

HORNBILL

1986 (1)



BOMBAY NATURAL HISTORY SOCIETY

The cover picture is that of a Slender Loris, *Loris tardigradus*, photographed by our member, Mr E. Hanumantha Rao. A denizen of southern India and Sri Lanka, it is a grey brown animal, with black eye-rings, and is about 9 to 15 inches long. Tropical rain forests and dry woodlands are its preferred haunts.

This slow-moving lemuroid of Asia, is related to the African potto and angwantibo. Its hands, each with an enlarged thumb, and feet are broad and serve the purpose of grasping the branches. In each of its forearm and shank is a network of blood vessels known to science as *rete mirabile*. This network slows down blood flow and enables the animal to keep itself clamped on to a branch for long.

The big eyes of a loris are indicators of the animal's behaviour. They are night prowlers, spending the daylight hours sleeping rolled up into a ball, and coming out at night. While asleep they grasp the branch with all their fours, and bury the head between them. Their slow, hand over hand movement through the foliage helps them to creep up unobserved to their prey. Catholic in diet, the loris relishes fruit, leaves, insects, birds, small mammals, and reptiles.

The animal is said to come into breeding condition every six months. This duration also forms the gestation period of the female. A single, rarely two, baby is produced, which keeps clinging to its mother's fur until it is about a year old. Sometimes babies are left on a branch, to which they cling tightly until their mother returns.

The big eyes of the loris and its ghostly, slow movements are a source of great many superstitions. They are sold in the markets for the sake of their eyes, which are used as charms or love potions. Eyes scooped out from live individuals are often used by village doctors in the treatment of eye diseases.

Acknowledgement

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The Society was founded in 1883 for the purpose of exchanging notes and observations on Zoology and exhibiting interesting specimens of animal life. Its funds are devoted to the advancement of the study of zoology and botany in the Oriental Region. The Society also promotes measures for conservation of nature.

Membership of the Society is open to persons of either sex and of any nationality, proposed and recommended by one or more members of the Society; and also to persons in their official capacity, scientific societies, institutions, clubs, etc. in corporate capacity.

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Members receive during a year three issues of the *Journal of the Bombay Natural History Society* now in its 83rd volume, and four issues of *Hornbill*, the Society's popular publication.

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J. C. Daniel, P. V. Bole and A. N. D. Nanavati.
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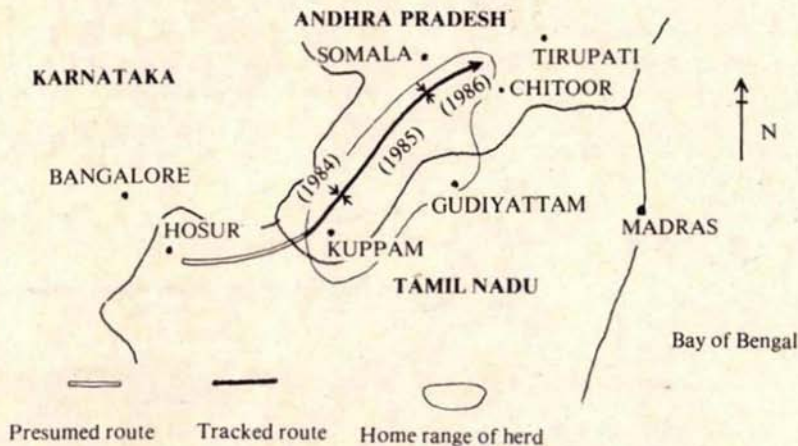
Compensation

Recently field biologists of the Society were following the trail of destruction of a herd of elephants in Andhra Pradesh. Rather unusual, as elephants had not occurred in Andhra Pradesh within recent historic times. This was a stray herd which had wandered in from Tamil Nadu and in their search for a place to stay roamed from forest patch to forest patch, raiding the lush sugarcane fields in between and causing human deaths. The local people had never had elephants in their forests and did not know how to react when confronted by an elephant, and deaths resulted. We visited one such incidence location and talked with the young widow. The elephants had suddenly come out into the fields late in the evening from the adjoining forest, which

had never held elephants. In the moonless night, the young farmer mistook them for cattle, and went to chase them and threw stones. He was killed.

This brings us to the question of the value of human life in India. What is the compensation the young widow will get for the husband killed by elephants, which are fully protected by an Act of Government. Probably Rs. 5000/-, and that is not going to take her far.

It is high time that conservationists thought of raising a fund for helping those left helpless by a bread-earner being killed by a tiger or an elephant. Surely if millions can be raised for the tiger or the elephant some of the money can be set aside to help dependants of those whose life is destroyed by the same animals sought to be protected. It is only fair.



On Jerdon who discovered the Doublebanded Courser (*Cursorius bitorquatus*), Hume, the doyen of Indian Ornithology wrote: "He (Jerdon) was in his younger days, as in his prime, eminently a field naturalist. He lived out in the jungles, gun in hand, and every fact that he recorded in his own observation is as absolutely to be relied on as any thing in this world can be." Elliot in his biography of Jerdon mentions his contacts with the Yaanadi tribals; "the wilder parts of the country between Madras and Nellore are occupied by the Yénadis, a remarkable aboriginal tribe, of semi-nomad habits, subsisting on the spontaneous produce of the jungles, and possessing in consequence a minute acquaintance with the forms of animal and vegetable life around them. By their means Dr Jerdon discovered many new species...". Jerdon's notes on the habits of the species he described have stood the test of time and are as valid today as when he first recorded them.

Jerdon had five species and one subspecies of mammals, 14 species of reptiles, 12 species and nine subspecies of birds and one frog named after him, of which some are now synonymous or redundant, apart from the numerous others that he himself described or those that were described for him by others.

Jerdon had collected the

Doublebanded Courser from the hilly country above the Eastern Ghats, off Nellore, and in Cuddapah with the help of local Yaanadi tribals while he was posted in Nellore in 1841-42. Described in 1848 by Blyth, the Doublebanded Courser *Cursorius bitorquatus* was thought to frequent "rocky hills with thin jungle" unlike the Indian Courser *C. coromandelicus* which is usually met with in open ground with almost no cover. It was later collected by Blanford in 1871 at Bhadrachalam and Sironcha along the Godavari in northern Andhra Pradesh. The last record was by Howard Campbell in the Pennar river valley in the vicinity of Anantapur in 1900.

The lack of subsequent records and failure of several ornithological surveys by Whistler and Kinnear (in 1929-31) in the Eastern Ghats; by Salim Ali (in 1932) in the then Hyderabad State and much later by a Smithsonian sponsored Bombay Natural History Survey team along the Godavari led to the presumption that the species may be extinct. With its nearest cousins in Africa, and extremely limited distribution of the bird in India, the Doublebanded Courser required a further survey before being written off.

I started searching for the Doublebanded Courser in June 1985 in the Pennar river valley areas of Anantapur, Cuddapah and Nellore districts of Andhra Pradesh under



the aegis of the Society's Endangered Species Project. As a first step I contacted local *shikaris* who subsisted partly on small birds like partridges, sandgrouse and quail for food. There were two types of *shikaris* 'specializing' on different

small and large game in the area — the traditional *shikari* classes in southern Andhra, the Yaanadi tribals and a local tribe of *nari-kurawas* (fox trappers) known as *nakkallollu* in Telugu — subsisting on *shikar* for food.

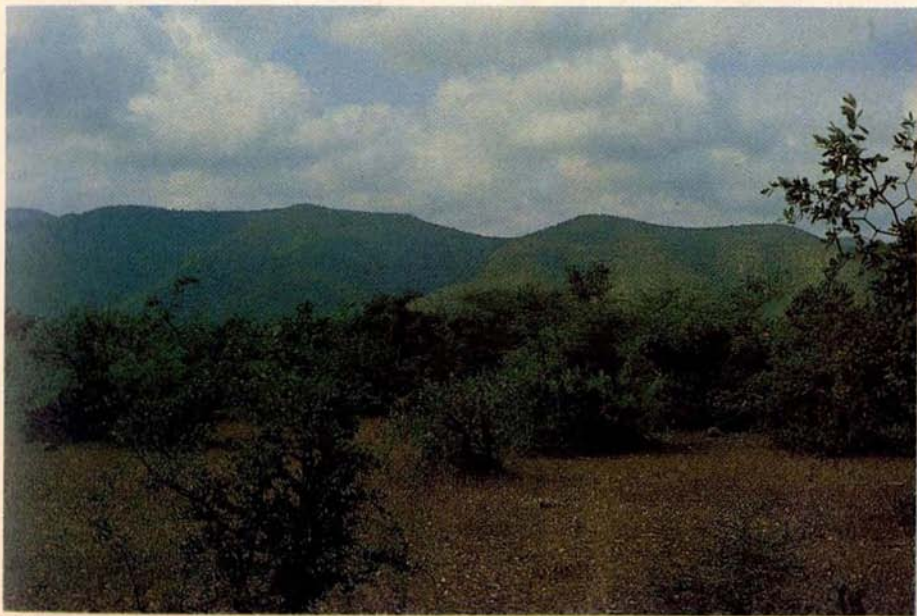
Among the Yaanadis, the ancestors of whom Jerdon had relied upon for his collections in the area, I looked for aged veterans who were locally well known for their *shikar* prowess. Among these experts, I had to find a 'small bird specialist' who did so for either interest or due to lack of any other means of subsistence. I believed that these local tribal 'experts' would know the areas extensively and could also be relied upon for bird identification.

In the Pennar river valley areas at Anantapur, I met a 70 year old *shikari* aptly called *Ban-dukularamalingappa* (!) meaning *Ramalingappa* with the *bandook* (=gun), who was locally regarded as a top *shikar* game expert. He

claimed that the Doublebanded Courser was their local *Kalyanaguvva* but could not explain the name. *Guvva* is a Telugu word for 'Bird' and *Kalyana* may mean 'marriage'. The connotation may mean 'married-bird' due to the double necklace (/double bands) on the breast below the 'crimson' (/red) patch on the throat.

At Kumbagiri village, north of Siddavatam town in Cuddapah, I met a veteran 55-60 year old Yaanadi tribal *shikari* named Pichchanna. He was employed as an orchard-keeper on a measely salary of ninety rupees even after forty years of service. With a large family, he had no other recourse but to rely upon his tattered pair of ground nets for trapping birds. The trapped

Jerdon's Courser's habitat Photo: Bharat Bhushan



birds, mainly partridges, quails and sandgrouse were both for food and for sale in nearby villages. He claimed to have occasionally trapped the Lesser Florican and the Doublebanded Courser which he recognized locally as the *Kalivi-kodi*. *Kalivi* is the Telugu word for *Carissa*, the evergreen thorny bush whose purple fruits are food for both man and animals, while *kodi* means 'fowl'. The name was for the bird's behaviour of resting under the *Carissa* bushes during daytime.

Another hunter I met was Aitanna, a herdsman from Reddipalli village adjacent to Kumbagiri. Purely a small-game and ungulate hunter, he hunted at night using modified torchlights. He had not recognised the poster (of the Doublebanded Courser) when I first showed it to him. But when Pichchanna identified it as the *Kalivi-kodi* and described its behaviour, Aitanna claimed on second thoughts that he may have seen the bird, but would be definite only after some more forays in the area.

Siddavatam, Reddipalli and Kumbagiri were at the foothills of the Lankamalai hills that are a part of the Eastern Ghats complex in southern Andhra Pradesh along with the Nallamalai, Erramalai, Seshachalam, Palakonda, Velikonda and Nagari hill ranges. The *shikaris* claimed of seeing the *Kalivi-kodi* in the Lankamalai foothill scrub which mainly comprised of

Acacia, *Zizyphus* and *Carissa* bushes along with *Hardwickia* and other non-thorny species. Open patches in the scrub were frequented by the *Kalivi-kodi* according to Aitanna.

I spent a month in these areas along with the locals eliciting information from *shikaris*. While most enquiries drew a blank, Aitanna kept insisting that he had seen the *Kalivi-kodi* feeding normally at night. Pichchanna had not seen the bird moving around in the scrub areas during daytime. Aitanna's *modus operandi* for his night *shikar* was with using a modified torchlight attached to an Enfield 350 motorcycle's battery unit hung over his shoulder separated from his chest by a rubber sheet to prevent damage to the skin from the battery acid.

This apparatus helped Aitanna trap partridges, hares, quails and other small game. While going around in the foothill scrub for his *shikar* forays, he claimed to have seen the *Kalivi-kodi* occasionally over the past few months after Pichchanna had identified it as the Doublebanded Courser. Checking up on the literature at the Society's library on the Doublebanded Courser's congenetics, I noted that all congenetics of Jerdon's Courser in Africa were nocturnal and/or crepuscular.

Deciding to check out Aitanna's claim, I based a field station at Vontimitta, near the Lankamalai ranges of Cuddapah. While searches were



Dr Salim Ali, Bharat Bhushan and the Jerdon's Courser Photo: P.B. Shekar

made tentatively in late 1985 and early January 1986, success came unexpectedly. On 14th January 1986, Aitanna while hunting for partridges and hares, using his modified torchlight spotted a Jerdon's Courser standing dazed and absolutely stationary in the light of the torch-beam. He ran up to it and was able to pick it off the ground before the bird could react.

Aitanna sent frantic messages to me to come and confirm the identity of his catch. Heavy rains and an unsafe low causeway over the Pennar river prevented me from crossing

over on the 14th. I got across on the 15th and had the pleasure of holding in my hand the first live Jerdon's Courser seen in 85 years. On contacting the Society's offices in Bombay, I was informed that Dr Salim Ali wanted to confirm the record in person. Being defeated by logistics, he reached the spot too late. The bird which was in Aitanna's possession died on the 19th, a few hours before Dr Salim Ali arrived. The skin has been preserved and is now kept in the Society's bird collections.

That day at midnight, after the

moon had set, I went with Aitanna and three of his colleagues into the scrub area searching for the Doublebanded Courser, using the modified torchlights described earlier. The heavy cloud cover and a steady slow drizzle of rain were ideal, claimed Aitanna, for the torch-beams to be used to spot birds in the open patches. We reached the spot where Aitanna had caught the bird in an open patch encircled by 2-3 m tall bushes.

Standing adjacent to the bushes, Aitanna focussed the torch-beam on two Doublebanded Coursers. We were about a couple of metres away and could see clearly the two white bands with the dark patch on the neck above, and the characteristic courser posture. We observed them for nearly a minute but lost them when they flew up and glided into bushes beyond the open patch. This would be the first confirmed field sighting of the Doublebanded Courser recorded in this century. We walked around in the scrub forests for about 8 km till 0730 hours but failed to see any more coursers.

Later, the next day, accompanied by Mr Pushp Kumar, the Additional Chief Conservator in Charge of Wildlife in the Andhra Pradesh Forest Department and Mr Yusuf Sharif, the Divisional Forest Officer for Cuddapah, Dr Salim Ali walked around the area with Aitanna and his colleagues.

A ceremony was held at Reddipalli village where Mr Sharif in a

very brief speech, thanked the villagers for their co-operation and also warned them against catching the species in future. Dr Salim Ali, saddened by the death of the courser, but glad that Aitanna had helped the world know of the existence of the species presented him with Rs. 1000/- as a reward. Mr Pushp Kumar on behalf of his Department promised to plan for conserving the habitat and ensuring the continued existence of the species.

The Lankamai hill ranges which are known as the Lankamai reserve forest under the Siddavatam and Proddatur ranges may be declared as a sanctuary for the Doublebanded Courser and the other equally important fauna and flora. The important tree species here that urgently need protection include the Sandalwood and the Red Sanders which is endemic to Andhra Pradesh. The fauna includes all the ungulates found in peninsular India, — Sloth Bear, Leopard, an occasional Tiger, and the Wolf.

The task before the project is immense. Priority will be towards locating a sizeable population in the areas and also surveys of similar neighbouring habitats, both along the Pennar and Godavari river courses. The best possible result would be to establish continuity between the two rivers both in terms of habitat and the presence of the Doublebanded Courser.

BHARAT BHUSHAN

Wildlife on BNHS land

During the two years or so that I have been assigned the duty of looking after the Society's 13 odd ha. of land for the proposed Centre for Ornithological Studies, I have made frequent visits to the area. The mammals and reptiles seen during my visits are discussed below with the hope that others, both staff and members of the Society, visiting the site would add to it in due course.

The Blacknaped Hare is perhaps the commonest among the mammals. Its presence is not only detected from the droppings it leaves in the open areas, but often a hare scampers in front of a visitor during the day when it is surprised in its form. In the glare of a flashlight it stays put, shivering all the while, and allows itself to be captured with little or no effort.

Seemingly the hare is the main food of the Python that lives on the Society's land. On numerous occasions I have come across an eight-footer and have wondered whether it is the same individual I repeatedly meet. Immobilized once after feeding, it continued lying inert at the same spot for more than 24 hours. From the distended belly it appeared to have fed on a quarry smaller than a deer or a pig.

A family party of the Common Mongoose once crossed my path in August 1984 — an adult, seemingly the mother, being followed by six scrambling young.



Wildboar are not uncommon Photo: M. Krishnan

The stream that crosses the northern side of the site is an ideal place to watch wildlife that comes to the waterholes therein as the rainy season draws to an end. I was once perched on a rock, watching red spurfowl about the waterhole, unaware of my presence as they busily scratched about the mulch, when ambled in a pair of wild boar accompanied by a young. They kept rooting around the waterhole, least aware of being watched. A slight movement on my part, however, alerted the trio, they looked up at me, and with a grunt hurriedly scrambled into cover.

The City of Bombay is perhaps the only place in the world, where within its municipal limits are found panthers. The Film City and Forest Department personnel, as well as many among the Society's members have often come across these big cats. I was lucky enough to meet with one on the Society's land. With two of the Society's research assistants, I was walking on the site.

Suddenly two yearling spotted deer dashed towards us and ran past. To investigate the cause of their flight, we stopped. Soon there was a rustle on my right. Turning in that direction a panther was seen skulking away from us, perhaps frustrated at being deprived of a catch. This was in February 1985.

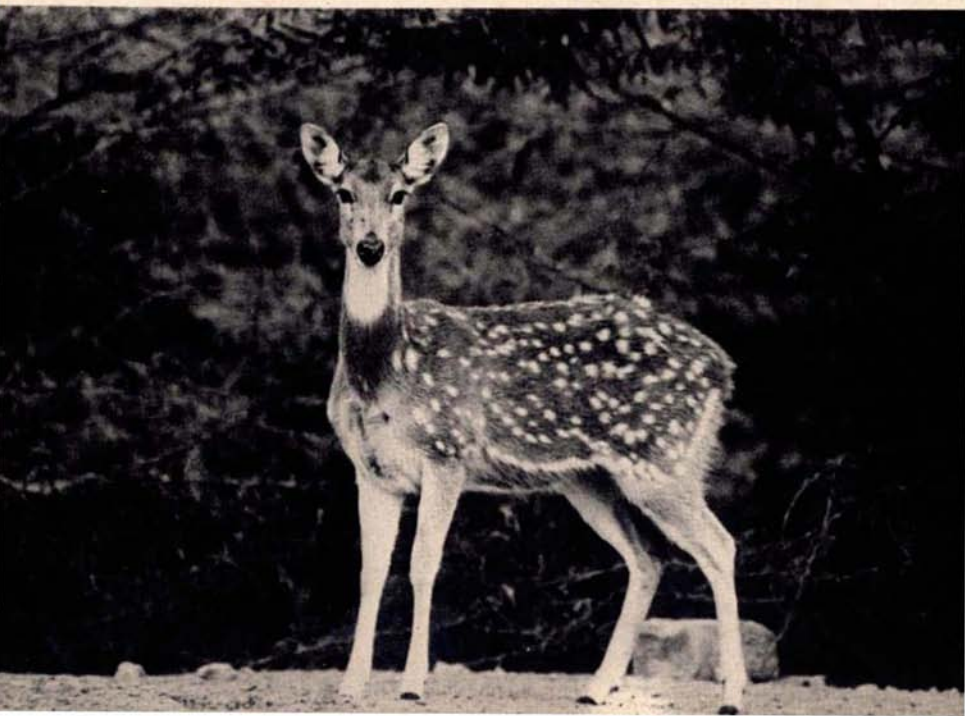
In December 1985 in the course of a few hours spent on the Society's land I was moving along the nullah that divides the Society's land from that of the Film City, and I saw a pair of panthers. I stood still not without a certain amount of fear. I was in two minds whether to retreat or go forward. At this moment the animals became aware of my presence, and flicking their tails made for the Film City's rock-studded hill skirting the nullah, and

vanished.

To venture alone and unarmed was, I thought, dangerous. So I went in search of the Society's land security staff, but not seeing them, armed myself with a staff and set off in search of the panthers. Again I met the panthers face to face and the animals repeated their hide and seek game.

A long wait for the security men followed, and an hour or so after the second incident, I again went in search of the panthers now accompanied by the two guards. A short walk through cover, and the panthers were again in front of us. Now they were shyer than they were earlier, particularly as our guards became excited and vocal on spotting the animals. The panthers again

Young Spotted Deer pauses on the road Photo: E. Hanumantha Rao





BNHS land after the monsoon Photo: S. R. Nayak

hurriedly moved in the direction of the rock-studded hill on the Film City's land. Perhaps what I saw were a courting couple which had taken to living on BNHS land. The Film City hill across the BNHS land with its rock-studded terrain appears to be an ideal refuge.

Among the smaller ungulates the Barking Deer, keeps to the thickly vegetated valley below the northern side of the site. However, it often shows itself while crossing over to the forest clad hill slope of the Film City by traversing the intervening open area on the Society's land.

The Small Indian Civet was once seen on the site.

A small troupe of the Common Langur was met with during the fruiting season of 1984. The Three-

striped Dusky Squirrel, a forest denizen, is often met with and builds its dreys in trees commencing from December each year.

Among the snakes, which I believe to be the commonest, are the Checkered Keelback, the Striped Keelback, the Ratsnake, the Green Whip Snake, and the Green Pit Viper is seen particularly during the monsoons.

The cobra is omnipresent. An incident I have had with an individual is worth narrating here. I often move off the beaten track on the site, and visit areas of the 13+ ha rarely covered by the security guards. On one such occasion late last October, I was moving with a baton in hand through dense knee-high grass, where I could not see the



Panther Photo: E. Hanumantha Rao

ground. As I walked a hiss stopped me in my tracks. Perturbed I looked in the direction of the hiss, and saw a fairly large cobra reared up, about 2 feet off the ground, protesting my intrusion into its preserve.

Fear gripped me as I was all alone, and the cobra was hardly an 18 inches from me infuriated and ready to strike. Nothing would deter it from lunging forward and snapping at my naked toes.

The only weapon in my hand at that time, was the baton I was carrying. Impulsively I threw the baton over the cobra's head and it landed some distance behind the snake. This had a magical effect. The cobra

swayed for a moment, and looked in the direction the baton was thrown, thus giving me a chance to move to safety.

Incidentally it is recorded that a toad is not included in the dietary of a cobra. I have seen a cobra feeding on a common toad *Bufo melanostictus* on the Society's plot.

The lizard population is made up of the Common Skink, the Garden Calotes, the Forest Calotes, the Monitor, and among the geckos, Brooks's and Rock geckos. Perhaps they provide the necessary food to the snakes on the site.

VASANT R. NAIK

The ultimate in natural scenic beauty is wilderness. Chopatta, a vast area in Garhwal in Uttar Pradesh is the epitome of wilderness.

Encroachment by man even in the inaccessible, remote areas of the Himalaya is so very rapid and on such a vast scale during the last 20 years, that it is well nigh impossible to find a truly wilderness spot in the Himalaya. Out of sheer accident and good luck a wilderness area, about a hundred square kilometres, in Garhwal between the mild and pleasant altitudes of 7000 ft and 12,000 ft is spared by population explosion, politicians and the Forest department. Its primeval character has remained perfectly intact. The inevitable disturbance created by man's interference in this lovely landscape is reasonably minute and tolerable. It neither punctures the harmony of the panorama, nor glares into your face and pricks your aesthetics.

On a bright and clear afternoon towards the end of September 1984, BNHS members who had left behind in Bombay the care and concerns of their workaday chaotic, busy world, alighted at Chopatta from the special bus. A beautiful vista stretched before them. They felt engulfed by a sense of wonder, tinged with awe and pleasure. The first glimpse of the Himalayan panorama with the snow peak Chokhumbha (23,420 ft) dominating the scene evoked a spontaneous 'Ah' — a cry of ecstasy — from a number of members. A series of unconsciously registered impressions on a sensitive and receptive mind during the last 20 minutes bus ride on an uninhabited road meandering through a thick forest, primitive and virgin, had culminated into this crescendo of a spontaneous, hearty, loud 'Ah'. In the northwest a sparse forest of stately *kharsu* trees allowed them to

A view of Tungnath Valley from Chopatta Photo: Naresh Chaturvedi



have a peep at the snow ranges, the forest-clad, dark green massifs with a foreground of undulating plateau of grazing grass in autumn colours. As the gaze scanned the sky west of Chokumbha, only the top of the snow peaks of Satopanth, 23,213 ft, Mandani, 20,320 ft were visible, while complete massifs of snow-clad Kharchakund (21,695 ft), Sumeru (20,720 ft), Kedarnath (22,730 ft) and Bhartekhunta, 21,580 ft, held them enthralled in awe. The range terminated in Panwali Bugyal on the horizon. In the immediate vicinity of the road were three mud thatched, straw roofed huts, man's inevitable interference with the scheme of nature, which merged harmoniously with the surroundings lending an aesthetic aura of the village culture. The air was cool and crisp, and the altitude (9000 ft) exhilarating. Everyone was in a joyous mood.

The next morning the five kilometre nature walk from 9000 ft to 7300 ft along a faint untrampled, grassy foot track to Dugal Bitta gave an ideal revelation of pristine natural beauty. Dugal Bitta is not the name of a village but the name of the most beautifully situated Forest Rest House. On the way a greenish yellow grassy *bugyal* in autumn colours was fringed with *kharsu*, dotted with stately deodars and interspersed with blue pines and spruce. The air was fragrant with the aroma of dry pine needles.

October in the Himalaya is the

season of clear skies. Distant snow peaks can be seen very clearly for colour photography. It has, however, two major shortcomings: (1) very, very few flowers can be seen in bloom at this time of the year; (2) breeding season and migration having nearly ended, very few birds can be seen. At Bania Kund, Dugal Bitta was only 200 yards down the track, a solitary White-capped Redstart was flitting between a crystal clear stream and a straw roofed hut. Tea was available at the hut. While sipping tea, a Himalayan Whistling Thrush, a Rufous Turtle Dove, a Blackheaded Sibia, a Yellowcheeked Tit, a Yellowbellied Fantail Flycatcher, a Green Finch, and a Redheaded Bullfinch were seen. The scenic beauty of Dugal Bitta thrilled everyone. While returning it was all ascent, though a mild one. By the time we reached camp, many were exhausted but the appetising aroma of hot lunch refreshed them. Acclimatisation was still needed.

The next morning's programme was a 7 km walk to the Musk Deer Breeding Centre. Pack lunch was carried, which eliminated a return to camp in the noon sun. A well-trodden foot track passed through a forest which is acclaimed as "the most beautiful virgin forest" by the experts of the Doon College of Forestry. The richly varied flora of the verdant forest, and the startlingly beautiful panorama overwhelmed every one. Just after a walk of about

a kilometre (towards Chamoli) one was likely to see herds of Himalayan Tahr on the slopes at the back of Tungnath. A foot track from Tungnath runs down to Dhote Dhar, exactly 3 km from Chopatta, and this name is given to a hairpin bend of the motor road. But the most fantastic view is seen from Dhote Dhar, namely a cluster of mighty snow peaks designated Nandadevi Sanctuary which stuns one with its majestic magnificence. With a pair of binoculars one can distinctly decipher Dunagiri, 23,120 ft, Changband, 22,520 ft, Nanda Devi (main and east are in an absolutely straight line one behind the other), 25,645 and 24,391 ft respectively, Bethartoli, 20,844 ft, Nanda Ghunti, 20,700 ft, this being nearest looks big; Trisul, 23,390 ft and Mrigthuni, 22,490 ft. The cluster of snow peaks was difficult to photograph as it was in the east and the rays of the sun entered the camera. Nowhere in the Himalaya one can see such a fantastic sight.

Quite a number of members could spot and photograph the last remnant blooms of potentillas, geraniums, asters, polygonums, etc. in many nooks and crannies of the rock walls on the way to Dhote Dhar. The Musk Deer Centre was a veritable treat. Much information about the habits of the musk deer was obtained. The most favourite food of this ungulate appears to be cosmos, wild roses and dahlia flowers! Photographs were taken without any let or hindrance. The

lunch coupled with tea was a sheer delight, and camp was reached at about six in the evening.

The members were by now sufficiently acclimatised. So it was decided to start early the next morning at about 6.30 a.m. after early tea and breakfast. 11,572 ft is the altitude of Tungnath and that of Chandra Shila, 12,072 ft. So there was a steep ascent of about 3000 ft in 4 km. Some were very diffident about their capacity to climb from 9000 ft to 12,000 ft, but a 73 year old member who had previously climbed to Chandra Shila and was again going to climb it offered considerable encouragement. The man said "Start early; walk very, very slowly; steep in the grandeur of nature and the Himalaya on the frequent stops to remove fatigue or 'out of breath' condition, and your walk will be a pleasure encounter. As soon as you reach Tungnath, refresh your dehydrated body with a cup of hot tea."

Many of the members accompanied the old man and within a few minutes were rewarded with the "flight of a monal". The ascent was made interesting by giving information of the rhododendrons and the autumnal colours.

Rhododendrons are 20 to 30 ft tall at 9000 ft, but become bushes of 7 to 10 ft at 11,000 ft. At 14,000 ft they are hardly 10 inches tall, and are called dwarf rhododendrons. They bloom in March and April and it is said the whole forest is aflame



Participants discussing the day's outing Photo: Naresh Chaturvedi

with scarlet red at Sandakphu, W. Bengal, in early April. In deep gullies filled with snow however, they come into bloom as late as June or July; the higher the altitude, the later is the time of flowering.

'A maple tree and a walnut tree, both green, were pointed out. But a few of the leaves of the maple had turned scarlet red, whereas those of the walnut were golden yellow — an example of change into autumnal colours.

We reached Tungnath at about 9 a.m. A Mouse Hare was the only fourfooted wildlife here and was much photographed. All were thrilled by the magnificent panorama. Dugal Bitta forest rest house with its blue roof looked like a sapphire in the emerald green carpet of dense forest, and every one was charmed by its location.

Those who climbed up to Chandra Shila were rewarded by the breath taking panorama of Nandadevi Sanctuary in the east and Chokhumbha and other peaks in the west.

The fourth morning, wandering along the 'Gurjar' tracks aimlessly, the two lucky kids of Col. Ashok Chaturvedi with their mother saw a couple of monals and a kaleej. In the evening the Nandadevi Sanctuary was again seen from the P.W.D. store house. This time the snows were lighted by the setting sun and the orb of a full moon hanging above the snow peaks was a photogenic marvel.

In the very late evening the continued ferocious bark of the shepherd dogs near our camp indicated a wild animal, probably a leopard, roaming on the asphalt road. Dr Surendra Tiwari was bold enough to venture onto the road with a torch. His encounter with two bright burning eyes ended with the beast stealthily disappearing into a thicket. The camp fire was enlivened by the folksongs of Mrs Tiwari.

The next day when camp was broken, everyone exclaimed: 'We will come here again'.

SUMANT R. SHAH

DEMOISELLE CRANES

Udayavani, a Karnataka daily, reported in their issue of 5th February 1986 an influx of Demoiselle Crane in their thousands in the district of North Kanara in Karnataka, whence they are hitherto seemingly unrecorded. The paper reports that the birds feed by night picking up grains and spend the day flying high in the air. *Shikaris* from the surrounding areas are said to converge on their congregations, and that many have fallen to the shots of the pot hunters. To prevent a holocaust the Regional Forest Department is said to have posted guards to protect the birds.

In its winter peregrinations towards warmer regions, individuals of the Demoiselle Crane reach Karnataka every year, but never in enormous hordes reported by the paper and evidenced by a photograph illustrating the report. Possibly scarcity of water in the northern parts of the Indian region, especially in Gujarat where every winter a number of them are found in the groundnut fields, have lured the birds down south this year into Karnataka, and may be elsewhere. It would be interesting to learn from our readers their experiences with the Demoiselle Crane this year in their area of residence.

WHITE STORK

The International Stork Symposium at Vogelpark, Walsrode, W. Ger-

many held from 14th to 18th October 1985 concluded that the White Stork population has suffered serious and extensive decline in western and southern Europe, while the northern and eastern regions have reported an increase.

From 1979 to 1983, between 166,000 and 227,000 storks were counted each year during autumn migration along the Black Sea Coast of Bulgaria. Approximately 167,500 storks were counted during 1984 spring migration in the Bat She'an Valley of Israel, and the total number of migrants through the country was estimated at 300,000. In 1985 autumn Spanish scientists counted over 27,000 storks in the Straits of Gibraltar.

White Storks face a significant reduction of the feeding areas and food through land alteration and pesticides, accidents with high power lines, and lack of nesting sites.

A White Stork Working Group is being formed to promote and coordinate research and conservation activities, including censusing in breeding and wintering grounds, ringing and information exchange on migratory routes and stop-overs, and plans for general public education to increase awareness of the storks' plight. (*Flying Free*, Newsletter of the Brehm Fund for International Bird Conservation, Vol. 3, No.3/4 — Autumn/Winter 1985).

Ms Shirley McGreal of the International Primate Protection League, P.O. Drawer 766, Summerville, S.C. 29484, is involved in the IPPL's ongoing world-wide campaign for the protection of free-living chimpanzees from any form of exploitation. She is being sued by the IMMUNO A.G. Pharmaceutical Company of Vienna, Austria, for millions of dollars. Her crime, she opposed through the IPPL the IMMUNO Company's attempt to persuade Sierra Leone authorities to permit establishment of a laboratory to use large numbers of the endangered chimps removed from the wild.

In the litigation that followed, it has become clear that the IMMUNO A.G. Company is still negotiating to establish a chimpanzee laboratory in Sierra Leone, and has not given up the attempt of importing into its Austrian establishment 20 chimpanzees from Sierra Leone. The lawsuit is aimed at silencing opposition to the project and the exports.

General Joseph S. Momoh, President of Sierra Leone, State House, Freetown, Sierra Leone, West Africa is being pressurized to yield to IMMUNO A.G. Company's negotiations. If prevailed upon, it would further seal the fate of already endangered wild chimpanzee populations.

IPPL has sent to the Society the loose-inserted petition forms to be circulated among our members and

other interested individuals and institutions, to be filled up and forwarded to the President of Sierra Leone, requesting him not to yield to pressures from interested quarters.

When one considers the ban brought in by the Government of India in 1979 on the export of the Rhesus Macaques from India to the USA laboratories, and subsequently followed suit by Bangladesh, in both the instances without the slightest remorse for the much needed foreign exchange lost in the wake of the ban, here is a worthy cause to save the chimpanzees of Sierra Leone. If you wish to participate send the petition to President of Sierra Leone.

ENVIRONMENTAL PROJECTS AND AWARDS

When the students of Healey Country Primary School in Rochdale, U.K., learnt that a frog pond in the neighbourhood was to disappear under a building project, organised the construction of a new pond on the school grounds by raising funds. A local contractor was persuaded to dig the pond and the fire brigade to fill it.

This enterprise has won them the 1985 Kodak Conservation Awards for youth or schools whose pupils or members have undertaken the country's most imaginative project to protect the environment.

Each year, 50 grants ranging from £100/- to £1000/- from Sir Peter

Scott Award will be made to applicants whose projects have been selected by the panel. Everyone registering for the scheme will receive a free manual to help them plan their project, and the first 1000 projects will receive a free roll of Kodak film. (*BBC Wildlife*, November 1985).

AVIFAUNA PROJECT, POINT CALIMERE

The Vice-President of India, Shri R. Venkataraman, accompanied by the Rural Development Minister of Tamil Nadu, the Hon'ble Vellore Veerasamy, visited 'Kasthurba Gandhi Kanya Gurukulam, Vedaranyam to inaugurate the Electronic Division at the school complex on 20th July 1985.

The Avifauna Project of the Society at Point Calimere arranged some of their museum exhibits for a show to the Vice-President. The exhibits displayed included bird

specimens, plants, insects and marine fauna. A mist net was also spread nearby a bush and the method of netting and banding was explained to the Vice-President. Impressed by the demonstration, the Vice-President wished to know more about Bird Migration.

THE PRESIDENT OF INDIA WATCHES BIRD RINGING

3rd November 1985 was a happy day for Mr P.B. Shekar, Field Officer of the Society. 18 white pigeons ringed by Shekar were released by Smt. Manjit Kaur, daughter of Giani Zail Singh, President of India, at a function organised by Eagle Flasks at Talegaon, Maharashtra. Mr Shekar also presented a set of the Society's publications to the President.

Mr Shekar spoke to the organisers about the significance of bird ringing and the history of migration studies.

P. B. Shekar explaining bird banding to the President's family Photo: S. R. Nayak



VIIITH PAN-AFRICAN
ORNITHOLOGICAL CONGRESS

A wonderful opportunity to observe African Wildlife, and birds in particular, to see what research is currently under way there, and to learn of conservation problems in the Afrotropics is presented by the VIIth Pan-African Ornithological Congress, to be held in Nairobi, Kenya, 28th August to 5th September 1988. This will be the first such Congress in the heartland of tropical Africa. The International Council for Bird Preservation will have one day on the programme. A theme will be problems of the Afrotropical forest avifaunas, with a coordinated excursion of two days in mid-Congress to selected, threatened Kenyan forests. There will be symposia, contributed papers, poster sessions, and importantly, round-table and workshop sessions that emphasize the significance of birds locally (bird's problems for man, such as crop destruction and aircraft collision with birds, as well as man's problems that affect birds).

Nairobi is a modern, international city situated close to major parks and game reserves. The Kenyan avian physiologist, Prof. Geoffrey Maloiy, is Chairman of the local Committee on Arrangements. Prof. David Pearson (Dept of Biochemistry, University of Nairobi, P.O. Box 30197, Kenya) is Chairman of the Scientific Programme Committee. The Organizer for the Congress, to whom one

should write for further details and Circulars is Mr Don A. Turner (P.O. Box 48019, Nairobi, Kenya). Truly, Africa represents the last bulwark of the earth's Pleistocene faunas — come and see them under ideal conditions:

DR LESTER L. SHORT
P.A.O.C. VII VICE-CHAIRMAN
AMERICAN MUSEUM OF NATURAL HISTORY,
NEW YORK, N.Y. 10024-5192, U.S.A.

WORLD FORESTRY DAY

As a part of the World Forestry Day celebrations, a Quiz programme on Wildlife was arranged under the Society's Nature Education Scheme for Junior Colleges and Schools. In all eight colleges and eighteen schools participated. Among the Jr Colleges, the Jaihind College bagged the first prize and St. Anthony Girls School retained their trophy, which they had won last year.

A painting competition for students of fifth to seventh standards was also held and 131 children participated. Mr J.P. Irani, Mrs Roshan Masters and Ms Naira Ahmadulla judged the entries.

Twelve years old Bapu Sarvagod from the National Society for Clean Cities won the 1st prize and Rashmin Kulkarni, also 12 years old, from Sulochanadevi Singhania High School got the second, while the third prize was shared by Sharookh Kapadia from Cathedral John Cannon School and Yogesh Ghanekar from the National Society for Clean Cities.

Millions of Trees Club

DONT CUT TREES — a precept urbanites shout from their terrace tops — is hypocritical and unrealistic according to Mr Ben Soans. He is the Originator of the movement “Millions of Trees Club” which advocates and encourages “Peoples’ Nurseries” in rural India. Operating from his offices in Tumkur in Karnataka and Kodaikanal in Tamil Nadu, Mr Soans advises **CUT TREES, BUT PLANT FAR MORE THAN YOU WANT TO CUT.** He rightly maintains that it takes 20 minutes either to cut a tree down or burn it, but it takes 20 years to grow another to replace it. Depending on fuelwood for its energy resources, as India does, what he advocates impresses us.

“Peoples’ Nurseries” to save India’s vegetation or whatever that is left of it is the motto of Millions of Trees Club. To bring this about, the effort needs the services of the landless poor and marginal farmers.

The Club started setting up in every taluka of India one such community of five marginal farmers. Under the supervision of the Club, these communities were encouraged to raise every kind of tree for mass planting every 25 km in the rural areas. In many instances the local educational institutions get involved with the work, and thus help in educating young minds in this community effort.

Though “Peoples’ Nurseries” movement was inaugurated in 1980 by Mr Oscar Fernandes, now a General Secretary of the All India Congress Committee, its genesis go back to the pioneer work done by the late G.G. Soans, father of Mr Ben Soans. Starting life as a headmaster in a Mission school in 1900, the late G.G. Soans set up a nursery of his own in the village of Muloor in the Kundapura taluka of South India. His dream was to make the

Farmers at People's Nursery for advice and plants



West Coast the California of India. To achieve this he encouraged others in his village to start nurseries of their own. Fired with a missionary zeal, he resigned his post in 1910 and started a door-to-door campaign, travelling on his bicycle throughout Karnataka and Malabar exhorting and encouraging people to plant trees and start their own nurseries. The campaign continued until 1952. With his passing away in 1972, his son took up his father's mission.

This one man venture has met with tremendous success during the last five years. The Department of Environment, Government of India, opened the G.G. Soans Memorial Seashore Afforestation Training Centre at Muloor. A proposal before the United Nations Environmental Programme to develop three such "Peoples' Nurseries" in India as national models is afoot.

The Department of Rural Reconstruction, Government of India, impressed by the contribution made by the "Peoples' Nurseries" have agreed to finance a chain of such nurseries. And to crown it all, a panel of distinguished citizens headed by the Chief Justice of India selected the late G.G. Soans's simple idea as developed by his son, Mr Ben Soans, as a nationwide Peoples' Afforestation Movement, and conferred on the movement the R.K. Goenka Foundation for Environment National Award. Incidentally, 1985 coincides with the 75th year of the late G.G. Soans commencing his work.

Mr Ben Soans has joined the Society as a member, and we hope that many among our tree-loving members would be happy to draw on his experience to build up a green India.

J.S. SERRAO

WINTER WATERFOWL COUNT 1986-'87

International Waterfowl Research Bureau, Slimbridge, U.K. in collaboration with BNHS will be conducting a simultaneous mid-winter count of waterfowl in different parts of India. Knowledgeable bird watchers are invited to contribute information for this count through a data form which will be distributed to those interested in taking part. If you are interested please contact:

S. A. HUSSAIN
BOMBAY NATURAL HISTORY SOCIETY
HORNBILL HOUSE, S. B. SINGH ROAD
BOMBAY - 400 023



"Hey! That teal isn't from our batch."



Tasmanian wolf

Tasmanian Wolf

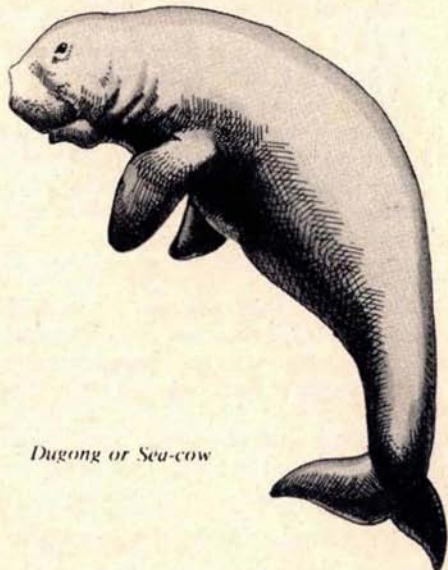
Sighting the Tasmanian wolf during the Ligabua Centre's recent survey confirms that the animal is still alive. The last captive animal died in Hobart Zoo in Tasmania in 1936. Sightings were reported to have increased since the 1940s. A close relative of the Tasmanian Devil, the Tasmanian wolf is as big as a medium sized dog, brown in colour with about 15 dark stripes along its back, teeth of a marsupial and a large tail. Analysis of the available information and ecological conditions in the animal's habitat confirm that the population of the Tasmanian wolf is increasing. —*World Wildlife Fund News*, No. 37, Sept.-Oct. 1985.

Dugong hunting in the Great Barrier Reef Marine Park

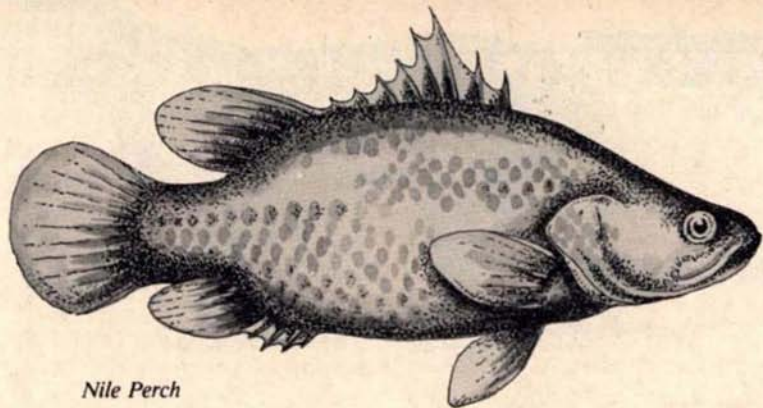
Among the rarest and most intriguing creatures of the Great Barrier Reef the largest coral system in the world is the dugong, *Dugong dugon*, the world's only strictly herbivorous marine mammal listed in the IUCN MAMMAL RED DATA BOOK as a species in danger of extinction.

In the Marine Park many of the problems involving conservation of the species and rational use by man have come to a head. Its goal is to provide for protection, wise use, appreciation and enjoyment of the Reef in perpetuity. It tackles this task by minimising regulation of human activity, maximising the involvement of the community in management of the Marine Park and by nurturing community understanding and acceptance of necessary restraints.

An estimate of Hope Vales annual dugong catch and of the likely sustainable yield of the dugong population was provided by Dr Helene Marsh, a leading dugong researcher. She based her estimate on her own work on dugong population biology. This is a classic example of a situation where a fine balance has to be struck between the need to employ its resources with due restraint, and the obligation to protect the endangered species. Success was attained through video programme which conveyed public concern for the survival of dugongs. —*IUCN Bulletin Vol. 16, July-Sept. 1985.*



Dugong or Sea-cow



Nile Perch

Nile Perch and Africa's Great Lakes

Fisheries experts warn of impending ecological disaster in E. Africa's Lake Victoria because of a development experiment that went wrong 15 years ago.

The introduction of Nile Perch (*Lates niloticus*), also called 'Elephant of the Water' as it can grow to a size of 100 kg, into the lake reduced the numbers and kinds of other fish, and has proved an economic and ecological disaster, according to a ten-year study report by a team of Netherland Scientists from Leiden University.

Introducing this monster into inland waters promised a new, high-yielding protein source. A pilot project by the UN Food and Agriculture Organisation (FAO) was set up and stocks of the fish were held ready for introduction in ponds near the Ugandan end of the lake. Scientists and local observers voiced doubts regarding this project fearing that the economic impact may be counter-productive.

But some of the fish escaped into the Lake and 10 years later the fishermen saw the Nile Perch growing bigger than man-size before their nets broke under strain. In the process of colonization the Perch has robbed E. African economy of several valuable ornamental fishes and prawns have disappeared. The perch is now cannibalising.

The economy of small fishing communities

has disintegrated and Perch introduction has become an example of incomplete knowledge and faulty planning. — IUCN Press Service.

The Narmada Valley Project

The Narmada Valley Project, a large and complex development scheme in western central India has 30 major dams (irrigating c. 10,000 ha.), 135 medium dams (irrigating 400-10,000 ha.), and at least 3000 minor (irrigating c. 400) will inundate some 350,000 ha. of land including 11% of the forests of the Narmada Valley. The National Institute of Urban Planning states that around one million tribal people would be shifted to make way for these dams. The whole project will be completed in 1995 when 'on stream' the project will generate around 3830 megawatts of electricity for India's industries and provide irrigation for 496,000 ha. of agricultural land.

The financial stipulation shows a cost-benefit ratio greater than 1 : 1.5. Critics have demonstrated, that while the scheme's cost has been under estimated the benefits have been exaggerated to make the project appear financially attractive. The hidden costs of the development programme, the social costs of shifting one million people and the environmental costs of drowning so much land have been omitted. — Ashish Kothari *et al.* *Survival International*. Information Pack/Ind/Narm/May/1985. 'India, the Narmada Dam Project'.

This is the third part of the above article and is continued from
p. 23 of Hornbill 1985(4)—EDS.

Periwinkles (Family — Littorinidae) have small, top shaped or depressed spiral shell with elevated spire and smooth columella. Umbilicus absent. Shells either smooth or sculptured with light striations. Living ones are semi-aerial in habit and found attached to the rocks above the high tide mark and are vegetarians.

10. *Littorina intermedia*

Shell turbate with pointed summit and slightly thickened columellar region. Grows up to 25 mm in length and shows the transpiral patches of dark brown over the light brown or grey background. Living ones are found plentifully attached to rocks and boulders in the intertidal areas, for example near Bandra and Mahim seashore. The sub-aerial habit is so highly developed in the individuals of this species that they can live without water for more than 15 days.

11. *Littorina ventricosa*

Distinguished from *L. intermedia* by its larger size and the dull yellow or grey coloration of the shell with incised lines running spirally round the shell. Individuals of both species live in the same habitat.

12. *Tectarius malaccanus*

Smaller than *L. intermedia*. Shell

black or dark grey easily identified by the double rows of white nodules which run parallel round the centre of the whorls. Often abundantly on rocks several feet above high tide mark. So they are submerged only during the spring tides. They thrive well in the small pools formed by the spring tides and feed on algae.

Periwinkles are used in large quantities as a food in Europe but are of little economic importance in India.

Turret or Screw shells (Family—Turritellidae) are thick, elongated, tubular or spiral in shape, having simple aperture and horny operculum. Whorls generally inflated and sculptured. Individuals live a few feet below the muddy sands.

13. *Turritella duplicata*

A massive, elongated, shell tapering towards the apex, 16-18 whorls on the body. Shell colour deep cream or light brown. Grows up to 130 mm in height. The species can be easily recognised by the two prominent massive spiral ridges which run along the middle of the whorls. Numerous at moderate depths in muddy sand but empty shells are common on all sandy beaches.

Staircase-shells (Family — Architectonicidae) are conical in shape

© Carl D Silva
'86



Littorina ventricosa



Planaxis sulcatus



Potamides cingulatus



Littorina intermedia



Tectarius malaccanus



Architectonica laevigata



Turritella duplicata



Telescopium telescopium



Cerithium morus

with broad base and open umbilicus. Margins of umbilicus are toothed. Spire is depressed and are commonly found on the loose rocks near low tide.

14. *Architectonica laevigata*

Shell broad with angular lower edge and flattened base measuring about 39 mm in diameter. Pale-cream in colour with a row of orange-brown dots along the spiral ridge at the suture. Margins of the open umbilicus resemble a winding spiral, staircase, hence the name Staircase-shell; also called Sundial shell. Uncommon on the Bombay coast but very common in Tamil Nadu.

Planaxid snails (Family — Planaxidae) have thick and tur-binate, medium sized shell. They can be differentiated from Periwinkles in having a peculiar, calcareous thickening at the upper junction of outer lip with columella. Herbivorous shells commonly found on coastal rocks.

15. *Planaxis sulcatus*

A high spired, medium sized thick shell, with dark blackish or brownish striations interrupted by white dots or patches. The spire is usually corroded. Colour of the body varies from purple to brown with light grey or cream spots on the cords. Spire and first few body whorls are pale creamish in colour. Inside lip has purple or brown stain. Herbivorous, plentiful on rocks near high tide mark, at Bandra and

Mahim seashore. Empty shells are usually occupied by hermit crabs.

Horn-shells (Family — Potamididae) are long, tapering, elongated and multi-whorled with horny operculum and aperture channelled in front. Outer lip thin, expanded and everted. Shells usually sculptured with spiral ridges.

16. *Potamides cingulatus*

Medium sized shell upto 30 mm in length. Has a large everted outer lip. Body whorls ornamented by 3 transpiral ribs bearing tubercles. These tubercles are weak near the aperture. Last whorl shows smooth spiral bandings. Shell colour usually blackish red or brownish with sometimes whitish lines. They inhabit muddy places and are found in abundance near muddy estuarine flats near Bandra. They are largely collected at Tuticorin for extracting good quality lime used for white washing.

17. *Telescopium telescopium*

Popularly known as *Telescope shells*. Large shells with smooth body whorls and a few spiral lines, about 127 mm long. Tubercles absent and shells show greyish black or brown coloration on the outside, and in the deep purple interior. Live animals inhabit brackish intertidal areas near mangroves. Found in enormous numbers partly buried in the mud with only top of the spire exposed. Generally feed only during the night. Empty shells often have barnacles on the outside and hermit

crabs inside.

Hornshells

(Family—Cerithiidae) have tuberculated spiral shell with elongated spire and channelled front aperture. They prefer sand to muddy habitats.

18. *Cerithium morus*

A small blackish, spiralled shell growing to about 19 mm in length. Body whorls are ornamented with rows of reddish or blackish tubercles. The shell shows considerable variation in size, shape and colour. Commonly called as *Cerithes* differing from *Potamides* in being slightly more slender and

having an additional ridge on the two lowest whorls. Abundant on muddy rocks at half tide. Shells are also used for lime preparation.

Hornshells are eaten in the Philippines. The animal is sucked out from the spire which is broken off after cooking over wood fire. Shells are also collected in large quantities in Calcutta for burning into lime.

MANOJ MUNI
CARL D'SILVA

(To be continued)

AN APPEAL

The Department of Environment, Government of India, has given us a two years assignment (1985-87) for writing an illustrated reference book on the Asiatic Lion (*Panthera leo persica*). The book will be in two parts, namely (a) The Asiatic Lion in the wild, and (b) in captivity. We shall be grateful to receive from readers any authentic information/observations/research data/interesting anecdotes and outstanding photographs/transparencies concerning this feline species, its habitat and associated fauna (particularly the prey animals), *Gir maldharis*, etc. for inclusion in our book which will be brought out as a Government publication. The source of all material accepted for publication will be duly acknowledged. Photographic material could even be purchased outright if the owner so desires. Material/correspondence may please be sent at the following addresses:

For Part (a):

SHRI M.A. RASHID
IFS (Retd)
103, KETAN APTS.,
FATEHGANJ CAMP
BARODA 390 002
Telephone 558190

(Res.)

For Part (b):

SHRI REUBEN DAVID
HONORARY ADVISOR
MUNICIPAL HILL
GARDEN ZOO,
KANKARIA,
AHMEDABAD 380 008
Telephone 50448

(Office)

Naini Tal Botanical Collections —

A threat to rare plants

"Be ye glad and rejoice for ever in that which I create."

"They shall not hurt nor destroy in all My holy mountain."

".....Only foolish people hurt and destroy beautiful things... Do we want to be blind and dull of heart?" — So wrote the British missionary Miss Carmichael in a logbook at Naraikadu (Jacqueline A. Woolcock, *Hornbill*, 1985(1) page 13), but it seems today that majority of us have become 'blind and dull of heart' with no interest at all in wildlife and no care for the living world around us.

The charm of Naini Tal (a beautiful hill station in the shadow of the legendary Himalaya) had always been the lake and the rich flora—the majestic conifers, oaks, the melancholic weeping willows, the blazing rhododendrons, a dense shrubbery, an equally interesting and lovely herbaceous ground-cover, and, last but not the least, the lush green wall-flora consisting of a mosaic of mosses, liverworts and ferns mingled with grasses, small herbs, shrubs, even orchids, and to crown it all every tree loaded with epiphytes. That was the Naini Tal of yesteryears, but how 'sad, bad and

mad'—the lake lies polluted, gone are the weeping willows around it and the extraordinarily rich wall-flora is fast-vanishing. Naini Tal was a Botanical Paradise—a plant collector's delight. Angiosperms, Gymnosperms, Pteridophytes, Bryophytes, Lichens, Algae and Fungi, all grew together in wild profusion. Every hillside, boulder, rock, stone was adorned with a green mossy tapestry and all tree-trunks draped with thick moss mats/cushions and pendulous forms hanging in festoons presented an "elfin woodland" or "mossy forest" landscape. Alas, all the greenery that was 'pleasing to the eye and soothing to the mind' is disappearing and like a helpless onlooker one observes an alarming depletion of many monotypic, endemic taxa specially liverworts in and around Naini Tal. Seminars are held, a cry is raised to preserve the threatened plants ("Threatened. Bryophytes of Naini Tal" in S.K. Jain and R.R. Rao edited, AN ASSESSMENT OF THREATENED PLANTS OF INDIA, B.S.I., Department of Environment, Howrah, 1983) but the sorry state of affairs continues.

It is my painful duty to confess that our own students destroy many a taxa in the name of collection and study, what to say of the in-



Stone wall in Nainital showing Liverwort.

Photos: S. D. Tewari

A close up of Liverwort Rosettes



numerable collection parties coming to Naini Tal each year! Indiscriminate and thoughtless collections have really played havoc with the bryophyte vegetation in this hill station. This year the M.Sc. previous Botany students mercilessly destroyed two of our rare, endemic taxa, restricted to NW. Himalaya, *Stephensoniella brevipedunculata* Kash. and *Athalamia pinguis* Falc. from their natural habitats. Once quite common in Naini Tal, both are now confined to scanty, scattered patches on walls. Unfortunately I had told the exact locales in class simply to give my students an idea of the local distribution but I was aghast to discover that most of them merrily walked all around and brought the rare 'material' to me a day or two before their practical examination in the name of 'collection' and 'herbarium'!! Needless to say, *Stephensoniella*, the famous monotypic, endemic, Himalayan liverwort is valuable to the students of phylogeny engaged in research either in India or in other parts of the world and certainly does not deserve such harsh treatment (or massacre?). *Conocephalum conicum* (L.) Dum., *Cryptomitrium himalayense* Kash., *Dumortiera hirsuta* (Sw.) Nees., *Reboulia hemispherica* (L.) Raddi.—all have met with similar fate in recent years and are in retrogression. *Athalamia pusilla* (St.) Kash., *Wiesnerella denudata* (Mitt.) St., *Fossombronia himalayensis* Kash. and *Sewardiella*

tuberifera Kash. are already gone. I am suddenly reminded of Australia where one can be jailed for plucking wild flowers and of France where researchers, specialists, amateur botanists are toiling to preserve whatever remains of the 4,700 different species of wild flowers and plants that the country once possessed. On the other hand our own (local) and other students coming to Naini Tal for botanical excursions remove large patches of the rare plants and often bulk of that material is wasted. Has it ever occurred to anyone that this regular annual "tamasha" of 'collection' may prove too much for the recovery of the liverwort populations and small specimens are ample for most purposes whether for classroom study or for serious research? The fast-increasing urbanization and its monstrosities all around the hills have already exerted extreme pressures on the Temperate Biotopes and if we turn deaf, dumb and blind to the call of conservationists, many an interesting species would perish and lost to Science.

GIRIBALA PANT
Lecturer in Botany
Department of Botany, DSB College,
Kumaun University, Nainital. U.P.

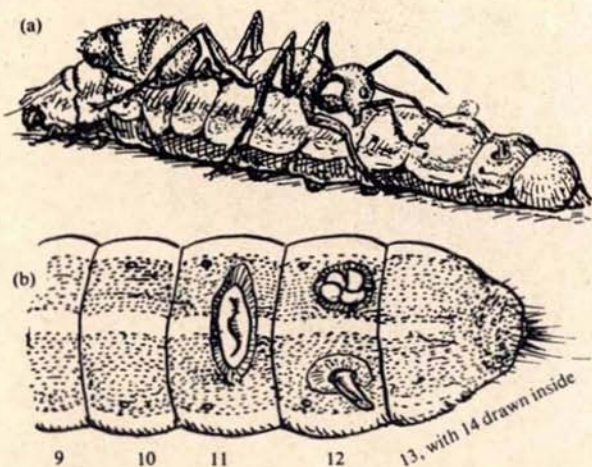
This is the third part of the series and is continued from p. 24 of Hornbill 1985(2)—EDS.

THE BLUE PIERROTS

Several species of this group are found in the Konkan and Deccan, and much less commonly on the Ghats. They flourish in dry nullahs, on baking hot hillsides—wherever, in fact, there are Ber (*Zizyphus*) bushes, on the leaves of which the larvae feed. You will find them in waste ground even in Bombay City. The one essential is that there should be well-established ant colonies. This is because the ants attend the larvae as soon as they leave the egg and throughout their lives, even in some cases remaining near the pupa. The explanation is that the larvae are able to give ants a

nectar-like fluid secreted from a mouthlike organ on their backs. Figure 1 shows this organ on segment 11. On segment 12 are paired organs, one shown closed by four flaps, the other open to allow a coneshaped organ to pop out. This happens when an ant tickles the back of the larva with its legs or antennae. The larva may not respond at once, and the delay makes the ant all the more eager for the fluid from the mouthlike organ. The ant will be seen to lick it up and try to get the larva to produce more. It is so 'hooked' on the fluid that it forgets about its nest and worker duties, and will drive other ants away from its 'cow'. The larva is thus protected from enemies such as Chalcid wasps and other small insects which try to lay their eggs in the bodies of caterpillars. The full function of the

Fig. 1 (a) *Tarucus* sp. larva, attended by *Camponotus* ant.
(b) Diagram of rear end of a Pierrot larva; in segment 11 sweet producing organ; in segment 12 twin ant attracting organs.



paired organs is uncertain; it seems they produce scent which calls up the ants. This is a matter for more observation, which is not easy with such small creatures, for the double organs pop in and out very quickly.

The butterflies themselves are small (male forewing 24 to 30 mm). Both sexes have a similar wing pattern below, as usual with the Lycaenid family. The pattern of dark lines and spots, which no doubt inspired the name 'Pierrot', is shown in figure 2. The row of metallic blue or green spots on the hindwing, with a darker spot above a little whitetipped 'tail' is a feature of many Lycaenids, especially in the tropics. It is probably a protective character. When the insect is perched on a leaf or flower it is in danger from predators such as mantids and lizards. The tails waving in the wind along with the gleaming spots may well draw the attention of a predator to the less vital parts of the butterfly so that only a piece of hindwing may be lost when it pounces. With our imagination we may think the spots and tails look rather like the creature's eyes and antennae; and for all we know some predators may be deceived by this resemblance.

The various *Tarucus* species are difficult to distinguish. The male Pointed Pierrot (*T. indica*) is rather pale violet-blue on the upperside and the underside pattern shows through. The other two found in our area, *T. nara* and *T. callinara*, are a darker and brighter blue and

not transparent. Both also have a prominent dark spot near the centre of the forewing.

The habits of all three species are similar. The little egg is turban shaped and greenish white in colour, and is laid on the underside of a leaf of the Ber (*Zizyphus jujuba*). I noted that a newly hatched larva had a greenish brown head with darker marks in front. The body



Fig. 2 *Tarucus nara* life size

was pale green, exactly the colour of the underside of the *Zizyphus* leaf. This larva had eaten a good deal of the top of its egg in order to get out. I did not notice if it ate any of the eggshell after leaving it; some species are under the necessity of eating the whole of their eggshell, which may contain nourishment essential for their growth. This *Tarucus* larva had one necessity which it is well to assume that all egg-larvae have — the need for a drink. With a very small paintbrush I put a tiny quantity of water in front of it. At once the restless larva stopped wandering about and drank nearly all the water. Soon after, it began its lifework of nibbling leaves.

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Bats in general are very poorly understood mammals. This is largely due to their being night-active animals. Even during daytime they try to roost in caves, crevices, caverns, ruins, hollows in trees and generally such inaccessible places.

Fruit bats are very conspicuous because of their relatively larger size and the open roosts they select to spend their hours of rest. Flying foxes, especially among fruit bats, roost in so-called daytime camps. In India we have three common species of fruit bats: the flying fox *Pteropus giganteus*, *Rousettus leschenaulti* and *Cynopterus sphinx*. The last two species live inside caves, in ruins or inside temple and church spires or as in the case of *Cynopterus* the Shortnosed Fruit Bat, in dry leaf clusters of palms. Flying foxes seem to have no known predators. It is an evolutionary enigma why they, also like other bats, are night-active. These animals have been traditionally but erroneously viewed as despicable pests, orchard robbers depriving the farmer of his harvest. This is the popular negative image they enjoy in the minds of people. The image is totally unjustified. Flying foxes are primarily blossom feeders, major and essential pollinators of native forest trees. Cultivated fruit plays a very minor role in their diet.

Flying foxes have suffered grievously at the hands of man.

Their meat is considered a delicacy and is supposed to possess several imaginary medicinal qualities. Their blood, if topically applied, supposedly restores function to paralysed limbs of humans. Their meat is believed to alleviate whooping cough in children. The Wildlife Protection Act of 1972 of the Government of India had consigned these hapless animals to Schedule V — Vermin. This act could only have emboldened those who anyway had set their minds on decimating fruit bats. There is a pressing need to educate the public that fruit bats are man's best friends.

RAIN FORESTS AND BATS

The rapid decline of rain forests is one of the most serious concerns of the 1980 for the environmental conservationist. The loss of rain forests evokes as much concern and sadness as the destruction of woods by acid rain in Europe. Even though major conservation strategies are being planned decision makers do not seem to understand the extent to which rain forests depend on bats for their survival. Interestingly bats are much more efficient in seed dispersal than birds. Birds generally scatter the seeds under tree canopy or a few feet away from the trees at best. But bats spread seeds by means of their droppings over vast areas. More than 130 genera of trees and shrubs have been identified to rely on bats for pollination, the list is not

exhaustive. Recent studies reveal that seed dispersal activities of bats can be critical to reforestation programmes and that many economically important tropical plants depend on bats for propagation. It will come as a surprise to most readers that peaches, bananas, avocados, hemp plants from which bandages are made, latex for chewing gum, furniture wood etc depend to a greater or lesser extent on the activity of fruit bats. Regional harvests of Durian fruits in Southeast Asia and Iroko timber in West Africa amount to annual sales of nearly one hundred million dollars. The former requires bats for pollination and the latter for seed dispersal. In the words of Merlin D. Tuttle 'Man is far from outgrowing his long dependence upon bats'.

FRUIT BATS AND THE FRUIT INDUSTRY

It is a scientifically unsound myth that fruit bats are a serious threat to the fruit industry. Bats generally consume ripened and succulent fruits at which stage they are no more of interest to the farmer intent on marketing fruits. Dr Tuttle exonerates fruit bats and after a study of the impact of fruit bats on mango harvests in Africa categorically declared 'The important point is that mangoes ripe enough to attract bats were too ripe for harvest and were lost to the owner whether or not bats found them.

In Australia flying foxes are in serious trouble. Thanks to the

misguided enthusiasm of fruit growers, the Government has removed four species of flying fox from the protected fauna list. These poor animals are already suffering mass slaughter. Many enlightened people, specialists and scientists from all over are voicing their protest. Fortunately, there is already an enlightened and highly motivated conservation movement in Australia. In India we do not really have any such movement. There are strident controversies, acrimonious debates and conservation generally evokes images of the tiger, rhinoceros and the Silent Valley. Flying foxes are gentle animals, with no definite natural enemies except man. They escape eagles and snakes by flying away but are helpless against guns and human greed. Fruit bats are in dire need of friends.

M.K. CHANDRASHEKARAN

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Shortnosed Fruit Bat Photo: T. S. Lal



BOMBAY NATURAL HISTORY SOCIETY

EXECUTIVE COMMITTEE FOR 1986-87

The election to the Executive Committee of the Society for 1986-87 was held in February 1986 and the following ten members were elected.

Humayun Abdulali — Elected Life Member on 1.12.1931

“As Honorary Secretary 1949-62 proposed Bombay Wildlife Act, Borivli National Park, Karnala Sanctuary. Negotiated with Central and State Governments and Museum for building Hornbill House and annual grant for upkeep and maintenance of Collections. Ornithological publications cover Bombay, Vizagapatnam Hills, Andaman and Nicobars, Bird Catalogue (30 parts and continuing) plus varied miscellaneous notes.” (Votes secured 897).

M.D. Agharkar — Elected Ordinary Member on 13.7.1978

“Retired as Superintendent of Police, Central Bureau of Investigation, Bombay Branch — 1981. Winner of the Police Medal for Meritorious Service and the President's Police Medal for Distinguished Service. Thereafter practised as an advocate at Bombay. At present head of the Legal Wing of Bharatiya Mazdoor Sangh, Pune, in an honorary capacity. Served as chairman of a Co-operative Housing Society at Goregaon and secretary of a Housing Society at Pune.” Presently revising the Rules

and Regulations of the Society. (Votes secured 492).

Marselin Almeida — Elected Life Member on 15.2.1974

“Age 45. M.Sc. (Research) Botanist, Research Officer (ICI-group), Blatter Herbarium, CIBA-GEIGY Research Centre. Life Member: BNHS, WWF, Asiatic Society, etc. Served Board of Studies (Botany, Bombay University), Scientific Sub-Committee (Centenary Seminar, BNHS), Executive Committee, Proposed Herbarium Sub-Committee; Scientific papers: 8 new species described, Flora of Mahabaleshwar. Plant collection, all over India.” (Votes secured 857).

Erach Bharucha — Elected Ordinary Member on 9.7.1981

“Professor of Surgery, B.J. Medical College, Pune. Extensively travelled naturalist and wildlife photographer. Keen ornithologist, took leading part in the establishment of Mayni Bird Sanctuary, Pune. Involved in the study of the bird fauna of the Mulla Mutha Sanctuary, Pune. Member of the Pune Division of the WWF (India).” (Votes secured 846).

Debi Goenka — Elected Life Member on 24.11.1977

“Formerly Western Region Organiser — World Wildlife Fund. Actively spearheading environmental issues — protection of hill-stations (Mahabaleshwar-Panchgani, Matheran), Andamans, Murud-Janjira, Cantonment Towns,

Mangroves, Karvi, Preservation of Trees. Member, Department of Environment's Committee, Bombay Mainland Link Project; Member Secretary, Hingolghadh Nature Conservation Education Programme; Honorary Treasurer, Bandra Bachao Committee (President — Salim Ali); Project Co-ordinator, Nandur-Madhameshwar Bird Sanctuary." (Votes secured 701).

C.J. Guzder — Elected Life Member on 13.6.1985

"Deeply involved in environmental matters. M.A. (Hons) Cambridge University (Oriental Studies); Chairman & Managing Director, Airfreight Pvt. Ltd.; Member, Prime Minister's Monitoring Committee for Four Projects in Bombay; Founder member, currently Hon. Secretary, SAVE BOMBAY COMMITTEE; Hon. Secretary, Indian Heritage Society, Bombay Chapter; Member representing India on Commission on Environment, International Chamber of Commerce, Paris. Lectures widely in India and abroad on Conservation and the Environment." (Votes secured 756).

Meena Haribal — Elected Life Member on 13.2.1975

"Ph.D. (Chemistry). Interest, natural history, ecology, nature education, photography, mountaineering. Member. 10 years; Programme Sub-Committee; was honorary research associate, Society's Endangered Species Project. Treasurer, Ladies' Mountaineering Club; ten Himalayan

Treks — H.P., Gharwal, Sikkim (organizer and leader), Kashmir, Nepal. Given 40 nature slide shows. Studying and cataloguing BNHS butterfly collection." (Votes secured 854).

Kisan G. Mehta — Elected Ordinary Member on 13.6.1985.

"President, Save Bombay Committee; Corporator 1968-1977. Chairman, Friends of Trees Flower Show Committee — 15 years. First to take legal step to save Silent Valley; responsible for getting Tree Act passed in Maharashtra; actively helped in Chipko Movement. Led campaigns to save old trees at Jijamata Udyan and Bombay's Linking Road." (Votes secured 685).

A.N.D. Nanavati M.D. — Elected Life Member on 16.11.1964

"Engaged in medical teaching and research for 30 years. Retired Assistant Director, Haffkine Institute, 1974. Studies on pollution control by biological mechanisms. Honorary Secretary of the Society since 1975." (Votes secured 899).

Ulhas Rane — Elected Life Member on 25.7.1974

"Architect specialised in Environmental Landscape Planning. Designed several nature parks, education centres. Active member of various conservation organisations. Convenor of Save Sahyadri People's Movement. Arranged several nature camps, study expeditions, rural educational program-

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Obituary

R.S. DHARMAKUMARSINHJI

Born in the royal house of Bhavnagar, the young prince lost his parents at a tender age. He was sent to England to study at the Stanmore Preparatory School and later at Harrow. Unlike other princes however, Bapa (as he was known to his family and friends) returned to join Samaldas College, Bhavnagar and took a degree in Zoology. A rare feat for the time for a person of his background.



R. S. Dharmakumarsinhji

While at school Dharmakumarsinhji took to collecting birds' eggs, a hobby which later flowered into an all consuming interest in ornithology. This inevitably led to his interest in falconry, a sport he mastered and took charge of the falconry department of the State of Bhavnagar in course of time. He studied the birds of prey avidly and

went on to become the foremost authority on raptors in India. His work, on the Lesser Florican and the Great Indian Bustard is standard reference even today. Fifteen years of his field observations culminated in his classic *THE BIRDS OF SAURASHTRA* published in the early 1950s. It gave for the first time identifiable names in Gujarati to all forms of birds found in the peninsula. This book is outstanding for its encyclopaedic contents and observations. It still is the only reference work for the birds of the region. He went on to identify a sub-species of the lark and named it Bhavnagar's Sand Lark (*Calandrella raytal krishnakumarsinhji* Vaurie & Dharmakumarsinhji. In 1971-72 he conducted the first series of surveys to establish the status and recommend conservation strategies for the Great Indian Bustard for the World Wildlife Fund — India, and in 1972 co-authored with K.S. Lavkumar a popular work on the *SIXTY INDIAN BIRDS*.

Though Dharmakumarsinhji is better known for his attainments in the field of ornithology, he was equally at home with the study of mammals. His *A FIELD GUIDE TO BIG GAME CENSUS IN INDIA* published by the Indian Government in 1959 is the standard work on the subject. Alarmed at the devastation of forests in Saurashtra as indeed elsewhere, he undertook along with the late M.A. Wynter-Blyth the first scientific census of mammals car-

ried out in India, i.e. of the Indian Lion in the Gir. These surveys, though they were conducted as early as the mid 1950s, set the trend for latter day censuses of mammals such as tigers, a fact seldom acknowledged. Their reports of Indian lion censuses are classics in their field, a must for an officer of the Forest department or an individual involved in conservation. His article *The changing wildlife of Kathiawar* published in the Journal of Bombay Natural History Society is a unique authentic record of the changes that have taken place in the last 50 years or so in the environment of the peninsula.

Born and bred in an environment of calm confidence, Dharmakumarsinhji wore his honours with respect. A Minivet, "Dharmakumar's Small Minivet (*Pericroctus peregrinus dharmakumari* Koelz and a new species of a spider (*Pritha dharmakumarsinhji* sp. nov.) were named after him. He was on wildlife boards of the State Governments of Maharashtra and Rajasthan and indeed, for many years he was the Vice Chairman of the Indian Board of Wildlife. He took his appointments seriously but never promoted himself for personal gains, a quality rarely encountered in our world of competitive success.

His refreshing candour and essential humility were the hallmark of his renaissance spirit. Ever restless to learn something new in any field, he was happiest while sharing his

profound knowledge with a keen youngster or while guiding a serious ornithologist.

In the last decades of his life, however, he became an unhappy witness to the senseless vandalism which is destroying India's forests and environment. He was much saddened to see Nature being devastated and in his last days was preparing an action plan for the preservation of India's wildlife, "A New Deal". This he did not live to fulfill.

With the passing away of R.S. Dharmakumarsinhji, ornithologists, wildlifers, conservationists, for that matter, all those concerned with nature, have lost a champion and a scholar of the highest order. With him an era has ended. It was an era of gentlemen scholars and of restrained human interference with environment. We can only look back to him for inspiration and strength to withstand what is yet to come.

DIVYABHANUSINH

DR VIVEK PARANJAPE

The news of the tragic death of one of the members of the Society, Dr Vivek Paranjape, came as a tremendous shock to nature lovers. He died in an accident while on his way back to Pune from Sinhgad, when the jeep he was travelling in overturned at a sharp curve on 14th of September 1985.

Vivek was a young, enthusiastic

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When the larvae of *Tarucus* have grown a bit they still keep mainly to the undersides of the leaves, eating through the lower skin of the leaf without biting through the upper surface. These 'windows' in the *Zizyphus* leaves make the presence of the larvae easy to detect. The leaves turn brown at these points, and if bustling ants are there too one may be sure of finding one or two larvae. All you have to do then is to cut off the twig with its inhabitants, holding your collecting vessel closely underneath, and you have an interesting subject to rear in a gauze cage. The ants will stay with the larvae and there should be little difficulty in getting them through to be perfect insects.

REV. A. BEAN, SSJE

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mes, radio and TV talks, slide shows, publications, Initiated Herbarium at the Bombay Natural History Society. Arranged fund raising programme for BNHS." (Votes secured 870).

Bittu Sahgal — Elected Life Member on 13.8.1981

"Editor of *Sanctuary Magazine*." (Votes secured 757)

Dilnavaz Variava — Elected Ordinary Member on 16.3.1974

"Chief Executive of WWF-India from 1973 to 1978, working honorarily for environmental conservation through the Bombay

Natural History Society, Silent Valley Committee, IUCN Education Commission. Among other things, developing BNHS financial strength through greeting card activities etc." (Votes secured 859).

At its first meeting held on 13th March 1986, Dr A.N.D. Nanavati, M.D. was elected the Honorary Secretary, and Mr Bittu Sahgal, the Honorary Treasurer.

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naturalist and was doing much useful work in nature education through nature camps and publications in Marathi. His work was commended all over Maharashtra because of his organisation 'Friends of Animals', the 'Save Rat Snake' movement, the nature camps for school children arranged at remote places like Manali, Sikkim, Andamans, etc., and various publications of the *Nisarga Prakashan*. His achievements reached their zenith with the publication of the first volume of the encyclopedia of natural history '*Apali Srushti, Apale Dhan*' last year. The publication in Marathi, printed on art paper, illustrated with colour photographs and priced reasonably, was a valuable addition to Natural History literature.

The successful completion of his uncompleted work will be the most fitting tribute to him. We express our condolences to his bereaved family and his colleagues.

ULHAS RANE

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BOMBAY NATURAL HISTORY SOCIETY

The Bombay Natural History Society is one of the oldest scientific societies in India and has been publishing a journal since 1886, which is recognised throughout the world as an authoritative source of information on the fauna and flora of this subcontinent.

Our members enjoy :

1. A four-monthly natural history journal acknowledged to be the finest of its kind in Asia.
2. A forum for discussing and pursuing all aspects of Nature Conservation and the Environment.
3. A library with many rare books on shikar and natural history unavailable elsewhere, which may also be borrowed by outstation members.
4. One of the finest research collections in India on Mammals, Birds, Reptiles, Butterflies and other forms of animal life. These are available to members for study on the Society's premises.
5. Up-to-date information and advice on birdwatching, wild-life photography and fishing; natural history field trips and information on possible areas for field trips.

In short, the Society offers a range of activities and interests for the scientist, the amateur naturalist, the sportsman, and the lover of nature. Even if you are none of these the Society deserves your support because it is struggling to preserve our natural heritage and to safeguard it for our children.

Please write for a membership form and also introduce your friends to :

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