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JOURNAL OF THE BENGAL NATURAL HISTORY SOCIETY

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THE BENGAL NATURAL HISTORY SOCIETY

Estd. 1923

The Society under the name Darjeeling Natural History Society was started about the end of 1923, the objects being to maintain the Museum in a proper condition, to promote the study of Natural History and to get together as complete as possible collections of Natural History specimens from a limited area, including "the Civil Districts of Jalpaiguri and Darjeeling and the State of Sikkim", as well as what could be procured from the neighbouring countries of Tibet, Bhutan and Nepal.

Government and Municipal grants not being sufficient for our purpose, it was proposed to enrol members so as to increase our funds, and a quarterly journal has been started. The journal is no longer confined to articles on the Natural History of the above-mentioned area, but includes those from anywhere. It is hoped that everybody will join the Society and co-operate to make the Museum and Journal a success.

The annual subscription is only Rs. 10. Life membership Rs. 150 ; those who have been members for over twenty years can become life members on payment of Rs. 75.

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Estd. 1923

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VOL. 29 No. 3

DECEMBER 1957

Table of Contents

Ektachrome

Great Indian Rhinoceros (*Rhinoceros unicornis*)
Jaldapara Game Sanctuary.

Photo – E. D. Avari

JOURNAL
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THE JALDAPARA GAME SANCTUARY, WEST BENGAL

By

E. D. AVARI, F.Z.S.

Honorary Secretary, Game Federation of Bengal.

The occurrence of the Indian one horned Rhinoceros in Bengal often comes as a surprise to many people. The usual impression is that the distribution of the Rhinoceros in India is limited to the riverain forests of Assam. The last stronghold of this truly wonderful species, in fact, extends from the Nepal Terai and certain areas in the Jalpaiguri and Cooch Behar divisions of West Bengal to Assam. In Bengal as in Assam, the Government particularly the Forest Directorate, has with commendable farsightedness demarcated certain areas as Sanctuaries in which the Rhinoceros may stand a chance of survival against the advancing encroachment of over population and civilization, a problem which is unfortunately acute in the state of West Bengal with its desperate shortage of living room for its countless refugees.

The main Sanctuary in West Bengal is the Jaldapara Game Sanctuary situated in the Eastern Dooars, and broadly speaking, bordering Cooch Behar in the South, Bhutan in the North and Assam in the East. It is comprised partly of the Madarihat range of the Jalpaiguri Forest Division and parts of the Nilpara and Chilapatta ranges of the Buxa Forest Division. The total area of the Sanctuary is about 40 square miles mostly composed of riverain forests spread over abandoned courses of the Toorsa river and its tributaries south of the Nilpara-Madarihat road. Possessing ideal cover for the

Rhinoceros, being overgrown with tall grass and reeds, with several low lying isolated swamps, this type of country grows the favourite food of the Rhino, wild ginger and the tender shoots of marsh reeds.

The Sanctuary named as such in the early thirties of the present century, has had during its existence an extremely chequered career. Poaching was rampant in the same decade. Swarms of Assamese and Mech poachers, locally known as '*Palawans*' crossed over into Bengal, and using cheap Bhutan made Muzzle loading guns thinned the Rhino population to such an extent that at one period not more than a dozen animals were believed to have been in the area. The Rhino, however, has managed to hold its own against severe odds and with the renewed interest in its welfare shown by the Government and sportsmen since Independence has considerably increased in number. A rough estimate of the population at the moment would be about fifty, which, considering the small area of the sanctuary can be deemed satisfactory. It is doubtful if it can support a larger population, since the cantankerous nature of the Bull and the numerous fights which develop as a result causes quite a number of deaths. These fights usually start over the favours of a female during the breeding season. In recent years quite a number of Rhino calves have been seen in the sanctuary. Rhinos feed mostly at night, normally on grass and the type of food mentioned earlier, but in areas where cultivation adjoins the sanctuary, they do feed off paddy and other crops when these are in season. During the day they retire to the thickest cover within the Sanctuary.

To see the Rhino, one should set out on Elephants as early as possible in the morning. They may be observed in the streams running through the Sanctuary or can be tracked from the river bed into the bordering grass jungles. The first indication, unless they are actually sighted in the grass jungle is usually a sharp snort. Their smell may panic the Elephants. An elephant which will face a charging Rhino is most desirable. If the Rhino decides to make a bolt for it, the only indication of its passage through the tall thick grass is the whirring noise produced by its rushing through accompanied by occasional grunts. It is possible then, if the approach has been made in

Rhinoceros on river bed

the correct manner, to drive it out into the open river bed. The river bed provides an ideal ground for observation and Photography and being out in the open it is also easier to avoid a charge. If it charges this is often sudden and is usually dangerous. But the charge may be just a demonstration. It is best to take the opportunity of photographing without losing much time after which it is wise to leave him to his own business. On no account should one dismount from the elephant, or be vociferous or gesticulate after having sighted the Rhino.

In addition to the Rhinoceros, the Sanctuary holds all the other game animals except the Gaur and Wild Buffalo. Swamp Deer used to occur in the Sanctuary but have not been seen in recent years. During a morning's ride, Sambhur, Hog deer or Barking Deer may be seen. Tigers are sighted fairly often. Wild Elephants sometimes prove to be a nuisance. We know of an instance when quite a number of V.I.P's were chivvied around by a wild Tusker who had amorous intentions towards the Cow Elephants they were riding. A magnificent young Tusker even followed a party to the outskirts of the Forest. One could easily guage its strength by watching it pulling down a few huts and yanking a truck left in gear thereby shearing the gear teeth.

It remains to be seen whether the Rhino will survive against the necessary and imaginary needs of man. The sanctuary situated in the middle of cultivated and arable land, with private holdings abutting into it cannot be said to be in a safe position. A recent proposal to build a diagonal bund through it to safeguard a highway, will, if carried through, prove disastrous, as one section of the Sanctuary will dry up and the other be flooded. It is unfortunate that certain portions of the body of the Rhinoceros are imagined to give a filip to one of the basic urges of human nature. This makes the Rhino a much desired target of the mercenary poacher.

The Sanctuary is situated approximately about 120 rail miles from Darjeeling and a day and a half journey by rail from Calcutta. There is a 1st Class Forest Bungalow and Youth Hostel about 2½ miles away from the Sanctuary. An

excellent war-time Airfield borders the Sanctuary within a stone's throw from the Forest Bungalow, and a private Air Company maintains a service twice a week. As the Forest Bungalow is intended for the use of touring forest officers, those desirous of visiting the Sanctuary should write well ahead of their visit to the Divisional Forest Officer, Cooch Behar. Visitors will have to make their own arrangement for food. The Forest Department will complete a tourist lodge quite close to the Sanctuary within the year 1958. We are not certain whether this will cater to the needs of the people less blessed with money. If it does not, it will indeed be a pity as popularising it with the Indian public would prove more beneficial to the Sanctuary in the long run.

OBSERVATION ON THE INDIAN BUFFALO AND ITS SHIKAR

Compared with the domestic species, the wild Buffalo is a giant. The height at shoulder attaining 16 or 17 hands. In my opinion, the wild Buffalo is the most aggressive and dangerous animal, when wounded. At times he will charge an elephant or the hunter even when unwounded. He is also very hard to kill, if the first shot does not floor him. It seems that he gets over the shock of the first bullet, and I know a man who put in 17 bullets into a beast before he bagged him. The Buffalo when wounded and followed up, waits with his head on one side, and horns lowered, ready for the charge. Another stratagem resorted to, is to hark back on his tracks, wait at the side and then charge the unwary hunter, following the tracks. A herd of cows with calves are specially dangerous.

I was once following up a wounded bull in some tall ekra and null, when suddenly I was most ignominiously caught by the coat by my shikari and pulled to the side, a moment later, a herd of Buffalo, hurtled past the spot where we had been standing. But for the quick action of the shikari, we would surely have been trampled to death, or had a horn through us. My shikari afterwards told me that he had heard the warning note of a charge, and in my subsequent hunts after this animal I became well acquainted with it. The sound is like "*Kenk*", "*Kenk*", repeated three or four times. The wild Buffalo is found in Assam, Burmah and Ceylon and in the Central Provinces. Years ago there were vast herds in Assam, but rinderpest, the clearing of the jungles by immigrants and introduction of tame ones by Gurkhali settlers—the so-called "*Gurkhali Khutis*"—have played havoc. The Assam jungles are ideal for Buffalo, huge savannas of ekra and null, with here and there clumps of forest, and large Jheels. The Buffalo, as every one knows, cannot do without water. The amount of green stuff they require is enormous, and like the Elephant, they can do with very little sleep. All my shikar after Buffalo has been done in Assam and Burmah. In my time, the Namba Forest which extends from Golaghat to the foot of the Naga Hills, was chock full of them and I have shot animals, not 100 yards from the road; at a place called "Bokojar". There was a celebrated spot called the "Nergina Pothar". This place swarmed with game, and B—who was many years in Assam, once saw every kind of big game here when the Pothar had been fired, the green grass and "null" shoots were out, and ideal ground for feeding. In 1891 I saw B—returning from a shoot in this place, and on his elephant he had the head of a Rhino, a Gaur and a Buffalo. This Pothar was under cultivation before the Burmese invasion, and when the queen of Dimapur held sway. In these dense forests, especially near Dimapur, one comes on beautiful carved pillars of ancient temples, and numerous remnants of what were once tanks, now used as wallowing places by wild animals and overgrown with cane, grasses and lianas. Once a hunting expedition to this Pothar which I tried to reach from the Dihong, nearly cost me my life, as I will relate later. It was at one of these deserted tanks that I saw an old tree, bare of everything, and in

it there were six nests of the wood duck (*Cairina scutulata*). Several ducks were sitting on their nests. Those eggs would be worth a lot of money now. I have shot Buffalo in Sylhet, Myminsingh and in the Darrang Shibrugar districts, also at Tamu on the border of Manipur and Burmah. Buffalo were also numerous in the Nowgong district and in the Golaghat sub-division. The last place was cleared out by a Rajah, who was a sportsman himself, but he used to have shikar parties, consisting of "Globe trotters". Elephants were brought up by the hundred. The herds were ringed in by Elephants and volley firing commenced, until every animal and living thing in that circle of death was killed. I believe even a paddy bird had no chance. The Planters rightly demurred at this indiscriminate slaughter and Government tabooed the intrusion of these murderous Globe trotters for the future. In the Dhubri district, and in the Garo Hills, Buffalo were at one time numerous, and, I think, that the largest heads have been obtained here.

At one time, Buffalo were numerous in the Sundarbans; but now there are only a few, and what remain have been crossed with tame herds. A German Prince came out to India one year and was anxious to secure a head. He was taken to the Sundarbans; shown a herd of the half-tame beasts and I believe secured three one after the other, before they got alarmed, and stampeded. I daresay, he was proud of himself and his bag.

There are two kinds of Buffalo in Assam. One is found in the vast savannas of ekra and null. This animal is smaller and lighter in colour than the other one, but carries the biggest head, especially the cow, and heads of 13½ feet from tip of one horn across forehead to tip of other have been obtained by the late Maharajah of Cooch Behar a magnificent trophy. Shooting the Buffalo, on foot, in these jungles is very dangerous. The hunter must be well armed and have all his wits about him. The Buffalo makes tunnels in the grass like a Rhino. When following up Buffalo or an Elephant through this stuff, it is surprising how silently the animal moves. There is hardly a flicker of the long grass to indicate the spot. In these savannahs, there are treacherous quagmires and quicksands very dangerous to Elephants. The Buffalo can get through

unharmed, and to see him go through a Jheel covered with grass and weeds is an eye-opener.

My wife and I once nearly came to grief in one of these "*Ponka*". The Elephant got alarmed, plunged from side to side like a ship at sea and tried to shake us off the pad. The Mahout by much goading got him out, or else we might have all sunk in the black stuff. The best way to get the Buffaloes is to go to the partly dried up Jheels with lush "Dhoob" grass in the mornings and evenings. If lucky, the herd is feeding at the edge of the tall grass, or not far from it. I think it is allowable to shoot a cow, if she carried a good head. Ten to one the bull is not with the herd. The only thing then is to pick up his tracks and slog after him on foot. I have shot one cow, although I have seen several good heads.

The other Buffalo is found in dense forest, with occasional open stretches of grass. This forest Buffalo is a bigger animal, very black, with short coarse hair. The horns are not large, but they are very thick and massive. In some of my heads, the basal girth tapes 19". In the forest Buffalo the horns are rough and gnarled. These small horns may be a provision of nature, as in the dense forests, large horns would be a nuisance; very like the Assam Sambhur, which is a large animal but with poor head. The Buffalo is an unsociable animal. You will never find Elephant or Gaur near a herd. He tolerates Deer and I have seen swamp deer and a hog deer feeding with a herd. A solitary old Buffalo is, indeed, like the Bison, lord of the jungles. Even a Tiger hesitates to attack. He plods along without exciting himself except when roused by the hunter. The Buffalo is a shy animal. They very rarely raid crops in their vicinity, and, like the Rhino, once man appears they go off to more secluded spots. The Buffaloes that raid tea gardens and crops, are usually a cross between the tame and wild. These hybrids can easily be distinguished by their small size and length of horn and by a white patch on the chest, like a beak. These Buffaloes attach themselves to a tame herd, visiting their wives at night. The herdsmen do not like these being shot, as they improve the stock. I was once sold a pup over one. I was told that one visited a herd, so I camped not far from the "*Khuti*" and told

the men to wake me when he came. I was not disturbed and the men said "He did not come". But, on examining the ground, I came to the place where he had been lying down about 20 yards away from the tethered herd. I took up his tracks but only heard his hoofs thunder ahead of me and his snort, as he bolted.

During the heat of the day, the Buffalo either resorts to pools in a secluded portion of the river, or immerses himself in a Jheel, with only the head above the water and sometimes only the nostrils. At other times, he resorts to mud wallows, like the Rhino.

His hide gets covered with the sticky clay and this dries and prevents flies, horseflies etc. from annoying him. Perhaps this accounts for the Buffalo being remarkably free from ticks and leeches, although the latter may possibly enter the nasal passages. The spoor of a Buffalo bull is enormous, being like two huge kidneys joined together. Very rarely some have a heart-shaped spoor, more like that of a Gaur.

The Buffalo produces one calf at birth. I have never seen a cow with two calves. The calves are pretty little beasts of a brown colour and covered with long hair which is of course shed later. The legs are long in proportion to the body, very solid and thick. The female, and, in fact, the whole herd guard the young with the greatest care. I once had a live "Kill" tied up and the tiger cub and tigress were charged and kept off by a herd of tame Buffaloes. They were attracted by a peculiar cry, the calf made, when the tigers approached it.

A third type of Buffalo that is found in Assam is the "Mishmi" Hill Buffalo. H- and I once accidentally came on the spoor of this animal, at the foot of the Bhootan Hills in the Darrang district. The spoor resembled that of a very large Gaur. We followed up the tracks into hilly country and saw a herd up in a pool of water on a plateau. As they stampeded, we fired and dropped one. A casual examination showed that the animal had hoofs that did not splay much, and with the under parts very hard. There was a good growth of hair, and the horns instead of sweeping backwards, had an almost upward sweep from the head. We sent out some porters to fetch

the head and skin next day. But, being in an out of the way place, they failed to find it, and so, I lost a rare trophy. I believe, Colonel Woodthorpe came across this animal in the Mishmi Hills, when he was making his survey of the Hukong valley and as the Mishmi, Abor, Daphla-Aka and Bhutan Hills are a continuous range north of the Brahmaputra, it is not unlikely that some may have strayed to the hills further west. As far as I remember the animal was sterile cow, or at least the Mahout said so. I asked him how he could tell. He said, "That the long hairs growing from the sides of the genital aperture showed this. I remember a Hansi cow that was purchased for my jail by one of my warders, showed this character and was sterile. So there may be some truth in the statement.

My wife and I once witnessed a splendid sight. A tiger in full pursuit of a few Buffaloes across a Jheel. It was the grandest sight we ever saw and falls to few to view.

Most of my hunts after Buffalo have been on foot. I hated shooting them from the back of an Elephant, although I have done this, but there is not that thrill and excitement as when one is on foot. The Buffalo was the first big animal that I shot in India, and my first experience after big game nearly ended in disaster.

On my journey to Manipur in 1891 to join my first appointment, I met an old Assamese Shikari, who at that time was Chowkidar of the rest house at Bokajar. He told me that the place was full of Buffalo and that there was one with a very large head. I had no weapons, so had to wait. My opportunity occurred a few years later. When I was marching with the 42nd Gurkha Rifles from Manipur to Shillong, the second in Command at that time was not very amiable and much to my disgust would not give me leave to stay behind. However, on reaching Shillong, I was transferred to the 44th G.R. now the 2/8th, and we had to march back to Manipur. On reaching Bokojar, the Chowkidar said to me "You are in luck, The big Buffalo killed two tame Buffaloes on the banks of the Dhansiri River yesterday, and we are sure to get him". Here was luck. Next morning at break of dawn, the Chowkidar and I started. We soon picked up his tracks and as we followed, went deeper

and deeper into the primeval forests, where the sky was blotted out and the forest full of cane brakes. The Buffalo had gone a long way. It was infernally hot, and horse flies were much in evidence and annoying. About 11 a.m. the chowkidar told me of a large tank not far off, and that the big Buffalo would be there for his siesta". He was right, we came on the tank, which was surrounded by a thicket of cane and grass and the fresh spoor of the Buffalo led into it. The old man warned me that "The Buffalo was a 'budmash' and that either I would kill him, or he would kill me". The old man funked further tracking and remained behind. I entered the tank, now overgrown with short rank grass, through a tunnel in the cane brake, stooping low so as to avoid the thorns. As I entered the shallow water at the edge, there was the huge brute sitting down at the far end, as he raised his head, I fired at his neck. There was a plunge and a snort and he came straight for me. The pace the beast came through that stuff, consisting chiefly of mud, was astonishing. I could hear the old Chowkidar shouting "*Maro* Sahib *Maro*". I let the buffalo come up within 5 yards of me and fired my left barrel. This fortunately turned him. He went back and with a groan fell almost exactly at the spot where I had first seen him. I put in two more shots to make sure and all was still. It was a forest bull, with very massive horns with 8 feet sweep and a girth of 19" at the base. The horns were very much gnarled, but the tips were sharp and unbroken. There was great rejoicing in camp, and much Buffalo meat was consumed by some men in the Regiment. I kept the tongue and marrow bones for our Mess the next day, and uncommonly good they were. I was using at the time, a 12 bore rifle by Masu, taking 7 drachms of black powder and a special bullet made by Marton, with Steel tip, soft lead and tin sheath, and a copper ball. This bullet mushroomed very much and gave a hard knock. Before leaving I presented an old M.H. rifle to the chowkidar, ignorant of the rules. Two years after, I got a letter from the D.C. of the Naga Hills asking if I had given a rifle to the Chowkidar? I said "Yes". As a first offence I was forgiven. I was sorry the old man was deprived of his prize. So I begged the D.C. to give him a license for a muzzle loader smooth bore, and he did so.

Whenever I look at the head I remember the narrow squeak I had. There were no Buffalo in Manipur, but the tame

Buffalo had enormous horns. The ordinary Bengali Buffalo had not been introduced to spoil the breed. These animals were used for ploughing, for milking purposes and for hunting deer, the latter being speared during heavy floods from riders on Buffaloes. They were also used to drive out tigers, when one did appear in the valley, which was very rare. Whilst in Manipur, I had several trips into the upper Chindwin and got several good heads. Once, as Toinem, my tracker, and I were walking along the river, on the look-out for game, on rounding a bird's nest, not 50 yards away was a herd of about twenty animals, almost submerged in a pool. I just saw a sea of horns, and could not pick out the bull. Before I could do so, they stamped up the bank on to a *Chur*. My shikari hustled me saying "That they would cross the *Chur* and river and get into the thick jungle beyond". We followed up at break-neck speed, my topee coming off in the chase. As we got to the far end of the "*Chur*" there was the bull standing broadside on, about 80 yards away. I fired, and he went away disabled in the hind quarters. We waited, as he would be sure to lie down and get stiff. Then climbing various trees we saw the tall grass flicking about 40 yards away. I had a magazine rifle, in addition to my 12 bore, so I emptied the magazine at that distance. Then all movement stopped and proceeding cautiously found the bull dead. Poor Toinem was killed a year later by a wounded Buffalo and I lost a fine tracker and charming companion. The other expeditions were uneventful. The Regiment, a few years later was transferred to Kohima. As there was no game, except bamboo partridge, I applied for long leave. My Boss, Colonel C-. told me that, if I cancelled my leave, he would give me, as a Civil appointment, the best station, barring Shillong, in Assam. I decided to do so, and bade farewell to the British and Indian ranks, with whom I had spent so many happy years. I was sorry in a way, as shortly afterwards, the Regiment was ordered on the Tibet expedition and went to Lhasa. I had plenty of joining time, so instead of proceeding by the ordinary route, I struck North East to get to the head waters of the Dihang, and from there by boat to Golaghat through some grand and untouched game country. One of the Officers had lent me a magazine rifle as a spare weapon. My first march met with disaster. Some of my "Kit" was loaded

up on my Manipur ponies. I got to the rest house, and my ponies did not appear so I went back and saw my bearer standing in tears. He said that one of the ponies had rolled over a "*Khud*" with my rifles and he was afraid to investigate, and had been afraid to come and tell me. I proceeded to the spot and found that the stock of the Rifle was broken, but the 12 bore was luckily intact. The pony was only bruised. On my way, I picked up Havildar Singbir Lama, who had retired from the 42nd Gurkhas and had married a Naga woman. Singbir was known all through the Naga Hills as a mighty and fearless hunter. He had accounted for many tigers and rogue elephants. He was the only man that knew and could not lose his way in the great Namba Forest. He told me "that he could never lose his way as he carried the pebble out of a Gharial's stomach in his pocket". He was a wonderful tracker and knew everything about animals, birds and their ways. He was invaluable to me, making all arrangements for transport, boat, etc. After two more marches, I got to the Pihong. There was splendid Mahaseer fishing here, and I had good sport. My craft consisted of two huge dug-outs lashed together and connected by a bamboo platform. On top of this, a small tent was pitched. All looking very snug and comfortable. My objective was "the Rergina-Pothar", and we were to cut our own way through the forest to get to it. Singbir said that we could easily get there and back in a single day. We started off when it was just light. Singbir, myself and two other men, Nagas, walking slowly as the jungle was very thick and cane-brakes had to be negotiated. The trees were barked with a kukri along the route, to guide us on our return. We had been on the tramp since day-break without reaching the Pothar, so Singbir decided to go alone and see whether the grass had been fired and the prospects of game. I and the two Nagas were to return to camp. They were to find the way back with the help of the trees along the route which had been marked. I was sorry we parted company, as future events will show. Here, I may state that whilst the Regiment was stationed at Kohima and Manipur 8 or 9 Riflemen, who went into this forest, were never found, or heard of again. One Sepoy eventually found his way out near Golaghat and came out a raving lunatic from the effects of hunger and exposure. I turned back and after an

hour a terrific storm came on, the rain came down in torrents, and this and the lightning nearly blinded us. The Nagas looked rather frightened and said that "They had lost the track". Unfortunately I had no compass, nor my watch, so, after marking a tree I took the lead. We went along for an hour or so, and what was my dismay to find that after all the tramping, we had come back to the very spot from where we had started. By this time, my two men were behaving like lunatics weeping and wringing their hands and saying "We are lost, we are lost". As night was falling, I was afraid to make a further attempt, for fear of getting more seriously involved. I decided to spend the night in the forest, with the hope that a search party would be sent from the camp. I saw two adjoining trees with forks in them, across these, I told my men to put branches, which was to be my bed. The rain still came down in torrents. I was soaked to the skin, hungry and thirsty, mosquitoes in millions and the tree leeches began to attack us. I fired four shots, but owing to the thunder, they never heard them at our camp. The two Nagas were up in the tree with me. Morning broke after a night of misery and to my dismay, it was still pouring. All the next day it rained, and for the second night, I climbed into my desolate perch. No help came from the camp. If it had only cleared, I could have got the points of the compass from the sun. That night I said to myself "If no help comes to-morrow I shall put an end to myself with a bullet, I cannot endure this thirst, exposure, hunger and torture from leeches any longer". Next day the morn broke fine and I was never so glad to see the sun. It gave me the East and as the Dihong ran almost North and South, I thought that if I kept the sun directly in front of me, I would strike the river and then easily find my camp, by proceeding up stream. With a forked stick and my Kukri, I cut through that awful stuff consisting almost wholly of cane-brakes, the ground of course, was a quagmire and several "*Nullahs*" full of water had to be crossed. After some hours, we, to our joy, struck the river and with a shout I dashed into it to get a drink of comparatively clear water. My clothes were torn almost to ribbons, and when I took off my clothes, several huge leeches dropped out and others were still sucking my blood. I had a bath and got rid of these devils. When I reached

my camp, I called for a bath and asked the cook to give me some tea and prepare something. In the bath, all the leech bites began to bleed profusely. I had my meal and went to sleep and must have slept on for 18 hours or more. I had 28 bites from leeches, chiefly on the legs. This terrible experience somewhat damped my ardour for shikar in that forest.

When shooting in dense and extensive forests, it is advisable to carry some Verey lights. I got into my flannels and thought I would take it easy going down stream, only shooting what I may see on the banks. We got a move on in time, after I had recovered and as we were going along, I heard the goat like bleat of a Peacock Pheasant which was calling in a cane brake not far from the river bank. As I had never seen or shot a specimen, I went after and shot it. Singbir, who went to fetch it, returned very excited and said "Sahib", here is the largest spoor of a Buffalo that I have ever seen. He is a solitary and must be a huge animal with a fine head". At that, my depression disappeared, and my heart beat with excitement. I rushed back to the boat, put on my shikar kit took something to eat and drink and we started. I must say I was a bit nervous after my previous experience, but I placed implicit trust in Singbir to see us out of the wood. What a dance that animal led us? He had swum the Dihong river twice and as there were no boats, we had to do likewise. About 1 p.m. his tracks led into a small "Jheel", covered with ekra and null and containing a few feet of water. A huge solitary "*Goolur*" fig tree stood near the track, where the Buffalo had entered the Jheel. Singbir directed me to hide myself behind the tree, whilst he went round to see if the Buffalo had come out. "If not", he said, "he would fire two shots and the Buffalo would then come out by the path it went in." Two shots rang out. There was a terrific commotion and squelching noise in the Jheel and out walked the Buffalo, not 6 yds from me, but he never saw me. He was driving the flies from his flanks with his magnificent horns. As he passed, I let him have the right barrel. He went down like a stone and before I could fire a second shot, went back into the Jheel. Singbir came round and asked if I had got him I said I had hit him. There was plenty of blood, and we decided to go in after him. This action was courting disaster, but nothing daunted, we entered the Jheel,

hot on the tracks, Singbir cutting away the ekra and null with his kukri. We had not proceeded 20 yards, when Singbir pointed to his left, I looked and saw the Buffalo not 10 yards away, with his head to the side, and horns well down, ready to charge. I fired at him and jumped to the side as the Buffalo rushed past us like a steam engine. We followed up again, and after about 30 yards, Singbir said "*Murgiah*" Sahib, the Buffalo was lying stretched out his head away from us and his great horns sticking up. I thought I should put in another shot but suddenly the animal got up and came straight for us. We jumped to the side and the beast thundered past us. Singbir then said No more, Sahib, the beast has a '*shaitan*' (Devil) in him, and if we follow him up he will kill one of us, he is sure to die, and we shall find him dead in the morning". With much reluctance, I took his advice and went back to the boat. Not a wink of sleep did I get that night thinking of the Buffalo and the excitement of the day which had overstimulated my brain. Next day at dawn, we started and the "*Goolur*" was full of crows cawing, and after a while we found him. He was a bull in the prime of life. Sweep of horns 9½ feet and 17″ at the base in circumference, with tips sharp as a spear. When I reached Sylhet I was laid up with malaria, all the leech bites, turned into boils and I had a bad time for a while. In Sylhet I only got one Buffalo at the Gangour Haob. My next station was Mymensingh and here I got some good shooting with the then Maharajah Soorja Kanta Acherjee of Myminsingh. He used to give a Christmas Shoot and had his 67 elephants out. The Maharajah was a splendid man with a very fine presence, a splendid shot and a charming personality. He and I used to "Buck" shikar for hours. We only got one tiger and I bagged a good solitary buffalo. The marsh patridge were in hundreds at the foot of the Garo Hills, and it was very pretty shooting from the back of an elephant as they whirred over the top of the long grass. I was then transferred to Tezpur. I was delighted as it was a very good district for big game, and there was excellent mahaseer fishing as well. My favourite place was Gohpur, on the Lakhimpur frontier. I had a dispensary here, so there was an excuse for inspecting it several times in the year. One day, not far from Gohpur, my wife and I were returning after a fruitless day after Buffalo and just as it was

getting dark, we came on a solitary Buffalo. I had a shot at him as he galloped off and I thought I had hit him. Next morning, we proceeded with two elephants to investigate. My wife and I were on one elephant and on the other was my sporting Kit "Helim", armed with my 360 express. When we were nearing the spot, there was the Buffalo waiting at the edge of the jungle for us. When we were within 50 yards of him, he came straight for Helim's Elephant. The Elephant turned and bolted with the Buffalo behind, pushing him along in the rump. I could see that the beast was going rather groggy and was stumbling. At last he dropped a few yards behind the Elephant and I gave him his quietus. Helim came back looking ten years older and green with funk. Luckily the Elephant was not injured. I found that the shot of the previous day had broken the poor brute's fore leg, high up. Whether this Buffalo was waiting for us or whether he had come out in the open for coolness and to escape the flies etc,. in the thick grass, I cannot say. Another day while my wife and I were returning at dusk through a dried up Jheel with heavy null, we spotted five or six Buffaloes feeding at the edge. I dismounted and stalked them on foot. When I got within 50 yards they stampeded and I fired a snap shot at the one in the rear. The animal dropped but unfortunately it was cow. I got several more Buffaloes but they were uneventful. I believe a tea garden has been opened up at Gohpur, so that splendid country has been ruined.

—Anonymous

[We believe this article was written by Lt.-Col. H. S. Wood, I.M.S. who has contributed articles of a similar vein on other Game Animals in earlier numbers of the Journal. The Indian Wild Buffalo has become so scarce now that it cannot be considered as a Game animal. The article is of historic value from the point of view of the distribution and abundance of the animal in earlier days.—EDITOR.]

COURTSHIP OF BIRDS

By

S. C. Law

The courtship behaviour of birds is as a rule associated with their breeding season. As their breeding time comes birds normally assume their nuptial plumage; they are at least in their best feather at this time of the year. And they develop their fullest powers of song. Even where there is no true distinctive song, there is usually some special call associated with the breeding season. Gradually the advance of this season is marked by a beginning of all the activities of reproductive life.

The first and foremost of their reproductive activities is the development of a sense of 'territory', which connotes an instinct of exclusiveness, most marked in the breeding season, superseding the instinct for gregariousness noticeable at other times in most birds—when the mated pair tend to confine themselves to a special territory which they try to deny to all rivals. The territory may be a large one in the case of a bird of prey and down to a fraction of an acre in the case of a warbler. A chain of interlinked phenomena is apparent where territory is occupied, mates are wooed, and rivals are fought. Jealousy of possible rival suitors may play a part in the development of their exclusive instinct, but the dominant factor in most cases is the necessity for securing a monopoly of an adequate feeding ground immediately round the nest.

We now come to the more usual association between territory and reproduction. In spring it is the male birds which first take up territory. In many migratory species the males arrive in the summer area before the females, and they at once go about looking for and establishing suitable territory. In the case of non-migratory resident species, *e.g.* Mynahs the case is somewhat different. The birds are already in the area in their winter flocks, but as the breeding season approaches the males leave the flock and establish territory. Not that their attachment to their flock is severed abruptly, but they spend only short periods before settling down in the territory, rejoining the flock at other times. In either case the acquisition of territory

by the males is followed by the search of the females for established males. Once mating is accomplished the territory becomes the domain of the pair,—usually centring round some focal point, say a particular bush or branch, with which the territorial instinct is associated in special degree, and from which the male, perched in a conspicuous position, most frequently utters his song.

The forms of courtship behaviour of birds vary greatly between one species and another, though there are some forms which seem to be common to many species.

Broadly speaking, one may notice three main types of behaviour in the activities of birds attendant upon their mating. There is direct pursuit of the female by the male, there is combat between the rival males, and there are 'display' and other performances expressive of the emotional state of the bird under stress of its reproductive instincts. These performances not merely serve as endeavours to attract and captivate the female, but saturated as they are with maximum emotional feelings they tend to arouse a corresponding state in the opposite sex, and thus a condition of receptivity to the advances made. It is usually seen that the males showing this to the greatest extent are the most successful in eliciting response from the females.

As a result of very minute and prolonged observations that had been and are even to-day being made by a host of ornithologists we are in a position to narrate in outline the salient features of the courtship behaviour of birds:

1. Song, twittering, cooing, crowing, calling and many other vocal performances sometimes attended with body movements or even flapping of wings,—which appeal to sense of hearing as well as of sight. An instance of such performance, carried to the extreme, is when the male is in hot chase of the female either on the ground or in the air.

2. Display of plumage and of skin ornaments such as wattles; display of movements showing agility and grace, in strutting, parading, fluttering, flying; oft-repeated rhythmical movements, *e.g.* bowing,

dancing; 'suggestive' movements as when the male jumps over the female (as in pigeons) :—which directly appeal to sense of sight.

3. Courtship action such as observed in some males stroking the head of the female with his bill; male pigeon pressing his neck over that of his mate; male pigeon receiving in his open mouth the bill of the female;—these have direct appeal to sense of touch.

4. Other subtler modes, some of which may have a symbolic significance, *e.g.* in the case of some ground-nesting birds the male revolving in the earth in the manner of nest-making, nest-like hollows being formed in the process; or in the case of some water birds when, for instance, the Great Crested Grebes offer water weed to one another. Another example, not uncommon in some courting birds, is the offer of some dainty morsel of food on the part of the male to his mate; or drawing her attention to it by his peculiar call (when, for instance among Pheasants, the female hurries towards the food let fall on the ground by her mate); or even thrusting the food direct into the open beak of his mate (as in the case of crows).

All of these examples may not strictly apply to what are termed 'displays', but possibly all are fundamentally similar in origin and purpose. Some of them include elements which are obviously associated with later phases of the reproductive period, that is to say, with nesting and parental care; and they have a suggestive effect upon the female, stirring her memory or instinctive knowledge of the tasks of parenthood, and so inclining her to the acceptance of a mate.

Thus the courtship behaviour of birds is an elaborate and intricate process, the exact significance of which is not easy to assess. The vocal performance attaining its climax in the breeding season may not be always effective in its purpose, specially as a warning where territory is occupied. Recourse is necessary to other means of defence for the territory, which will involve aggressive displays, followed by courtship displays.

But it is not possible always to draw lines and say definitely this is courtship display and that is aggressive display. On the whole it may be said that these performances, whatever the interpretation put on them, have come to acquire a more and more definite value in securing the fulfilment of the reproductive instinct.

The courtship ceremonials and display attitudes usually on the part of male birds, differing greatly as between one species and another coupled with the special nuptial dress with decorative plumes acquired by some other species are no doubt remarkably wonderful. While there are no courtship actions at all in a few species, one may observe in some other (*e.g.* Black-tailed Godwit) a complicated series of performances—a ceremonial flight by the male, a joint flight by both sexes, a tail display, a scrape ceremony (excavating hollows) etc. Standing out in bold relief among the various modes of courtship behaviour of birds is the most familiar and gorgeous display of the male Peacock, clad in nuptial dress, posturing and dancing before the mate with his marvellous train erect and spread into a huge fan—which is the Peacock's crowning glory.

ORIGIN OF DOGS

By

E. O. Shebbare

I don't think I ever opened a book which appealed to me as Konrad Lorenz's "King Solomon's Ring" has. This may perhaps be partly because it is flattering to an amateur dabbler in animal behaviour to find that a man, who has devoted his life to the subject—besides being obviously born with the understanding of it in his bones—feels so much as I do myself about the working of an animal's mind.

He is, of course, a world-authority on animal behaviour and it is impertinent for any dabbler to criticise any authority, but my only criticism has nothing to do with behaviour; it is about the origin of dogs.

How fully I agree with his division of all domestic dogs into two groups, which he has called "lupus" and "aureus", is shown by the extract from my prison notebook, which I give below; I do not, however, like his names for them. In other words I am doubtful about his "lupus" dogs being derived from wolves and still more doubtful of his "aureus" dogs from jackals. The latter, at any rate, I feel are more likely to be from some other species of *Canis*, now extinct, and more like the feral dingo. (This theory is not merely my own; it is alluded to in the Encyclopaedia Brittanica article "Dog" though the authority is not given.)

My reasons are two:—

(*a*) The almost feral pariah of the East and, to a lesser extent, the mongrel of Europe have reverted, not towards the jackal, but towards the dingo. (Personally I could not tell the average domestic dingo, such as follows parties of aborigines in, say, Qeensland from the pi-dog (pariah) of any bazaar in southern Asia.)

(*b*) Dogs do not readily interbreed with jackals. (The only well-authenticated cross that I have heard of was the spaniel-jackal at one time, I think, in the Mysore zoo.)

Lorenz begins his delightful chapter "The Covenant" with the words:—"At the dawn of the later stone age, there appears, as the first domesticated animal, a small semi-domesticated dog, certainly descended from the golden jackal (*Canis aureus*." I think this dog, the earliest domesticated animal yet found *in Europe*, lived with some round-headed (Maglemose) people on the Baltic coast in Mesolithic times—say about 5,500 B.C. On the other hand the only placental mammal that was found in Australia, the dingo, must have been tame enough to accompany his Pre-dravidian master on a boat-passage of at least 40 miles (Timor to Australia when the coastline

followed the present 100-fathom line—not to mention about 20 miles of deep channel between Bali and Lombok.) This happened a good deal earlier ; say about 20,000 B.C.

I do not know the golden jackal, which Lorenz says has given his flaming red coat to the chow ; it is probably a south European sub-species. Pocock (F. B. I. Mammals, vol. ii, 1941) says that there are several sub-species of the Asiatic jackal (*Canis aureus*) throughout its range (S-E Europe to S-W Asia) but the four which he describes, as occurring in India, are all more or less wolf-coloured. That the "Maglemose" dog was descended from the jackal I dare not dispute but that most present-day dogs are I do. I should also be very much interested to know the accepted palaeontological view on the two breeds of dog (one of terrier, the other of Alsatian size) which are said to have accompanied a later, but still Mesolithic, drift to the Baltic shores from the S-E of a long-headed (Protonordic) tribe—the Kitchen-midden folk.

Extract from my prison notebook 1942-5 (Pencilled below a classified list of dog breeds copied from Encyc. Britt. 14 (?) edition, article "Dog", I think by Gerritt Miller. Another note suggests that the Tibetan mastiff should not have been included with the Mastiff but with the "Eskimo group" which here comprises:—Lajka, Husky, Chow, Samoyede, Naga and Spitz.):—

> "The Eskimo group, including the so-called Tibetan mastiff, seems sufficiently distinct from the rest, both physically and mentally, to warrant the suggestion of a separate wild ancestor. If the "Rest" are derived, as I believe, from some "Proto-dingo" species of *Canis* domesticated, in a warm climate, by the Pre-dravidians (Australoids), with whom they appear to have been associated, it is tempting to think that the Eskimo group was domesticated (from what?) by that very early drift of long-headed Mongoloids (or Proto-mongols) who reached the arctic coast & there, under the influence of plenty of food (seal & whale meat) invented the Kayak, the loose-headed harpoon & bladder float, the dog-sleigh & possibly the igloo. (Who domesticated the reindeer?)."

I should like Lorenz to see this note himself, if it can be arranged and, if possible, I'd like his views on it. He will see, from my vague references, that I have no access to a library and am still further handicapped by having no solid background in any branch of science, though I have dabbled in the shallows of several. My only excuses for holding any views on this subject are:—

(1) I have spent some of my life in various parts of the borderland between the plains of N-E India and the Himalayas—at this point is the boundary between mongoloid and other races as well as being, in its less civilized parts, the boundary between the Chow and the Pariah.

(2) Of my canine companions quite half (and some of the best) have been pariahs; also one of them, "Pepper", was a semi-time jackal who followed me, or rather my dogs, through most of the forests of northern Bengal. On the debit side I have to admit knowing next to nothing of the wolf and, though at times the nominal owner of "lupus" dogs, none of them has ever really owned me—for the reason explained in "The Covenant" (p. 123). I owe much of what I know of the psychology of these attractive (and, to strangers, aggressive) dogs to "Police-ie", the ill-fated watch-dog of the 1933 Everest Expedition—a "Tibetan Mastiff" bitch, black with tan points. Owning to no master, she regarded the hundred or so climbers, porters and yak-drivers, who made up the party, as her "pack" and therefore taboo—not to be bitten as all strangers were. The drivers often accompanied us for only two or three stages and, being local Tibetans, looked and, to a human, smelt exactly like the inhabitants of the villages through which we passed; yet she accepted them on their first stage, whereas I had had to get a formal introduction. Poor Police-ie; had she not scorned to follow any man—even his tracks in snow—she might have avoided her (presumed) fate. I often saw her, quite alone on the snow-field, taking short cuts across the, to her,

meaningless loops in the glacier route; one day she was missing—presumably down a crevasse.

BIRDS OF THE DUARS

By

(Late) C. M. Inglis, M.B.O.U., F.Z.S.

(*Continued from Page 25 of Vol. 29, Nos. 1 & 2, April—August 1957*)

185. The Ashy-grey, or Franklin's Wren-Warbler

Granklinia gracilis hodgsoni (Blyth).

Fauna B.I. 2nd Ed. No. 827.

Description :— Length 4 to 4½ inches. Sexes alike. In summer the upper plumage is dark ashy-grey; wings and tail, brownish, the latter tipped with white and with a sub-terminal dark band. Lower plumage white with a band on the breast and flanks ashy.

In winter upper plumage rufous-brown, a narrow white eyebrow, lower plumage white. Washed with fulvous, greyer on the throat.

The genera *Franklinia* and *Prinia* are very alike and some naturalists lump them together under the name of *Prinia*. They differ in the number of feathers in the tail, the former having 12 and the latter 10. The tail is longer in winter than in summer and is ample and much graduated.

Distribution and habits :— A very common, resident bird, very sprightly, cheerful and active, moving about in small parties in grass-land and scurb-jungle. It has a weak, jerky flight and as Stuart Baker put it so well "the tail flicking over its head and looking as if it would upset it at any moment", it never flies for any distance, generally only a yard or two. In bushes, grass, however, it is very active in its hunt for insects, the latter it also picks up from the ground.

June to July are the principal breeding months. The nest is very similar to that of the Tailor-Bird but is, usually, only sewen into one leaf. The leaves selected are always pendent and never upright. The lining, if any, is never composed of felted grass. The nests are, usually about 3 or 4 feet from the ground. The eggs number 3 or 4 and vary greatly, the commonest are pure white and pure blue, especially the latter, but they may be pinky-white, white or blue speckled and spotted with pale reddish or deep reddish-brown, generally the markings are distributed over the whole of the egg but, sometimes, they form a cap, or ring, at the larger end. They measure about 0.58 by 0.42 inches.

186. The Burmese or Beavan's Wren-Warbler

Franklinia rufescens rufescens (Blyth).

Fauna B. I. 2nd Ed. No. 828.

Description : — Length $4\frac{1}{2}$ to 5 inches. Sexes alike. In *summer* it differs from the last in having the forehead, crown and nape, ashy-brown, rest of upper plumage rufous-brown, more rufous on the wings and tail, a narrow white eyebrow, lower plumage white, washed with fulvous especially on the flanks and below the tail.

In Winter the upper plumage is brighter rufous and the forehead crown are practically the same colour as the back and the lower plumage is more suffused with rufous-buff. Bill horny and black, iris bright brown, legs fleshy yellow.

Distribution and habits :— I have collected this at Bhutri, and near Hasimara, from February upto the 17th March. Stevens obtained it, in light undergrowth, at Bhutan ghat in January. I found it in forest undergrowth. Its habits are the same as those of Franklin's Wren-Warbler.

187. The Ashy-crowned, or Hodgson's Wren-Warbler

Franklinia cinereocapilla (Hodgson).
Fauna B. I. 2nd Ed. No. 830.

Description :— Length in winter about $4\frac{3}{4}$ inches. Sexes alike. Forehead and a narrow eyebrow, rufous and fulvous,

which is broadest in front of the eyes, crown, nape and sides of neck ashy-grey, faintly cross-barred with blackish; in front of the eye blackish, upper plumage, and exposed part of wing, bright dark rufous, tail rufous brown tipped paler and with a dark sub-terminal band, cheeks and lower plumage, pale fulvous darker on the posterior flank, vent and below the tail.

No colours recorded for the soft pats.

Distribution and habits :— Mandelli recorded this from "Bhutan Duars". I have no knowledge of it. Its habits are said to be similar to those of the last two birds.

188. The Ganges Large Grass-Warbler

Graminicola bengalensis bengalensis (Jerdon).

Fauna B. I. 2nd Ed. No. 834.

Description :— Length 6½ to 7 inches. Sexes alike. Upper plumage black, the feathers edged with tawny-fulvous, rump tawny-fulvous, the feathers on the sides of the neck edged with white instead of tawny, in front of and round the eye and an eyebrow, greyish-white, wings, narrowly edged with tawny-fulvous, tail deep brown, the feathers margined with olive-rufous, indistinctly cross-barred and broadly tipped with white, lower plumage white, ochraceous on sides of breast and flanks. Bill horny brown, iris reddish-brown, legs fleshy brown.

It has a stout bill and a long, very broad and much graduated tail which is longer in winter than in summer.

Distribution and habits :— O'Donel considered this bird rather uncommon, but resident. I have found it decidedly rare. It is found in dense, high grass, ekra and reed-jungle creeping about in these and not easily seen, so may be less rare than I suppose it to be. It hunts in this dense cover for insects.

189. The Javan Striated Marsh-Warbler

Megalurus palustris plaustris Horsfield.

Fauna B. I. 2nd Ed. No. 836.

Description :— Length 10 inches. Sexes alike. Upper plumage fulvous-brown, the head suffused with rufous, narrowly

striped on the head and neck with dark brown and broadly striped on the upper-back, shoulder feathers and coverts, with deep blackish brown, tail fulvous-brown, indistinctly cross-rayed, a white eyebrow, chin and throat white, rest of lower plumage pale earthy-brown, more fulvous on the flanks and below the tail and whitish on the abdomen, a few brown streaks on the breast and below the tail, and sometimes on the flanks.

Bill, above horny-brown, lower mandible fleshy; iris pale brown and yellow tan, legs fleshy horny.

The tail is long and much graduated and the foot is deeply cleft between the middle and inner toe, which give the bird great grasping powers especially as the latter is partially reversible.

Distribution and habits :— I found this large warbler common at Haldibari, Binaguri and near the Dudhua in high grass and reeds, especially near water, but it does frequent grass-land some distance from the latter. It is sure to be found elsewhere in the district where the country is suitable. It is a bold bird and does not shun observation and feeds quite a lot on the ground, its food consists of grass hoppers, beetles and other insects. In the reeds and high dense grass it threads its way with ease and may be seen flying over these for some distance. It also rises high into the air sometimes as high as 100 feet, and then descends to a perch on the bush in the grass, uttering its song, which Deignan describes as "Loud, chattering, bubbling notes" while in the air.

It will, probably, be found breeding in April and May making its nest in some patch of grass, reeds or miscal bushes and grass preferably near some village, or beside a road. The nest is an untidy affair, a rough domed ball of grass with sometimes, a few bamboo leaves incorporated in it and placed low down near the ground. The cock bird gives the nest away by soaring into the air and singing in its vicinity. The number of eggs is 3 or 4 the ground colour is pale dull pink or lilac-pink, speckled with blackish and purplish-brown and freckled with lilac-grey. They measure about 0.9 by 0.63 inches.

190. The Bristled Grass-Warbler

Chaetornis striatus (Jerdon).

Fauna B. I. 2nd Ed. No. 838.

Description :— Length $8\frac{1}{2}$ inches. Sexes alike. Upper plumage, and sides of head, fulvous-brown, the former broadly streaked with black, in front of the eye and an eyebrow, white, tail fulvous-brown, with short black bars colescing at the shaft and not reaching the margins, tips fulvous-white with a broad, sub-terminal black band on all except the central feathers, lower plumage white in summer and pale ochraceous in winter, white on chin, throat and breast, a few faint striations on the upper breast.

Bill black in breeding season, horny brown, with the base fleshy during the rest of the year, iris hazel, legs fleshy-brown.

It has the front of the eye devoid of feathers but from these spring five very stiff brisles arranged in a vertical row.

Distribution and habits :— I obtained a few specimens at Haldibari from December to early March, but never saw it anywhere else. It is found in grass-land, especially if there happens to be water about. It has the same habit of roaring up into the air as the Marsh-Warbler. Its food consists of various insects which it finds both on the ground and in the grass and bushes which it frequents.

191. The Thick-billed Warbler

Phragmaticola aedon aedon (Pallas).

Fauna B. I. 2nd Ed. No. 839.

Description :— Length $7\frac{3}{4}$ inches, sexes alike. Upper plumage fulvous olive-brown, in front of the eye whitish, tail brown, lower plumage buffish-white, almost white on the throat, chin and abdomen, the buff is deepest on the flanks.

Bill dark horny above, lower mandible fleshy, iris brown, legs plumbeous.

The tail feathers are narrow and much graduated and the forehead is rough.

Distribution and habits :— A common winter visitor the earliest recorded arrival is the 4th September and the latest date on which O'Donel observed it was the 17th May. It is found in grass-lands, reeds and scrub and very often seen in hedges in gardens. It is said to be shy during the breeding season but is not so during the winter, although being a great skulker and having dull plumage it is not observed very easily but its call note of *chuck-chuck* is often heard though the bird, itself may not be seen. It is a solitary bird, at any rate those which visit our garden hedges, like all Warblers it is insectivorous.

192. The Booted Tree-Warbler

Hippolais rama scita (Eversmann).

Fauna B. I. 2nd Ed. No. 842.

Description :— Length 5 inches, sexes alike. Upper plumage fulvous-brown, tinged with pale olive, a pale buffy white eyebrow, wings and tail brown, edged with olive-brown, the outermost feathers of the latter edged with whitish, lower plumage pale buff, the throat, and centre of abdomen, whitish.

Bill brown above, lower mandible fleshy, iris dark brown, legs steely blue-grey.

It can be easily mistaken for the Paddy-field Warbler but the tail is not nearly as graduated and in the latter the minute first flight-feather is, usually, shorter than, or equal to, the primary coverts, and never exceeds by more than 3 millimeters, whereas in the Booted Warbler it is much longer.

Distribution and habits :— O'Donel obtained one specimen at Haldibari on the 15th November 1929 and I collected one there on the 5th March 1930. Whistler did the identification. It must be a rare winter visitor or passed over being mistaken for Blyth's Reed-Warbler or the Paddy-field Warbler which it resembles most closely. The Duars is near the Eastern limit of this bird. According to Whistler " In the cold weather the Booted Warbler is a bird of any kind of dry country where bushes abound, save actual forest. It frequents gardens, scrub-

jungle and babool trees in open fields and in such places it will be found skulking in the undergrowth or creeping about the branches of the babool trees". It is cheerful little bird continually on the move and constantly uttering its little song as it creeps about in scrub in its search for insects.

TWO VANISHING ANIMALS OF INDIA.

By

Rodger Sheppard

While living in Nepal during the last few years, I've had the wonderful opportunity of studying and seeing many varieties of Indian Wild Life. Of these I am going to tell about the Rhinoceros and the Wild Buffalo, both of which are nearing extinction in India to-day.

The great Indian Rhino (One horned), which is the largest of the species, is a big clumsy looking animal, weighing upward of three tons. It is distinguished not only by the single horn, but also by the great folds in the skin, especially around the shoulders and haunches, which give it the appearance of an armoured prehistoric animal. It's eye-sight is very poor, but it makes up in this defect by having a very good sense of smell and hearing. It is a bad-tempered and stupid animal on the whole and can be dangerous when provoked. This Rhino was once fairly common in India. However during the past years it has been almost exterminated. There are several reasons for this. 1. The Chinese regard the horn of a Rhino as having great medicinal power and will pay a large sum for it. Consequently this is the main reason why the Rhino has been killed in India. 2. As the population of India grows, more and more jungle area is cleared, with the result that the Rhino may be forced back until it can go no further. With the disappearance of the

jungle there is also the disappearance of the Rhino. 3. The breeding habits of Rhinos are so slow that may be only once in five years a cow Rhino will give birth to a young one. And if a cow Rhino does give birth, the young one is liable to be killed by a tiger. With this slow-rate of reproduction and the constant poaching the Rhino's chances of survival are limited.

There are two main ways poachers use to kill Rhinos, one is the pit trap, which is dug in a Rhino trail, and the other is shooting. However to avoid making too much noise the poachers use the former. If one of these pit traps is dug in a Rhino trail, a Rhino is bound to stumble into it sooner or later, where killing it is then an easy matter. I know of one case of a villager, who on finding a Rhino in one of his traps, struck at the head of the animal with a heavy axe. He missed the head and struck the base of the horn instead. The horn was completely knocked off. The villager having unexpectedly got the horn in such an easy way, released the dazed Rhino, which trotted off sporting a bloody stump. The Rhino recovered and was later recognized by the absence of its horn.

Now that the Indian Rhino is nearing extinction, restrictive laws have been issued concerning its protection. However the Rhino is still being poached, and if further steps are not taken to ensure its protection, it will soon be out of existence.

Another animal which is almost extinct in India to-day is the Wild Buffalo. The Wild Buffalo is a large heavy animal, weighing well over a ton when full grown. It is distinguished by the long massive horns which sweep back around its head, and alsc by its legs, which are white below the knees. It usually inhabits swampy areas thus being sometimes called the "Water Buffalo". This animal is easily angered and is considered very dangerous. The domestic water Buffalo, used all over India for farm work, is very closely related to the Wild Buffalo. Any hunter who has killed one of these majestic animals will say it is one of the finest trophies possible. However to-day these animals are so few in number that hunting them is usually prohibited. There are several reasons why this animal has become so rare. 1. As in the case of the Rhino, when the jungles are

cleared away to meet civilizations' great strides, the Buffalo may soon be left with very little natural surroundings, and may slowly disappear. The horns of a Wild Buffalo are terrible weapons and when two bulls decide to fight it out such terrible wounds may be inflicted both victor and defeated may die. This happens frequently and many bulls may die, thus cutting down the number of animals left, and reducing their chances of survival. 3. However, the biggest threat of all is rinderpest. Buffaloes sometimes leave the forest to feed in the fields and many come into contact with village cattle which are infected with rinderpest. The result is that the jungles are soon raging with an epidemic of rinderpest, not only Buffaloes, but Deer, and other animals will be found dead or dying. It is a very terrible but yet pitiful sight to see all these magnificent animals in such a state. Anyone, who has seen it will say that rinderpest is one of the most terrible tragedies that can befall the jungle and its animals. Rinderpest is the main reason why Buffaloes have been almost wiped out in India. Although much has been done to try to protect these animals it is doubtful whether they will survive and if they do become extinct India will have lost one of her finest animals.

Many people will ask us why we want to protect the Rhino and Buffalo.

Well one of the main reasons why we want to protect these animals is that we want people in years to come to be able to see them. If these animals make a come back may be in the year 2057 A.P., some person standing outside the cage of an Indian Rhino or Wild Buffalo will say "There is an animal that would have been extinct one hundred years ago in India but for the effort of the people in protecting it, we might never have seen it alive". Let us all hope that the Indian Rhino and Wild Buffalo make a speedy recovery.

[The best Essay received for the 'Wild Life Week' Essay Competition held during October 1957. It is written by a Sixth Standard Student of St. Joseph's College, Darjeeling.--EDITOR].

A CATALOGUE OF PLANTS OF SIKKIM HIMALAYA

By

B. N. Ghose

(*Continued from page 51 of Vol. 29, Nos. 1 & 2, 1957*)

Note: Figures in columns 4 and 5 stand for the number of the months in the year.
In column 10, L. stands for Lepcha, Bg. for Bengali and P. for Parbatia names.

Order, Genus and Species	Habit of growth	Colour of flower	Flowering Season	Fruiting Season	Locality	Elevation above sea level (in feet)	Rainy or Dry	Distribution	Local names
1	2	3	4	5	6	7	8	9	10
HIPPOCRATEA Linn.	Scandent Shrub.								
H. arborea Ronb.	Subarboreaus with climbing branches	Small whitish yellow	6	2	Tista	1,000	Rainy	Nepal to Khosi	
H. macranthy Korth.	Climbing Shrub	Whitish green	...	2	Sonada Bhutan	2,000	Rainy	Sikkim, Bhutan	
Order XLII									
RHAMNACÆ									
VENTILAGO Goertu	Scandent Shrub.								

Order, Genus and Species	Habit of growth	Colour of flower	Flowering Season	Fruiting Season	Locality	Elevation above sea level (in feet)	Rainy or Dry	Distribution	Local name
1	2	3	4	5	6	7	8	9	10
V. calyculata Tul	Scandent shrub	Greenish	2	11/1 Fruit winged	Torsa Valley Mangpoo	2,000	Rainy	Kumaon, Assam, Tenasserim	
ZIZIPHUS Juss	Shrubs								
Z. jujuba Lamk	Low thorny shrub deciduous	Whitish tomentom outside	9	12/1 Edible	Jaldaka Siliguri Pankhabari	1,000	Dry	Himalayas Deccan Upper Burma	P. Baer
Z. apetala Hook	Shrub very thorny	Flowers covered with whitish pubescence	3	5	Minglas	1,000	Dry	Sikkim Himalaya	
Z. funiculossa Ham	Climbing shrub	Do.	3	5	Riyang	1,000	Dry	Sikkim to Burma Malacca	
Z. rungosa (contd.)	Prickly climber	Whitish	3/4	9/10	Panighatta above Rungeet Singhijhora in Forests	2,500	Dry	N. W. Himalaya to Burma, Deccan	P. Rukh Baer
BERCHENIA	Spring shrub with scandent branches								

B. floribunda Wall	Pretty climbing shrub.	Pale greenish yellow	5/9	2/3	Lachung Takdah	9,000 5,000	Wet	Dehra Dun, Upper Burma	P. Bange
B. flavescens Wall	A climbing shrub	...	...	...	Sikkim	7—1.000	Wet	Nepal, Sikkim	
B. lineata D. C.	A diffuse shrub	Blue	6	...	Zemu	9,000	Rainy	Indus, Sikkim	
RHAMNUS L.	Shrubs or trees								
R. dahuricns Pall	Tree	Whitish green	6	...	Llabung	10,000	Rainy	Punjab, Bhutan, China, Japan	
R. nipalensis Wall	Unarmed erect or rambling shrub	Dark green shining above	9/12	10/3	Kalimpong Reang Golma Labda	4,000	Rainy	Central Himalaya to Kochin	P. archal
R. vivgatus Ronb.	Shrub much branched deciduous	Greenish white	5/6	9 Fruit bitter	...	5,000	Rainy	Throughout Himalaya Deccan.	
HOVENIA Thumb	Tree								
H. dulcis Thumb	Tree	...	6	8/2	Lat Rangli	4,000	Rainy	H. W. Himalaya to Sikkim	P. Banji Kata L. Sungri Kung
GOUANIA Linn	Climbing shrub								
G. leptostachya D. C.	Glabrous climbing shrub	Whitish Pinkish	8	12	Gulma sevoke	1,000	Dry	Jammuna to Burma	

Order, Genus and Species	Habit of growth	Colour of flower	Flowering Season	Fruiting Season	Locality	Elevation above sea level (in feet)	Rainy or Dry	Distribution	Local name
1	2	3	4	5	6	7	8	9	10
G. nipalensis Wall	Glabrous climbing shrub	Whitish Pinkish	7	10 1	Surriel Rungeet	4,500	Dry	Orissa, Nepal Sikkim	
VITIS Liun.	Shrub								
V. vinefera Linn	The grape Vine (cultivated)	Greenish yellow	3	9	Hot Plains	4,000	...	N. W. Himalaya	V. Angur.
V. nervosa Laws	Stem deeply grooved & hollow	Dirty white	3	9	Sikkim	4-5,000	Wet	Sikkim Himalaya	
V. auriculata Ronb	A large climber bark spongy deeply cracked	Small -do-	3	9	Sikkim Himalaya	3-5000	Wet	Sikkim Burma	
V. planicanlis Hook	Lofty climber with flattened stems often 1½" thick	Green	4/9	6/11	Sikkim Himalaya, Tista, Sevoke	3-1000	Rainy	Sikkim Khasia	
V. assamica Laws	Rigid climber	Flower yellow green	7/9	...	Mangpoo Tista	3,000	Rainy	Sukna Assam	

V. lanata Ronb.	Very variable plant	small green	5	7/9	Rillong	3,000	Wet	Kashmir, Chittagong, Burma
V. mollis Wall	Climber softly pubescent	Do bisexual	3/5	...	Birik	2,000	Rainy	Sikkim China Madacce
T. serrulatum Planch (Syn. *vitas capriolata* D. P.)	Slender wiry climber glabrous	small green	8/9	2/3	Karponang	8,000	Rainy	Sikkim Chittagong
T. practeolatum Planch (Syn. *vitas bracteolata* Wall)	Stem & leaves glabrous	Do	5/9	12/1	Singla Mangpoo	2,000 3,000	Rainy	Sikkim Assam
T. dubium Planch (Syn. *vitis duria* Laws)	Glabrous climber	...	3	4/5	Tista Valley	3,000	Rainy	Sikkim, Chittagong
T. lanccolarium Planch (Syn. *vitis lencoslaria* Ronb).	Large woody climber	Small green	3/5	8/2	Riyang Rangli Mangpoo Goke	4,000 2,000	Rainy	Sikkim Assam Malacca Ceylon
T. hookeri Planch (Syn. *vitis Hookeri* Laws).	A large climber	...	4/5	10/11	...	2,000-40	Wet	Sikkim to Khasia Chittagong Java
T. rumicisperna Laws (Syn. *vitis rumicis parma* Laws).	An immense climber	...	4/5	10/11 black edible	...	5,000	Rainy	Nepal Khasia

Order, Genus and Species	Habit of growth	Colour of flower	Flowering Season	Fruiting Season	Locality	Elevation above sea level (in feet)	Rainy or Dry	Distribution	Local name
1	2	3	4	5	6	7	8	9	10
PARTHENOCIMUS Planch	Plants climbing by adhesion of dilited and disk shaped tips of the tendrils.								
P. samicordata Planch (Syn. *vitis semicordate* Wall).	Large climber about 6" in diam	...	7	8/10	Himalaya	...	...	Kashmir to Sikkim, Khasia, Deccan, Burma	
P. himalayana Planch (*Vitis Himalayana* Brandis)	Large climber	Whitish green	5/6	9 edible	Sikkim	7000	...	Kashmir to Sikkim, Khasia, Deccan 6-10000	P. Char Chare
AMPELOCISSNO Planch (Syn- *vitis*).	Climbing by the coiling of the naked tipped tendrils	...	...	...	...	...	...	...	
A. sikkimensis Planch	Stem weak leaves very large reddish	Greenish densely wooly	7	8/9	Rangit, Sureiel	2500 4000	Rainy	Sikkim, Khasia	

P. barbata Planch	Branches hollow dark brown or nearly black	Greenish	4/5	6/9	Sikkim	2000	Rainy	Sikkim Assam, Pegu	P. Jarila lahara
CISSUS Ronb.	Mostly tropical or subtropical woody or herbaceous								
C. discolar Blume (Syn. *V. discolor* Datz)	Climbing shrub with pretty velvety blotched white green veins	Yellow	8/9	10	Lat. Tista	4000 1000	Rainy	Sikkim Pegu, Deccan Purnea	
C. adnata Ronb.	Tall climber	...	8	2	Singla Sevoke	2000 1000	Rainy	Gharwal, Assam, Penang, Deccan	P. Char charey.
C. spectabilis Planch	A lofty hirsute shrub	Small greenish	6	...	Kurseong	4,000	Rainy	Sikkim, Himalaya	
C. repens Lamp	A weak Trailing plant	-do-	5/8	9/12	Sevoke	1,000	Rainy	Sikkim to Pegu & Deccan	
C. repanda Vahl	Climb over lofty trees wood holds quantity of root	Greenish	5	10	Chunbatti	1,500	Rainy	Gharwal, Sylhet, Deccan, Ceylon	

Order, Genus and Species	Habit of growth	Colour of flower	Flowering Season	Fruiting Season	Locality	Elevation above sea level (in feet)	Rainy or Dry	Distribution	Local name
1	2	3	4	5	6	7	8	9	10
C. glanca W & A.	Stem succulent dark brown	Very small green	4/5	5/9	Terai	2,000	Rainy	Sikkim to Penang, Ceylong, Malaya	
C. pedata Lamk	Weak climber	Green	4/5	5/9	Terai	2,000	Rainy	Sikkim. Deccan	
C. elongata Ronb.	Very large	Black	5	10	Terai	2,000	Rainy	Sikkim, Sylhet 1-5000	
C. carnosa Lamk.	Stem flattened slender	...	8	4	Terai	2,000	Rainy	Punjab, Assam, Mulacca, Deccan	P. Jarila Lahara
C. japonica Planch	Leaves trifoliate climber	...	4	7	Mangpoo	3,000	Rainy	Nepal, Khasia, Burma, Malacca	P. Galessi
LEEA Linn. *L. macrophylla* Ronb	Leaves cordate white beneath	White small	7/8	10/11	Terai	...	Wet	Kummaon to Tennassirium, & Deccan	P. Bulyettra Root, used as drug
L. crispa Willd	Stem somewhat woody elegant plant	...	5/6	10/11 Black succulent	Mangpoo	3,000	Dry	Sikkim, Assam, Deccan	

L. alota Edgen	Stiff herbaceous shrub 2'—5'	Scarlet red	7	10	Sal forests Terai	2,000	Dry	Gharwal, Sikkim
L. robusta Roxb.	Handsome plant	Blue	4/6	7/9	Mangpoo Tista	3,500 1,000	Dry	Sikkim to Khasiya, Orissa, Deccan
L. hirta Roxb.	Shrub branches & leaves hairy	Yellowish white			Birik	2500	Dry	Sikkim to Chittagong, Java
L. acuminata Wall (Syn. *Sambucina*)	Large weak succulent shrub	Scarlet	6/7	10	Mahanadi	4000	Rainy	Hot parts of India, Kumaon to Burma, Ceylon, Malacca
L. lerbacca Ham.	Shrub 12 feet	White	5	6/7	Mahanadi	4000	Dry	Sikkim Himalaya
L. aequata Linn.	Shrub 4/8 feet all parts hirsute	Yellowish	6	10	Tista Valley	2000	Dry	Do
L. bracteata C. B. C.	Straggling Shrub	Flower with long bracts	4/5	10	Tista Birik	1000	Dry	

Order, Genus and Species	Habit of growth	Colour of flower	Flowering Season	Fruiting Season	Locality	Elevation above sea level (in feet)	Rainy or Dry	Distribution	Local name
1	2	3	4	5	6	7	8	9	10
L. sambucina Willd.	Shrubby stiff	Greenish white	6/7	9/12	Birik Sevoke	2000	Dry	Kumaon Burma Malacca	
L. umbraculifera C. B. Cl.	Small tree often with buttressed roots	...	...	12	Terai	3000	Dry	Sikkim Orissa	P. Taleno

BOOK REVIEW

SOONDAR MOONI. By E. O. Shebbare, Pp. 224, ($8\frac{1}{2} \times 5\frac{1}{4}$) with line drawings and Maps by the Author. London 1958 (Gollancz). 18s.

The book based on the Author's wide knowledge of the ways of Elephants and other animals of the Indian Jungles, accquired over a period of Thirty years service in the Bengal Forest Department, is an excellent account of the life of an Elephant from the day it was born to the time it had received a well deserved reputation as a staunch Howdah Elephant. The book is infact the biography of an Elephant which was a well known figure in North Bengal. The Author has used his intimate knowledge of the habits of Elephants, wild and tame to fill in the gaps wherever he had no first hand knowledge of the life of Soondar Mooni.

The story as it unfolds gives revealing glimpses of different aspects of the habits and behaviour of a herd of wild Elephants and also of the various other animals which share the Forests with them. The later chapters are devoted to the capture, methods of training and the different uses that trained Elephants are put to. These are all the more interesting as they are the result of the experience and observation of the Author and refer to a single animal instead of a nameless herd.

The Book will be a valuable addition to the Library of those interested in the wild life of the country, and especially to all sportsmen who have an affection for Elephants, an emotion which Elephants do seem to create in a person who has had anything to do with them.

J. C. D.

MISCELLANEOUS NOTES

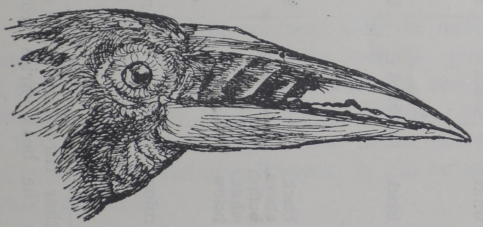
1. DISTRIBUTION OF THE MALAYAN WREATHED HORNBILL (ACEROS UNDULATUS).

The distribution of the Malayan Wreathed Hornbill is given as "Assam, south of the Bramahputra; Tippera and Chittagong Hill Tracts in Eastern Bengal; practically the whole of Burma to Singapore; Sumatra, Java and Borneo" in Volume IV, Birds, of the Fauna of British India. We have in our collection a specimen of the species shot at Sivoke in the Darjeeling District. This considerably extends the westward range of the species. The specimen, a female, was shot by the late Mr. W. H. Mathews in March 1923. Curiously enough there is no reference to the species in available literature on the Fauna of the district published later to this date. The extension of range is perhaps known to Ornithologists, since the late Mr. C. M. Inglis, a former Curator of this Museum and a noted Ornithologist evidently knew this fact as he refers to three specimens of this species collected at Baksa Duars and Jainti Tea Estate, Jalpaiguri District, in his Manuscript on the 'Birds of the Duars'.

We have five species of Hornbills in North Bengal, namely, the Great Indian Hornbill, the Pied Hornbill, the Rufous necked Hornbill, the Malayan Wreathed Hornbill, and the Gray Hornbill. The Grey Hornbill is easily recognised by its small size and uniform grey colouration. The diagrams of the beak and the key to the body colouration given below would help in distinguishing the other four species. Any information on local distribution, breeding etc. of these birds would be appreciated.

Great Indian Hornbill (*Buceros bicornis*)

Indian Pied Hornbill
(*Anthracoceros Coronatus*)



Rufous-necked Hornbill
(*Aceros nipalensis*)

Malayan Wreathed Hornbill
(*Aceros undulatus*)

COLOUR OF PLUMAGE

Species	Head	Neck	Back	Breast	Wing	Tail	Belly & Legs
Great Indian Hornbill (*Buceros bicornis*)	Black	white	black	black	black with white band at middle & white tipped	White with broad black band	white
Indian Pied Hornbill (*Anthracoceros coronatus*)	Black	black	black	black	black tipped with white	Black tipped with white, two central feathers all black	white
Malayan Wreathed Hornbill (*Aceros undulatus*) *Male*	Chestnut above white below	black above buffish white below	black	black	black	white	black
Female All black, excepting white tail							
Rufous-necked Hornbill (*Aceros nipalensis*) *Male*	Rufous	rufous	black	rufous	black white tipped	black terminal portion white	rufous
Female All black, excepting white wing tips and white on tail							

In size except the Pied Hornbill the other three are more or less equal, the largest being the Great Indian Hornbill. The total length including the beak varies from 52″ to 45″. The Pied Hornbill is much smaller.

J. C. DANIEL

Curator,
Natural History Museum,
Darjeeling.

II. THE BURMESE PEACOCK (PAVO MUTICUS) IN JALPAIGURI DISTRICT, NORTH BENGAL

An adult male of this species was shot in 1952 by Mr. Dutt Mazumdar, I.A.S., former Deputy Commissioner, Darjeeling in the riverain forests, near Diana river, Jalpaiguri District. The specimen is now in the Museum's collection. It is very unlikely that the bird was a truly wild specimen, as the western range of the species does not extend beyond the Looshai Hills, Chittagong and Chittagong Hill Tracts. It is most probably a tame bird turned wild or the descendant of tame birds run feral. It would be extremely interesting to find out the status of the species in the area in which the bird was shot, presuming that this is not a stray case but one of many to be found in that area.

The adult male cannot be confused with the male of the Indian Peacock. The colour is mainly mettalic green and bronze in contrast to the brilliant blue of the neck and breast in the Indian Peacock. The crest is also distinctive, ending in spatulate half moon shaped drops in the Indian peacock and ending in points in the Burmese Peacock, as can be seen from the sketch given below.

Indian Peacock

Burmese Peacock

Information on the bird from members resident in the District or from members visiting the forests of the District, especially the forests of the locality in which the bird was shot would be of great help in determining the status of the Bird.

J. C. DANIEL.

CURATOR,
Natural History Museum,
DARJEELING.

Kesari Tree

Flower Stalk

III. THE KESARI

Towards the end of monsoon and during the months that immediately follow it the Kesari is in flower. These evergreen trees are to be found in abundance on the hillsides of Darjeeling in various stages of development.

The word "Kesari" is the Paharia name for the *Berberis nepalensis* Spreng. The genus *Berberis* comprises several species, about ten of which are found to occur in Northern Bengal. Several of these are on exhibit in the Lloyd Botanical Gardens in Darjeeling.

The Kesari grows to a height of 15 to 20 feet, having a clear stem of 5 to 10 feet and reaching a girth of 1 to 2 feet at breast height. The species is found to occur in both the middle and upper hill forests covering an altitude range of 4—8,000 feet. The bark is soft, shaggy and light brown in colour. The wood is bright yellow possessing fine medullary rays; it is hard and heavy and finds popular use as "kukri" handles.

The flowering season begins in July and continues in some cases till the early part of winter. Fruiting takes place during March and April, yellow flowers and edible berries being produced.

In his "List of the Trees, Shrubs and Large Climbers found in the Darjeeling District, Bengal" J. S. Gamble has recorded the Kesari as being the single species *Berberis nepalensis* Spreng. But in the revised list by A. M. Cowan and J. M. Cowan, the Kesari has been divided up into two distinct species, namely, *Mahonia acanthifolia* G. Don. and *Mahonia sikkimensis* Takeda. Both species of *Mahonia* are found to occur in the same localities and are readily recognised by their pinnate leaves with holly-like prickly leaflets, yellow flowers and glaucous blue berries. The outermost sepals are larger in *Mahonia sikkimensis* than in *acanthifolia.*

"Chutro" is yet another Paharia name for the Kesari, but this term is also used to signify several other species of *Berberis.*

SAMIR SEN, D.L.C. (ENG.) HONS., F.Z.S.
"Emerald Lodge",
Darjeeling, November 12, 1957.

Annual Report of the Bengal Natural History Society and Natural History Museum for the year ending March 31st, 1957.

During the year under review the activities of the Society were maintained satisfactorily.

The Museum Gallery was completely reorganised with the object of better exhibition of specimens. The old show cases were dismantled and new cases in keeping with modern methods of exhibition were built to house the specimens. Artificial lighting has been introduced as it gives a better view of the specimens and also to avoid bleaching of the specimens by sunlight. Two notable additions to the exhibits are a plaster cast of the Indian Python mentioned in the report for the year 1956, and a fully mounted specimen of the Tiger presented by Mr. C. Goenka of Kurseong. A Diorama case was built for exhibiting the Tiger. We would like to record our appreciation of the work done by Mr. C. Tosh who painted the background for the case.

Three issues of the Journal, VI. XXVIII No. 1 and 2 (December 1955 and April 1956) No. 3 (August 1956) and No.4 (December 1956) were published during the year. We regret to inform members that unless more articles of a suitable nature are received for the Journal, the regular publication of the Journal will be difficult. We hope we shall have more co-operation from members in this connection.

24 Specimens belonging to 10 species of mammals and 10 species of Birds were donated to the Museum Collections by the following members. Mr. Samir Sen, Dr. S. C. Law, Mr. W. H. Mathews and Mr. R. Mackenzie.

List of specimens received during the year 1956-57

1. Flying Squirrel (*Petaurista magnificus*)—3 specimens. Donor Samir Sen.

2. Hoolock Giblon (*Hylobates hoolock*)—2 specimens. Donor Samir Sen.

3. Hog badger (*Arctonyx collaris*)—2 specimens. Donor Samir Sen.

4. Himalayan Black Bear (*Selanarctos thibetanus*)—1 specimen. Donor Samir Sen.

5. Spotted Deer (*Axis axis*)—1 specimen. Donor Samir Sen.

6. Jackal (*Canis indicus*)—1 specimen. Donor Samir Sen.

7. Common Mungoose (*Herpestes edwardsi*)—1 specimen. Donor Samir Sen.

8. Chinese Pangolin (*Manis aurita*)—1 specimen. Donor Samir Sen.

9. Parti-coloured Flying Squirrel (*Hylopetes alboniger*)—1 specimen. Donor Samir Sen.

10. Grey headed Thrush (*Turdus rubrocanus*)—1 specimen. Donor Mrs. Henderson.

11. White tailed Blue Robin—1 specimen. Donor Mr. W. H. Mathews.

12. Spotted Scops Owl (*Otus s. spilocephalus*)—1 specimen. Donor Mr. Samir Sen.

13. Indian little grebe—1 specimen. Donor Mr. W. H. Mathews.

14. Indian Moor hen—1 specimen. Donor Mr. Samir Sen.

15. White Throated Laughing Thrush—1 specimen. Donor Mr. Samir Sen.

16. Plumbeous Redstart (*Rhyacornis f. fuliginosa*)—1 specimen. Donor Mr. Samir Sen.

17. Verditer flycatcher (*Eumyias t. thallassina*)—1 specimen. Donor Mr. Samir Sen.

18. Streaked Spider hunter (*Archnothera m. magna*)—1 specimen. Donor Mr. Samir Sen.

19. Wren (*Trogolodytes* sp.)—1 specimen. Donor Mr. Samir Sen.

20. Grey crested Tit—1 specimen. Donor Dr. S. C. Law.

The proposal for starting a Nature Education Scheme placed before the Annual General Meeting of the Society held during last year was put into effect during the year under review. The scheme was restricted to the schools in the Municipality of Darjeeling. 26 boys from four schools *viz.* Government High School, St. Paul's School, St. Robert's High School and St. Joseph's College attended the course during the year. The programme for the year was limited to fortnightly lectures on various aspects of Natural History. It was possible to have only 7 lectures during the year as the scheme was in operation only from August to November, 1956. The following members and staff of the Society delivered lectures:—Mr. W. H. Mathews, Mr. Samir Sen, Mr. E. D. Avari, Mr. A. C. Gupta, Mr. Durga Das and Mr. J. C. Daniel.

A party of students drawn mainly from those attending the Nature Education Scheme lecture were taken to Tonglu as a part of the Wild Life Week Celebration in the District. The party spent two days at Tonglu.

The scheme is being run by a Committee of members of the Society under the Chairmanship of Mr. A. C. Gupta, Conservator of Forests and Superintending Engineer, Teesta Catchment area.

We are glad to report that the Government of West Bengal have been pleased to give us a grant of Rs. 55,200/- for capital and recurring expenditure of the scheme.

We regret to inform members of the death of Mr. W. H. Mathews, a Vice-President of the Society and one of its oldest members. Twenty five members were enrolled as against 2 who resigned and 3 deceased.

STATEMENT OF ACCOUNTS OF THE NATURAL HISTORY MUSEUM, DARJEELING FOR THE YEAR ENDING 31ST MARCH, 1957.

Receipts

		Rs.	As.	P.
	Opening Balance	5,844	7	6
1.	Government grant to the Museum ...	4,500	0	0
2.	Darjeeling Improvement fund grant to the Museum	3,000	0	0
3.	Subscription	761	8	0
4.	Donation	463	10	6
5.	Miscellaneous	—		
	Total : ...	14,569	10	0
	Grand Total : ...	14,569	10	0

Expenditure

		Rs.	As.	P.
1.	Pay of Superior Staff including fixed T.A. of the Curator	5,258	12	0
2.	Pay of Inferior Estbt.	2,592	9	0
3.	Office expenses & Misc. ...	4,052	6	9
4.	Subscription to other Societies ...	31	8	0
5.	Unforeseen Charges	634	2	0
6.	Advance to Staff (P.F.) ...	49	0	0
	Total : ...	12,618	5	9
	Bank Commission	6	11	0
	Closing Balance	1,944	9	3
	Grand Total : ...	14,569	10	0

(Sd.) J. C. DANIEL,
Curator.

NATURAL HISTORY MUSEUM,
Darjeeling.

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