdah, or from the pad of an elephant, as would be the case if the shots were fired from the ground, where he could put in his shots much more accurately. More animals are likely to get away wounded by the sportsman firing at them from unsteady positions such as on a howdah, or on the pad of an elephant, than would be the case if he had fired at them shooting from a stationary position on the ground. I regret to say that in this way probably Pollok wounded many more rhinoceros that he never succeeded subsequently in getting. I have never shot any animals, at any time from the back of an elephant, particularly an elephant, or a rhinoceros, nor did I at any time do any shooting accompanied by Colonel Pollok anywhere in Burma, Africa, Ceylon, India or Assam.

Colonel Pollok, who crossed the 'great divide' many years ago, was a well-known sportsman and, no doubt, did a very great deal of big game shooting in the countries referred to above. He was a very keen and experienced Shikari and a very good shot, but he did all his big game shooting in the fifties and sixties when muzzle loaders even were still in use, long before I came out to



Burma. The temptation to shoot off the back of an elephant at any kind of game was naturally enough very great in those days especially as Pollok always had a large number of Government elephants at his disposal. As a matter of fact an immense amount of shooting at tiger and other large and dangerous game was done in India, Assam, and Ceylon by many well-known European and Indian sportsmen. In those days moreover there was very little written or said about the preservation of large or small game and the formation of game reserves. It is all very well to talk about these things now a days therefore and condemn or criticize the shooting exploits of old timers. There is no doubt that a great many more animals were shot in those bad old days, or shall I refer to them as the good old days, than now a days, by many well-known sportsmen shooting in every country in the world. Many of them also shot some animals from the back of elephants without realizing they were doing wrong. In the circumstances therefore a considerable amount of allowance should be made for their supposed delinquencies in this respect, if needed we can call them delinquencies.

Now with regard to Rhinoceros *Dicerohinus sumatrensis*, the double-horned species, the smallest living rhinoceros in the world and the most hairy. My shooting of these animals in Burma was done on foot in the last century by the sweat of my brow, and let it not be forgotten that I shot them before the year 1917 when they came under the protection of the law. In the nineteenth century rhinoceros were so relentlessly pursued wherever they were to be found throughout the world, for the sake of their horns and blood, that it was an extremely difficult business following and tracking up one of these animals to its lair, in Burma at any rate. They were always so very much on the alert and continually on the move, and were also usually found in the most inaccessible places in the hills, except on the very rare occasions on which they were come upon in their wallows. In a matter of fifty years of big game shooting I think I came only four times upon *D. sumatrensis*, the double-horned species of rhinoceros, in their wallows, and this after I had carried out, in nearly every case, very long and arduous treks after them. Now, since these animals have been protected by law for the past twenty-four years, is it not reasonable to suppose that they have become in consequence more tame and unsophisticated than they were before, and that incidents of the kind such as has been related in the *Police Journal* by the writer referred to, were bound to occur? Surely this is obvious? Cases have often occurred even in the nineteenth century as well as in the present century when animals have been found and shot at very close range by experienced sportsmen who have travelled miles on their tracks and who have also naturally exercised a great deal of skill in getting so near the animal before shooting it. This surely does not mean, however, that by so doing, it was 'sheer butchery and devoid of all skill in tracking and approaching on the part of the hunter.'

On another occasion in the eighties, after a very hard trek, I came upon a rhinoceros 'a *Dicerorhinus sumatrensis*' lying so



deeply immersed in its mud wallow on the Shwe-U-daung range of hills in the Ruby Mines District of Upper Burma, that although I was within a few feet of its wallow I was unable to distinguish which was the head and which was the animal's hind quarters, and although I succeeded in shooting it finally, I could easily have poked it with a bamboo pole before doing so, so utterly oblivious was it of my presence and the presence of at least three of my men. It goes without saying that considerable skill in tracking and approaching so near this animal had to be exercised, and that therefore, one could hardly say, in this case either, that the animal's death constituted sheer butchery, or that it was devoid of all skill in approaching and tracking.

To revert to some other animals that I have shot at close quarters. Early one morning many years ago, in 1889 to be precise, some miles from a place called Wapyudaung a village that is situated on the Thabeitkyin Mogok road a solitary bull gaur or bison standing about twenty hands at the shoulder at which I had fired and missed at a distance of about fifty yards. I was using a double barrelled hammerless 8-bore rifle by James Tolley, the cartridges of which took a charge of ten drachms of black powder. I continued tracking this animal with my men all day after missing it in the morning, and finally came up with and shot it dead, with a right and left, at a distance of only about five yards. It was standing stock still on a hillock broadside on to me amongst some bamboo jungle, feeling as weary no doubt as **were** my hunters and I. However, had this bull sighted or scented me and my hunters first, the tables might easily have been turned upon us. I remember on that memorable occasion, marching all night by the light of a full moon, and it took me and my companions till six o'clock in the morning to reach camp. That will give the reader some idea as to how far my men and I followed the animal before we came up with it. It was indeed one of the longest and most arduous treks I have ever undertaken after big game. My success in bagging this fine twenty hand bull at such close quarters was entirely due to the skill and untiring perseverance of my hunters and trackers, and also in part to my own dogged determination to keep on at it till we came up with the animal once more, or until the light failed and forced us to give it up, and camp for the night. The death of this animal could also hardly be described as being sheer butchery and devoid of all skill in tracking and approaching.

A well known sportsman from Malaya made a true statement the other day when he said that as the years pass, the actual killing of large animals for sport becomes more and more distasteful even to the most ardent followers of big game and although the urge for the excitement of the chase may not be at all diminished, still the climax is no longer accepted with unmixed feelings. Besides tough and arduous treks become more and more difficult until the time comes, when ageing muscles will no longer respond to intensive effort. But one's energies can still be utilized in a mild form and one's active interest in large wild life need not become a memory. Although I do not consider for a moment that by any means it



replaces big game shooting, for sheer danger and excitement, may be photography of large wild animals will fill the blank, and will provide not only a certain amount of excitement, but also should be productive of much knowledge of the habits of animals which, now that the rifle is laid aside, can be watched moving about without let or hindrance.

I do not wish to imply that wild life photography is an old man's recreation, or that it replaces the excitement obtained from big game shooting, far from it, but it is a recreation worthy of any one, and can be enjoyed after long jungle journeys are things of the past—I have heard people refer to those who have given up the rifle for photography or to hunters who now take an active interest in photography and wild life conservation as the 'penitent butchers,' an attractive catch phrase, showing the entire ignorance of those who use it. I believe that unless a man has hunted a good deal in the jungle he would find the greatest difficulty in adapting himself to the art of jungle photography. Although the technique of the sport of jungle photography is the ground work for the success in either, it must rest on the knowledge of the jungle and the habits of the animals with which you wish to get into contact. In other words to be a successful jungle photographer you should be, or should have been, a successful jungle hunter.

Rawdon Malet in his well-known book on big game shooting *Unforgiving Moments*, says, that Big Game photography is a very fine sport if indeed it is a sport at all, in the strict sense of the word. But it is no more a mere, an immediate, alternative, to shooting, than is watching a grouse's nest from a hide with a camera, the immediate alternative, to grouse shooting. They are two different pastimes, and when not abused, both extremely worthy, and as it happens readily interchangeable. But to suggest that the one is ousting the other among the young sportsmen of today is untrue. Many I think, try to take good photographs on their shooting trips but the number of young men who say, 'I will not take a rifle this time but a camera' are few and far between. I deprecate the idea that photography and shooting are identical except for the click of a trigger or a shutter. They differ fundamentally because in the one case, one sets out to kill, a primitive instinct, in the other to make a picture by modern scientific methods. I cannot see, however, any chance whatever of humanitarian feeling reaching such a pitch in the next hundred years that killing for sport will cease to be. The desire to take part in blood sports will not alter. The way in which they are carried out will. Man is a hunting animal—how often has that truism been made? Books of the Trader Horn variety find a wide public; films 'of the wild', some of them cruel and unsporting to a degree, draw a large and enraptured audience. No—there is no sign that in the next hundred years public opinion will stop the shooting of big game by fair sporting methods.

I may rebark here that besides shooting several *Dicerorhinus sumatrensis*, the double-horned rhinoceros of Burma, which as previously stated are the smallest and most hairy of all the five species



of rhinoceroses in the world, I think I can safely say that I have also seen at close quarters more of these animals in their wild state in Burma than any other living European or Asiatic sportsman. I might also add that I could have shot many more of these animals than I did, as I was given many more opportunities than I availed myself of.

My experiences of the double-horned rhinoceros over a great number of years during which period I suppose I have seen between twenty and thirty of these animals, have been that they are as active as goats and are also expert hill climbers. They will negotiate country that neither elephant nor bison could possibly surmount. Year in and year out I have frequently found them at the tops of the steepest of hills drinking and wallowing in clear hill streams at heights varying from 1,300 feet to 1,400 feet, with not a vestige of mud or muddy water to be found anywhere except in wallows in low ground at the foot of the hills, miles away near permanent streams, which proves what I have said before, that this rhinoceros is an extremely active beast. Another example of their activeness is that rhinoceros get to their feet when disturbed and dash away at a much greater speed than would appear to be possible for such a clumsy looking animal. I found that the double-horned Sumatran rhinoceros generally fed along steep well wooded valleys and also along the steep banks of well wooded mountain streams, most difficult country to get at, as a matter of fact, so far as the Arakan Hill Tracts District of Burma is concerned. The majority of these streams at the sources of which rhinoceros took up their abode are full of rocks, large boulders, high waterfalls, and dense cave and bamboo jungle. In these rocky hill tracts there are, with one or two rare exceptions, no mud wallows or mud baths of which these animals are so fond.

The only other wild animals of Burma that love to wallow in mud and water, are, the elephant, tapir, pig and sambar, *Cervus unicolor*. I noticed, however, that the Sumatran rhinoceros invariably had their baths in natural pools which had been hollowed out by the water at the foot of waterfalls. Fine gravel, stones and rock form the beds or foundations of these pools but there is no mud as is ordinarily found in most wallows used by *D. sumatrensis*, whilst there is usually about two or three feet of water in them. When feeding near these mountain torrents, rhinoceros just bathe where it suits them, that is to say, wherever there is sufficient water to cover their bodies when they roll about in it. The approaches to these mountain pools are in most cases very steep and inaccessible.

The climbing one has to do also when hunting these animals in these out of the way hilly localities is really prodigious and one has to be in the pink of condition to be able to keep going all day over some of the most trying country to be found any where in the world. One had often to make long detours to get round a succession of precipitous waterfalls as it was quite impossible to ascend or descend most of the beds of these hill streams. My hunters and I invariably carried about fifty or sixty yards of stout coir rope to enable us to surmount these waterfalls and steep ascents.



These remarks apply more particularly to the ranges of hills which skirt the Ru, the Lemro, and the Peng rivers in the Arakan Hill Tracts of Burma where the *D. sumatrensis* is still fairly plentiful and where the hoarse bark of the 'gyi' or barking deer, the hoot of the gibbon, and the harsh calls of the larger horn bill *Dichoceros bicornis* may be heard intermittently from morning till night to the exclusion of all other sounds.

The only other parts of Burma besides the Arakan Hill Tracts, and the Ruby Mines Districts where I found *D. sumatrensis* fairly plentiful were along the tops and slopes of the Yomah hills, along either side of the watershed running between Arakan, that is to say the Kyautpyu and Sandoway districts, and the Thayetmyo District, but neither in the hills, on the watershed, and slopes between Arakan and Thayetmyo nor in the Shwe-U-daung range of hills in the Ruby Mines District did I find these animals in such inaccessible places as I found them in the Arakan Hill Tracts, especially among the steep hills which skirt the Peng and Lemro rivers near Pengwa where the Peng river joins the Lemro. I suppose they had been hunted so persistently and ruthlessly in these places by the hardy Chin hill tribes who occupy that part of the world that they were finally driven to occupy these inaccessible places.

When I was hunting big game in the nineties along the above-named watershed between Arakan and Burma I noticed that *D. sumatrensis* invariably had their wallows at the sources of streams and in springs as near the top of the watershed as possible. I noticed this more particularly during the months of September and October during the rains. Discarded wallows at lower elevations, dry, during the hot weather, that is to say from the beginning of March, till the beginning or middle of June are also used again during the wet weather. A *D. sumatrensis* may have half a dozen or more wallows which it knows of and which it visits at odd times, according to their dry or wet condition, but it does not necessarily have a daily mud bath. It depends a great deal on the general weather conditions and whether also a wallow exists near the ground it happens to be feeding on, but sometimes these animals also travel long distances to get to a wallow if the weather is hot and the horse- or gad-flies are troublesome. From the end of April and onwards until the rains set in, is the worst time for these pests. A rhinoceros like a pig and a buffalo must have its bath periodically, be it of mud or only pure clear water. I have seen elephants rolling about in the mud of a wallow to give their bodies a coating of it so as to protect their sensitive skins from the bites of insects.

Rhinoceros often feed on anything green they can get in the parts of the country about the Peng and Lemro rivers in the Arakan Hill Tracts. They must have been hard put to it at times to get anything at all succulent to feed upon in those steep inhospitable bamboo clad hills. Except for an occasional small patch, here and there, all evergreen forest in these areas seems to have been destroyed for cultivation purposes by the hill people by their wasteful system of felling timber and burning it. If it were not that the



bamboo is a strong healthy shrub there would soon be none of this left either. Nothing can be seen for miles around but the 'Kayin wa', 'bamboo', *Melocanna bambusoides*. *D. sumatrensis* like most herbivorous animals, however, are very fond of the flowers and fruit of this bamboo as well as of the young shoots.

A rhinoceros is just like a big pig. It wanders about everywhere, north, south, east and west, as the spirit moves it. Once it has been disturbed or decides to change its feeding grounds, it is sometimes almost impossible to overhaul it. It travels at a quick pace for miles over the most abominable country imaginable, often in a straight line, until it reaches the desired spot which may be a luxuriant growth of dense jungle or a wallow.

Rhinoceros make a peculiar subdued, humming, rumbling, or buzzing sound when submerged in their wallows, especially when they have had to undergo a long journey during the heat of the day, or are tired. The sounds are made by the animal through having a feeling of contentment and pleasure at being immersed in the cool mud of the wallow. There is no mistaking the sound once it has been heard. The sound is always the same, it is never varied. I have heard it as a matter of fact on several occasions and it has been permanently impressed upon my memory, as well as upon the memories of my hunters and trackers, for we always made a point of discussing these sounds again afterwards every-time we heard them as they were so uncommon. They were doubtless made by the animal breathing or passing air through its throat and nostrils as a sign, presumably, of its pleasure at being immersed in the cool liquid mud of its wallow after doing a long journey in the sun. Naturally enough when it entered the wallow the animal's body would get cool again very quickly, whilst the coating of mud with which its body would get plastered after entering the wallow would protect it at once from the attacks of that dreaded pest of all animals the gadfly, or horsefly as it is sometimes called. It is only when they have been disturbed by human agency that they travel long distances by day, and it is because of an enforced journey of this kind, during the heat of the day that their entry into a mud wallow causes them so much pleasure which they give vent to by making the sounds referred to. At other times rhinoceros usually feed and travel at night or in the very early hours of the morning.

Although I was, I suppose, the first European sportsman to refer many years ago, in the year 1900 to be precise, to these peculiar sounds emitted by *D. sumatrensis* when in their wallows I see that another writer, (in future in this article I shall refer to him as the 'other writer' when mentioning this and other subjects on which he and I have touched, and not quite seen eye to eye, when discussing matters connected with *D. sumatrensis*, when referring to this subject in the year 1939, seems to have found it a little difficult to describe these sounds with sufficient clarity, and certainly not at all like the sounds heard and described by me. I will therefore have a friendly exchange of views with him on this matter in this article. He, I may say, is the only writer excepting myself who has ever touched on the subject of the noises



made by a *D. sumatrensis* rhinoceros when in its wallow. He, the 'other writer', says, 'there is a peculiar noise that a rhinoceros makes when in a wallow. This is a distinctive sound and not at all like a rhinoceros. The first time I heard it I was with the old Datok Raja and we could hear a rhinoceros splashing about in the wallow but could see nothing. Presently I heard a noise which I took to be made by a monkey evidently close to the wallow who had spotted the rhinoceros and that we must be careful that he did not spot us too. The old man smiled and shook his head. That is the rhinoceros, they make that noise when enjoying themselves in a wallow.' This statement of the Raja's it can at once be seen explains everything clearly and agrees with my conclusions and those of my hunters and trackers that these sounds (although the description of them as given by 'the other writer' are hardly correct) were uttered by the rhinoceros because the animal was extremely pleased at being submerged in the cool mud and water of its wallow. The 'other writer' goes on to say that he often heard that noise on other occasions and was often hard put to it to believe that it was really the rhinoceros and not a gibbon. 'The sound (he states) was low and rather plaintive, something like the low note of a White-handed Gibbon also with a resemblance to a bird. A noise impossible to describe accurately.'

This is a very vague description, and I am afraid I can hardly agree that the sounds made by a *D. sumatrensis* rhinoceros when in its wallow in Burma at any rate, resemble any noises emitted by either a gibbon or a bird except by the wings of the birds as mentioned by me in my book *Wild Sports of Burma and Assam*, and further on in this article. The 'other writer' does not even hint as to the kind of noises emitted by the bird referred to by him or the kind of bird. It is just possible of course, though highly improbable that the noises emitted by a *D. sumatrensis* when in its wallow in the country where 'the other writer' hails from, may differ somewhat from the sounds emitted by the same species of rhinoceros when it is disporting itself in its wallow in Burma. Another explanation may be that when 'the other writer' heard the sounds emitted by the animal when it was making them in its mud bath in his part of the world for some reason or other he did not hear them as clearly as I did when they were being uttered by the same species of animal when in its wallow in Burma. In that case naturally enough he would not be able to give as accurate a description of them as has been given by me.

As I stated before, I was probably the first European sportsman to write about these peculiar humming and buzzing sounds made by this rhinoceros when in its wallow. I had heard it on many occasions and as the sounds had been impressed on my memory I had no difficulty subsequently in describing them clearly on paper. All my hunters and trackers also knew them very well having often heard them in the jungle when out after rhinoceros and other big game. They had also discussed the matter among themselves and had heard the sounds described and repeated to one another so often that they became as familiar with them as I did, not only through hearing them so often in the jungle



myself, but also through hearing them described and explained so frequently by my men.

If the reader will look at the foot of page 167 of the book *Wild Sports of Burma and Assam* by Colonel Pollok and W. S. Thom and which was published in 1900 and is now out of print, he will see recorded there the following, 'Should the rhinoceros be in his mud bath the sportsman will sometimes be made aware of the fact by hearing peculiar low, rumbling, humming sounds, the noise being very similar to that made by a species of large horn bill when soaring through the air, or like the sounds made by a vulture's wings when stooping to earth.' Surely there can be nothing clearer than this description? Then again on the top of page 176 of the same book see the sentence beginning with the words, 'patience is however usually rewarded in the end, and after many twistings and turnings, going over the same ground twice, we came upon fresh tracks and were suddenly startled by hearing the peculiar low muffled sounds repeated at intervals in our immediate neighbourhood which Maung Hpè my hunter at once recognized as proceeding from the rhinoceros'. Further on the same page namely 176, at line sixteen see the sentence beginning with the words, 'the peculiar low buzzing or humming noises became more distinct and as we rounded a rocky ridge which overlooked a shallow ravine wooded with bamboo and an undergrowth of prickly cane, a large mud wallow, in a small clearing bordering the cane jungle, came into view, and in this two rhinoceros were disporting themselves.

One animal the larger of the two, was standing half in and half out of the slushy mud; the other was lying in it half submerged rolling about from side to side and uttering the peculiar noises which had attracted our attention'. On page 178 of the same book, line 9, read the sentence beginning with the words 'whilst in the middle of our well-earned meal we were suddenly startled by hearing the peculiar muffled, humming sound, already referred to, and which seemed to proceed from no great distance. It ought to be apparent from these extracts that I was the first sportsman to record in detail my impressions of the sounds heard by myself and my hunters emanating from a *D. sumatrensis* rhinoceros when in its wallow enjoying its mud bath.

Has the reader ever heard the low subdued, rushing, humming, singing, or buzzing sounds made by the feathers of a vultures wings as they are spread out when the bird is soaring through the air at some speed and stooping and about to land on the ground, beside some dead animal; or an exactly similar noise made by the air passing through the feathers of the wings of the large horn bill, *Dichoceros bicornis*, as it passes over the tops of the trees in the jungle when soaring overhead with outspread wings? It is of course the wind passing through the tips of the feathers in the wings of both birds that causes them to vibrate and produce the low humming or singing noise one hears, which is so exactly like the sounds made by the rhinoceros when in its wallow. Perhaps the reader has not had the same opportunities that I have had of hearing them, as I have spent much leave and many happy days



in the jungle alone with my hunters and trackers over a stretch of fifty years and was able to see, hear, and experience many strange things pertaining to the 'wild' that have not been vouchsafed to everyone.

There is no mistaking the sounds which are always alike and can therefore be easily described. I can only repeat that it is only when the wings of both birds are outspread and they are soaring or planing through the air at some speed that the sounds are made by the feathers of the wings and that these sounds are identical with the noises made by the rhinoceros when it is in its wallow. Surely some people must have heard the vibrating noises made by the wind passing through the wing feathers of the two birds referred to; and if they had heard the noises made by the rhinoceros as well they would immediately have come to the conclusion how exactly alike the two sounds were. These noises made by the rhinoceros when in its wallow besides being an expression of its satisfaction at being there are also made by the animal when it is either expelling or inhaling air through its nostrils, mouth, or throat. It stands to reason also that the animal must make some noise when clearing its nostrils and mouth of mud, as its head reaches the surface from beneath the mud after it has been submerging itself in it. It is only when it is carrying out these performances in the mud that these low deep muffled humming or buzzing sounds are heard. These sounds as I have stated before so completely resemble the sounds made by the wind passing through the wing feathers of both the vulture and the hornbill when they are soaring or planing at high speed through the air that I cannot think of, or find anything else which so completely resembles them. No other sportsman except myself and 'the other writer', to my knowledge, has ever referred to this subject.

Although the matter is not really of such paramount importance, I trust I may be pardoned for going somewhat into detail and enlarging on it to the extent that I have done in this article. My reasons for doing so were because I was not altogether satisfied with the description of the sounds emitted by the rhinoceros which were heard and recorded by 'the other writer' in 1939.

With regard to the other noises made by a rhinoceros apart from those made by the animal when it is enjoying itself in its mud bath the rhinoceros also utters a piercing long-drawn-out scream when it is about to expire after being fatally shot. When a rhinoceros is also hard-pressed and has been thoroughly alarmed by the hunter coming upon it suddenly at close quarters I have heard the animal dash off at a great speed uttering a succession of loud whistling, braying sounds, in different keys, not unlike the braying of a donkey. At other times when I have followed and came up with the animal that has suddenly got my wind, it usually uttered a terrific snort not unlike that emitted by a large boar or gaur *Bibos gaurus* before galloping off.

Here is another matter on which I regret to say 'the other writer' and I disagree and about which I propose having another friendly discussion with him in this article in the hope of being able to convince him that I am right and that he is wrong.



Burman hunters have informed me, and I have verified their conclusions, that they can easily distinguish between a male and a cow rhinoceros when following their tracks by noticing the way young saplings, creepers, or the branches of bushes have been twisted by the animal's horns as it moves along when feeding. My experience also is that a male or a cow with short horns cannot do much twisting of creepers, twigs and branches as compared with a male with good sized horns as they cannot get a proper grip or hold with their short horns and the branches and saplings would then be more likely to slip off than if the horns were long. So far as I have been led to understand from my own observations and those of my hunters and trackers the more twisted the creepers, bamboos, and branches appear, the better are the chances of coming upon a male with a good anterior horn.

Another way of distinguishing sometimes between the tracks of a female and a male (there being very little difference in their size and appearance so far as *D. sumatrensis* are concerned) is by carefully noting the position of their droppings or dung. In the case of a male the ordure and urine will usually be found on the ground exuded one behind the other, a foot or two apart, at least, whereas in the case of a cow rhinoceros they will be found more or less together scattered over the bushes in the immediate vicinity at heights of from three to four feet. The urine of a cow as seen by me on numerous occasions was of a pale pinkish colour. According to the *Bombay Natural History Society's Journal*, however, it would appear that both sexes urinate from behind and between their legs for some distance so that the leaves of the surrounding trees and shrubs are sprinkled and it is evident that both sexes share the habit by which they may become aware of each other's presence in the dense recesses of the forests.

The male rhinoceros when twisting bamboos, young saplings, and creepers with its horns does so doubtless with the object either of cleaning or sharpening them or simply because of the pleasing sensation gained by the scratching. Perhaps it may be done as a challenge, or from cussedness or sheer 'joie de vivre'. Bison, or rather gaur, and Tsaing *Bibos frontalis*, or wild cattle, and ordinary domestic cattle, often tear up the ground with their hooves and horns or rub the latter on the branches of trees or saplings for no apparent reason; as do deer occasionally even when they have no velvet to get rid of, simply, I take it because the rubbing sensation pleases them. It may be of course a sex desire.

Burman hunters have often told me that all big game are more aggressive when the moon is on the increase and nearly full. Many races in India even believe that a human being is at his or her best when the moon is fullest.

To continue with the subject of the twisting of saplings and branches by a rhinoceros when feeding, 'the other writer' who also discussed the noises made by a rhinoceros when in its wallow and who gave a different description of them from that given by me has again differed from me as to the sex of the animal engaged in this twisting work and the why and wherefore of sapling twisting by rhinoceros in general with their horns when they are on the



move, feeding. He, 'the other writer', says: 'A favourite trick of the rhinoceros when feeding is to get a sapling behind his front horn and twist it round and round until it is thoroughly decorticated and covered with mud from his head. I do not know exactly how this is done never having caught a rhinoceros 'flagrante delicto', but it is generally supposed this is done by a rhinoceros which has sufficiently long horns to enable it to twist the sapling between the two horns'. (This peculiarity of branch twisting by *D. sumatrensis* was also referred to by me in my book, *Wild Sports of Burma and Assam* and I suppose 'the other writer' and I are the only two sportsmen who have ever discussed this subject, as well as the subject about the noises made by a *D. sumatrensis* when in its wallow.) 'The other writer', goes on to say, however, that he found that this was not the case, for in one instance he was following a rhinoceros which had twisted a number of saplings but discovered that it had a very poor and stumpy posterior horn.' He says further, 'I believed for the same reason that a female rhinoceros could not twist saplings, and, when following rhinoceros spoor and finding twisted saplings, I concluded I was on the track of a male which had a good horn. I disproved this by finding saplings, twisted in the approved style by a cow rhinoceros which was accompanied by a calf. I do not now believe that the length of the horns has anything to do with the thoroughness of the twistings, and such indications are no guide either to the sex of the animal being followed or the size of the horns.' From this it will be seen that 'the other writer' and I disagree entirely in the conclusions arrived at by us. In any case it is not worth continuing the argument further and, right or wrong, the 'other writer' is just as much entitled to his opinions in this matter as I am to mine. It is obvious, nevertheless, whatever one may say to the contrary, that a male rhinoceros with a longish anterior and posterior horn is much more likely to make a better job of sapling twisting with its long horns than an animal like a cow rhinoceros or a male with short stumpy horns, neither of which would allow of a proper grip or hold being taken of any saplings and branches in order to twist them. They would in fact be more inclined to slip off. Surely this is obvious.

Anyway I think I have discussed this matter quite long enough. Besides I daresay my readers have been bored stiff from what they have already read on this subject as well as on the other one.

The tracking up of rhinoceros is often very difficult especially in the hills when the ground is dry and hard or when it is covered with a thick layer of dead bamboo leaves. Should tracking be interrupted by a heavy shower of rain the bamboo leaves swell out, then the front or centre toe nail impressions of the forefeet which are usually the only marks that are visible on the ground are invariably almost obliterated, when the utmost skill of the tracker is called into play. All rhinoceroses have three toes on the fore and hind feet unlike the tapir *Tapirus indicus* which has four toes on the front and three on the hind feet.

One rarely comes across a young rhinoceros. During the fifty odd years I have spent in the jungles of Burma I think I have only once seen the tracks of a young rhinoceros. Burmese hunters say



that a rhinoceros bends its head to clear its path of obstructing jungle, and leaves dead logs and branches over its back as it proceeds. These fall on the youngster following on the heels of its mother and so kill or maim it. Hence the scarcity. This of course is a myth and cannot be accepted as a true reason. I referred to this subject in the Indian sporting paper the '*Indian Field*' in a long article entitled 'Notes on the Tapir', *Tapirus indicus* and '*Rhinoceros sumatrensis*' some 35 years ago. The '*Indian Field*' became defunct a number of years ago. The real reason I suppose why rhinoceros are so scarce is because they have been so systematically hunted down now for many years past in all parts of the country where they exist that they have no time even for breeding. The people are also well aware of the great value of the animal's blood and horns. The result is that the male are shot more frequently for their horns which are longer than those of the females which have small inferior horns; and, as I have stated before, rhinoceros were never prolific breeders, the female producing only singletons about one in twenty or twenty-five years, it can be understood that their chances of producing young ones are considerably lessened in consequence. Deterioration in horn development is also probably due to the persistent persecution and the killing off of better-horned animals and the breeding of poorer stock. The males consort with the females from the middle to the end of the rains, that is to say any time between July and October whilst the period of gestation is just a little over seven months.

I came upon and shot a very good specimen of *D. sumatrensis* rhinoceros on a range of hills bordering the Lemro river in the Arakan Hill Tracts of Burma at an elevation of above sea level of about 3000 feet. I was informed that there was a small pond or pool of water about two acres in extent which was situated on the top of a range of steep hills above the Lemro river. I was armed with a single 500 bore cordite rifle by Westley Richards which took a charge of 80 grains of cordite. After a fairly stiff climb through a nasty stretch of leech infested country we came upon a large pool of water where sure enough I saw a Sumatran rhinoceros with a good anterior horn standing beside the pool. I crept up to within twenty-five yards of the animal and let it have a raking shot through the small of the ribs in the hope that I would find the lungs if not the heart. The animal lurched forward on receiving the bullet and swung quickly round in my direction as if to charge. I then moved forward to a position some fifteen paces from the pool and as the rhinoceros reached the edge of the water on my side I dropped it with a broken shoulder and finished it off with a third shot. It had a very fair anterior horn of about sixteen and a half inches in length. The posterior horn was only from two and a half to three inches long. After my men had cut up the animal with the idea of returning on the following day to fetch away all the meat we hurried back to camp which was reached in inky darkness at about 9 o'clock at night after a desperate scramble through the jungle and undergrowth, the leeches crawling all over us en route in battalions.