

Hornbill

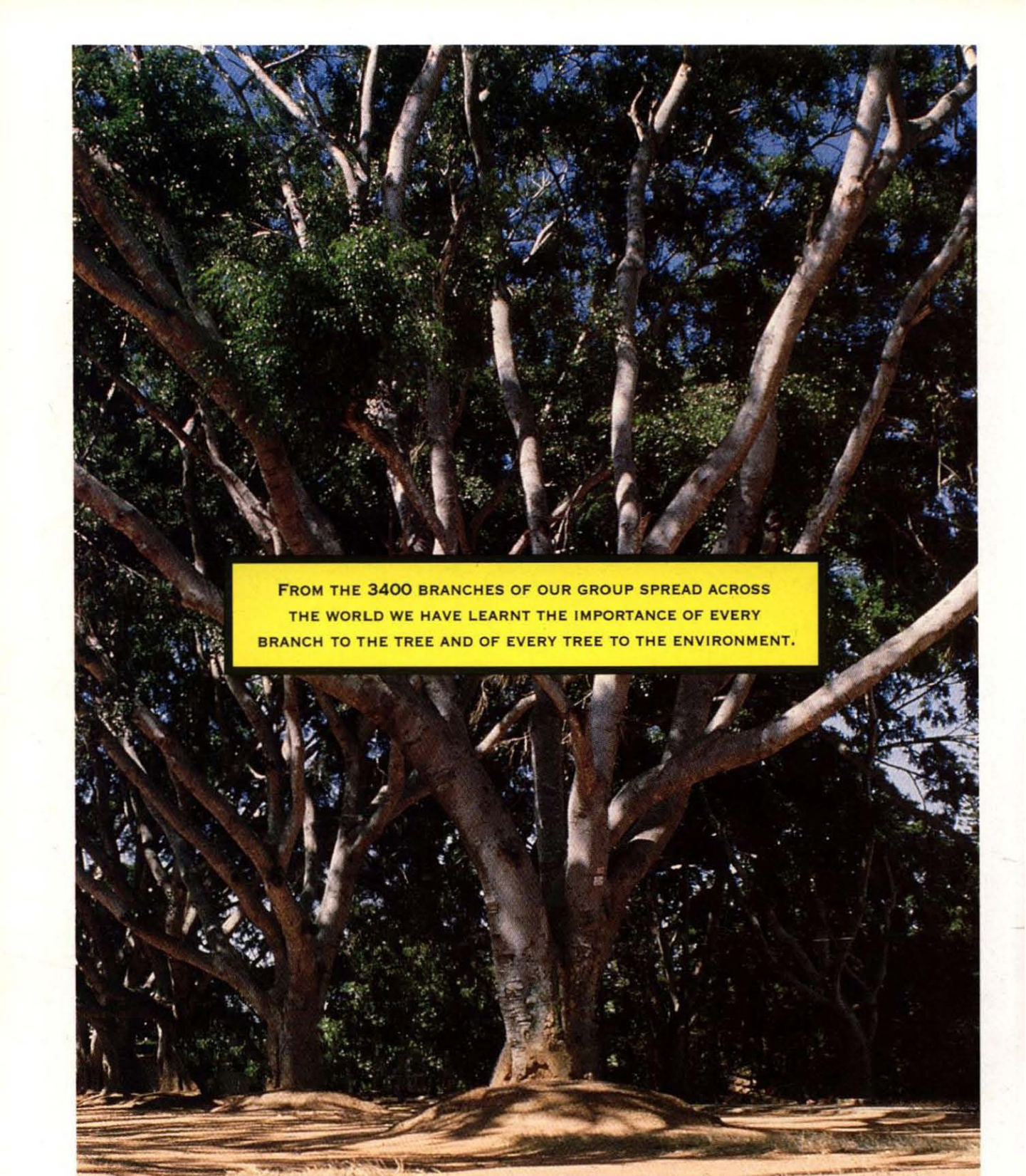


1997 (4) Dec.

about nature and us



BOMBAY NATURAL HISTORY SOCIETY



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THE WORLD WE HAVE LEARNT THE IMPORTANCE OF EVERY
BRANCH TO THE TREE AND OF EVERY TREE TO THE ENVIRONMENT.

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Long-leaved Morina

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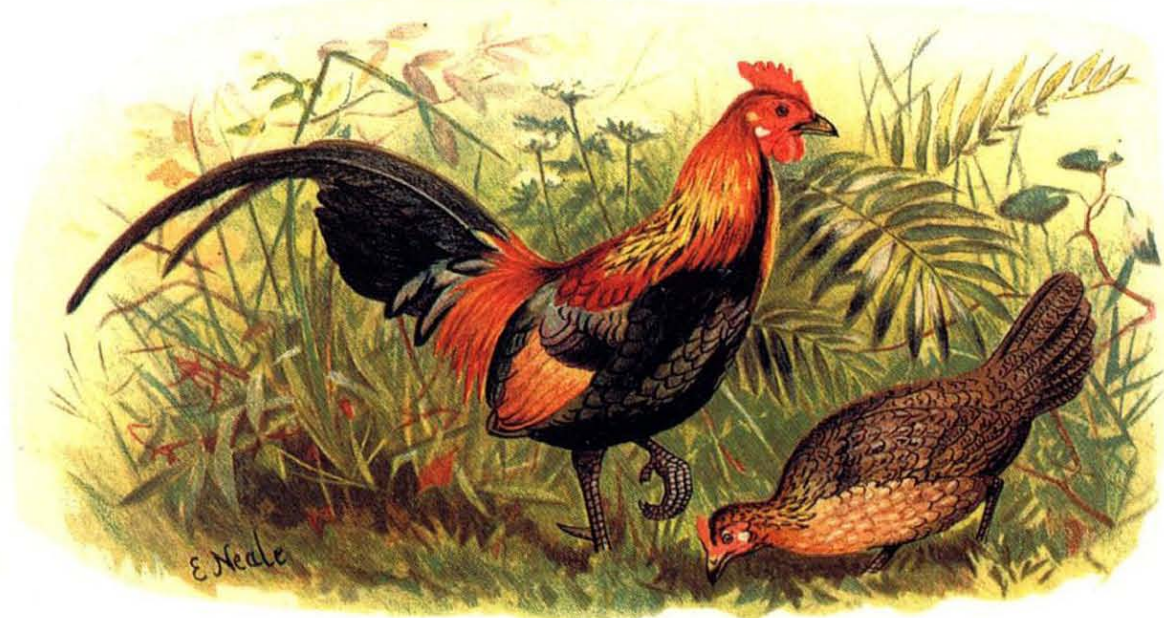
Childhood memories compared with the present reveal vast changes that have occurred in Mount Abu.

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V I E W P O I N T

Extinction is caused by various factors and the most bizarre is to be smothered by one's own progeny. That is what is happening or has happened to three of India's wildlife, the wild buffalo, the yak and the red junglefowl. In 1965, I accompanied George Schaller on a survey of the Bastar, Madhya Pradesh to look at the remnant population of the wild buffalo in the forests of Bastar and to check the possible occurrence of a remnant population of the Peninsular swamp deer. Having seen the wild buffalo of Kaziranga, I was struck by the clean lines of the Bastar wild buffalo which had no chance of being contaminated by the domestic variety. The young of matings with the comparatively puny domestic stock of the area died at birth, contrary to the mingling of the domestic and wild varieties at Kaziranga. Manas may still have pure stock but until a study of the genetics of the buffalo, both wild and domestic, is done, and the strain clearly identified, the occurrence of pure strains of the wild buffalo is open to question. The wild buffalo in Bastar, however, is the nearest or perhaps the only pure strain; and its conservation has not received the attention it deserves. Whether the wild buffalo still occurs in Bastar is open to question. The requests to have the population translocated to safer areas in Madhya Pradesh has come up against a wall of official apathy from the State. A project to study the genetics of the eastern population has been stymied by complications inherent to the discussion on where the analysis should be done — in India or abroad. The question whether we have a pure strain of wild buffalo remains unanswered. Similarly, the status of the wild yak which is known more by its domesticated variety. Is the small population in Ladakh truly wild? If the study of the buffalo's genetics is beset with problems, the yak is in a much more difficult situation.

Dr. Asad R. Rahmani drew my attention to a paper presented by Peterson and Brisbin Jr. at the 115th meeting of the American Ornithologists Union held in August '97. The paper concludes that the majority of the population of the red jungle fowl has been contaminated by domestic poultry. From a study of the skins in the collections in the west, they conclude that the presence of an eclipse plumage is an indicator of pure wild genotype. This is found only in the

western and central populations of the range of the species and has disappeared from the eastern population before the advent of scientific collections in about 1860. Populations exhibiting eclipse plumage were found in North India (Dehra Dun) in the 1960's, but may now have been diluted and become extinct. In the eclipse plumage the male's hackles of the midback are black and not elongated red orange brown. In addition, pure strains have slender, blackish legs — wild stock with light brownish legs suggests contamination. Combs in the female are absent or reduced. The authors state that a flock of this pure strain obtained from the Dehra Dun area in the 1960's is with Brisbin Jr. at the Savannah River Ecology Laboratory, P.O. Drawer, E. Aiken, South Carolina 29802, USA.

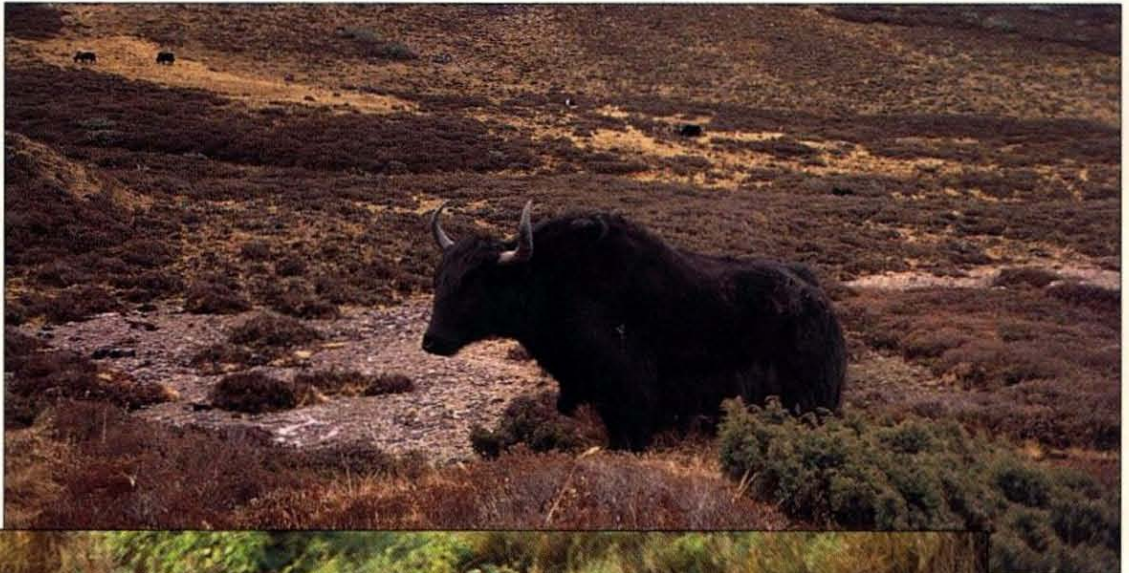
Curiously enough, none of the Asian collection or Asian literature has been cited. The HANDBOOK does not mention eclipse plumage, Baker's FAUNA, however, states that in the post nuptial plumage the neck hackles are replaced by black feathers and the long tailfeathers are lost. The colour of the legs is given as greenish grey or slaty grey instead of black.

The authors state that "The red jungle fowl — so important economically and culturally to humans — is at least in grave danger of genetic extinction, so measures should be designed to assure its long-term survival."

This is a suggestion that requires urgent consideration.

J.C. DANIEL

ISAAC KEHIMKAR



V.A. THAYIL

A Garden on Top of the World

Text and photographs: Dr. Ashok Kothari

Dr. Ashok Kothari is a well known physician and naturalist. He is deeply involved in various activities of BNHS, and is currently the Chairperson of the Library sub-committee.



In 1931, a six-member British team of mountaineers and explorers under the leadership of Frank S. Smythe was in India to scale some of the major peaks in Garhwal Himalayas. Before leaving England, Smythe met Dr. T.G. Longstaff and Major C.G. Bruce (author of *TWENTY YEARS IN THE HIMALAYA 1910*). Both of them had taken part in the Kamet Expedition in 1906 and travelled via Bhyundar Pass, Bhyundar valley on their way back to Badrinath. They guided Smythe and provided him with valuable maps. In India, Smythe got every help from British officials including Sir Malcolm Hailey, the then Governor of the United Provinces and also His Holiness the Rawal of Badrinath. Holdsworth was the botanist in the team. On 21st June, 1931, Holdsworth, Shipton, Smythe and Sirdar Lewa climbed Kamet (7634 m). On June 23rd, Birrie and Greene with porter Kesar Singh climbed Kamet. Most of them suffered from frostbite in their final determined attempt. During their descent they arrived at the village of Gamsali in Dhauli valley on 3rd July. They crossed the Zanskar range which separates the upper Dhauli and the Alaknanda valleys by the Bhyundar Pass (5006 m). The path taken by Major Bruce and Dr. Longstaff in 1906 was in their mind. They wanted to explore the mountainous region at the sources of the two principal tributaries of the Ganges, the Alaknanda and Bhagirathi rivers. But monsoon had already set in, and due to the mist visibility was limited. The trekkers, unmindful of the hazards, were glissading along on the easy snow covered slope. They were wet, cold and miserable,

due to the chilling snow, rain and strong wind. When the weather cleared they found themselves surrounded by a variety of flowers. Holdsworth pointed to *Primula macrophylla* and *Primula denticula* around the place where they were sitting. Later, when they camped in the lush green meadows, they saw androsaces, saxifrages, sedums, potentillas, geums, geraniums, asters, gentianas, anemones, *Nomocharis*, *Delphinium*, *Corydalis*, wild roses and rhododendrons. Smythe writes in *THE VALLEY OF FLOWERS*, "The Bhyundar valley was the most beautiful valley that any of us had seen. We camped in it for two days and we remembered it afterwards as 'The Valley of Flowers' ". In 1937, Frank Smythe came back to the Valley, stayed there for six weeks and collected 250 plants and bulbs and carried them to England. *BEAUTIFUL FLOWERS OF KASHMIR* by E. Blatter was his constant companion in his botanical expeditions and after going back to England he published his famous book *THE VALLEY OF FLOWERS* and thus Bhyundar Valley, the valley of Gods became more famous as the Valley of Flowers.

I visited the Valley of Flowers and Hemkund



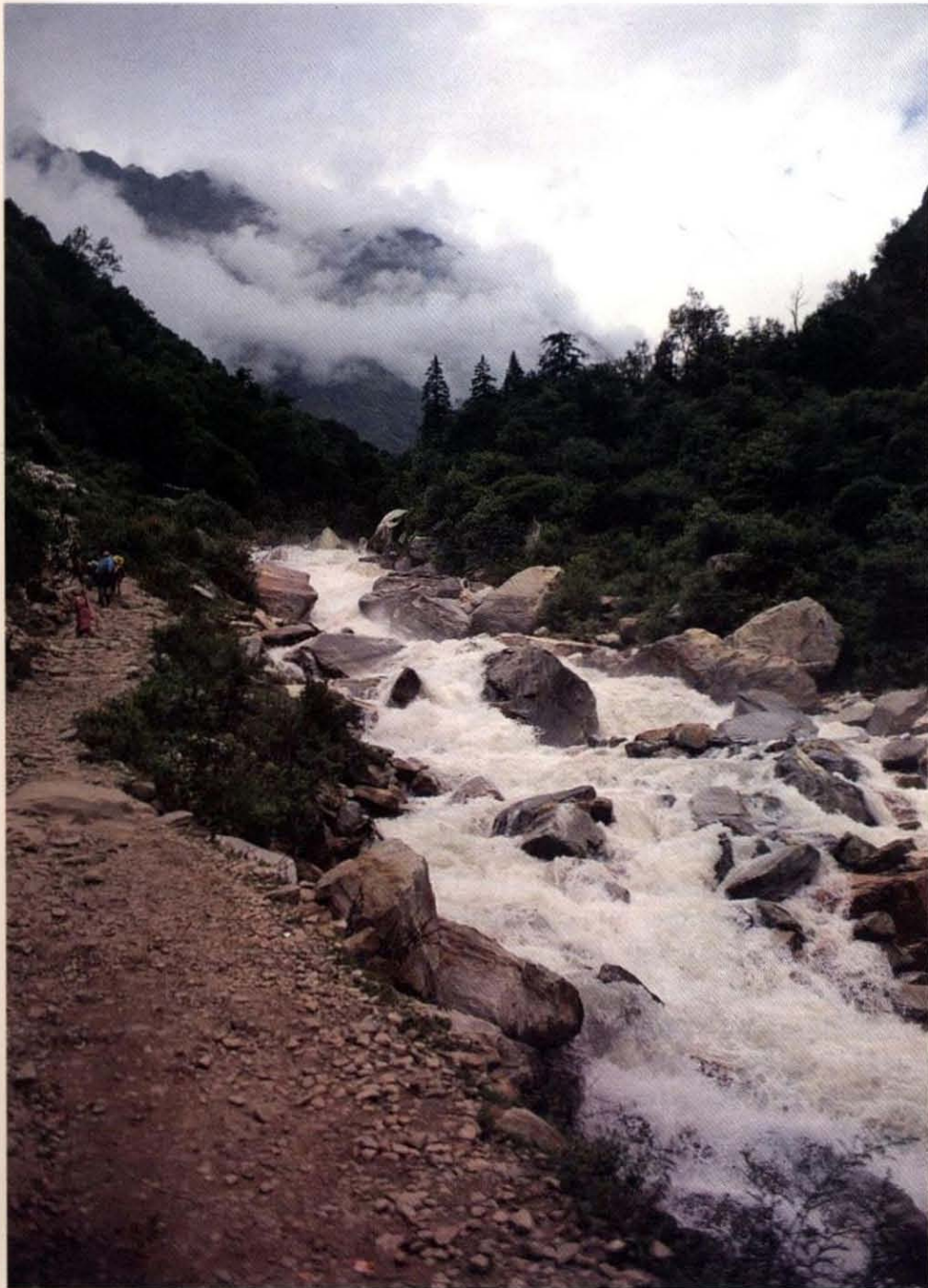
Geraniums bloom in the lush green meadows of the valley

during the month of August 1979. This year in August, it was my second visit to the valley. We assembled at Joshimath and on 15th August, the BNHS group started for Govindghat 20 kms away. From Govindghat a mountain path, fairly steep, goes to Ghangharia or Govinddham, 15 kms away. Govindghat is at an altitude of 1800 m while Ghangharia is at 3090 m. Early next morning we started from Ghangharia on the 5 km trek to the Valley of Flowers. A short distance from Ghangharia a path on the left goes



There is an elegance in the rusticity of this herb, a loveliness in its flower seldom surpassed by the choicest gift of Flora.
—M. Woodward

to the Valley and the one on the right goes to Hemkund. Immediately in the vicinity of the check post we noticed spathes of cobra lilies (*Arisaema jacquemontii*) peeping through the lush green plants. We searched for *Arisaema flavum*, a cobra lily with a very short spathe which was found by Holdsworth in 1931. After crossing a small forest of tall trees we crossed the wooden bridge on the Pushpavati and entered a trail, bordered with lingularis (*Ligularia amplexicaulis*), pink and yellow balsam (*Impatiens*



The most eloquent descriptions I have read fail to convey to the mind's eye the forms and the colours of these snowy mountains.
—J. Hooker



Himalayan blue poppy — one of the most beautiful sky blue flowers we saw in the Valley

sulcata, *I. edgeworthii*, *I. glandulifera*) cranesbill (*Geranium pratense*, *G. wallichianum*), red and yellow potentilla (*Potentilla eriocarpa*, *P. curviseta*, *P. microphylla*, *P. atrosanguinea*, *P. peduncularis*) and tasted wild strawberries (*Fragaria nubicola*) and tiny blue fruits of Canada tea (*Gaultheria trichophylla*). At one corner of the trail we found a flowering climber — the bellwort (*Codonopsis rotundifolia*). Halfway on the trail we found a small forest of bhojpatra trees (silverbirch, *Betula utilis*) in the company of rhododendrons. Here in the lee of a boulder we rested and viewed the massive hanging glacier across the valley, waterfalls and surrounding mountains. In the gorge below there was a partial snowbridge across the Pushpavati river formed by the debris from an avalanche. The captivating charm of flowers on

both sides of the trail slowed us and we decided not to enter the valley on the first day, but to study the flowers on the approach road. Finally, when we found the evening shadows approaching we decided not to take any risk in the unpredictable changing weather conditions and decided to return. Camping in the valley is not permitted any more. On the way back we took pictures of asters (starwort, *Aster himalaicus*, *A. diplostephioides*, *A. albescens*, *Erigeron multiradiatus*), whorl flower (*Morina longifolia*), pearly everlasting *Araphalis triplinervis*, *A. margaritacea*, *A. contorta*) but we were disappointed at not having had a glimpse of the most beautiful among the Himalayan flowers, the Himalayan blue poppy. Our disappointment was shortlived — after crossing the wooden bridge over Pushpavati, just as we were about to



Oxyria digyna, an erect fleshy herb, makes a tasty salad and can also be eaten cooked

enter the last lap of our trek, a few college students sighted the blue flowers they had found in the lee of a huge boulder. The beauty of the blue poppies was captivating — most of us exhausted a great deal of film on them.

2nd day in the Valley

Early morning on 17th August, after breakfast, we started for the Valley. After crossing the wooden bridge we entered an ocean of flowering plants. The countless streams from the glaciers, sight of towering Ratban, Hathi Parvat and Gauri Parvat, waterfalls and huge masses of hanging glaciers gave a majestic appearance to the Valley and the surrounding areas. We then crossed a fast running stream and reached the resting place of Joan Margaret Legge. She had come to stay in the Valley of Gods, after reading Smythe's book,

but tragedy struck when she slipped down from a rock and died on 4th July, 1939. The grave is a mere heap of stones, that which I had seen two decades earlier had broken down. The epitaph on the tombstone reads:

"I will lift up my eyes unto the hills, from whence cometh my help."

Ragworts (*Senecio chrysanthemoides*), bellflowers (*Campanula latifolia*) and geraniums grow around the grave, and keep her company in her solitude. A little distance away are fields of bellflowers, balsams, and umbellifers (*Heracleum lalli*, *Angelica cyclocarpa*, *Selinum tenuifolium*, *Pleurospermum candollei*). There were also androsaces, sedums, potentillas, geums, geraniums, asters, gentianas, anemones, corydalis, and aconitum. Chinese lanterns (*Silene edgeworthii*) were dancing in the air, stirred

by the mild breeze. We found *Primula rosea* but other varieties of primula (*P. wigramiana*, *P. macrophylla*, *P. rotundifolia*) had stopped flowering after July. But *Androsace primuloides* were mimicking primulas with their pink clusters and eyes. The majestic Himalayan rose (*Rosa macrophylla*) was in full bloom. Yellow potentillas (*Potentilla curviseta* and *P. cuneata*) competed in their bright yellow colour with *Saxifraga stenophylla*. We also found yellow flowering *Cremanthodium arnicoides*, *Senecio graciliflorus*, *Inula obtusifolia*. Towering plants like *Phlomis cashmeriana*, *P. bracteosa*, *Pedicularis bicornuta*, *Morina longifolia*, stood erect and exhibited their flowers on a central stem. Ground orchids (*Dactylorhiza hatagirea*) were clusters of pink charm on a fleshy stem. After photographing *Saussurea fastuosa*, *Gentiana cachemirica* and the white petals and round black dots of *Leontopodium*

jacotianum, we returned to Ghangaria overwhelmed by the beauty of the Valley. We had to remain content, however, with our first day's discovery of the Himalayan blue poppy. But it was a memorable day for us and the weather had been kind.

18th August ... Hemkund

Hemkund is 8 km from Ghangaria. The climb is steep and on both sides one finds a variety of flowers. The final 1100 steps were quite exhausting. Here we found brahmakamal (*Saussurea obvallata*) and Himalayan blue poppies above an altitude of 4200 m. Brahmakamal is offered to the local deities. Terrestrial orchids (*Dactylorhiza hatagirea*), polygonaceae (*Bistorta affinis*, *Oxyria digyna*), legumes (*Parochetus communis*, *Chesneya cuneata*) were seen on the mountain slopes, mostly in the lee of

rocks. Hemkund is situated at 4150 m and the small lake with underwater springs is surrounded by snow covered mountains. In front of the lake is a gurudwara and an old temple. In the temple and in the gurudwara brahmakamals are kept in front of the Granth Saheb (the holy book) and various deities. On the mountain slopes a variety of flowering plants occur. Some of the more adventurous amongst us climbed the mountain slopes and discovered star-like edelweiss (*Leontopodium himalayanum*), while we, the less energetic ones, sat thinking of the happy memories and moments we had spent among the flowers in that Kingdom of Flowers. □



Enjoying the serene beauty of the valley

Snake story

The ability of the mongoose to escape fatal cobra bites has long been explained away as owing to its agility to avoid a poisonous snake's fangs, while the fangs do not reach the mongoose's skin because of its bristling fur, when its "hackles" are raised to make it look bigger.

Snake charmers, or *madaris*, as they are better known, hookwink gullible people by selling wild roots and herbs which, they say, the mongoose feeds on when it is bitten by a venomous snake. The real reason for the mongoose's immunity was recently discovered by scientists at the Weizmann Institute, Israel. The receptors in the mongoose's muscle cells are so similar in structure to the snake's receptors that snake venom cannot induce the paralysing action of cobra venom alpha-neurotoxin. This, it appears, is the key to the mongoose's legendary immunity.

B.F. Chhapgar,
 Mumbai.

Indian Wild Flowers

In the article *Indian Wild Flowers in Hornbill* 1997 (1), the author Mr. Isaac Kehimkar has provided us with some very important information about the wild flowers which we see daily but know nothing about.

I am confused regarding the common name of *Ixora coccinea*. If my memory does not deceive me, then I remember reading in one of the Journals that jungle flame is the common name of palas (*Butea monosperma*).

I need your help to eradicate my confusion between the common names of these wild flowers.

Simanta Kumar Kalita,
 Guwahati University.

Eds: The common name of *Ixora coccinea* is jungle flame and *Butea monosperma* is commonly known as flame of the forest.

SANCF INVITES PROJECT PROPOSALS

The Sálím Ali Nature Conservation Fund invites project proposals. Normally projects with budgets between Rs. 5,000/- and Rs. 15,000/- are funded, but amounts upto Rs. 35,000/- may be sanctioned occasionally, depending on the importance of the project or availability of funds.

Priority areas include:

- Conservation action by NGOs
- Status surveys of endangered ecosystems/species.
- Microwatershed development and regeneration of natural forests.
- Studies related to resolution of man/wildlife conflict.
- Issues related to management of national parks/protected areas.
- Seminars/Workshops on conservation issues.

For details contact the Conservation Officer, BNHS.

Fish leaving the water

IT MAY interest the Society to read my experience of a fish travelling on dry land in our hot Indian sun. In the monsoon of 1893 I was in Porbandar, Kathiawar. It was in August, and there had been little or no rain for two months, and the crops had in many places perished for want of rain. At 1 pm during the heat of the day I was seated in the dry sandy bed of a river under a road bridge twelve miles from Porbandar. The sun was burning hot with a cloudless sky. While I was seated eating my tiffin I thought I saw a large fish jump into the air from a dry gravelly sand bank in the middle of the river. Thinking I had seen nothing, I took no further notice, but went on with my tiffin. Five minutes later I again saw it jump up into the air some distance off. Then I left my tiffin and found the fish travelling over the gravel on its belly, moving rather slowly by means of its lower fins. I took it up by its tail. I found the skin quite dry. It at once wriggled loose. Again I took it up more firmly by the tail and put it into a small gravelly pool about three inches deep but too shallow for it to swim in. Then I took it out of the pool by its tail and dropped it into a pool three feet deep, where it immediately went to the bottom and remained motionless like a pike. I could see it at the bottom of this deep pool during the hour I remained at the bridge. The fish was fully twelve inches long and weighed over one pound. The river was dry except for the two pools I have mentioned, one of which was too shallow for the fish to swim in. Hence the reason for its going on its travels. The heat on the hot gravel was very great. I have on a flat terrace roof in Bombay registered 140° Fahr, with a thermometer laid on the roof. The heat on this gravelly bed must have been at least as great.

This fish had a dry hard skin. I do not recollect there being scales on its skin unless they were quite small. It was in perfectly good condition. I suppose my word will be taken for

the above description. I had with me a well-known pleader of Rajkot, also a well-known contractor of that place and four other people connected with the contractor, who all saw what I did and expressed their great surprise at a fish travelling on dry land in the great heat of after mid-day. I judge that the fish was leaping for the purpose of seeing which way it was travelling.

D. GOSTLING, F.S.A.
Bombay, 18th April, 1895.

A bird killed by a mantis

I SEND you in spirits a specimen of the Small Sunbird (*Arachnechthra minima*) and a large Praying-Mantis female (probably *Hierodula bipapilla*). The history attached to them is as follows:-

The sunbird happened to come hovering round a branch on which the mantis was, and the mantis, whether in fright or otherwise, struck out at the bird with its forelegs and scalped it, and the bird dropped dead. The mantis was secured alive and both it and the bird were sent to me by Mr. T.J. McCloughin in whose compound the occurrence happened and from whom I obtained an account of it. This was nearly two years ago, and at that time we were both living in Dharwar. Considering the way in which the mantis' forelegs are armed and that it weighs considerably more than the bird, there is nothing inherently improbable in what occurred.

C.A.R. BROWNE, Major, R.E.
Bombay, May, 1899.

Bees destroyed by *Sapindus emarginatus*

I AM sending you a box of dead bees I picked up under a tree now in flower in the gardens, *Sapindus emarginatus*. The tree begins to flower about the middle of October, and bears a

profusion of small whitish inodorous blossoms which attract the bees. It seems very strange that insects possessing such a wonderful instinct should drink the nectar from the flower and get killed in this way, for I found them dead in thousands under the tree. The effect produced appears to be that of a powerful purgative, and there are now numbers of bees buzzing about on the ground unable to fly.

THOS. H. STOREY.
Oodeypore, December, 1890.

Liquid discharge from Cicada insects

WHEN WALKING recently in the forests, on the outskirts of a small village, in the Pakhal Taluk of H.H. The Nizam's Dominions, my attention was attracted by what appeared to be a shower of rain or drizzle amongst some Ebony and Palmyra trees beyond me. On approaching the

trees, the shower increased quite sufficiently to wet my 'coat', and the well-known deafening noise of the 'knife-grinder' insect (*Cicada ducalis*, I think) was heard on all sides. The trees for a distance of some 200 yards were densely crowded and covered with these insects, so much so that not a vestige of the bark of the trees could be seen. On tapping the trees with a stick they flew off in thousands, settling again almost immediately not far off. The curious appearance of rain was caused by some fluid emitted by the insects, one of which I send you. (Identified as *Paecilopsaltria subrufa*, Dist.-Ed.) A little rain had fallen a day or two previously, and I am told these insects appear generally after the first showers, remaining on the trees for 2 or 3 weeks but apparently eating nothing. A humorous Gond informed me that they then die "because from making so much noise their heads drop off."

W.F. BISCOE
Secunderabad, 5th June, 1896. □

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Indian Wildflowers

The receding monsoon leaves a colourful trail of wild flowers as most annuals begin fruiting to prepare for the next rains.



SENSITIVE SMITHIA *Smithia sensitiva*

Hindi: Odabrini

Bright yellow flowers of this low growing herb are a common sight along the country roads as monsoon trails off. Grows throughout India upto 900 m on the hills.

Leaves are cooked and eaten and make excellent hay for cattle, they also have refrigerant properties.



TOUCH-ME-NOT *Mimosa pudica*

Hindi: Lajvanti

This much popular prickly, low growing plant is seen throughout India in hot, moist localities. Its compound leaves droop to close when touched. Pinkish-purple globular flowers are seen throughout the postmonsoon period. Fruits are flat, pale brown bristly pods. Roots have cooling and diuretic properties and are used in the treatment of ulcers, dysentery, inflammation, jaundice, asthma and fever. Leaves are used in the treatment of sore eyes, cuts and wounds.



HILL BARLERIA *Barleria prattensis*

An erect woody shrub that grows in the Western Ghats. Commonly seen along the forest streams and forest edges. Flowers on the terminal spike are seen from August to October. This group of plants is named after Jacques Barrelier (1606-73), French monk and botanist.



YELLOW HEDGE BARLERIA *Barleria prionitis*

Hindi: Jhinti

A much branched prickly shrub seen throughout the warmer parts of India. Often planted as hedge as it grows upto 1.5 m and for its prickles. Flowers from late August onwards till April - May. The plant has antiseptic properties. Decoction of roots is used as mouth-wash to relieve toothache. Leaves are rich in soluble potassium and much valued as a diuretic.



PIN-CUSHION *Neuracanthus sphaerostachys*

Stands of this erect gregarious shrub are common in the deciduous forests of the Western Ghats, Deccan and Gujarat. Depending on the moisture available, this shrub is annual or perennial. Flower is a favourite of butterflies. Powdered paste of roots is used to treat ringworm infection and indigestion.



SILVER-SPIKED COCKSCOMB *Celosia argentea*

Hindi: Sarwar or Sufaid Murga

Cockscombs swaying along the forest paths are a familiar sight from August to November. This erect annual grows throughout India upto 1500 m in the Himalaya. Cooked young leaves taste delicious with chapati and are highly nutritious. Leaves are known to contain good amount of crude protein and vitamin C. Extract of the plant has shown effective anti-bacterial properties. □

Colourful Trail



SENSITIVE SMITHIA



YELLOW HEDGE BARLERIA



TOUCH-ME-NOT



PIN-CUSHION



HILL BARLERIA

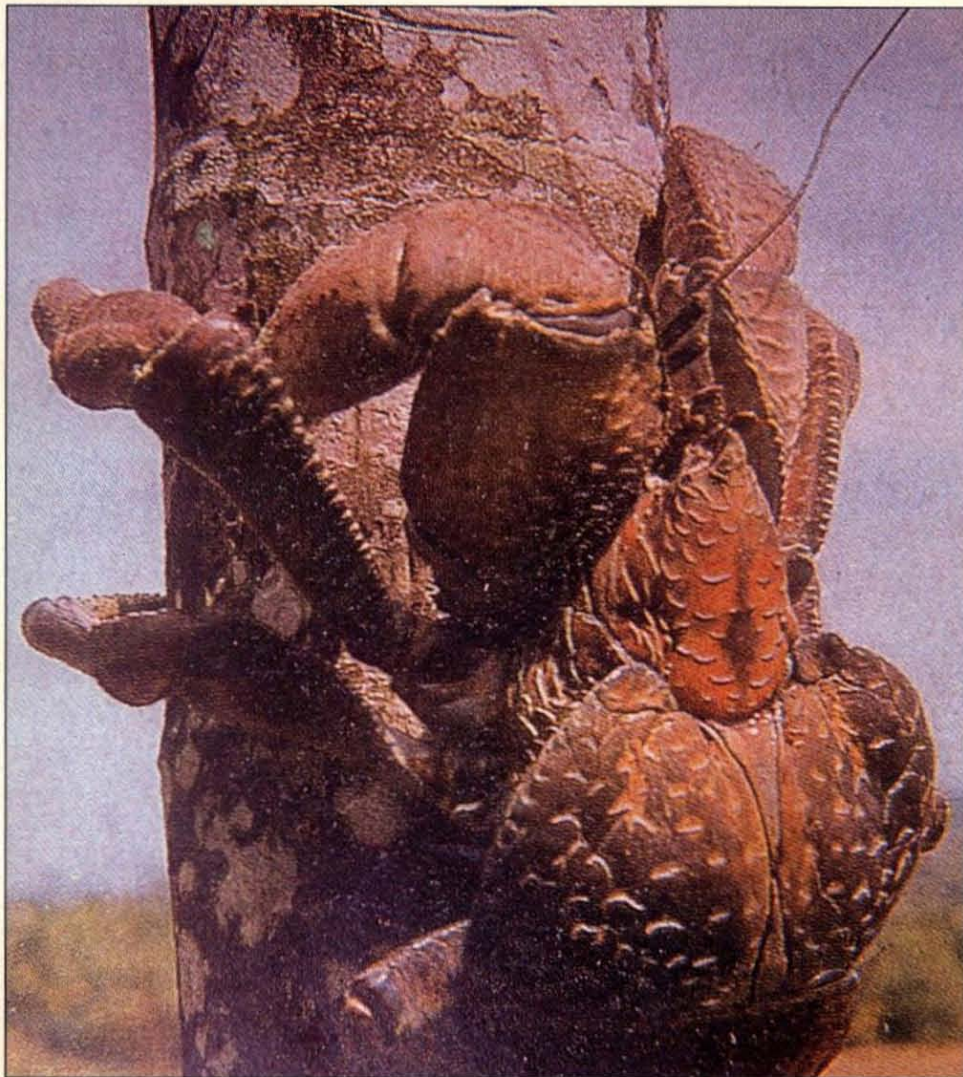


SILVER-SPIKED COCKSCORB

**The spotted deer is at its best in the
Himalayan foothills, in Terai and in
Madhya Pradesh**

KHALID GHANI





Birgus latro — the coconut crab

SEASHORE LORE

28. GIVE A DOG AN ILL NAME ...and hang him

Beefsea

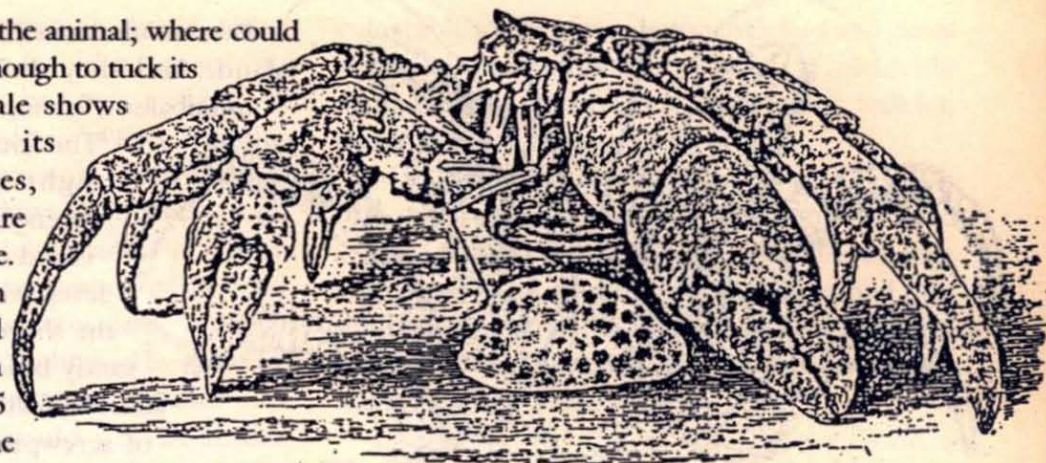


India is fortunate in having one of the rarest, and biggest, “crabs” — the coconut crab, also called robber crab. It is found on South Sentinel Island of the Andaman Islands group, and also in the Nicobar Islands. These are the northernmost haunts of the coconut crab in the Indian Ocean; it is found there from some islands of East Africa (e.g. Aldabra, Cousin Island) to the central Pacific as far as the Gambier Islands in the Tuamotu Archipelago and northward to Taiwan and Ryu Kyu Islands of Japan, but is absent in western Indonesia and Malayan Peninsula. Earlier, these crabs were quite common all over the Pacific and Indian Oceans, but they seem to be very sensitive to the presence of man. Wherever a new human settlement springs up, the coconut crab tends to vanish.

The coconut crab (*Birgus latro*) is not a true crab, but a hermit crab. Typical hermit crabs have a soft abdomen, twisted to one side, and this is tucked inside an empty snail’s shell for protection. Its abdomen is shielded by hard plates and is

straight. This is good for the animal; where could it find a snail shell large enough to tuck its abdomen in? The female shows asymmetry in that its abdominal appendages, which carry the eggs, are present only on the left side.

Its body is up to 30 cm long and 20 cm wide and weighs 3 to 5 kg, though a maximum weight of 15 kg has been recorded. The



span of the legs of a large specimen may be 190 cm, with the girth of the large claw at 20 cm. The left claw is usually the bigger of the two. Its 14 pairs of gills have shrivelled up, and the lining of the gill-chamber is spongy and with warts, so that it can live most of its life on dry land.

The coconut crab, though not named as such by him, seems to have been first noted by Clusius, a French botanist and medical doctor and Professor of Botany at Leiden, in 1605 in his *TEN BOOKS ON EXOTIC ANIMALS, PLANTS, SPICES, AND OTHER STRANGE FRUITS*. He describes "crabs grazing on herbs from the island of *Tarnate Inter Iavam et Moluccas* (today's Ternate)." The translation from Latin reads "On the deserted island at which Francis Drake and his companions had called for fresh water (Ternate) they went into the dense forest and met with many large crabs which were grazing on weeds and plants (gramen). These were hiding themselves in the hollow caves of trees overturned by the wind or even under the trees proper. The seafarers stilled their hunger, which had tortured them for many days, by feeding on the boiled crabs. They thought that, contrary to the habit of other crabs, these large crustaceans could live in dry habitats. After they had taken many of these crabs to the beach and thrown them into the water, they observed that these animals suddenly fled away and made their way back to their pastures".

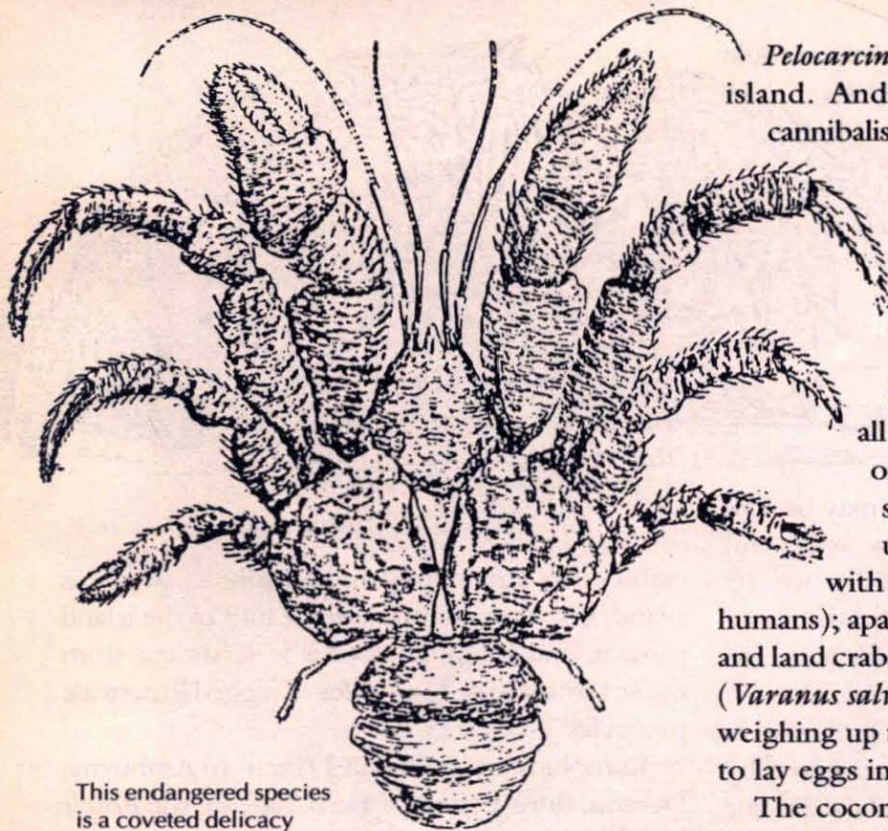
The next record is by Dampier in 1688, from the Christmas Island. He said that "the robber

This docile crab has unimaginable strength

crab occurs abundantly and equally all over this island. It is even plentiful on the hills of the island plateau, and in some cases it is separated from the sea by three or four miles of jagged limestone pinnacles".

Rumphius recorded it in 1705 from Amboyna. Darwin, during his historic voyage on the *Beagle* in 1836 also mentioned its occurrence in the Cocos-Keeling Islands. And the following reference by Francis Fletcher of Drake's voyage on the *Golden Hind* round the world from an uninhabited island south of Celebes, must surely be of the coconut crab: "... the huge multitude of a certain kind of crayfish, of such size that one was sufficient to satisfy four hungry men at a dinner, being a very good and restorative meat... They are, as far as we could perceive, utter strangers to the sea, being always on the land where they work themselves earths, as do the conies, or rather, they dig great and huge caves under the roots of the most huge and monstrous trees, where they lodge by companies together. Of the same sort and kind we found some that when we came to take them, did climb up into trees".

The other name of this creature, viz. robber crab, is based on tales that it climbs coconut trees to steal coconuts and feed on them. (The Latin word *latro*, used in the coconut crab's scientific name, means "robber"). I have never seen one feeding on coconuts on the ground, let alone on



This endangered species is a coveted delicacy

a tree, so it is a question of giving a dog an ill name to hang him. South Sentinel Island has only six coconut trees, surely not enough to feed its population of about 3000 coconut crabs. But below these trees can be seen broken coconut shells, with the fibrous husk torn from the hard shell. The crab hammers open a coconut by thrusting a finger of its large claw into one of the three "eye" holes, and then extracting the tender copra with the small hinder pair of claws. When Alcock visited South Sentinel Island in 1889, there were no coconut trees on it, but he did see coconut crabs there. In spite of their name, the bulk of their diet consists of the fruits of wild chikoo (sapota), and they also relish the fruits of screwpine (*Pandanus*), sago palm (*Arenga listeri*), jackfruit (*Artocarpus heterophylla*), *Barringtonia* sp. and *Canarium* sp. It may sound disgusting, but they are not averse to consuming (human) stools. They also feed on their smaller cousins — the hermit crabs (*Coenobita*) and land crabs (*Cardisoma hirtipes*, *Geograpsus grayi* and

Pelocarcinus humei) all of which abound on the island. And they do not mind resorting to cannibalism, feeding on smaller coconut crabs.

The South Sentinel Island, barely eight kilometres in circumference, is only a flat coral reef island rising a few feet above sea level, with a lagoon along half of the shore, the rest being rocks or sandy beach. Loose coral is strewn all over; further up the beach is a belt of screwpine (*Pandanus*) and then starts the forest, but there is no undergrowth, so that one can walk with ease. The island is uninhabited (by humans); apart from coconut crabs, hermit crabs and land crabs, there are the giant water monitors (*Varanus salvator*), growing to 1.25 metres and weighing up to 4.5 kg. Sea turtles visit the island to lay eggs in the beach.

The coconut crabs shelter under the buttress roots and inside hollow logs of the trees. While walking on the forest floor is cumbersome for coconut crabs, climbing coconut trees is no problem for them. To climb, it grasps the tree by entwining its first two pairs of walking legs around the tree. These legs have just the right curvature to give a firm grip, while the smaller third pair of legs and the massive claws serve as counter weights. When coming down the tree, the claws are used as brakes, to prevent the crab from hurtling down. They usually climb to 2 or 3 metres, but Rumpff has seen them 30 metres high at Christmas Island, feeding on the fruits of sago palm. If a coconut crab while negotiating a narrow branch slips to the lower side of the branch, it continues upside down, somewhat like a sloth. On some islands, the natives on seeing a coconut crab on the top of a tree, tie a ring of grass high up on the trunk. As the crab comes down, its legs feel the grass and it thinks that it has reached the ground and lets go of the tree, hurtling down to its doom.

The crabs are surprisingly docile. When caught, they offer only a feeble resistance, not using their massive claws but only striking out with their powerful second pair of legs. And they are terribly inquisitive, coming right down to the campsite tents, and taking away cans of food, camera bags and sundry items, while not being afraid even of the hot glowing embers of the cooking fire (No wonder, their other name is robber crab!). And they cannot be frightened by shouting, clapping hands or stamping on the ground.

But their strength should not be underestimated. They can lift weights of over 28 kg. Prising away a coconut crab clinging tightly to a tree requires a force of over 30 kg. Rumphius reported in 1705 that a coconut crab tied to a bar on board his ship, lifted a goat passing by clear off the deck. And it can easily support its own weight by one claw — that means 5 kg of lifting capacity. Quite a few examples of its strength are known. A person carelessly got his finger caught in a coconut crab's claw, and it was so badly crushed that the nail came off. Another had the butt of his gun deeply dented by the claws, while a screwdriver held in front of a coconut crab was easily bent.

A coconut crab kept under a galvanized iron bucket with a 20 kg weight on top easily lifted both and tore a nylon tent to shreds. Another crab tied to a peg with strong polythene cord cut it. One claw held the rope taut while the other moved it to and fro in a sawing motion to sever the threads. Yet another crab kept inside a metal bucket with tight-fitting lid which was further tied down by nylon cord, dexterously managed to squeeze the tips of its legs between bucket and lid, tore the cord apart and wriggled out. To add insult to injury, it bent the circular rim of the bucket into an oval shape.

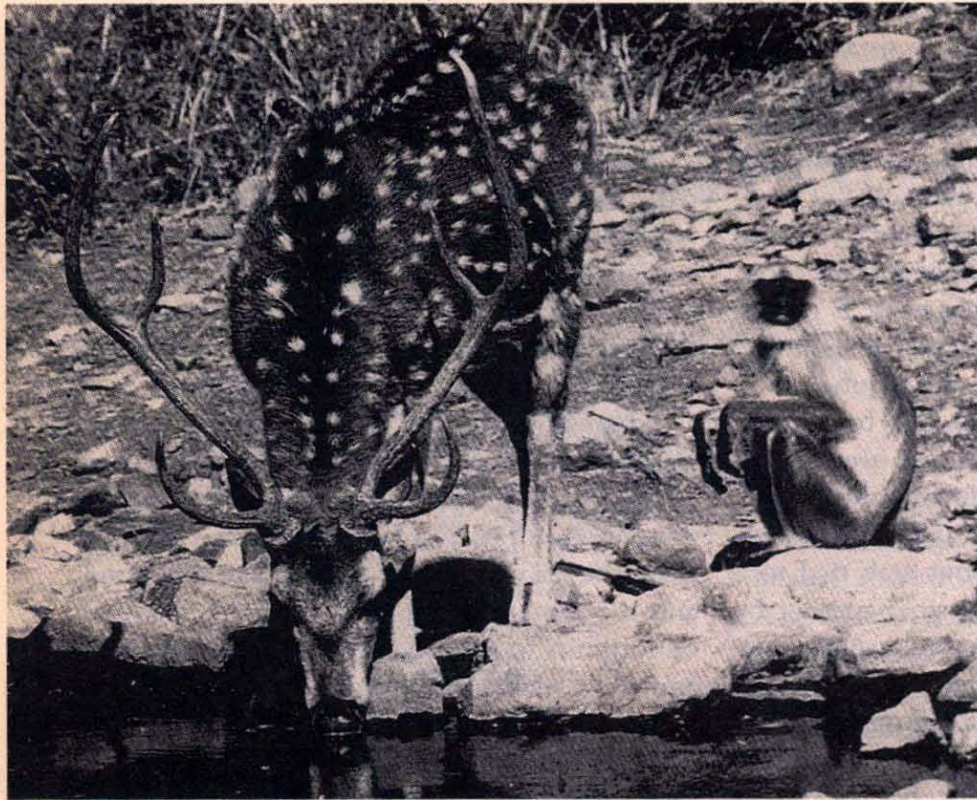
When fighting among themselves, the crabs raise their claws to form a protective shield in front of the body. The first pair of legs are lifted high up and, while out of reach of the opponent's claws, are deftly lowered, trying to pierce the soft,

vulnerable joints of the opponent's legs and claws with the sharp tips of the legs. If suddenly approached, a coconut crab will lift its walking legs and point them at the intruder.

Man, as usual, plays a role in their destruction. Natives eat it wherever it is found; its taste is considered pleasing, being a mixture of nuts and goose liver. Baguis (1970) has warned that the hepatopancreas of these crabs, after feeding on the plants *Diospyros maritima* and *Ceodios umbraculifera*, can be lethal if eaten by us.

I had gone to the Andaman Islands on a serious mission, but all cruises have their share of fun and laughs. We were on an Indian Navy minesweeper. Half way between Madras and Port Blair, the sea was as calm and flat as a mill pond, and the captain felt that this was too good an opportunity to be missed. The ship was stopped, and those inclined to have a swim were invited to jump in. But due precautions were taken. Two lifeboats were lowered into the sea, along with a long stretch of net. In each boat was a sailor with a rifle; this was to deter any inquisitive shark from venturing too close. Another sailor, wearing a bathing suit, had a lifebuoy in case any swimmer got into difficulty. The lifeboats took up position away from the ship, with the net stretched between them so as to form three sides of a rectangle; the ship formed the fourth side.

We all went to the lowest deck and jumped in. But one of us climbed to the highest deck, shouted like Tarzan, waved his arms like a hero and jumped in. From the way he struggled in the water, it was obvious that he was no expert swimmer. A sailor from the lifeboat dived in and brought him out. The captain was furious, as he was responsible for the safety and well-being of everyone on board. He gave the chap a dressing down, saying, "Are you such an expert swimmer that you had to go to the top deck to jump in?" As innocent as a lamb, the rescued person replied, "Does one have to learn swimming? I thought that the moment one jumps in, he can swim like a fish"□.



BEYOND THE TIGER — PORTRAITS OF ASIAN WILDLIFE by M.K. Ranjitsinh, published by Brijbasi Printers Pvt. Ltd. E-46/11, Okhla Industrial Area, Phase-II, New Delhi-110 020. Pp 208 (29.5 x 22 cm), 1997. Price not given.

Indian Natural History has had a traditionally unique feature, the involvement of talented amateurs. In fact, from the time that serious attention was paid to the fauna and flora of the Subcontinent, the amateur — whether he was an administrator or in service in the military or the police — has contributed substantially and sometimes exclusively to the study of Indian fauna and flora. Ranjitsinh continues the tradition with élan. A member of the Indian Administrative Service, his knowledge of India's wildlife and wilderness is amazingly encyclopedic. In this coffee table book — a classification which I give to books one cannot comfortably read in bed — Ranjitsinh

describes the natural history and conservation problem of selected species of Indian wildlife. Presently conservation in India begins and ends with the tiger and Ranjitsinh takes off from the tiger to species in equally or more parlous state, namely the lion, leopard, elephant, rhinoceros, blackbuck and similar species precariously perched on the knife edge of extinction.

In the first chapter, the conservation and status of wildlife not only in India but also in southeast Asia is comprehensively examined. The following chapters describe the species, each to a chapter. Distribution, abundance in the past,

present status and problems and possible solutions are discussed by the quintessential expert on Indian wildlife in the country and perhaps the last of the breed of informed amateur naturalists.

The last two chapters describe the empathy of man for wildlife in India and the many areas where man has traditionally protected wildlife. The last chapter examines the future of wildlife in India: there does not seem much of a future and as Ranjitsinh rightly says 'Man is at the crossroads of life in southern Asia. His predicament is best described by the classic Sanskrit *shloka* translated as, "I know what is right, I cannot attain it; I know what is wrong, I cannot abstain from it."'

The book is illustrated by superb photographs taken by the author. A worthy investment for anyone interested in India's wildlife. □

J.C. DANIEL

Satellite-tagged houbara bustard tracked

A houbara bustard that was caught and satellite tagged in Abu Dhabi was tracked to China and back. The distance between the wintering and breeding grounds of this houbara was a staggering 12300 km. When researchers of the Environmental Research and Wildlife Development Agency's (ERWDA) National Avian Research Center (NARC) caught this houbara in February, they had no idea where it would fly, and were excited when signals relayed from the transmitter showed that it was heading east into China, a country to which they had never tracked houbara before. It is even more amazing that this very same bird was back in the UAE eight months later during the winter season.

Since 1993, NARC's researchers have successfully tracked 31 houbara bustards as well as 21 falcons.

This is the first time ever that a houbara has been tracked for a complete migratory cycle. Success was due to the use of a solar-powered transmitter developed by Microwave Telemetry, USA.

The male houbara weighing 1950 gm was caught on 26th February, 1997, in the Baynuah area (western region of Abu Dhabi Emirate) with the help of wildlife rangers and a specially trained falcon, whose beak and talons had been disarmed so that it didn't injure the houbara in capture. After the bird's release, the tiny transmitter, weighing only 35 gm, sent signals that the bird left the UAE on 26th March, 1997. (This hi-tech transmitter is capable of sending signals to 3 orbiting satellites, 900 km above the earth, which then down-load the information to a computer system. From the research station in Sweihan, researchers were then able to plot, on a

Geographical Information System, that the houbara traveled 6600 km in 54 days, stopping four times and crossing 4 countries: Iran, Turkmenistan, Uzbekistan, Kazakhstan, before settling in the Xinjiang province of China.

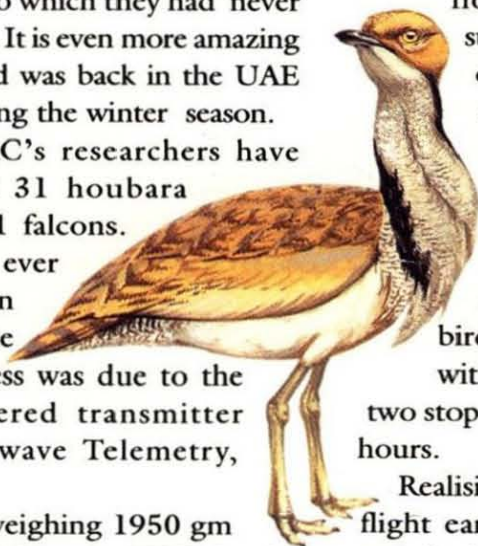
Since its flight from the UAE, NARC researchers have received 584 location points from the houbara's transmitter which has also sent back information that the bird has experienced temperatures, in China, that have ranged from 43.3°C in August to 8.5°C at night in September. It is strongly suspected that the

houbara bred in China over the summer. It was noticed in the middle of September that the houbara had started moving southward, and 58 days and 5700 km later, it arrived at Abu Dhabi Emirate once more.

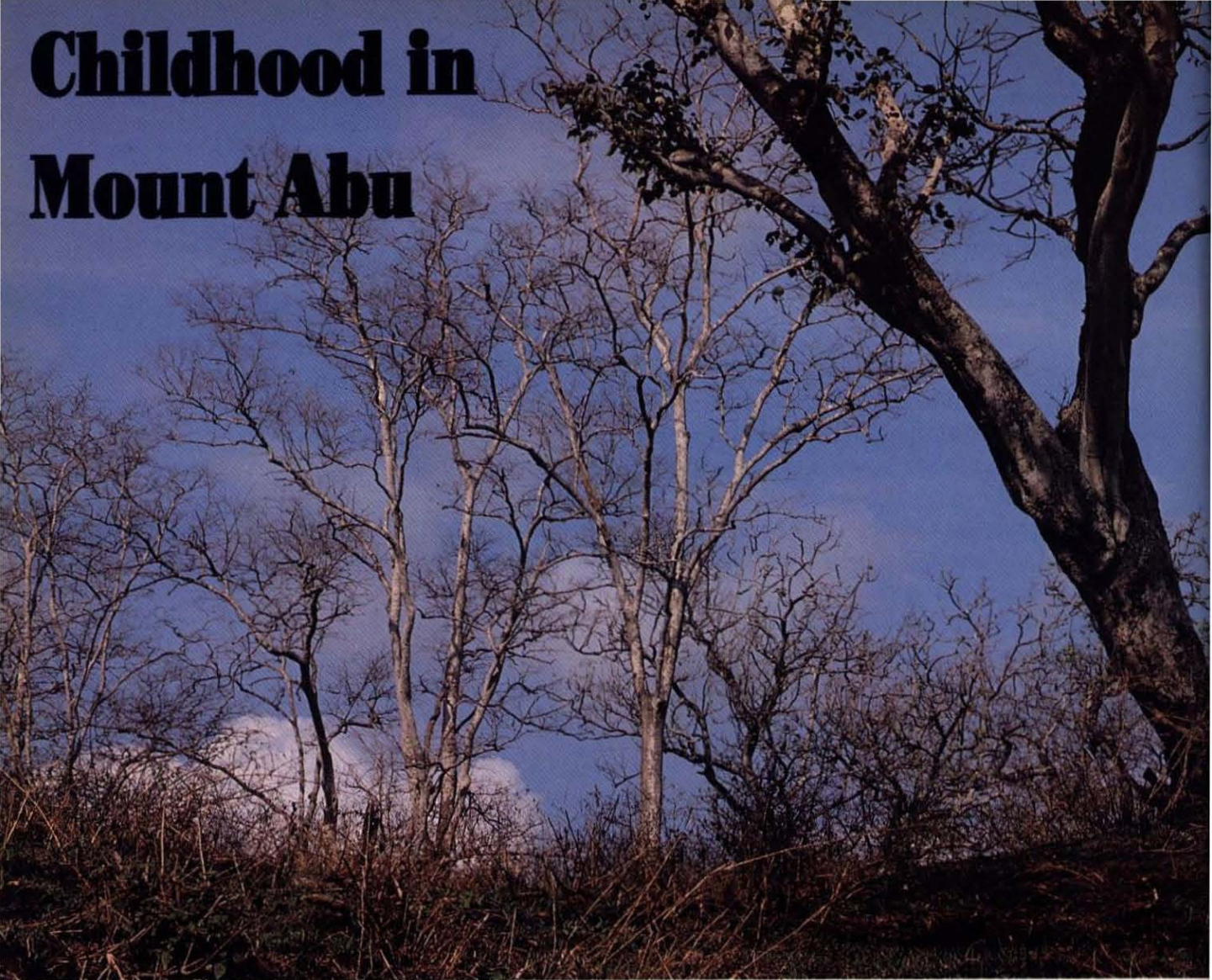
The data proves that houbara travel very long distances and are strong fliers. On an average this bird travelled at a speed of 30 km/h, with up to 1268 km recorded between two stop-overs and 700 km flown in just 24 hours.

Realising the importance of the houbara's flight early on, exchange visits have been made in the last few months with the Institute of Desert Biology and Pedology of the Chinese Academy of Science. During these visits, a 'Memorandum of Understanding' has been signed between the Institute and ERWDA in which it was agreed that a three year collaborative project will take place. Fundamental to the 'Memorandum' is that joint studies will be undertaken on the migration, genetics, population dynamics and breeding biology of the houbara population in Xinjiang province, whose population numbers and dynamics are virtually unknown.

Taej Mundkur



Childhood in Mount Abu



SUNJOY MONGA / PORPOISE PHOTOSTOCK

*E'en now the destruction is begun,
And half the business of destruction
done.*

— Oliver Goldsmith

Text: Ishwar Prakash

Ishwar Prakash has studied desert vertebrates for four decades. Professor of Eminence from the Central Arid Zone Research Institute, Jodhpur, he is working at the Desert Regional Station, Zoological Survey of India, Jodhpur, as a Senior Scientist of the Indian National Academy of Sciences.

During 1938-39, while teaching arithmetic at the Walter Middle School, Mount Abu, our teacher surprised us all by yelling for the class to come out to the verandah facing the road — and what a sight!! Though I was only seven I have a distinct memory of what I saw. Four dead tigers, being carried on bamboo poles on men's shoulders to the *kothi* of the Agent to the Governor General (AGG). We were told that the *Angrez Sahib* shot them on the hills. I excitedly narrated the spectacle to my father, who told me that when he joined the Residency in 1925, tigers were seen quite often. A tiger feeding on a dead donkey in the cricket field very close to the railway quarters, even during the day, stopped pedestrian movement on



E. HANUMANTHA RAO

the nearby road. The former AGG had also killed a tiger, and my father recollected that its cadaver was kept in the *kothi* awaiting a taxidermist. During those days, the uninterrupted roar of the female could be heard all through the day from the Adhar Devi mountain range. At night the roaring beast descended close to the AGG's residence. After the dead tiger was removed, the spouse was not heard. Was it a case of olfactory communication, I wondered? Alas! the king of the jungle is at present found no more in the Archaean Aravallis.

I was induced to take up research work along the Aravalli ranges as a result of such childhood reminiscences, of brooks, nullahs flowing with crystal clear water, fishes perched on the rocks

and climbing upstream, trying to reach higher and higher. The vegetation around Mount Abu was a dense unbroken green of forested hills during my childhood and there was a fear of wild animals. On their way to Guru Shikhar, Achalgarh, people used to assemble at Dilwara, and were escorted by guards carrying bow, arrow, and spear adorned with trinkets, the tinkling of which was supposed to ward off the wild animals. Trevor tal-Oriya-Guru Shikhar mountain ranges were the domain of tigers and panthers, whereas in Adhar Devi-Dilwara range the sloth bear (*Melursus ursinus*) was predominant. As a young boy I had also seen a leopard (*Panthera pardus*) when our bus stopped suddenly on the way to Abu Road while a graceful



Vast forest lands have disappeared in the last few decades.

panther leisurely crossed the road. A co-passenger recalled that once the AGG was walking on the Trevor tal road, followed by his peon, with the dog in between. Suddenly the peon yelled — a panther had dashed out of the jungle, crossed the road and vanished with the AGG's dog.

karaonda, *khajoor*, *Phoenix sylvestris*, and large figs are available in the bazaar in plenty for human consumption. Nothing is left for the wild animals to feed upon. In the old days, as one entered the Dilwara-Achalgarh track, one was greeted with the fragrance of the wild rose *Rosa involutrica*, which grew in extensive patches. They are now replaced by crop fields. Some years ago, agriculture was not known on these hills, but now irrigated agriculture is practised. The ecological scenario has changed totally. Mount Abu used to be silent except for the two summer months when tourists, mostly from Gujarat, came for short sojourns. Now they flood the area all the year round. To facilitate their stay, hundreds of guest houses and hotels have erupted on the slopes and shops cover vast forest lands. Where even a bicycle was not allowed,



The beautiful *karaonda* has dwindled along with the other fruit trees.

SUNJOY MONICA / PORPOISE PHOTOSTOCK

ISAAC KEHINKAR

and no vehicle could cross the bus terminus, innumerable cars, buses, and taxis pollute the environment. Yet Mount Abu is a Wildlife Sanctuary!

The only panther I saw recently was a dead one, and I read of two that had drowned in wells around the hills. At Oriya, a farmer told us that during July 1993, a large panther had formed the habit of carrying away goats, sheep and young heifers from farms. These incidents clearly indicate that panthers are present, probably in some numbers, but with very little to eat and practically no drinking water in their home range, they are drawn to villages, with fatal results.

After a gap of five years, we moved back to Mount Abu. We, a group of 7-8 boys took a fancy to climbing every mountain peak. During our expeditions we would watch hares, several types of cats, civet cat, mongoose, porcupines and jungle fowl. We knew all the mango and *jamun* trees. The ones with sweeter taste and smaller seeds were our favourites.

One cloudy day, we noticed the absence of a friendly troupe of langurs on Shanti Shikhar. Armed with small axes, we climbed a huge mango tree studded with ripe fruit. We were enjoying the fruit, when one of my friends whispered "a *bhalu* is climbing the tree". I immediately ordered our troop to scare away the bear with a



E. HANUMANTHA RAO

Herpestes edwardsi — the smart shikari

barrage of unripe mangoes. The marauder vanished into the thick jungle without bothering us again. Cautiously, we returned home and narrated our encounter with the ill-tempered denizen of the hills. Our forays into the hills were banned thereafter, particularly because a few



CARL D'SILVA / PORPOISE PHOTOSTOCK

The grey jungle fowl was plentiful in the hills

months earlier the *pujari* of *Chamunda Devi* had been badly mauled by a bear. The old man had lost his nose and parts of his lips! The bear population on the Abu hill has dwindled in the past 50 years. However, only last year, I saw 6 sloth bears devastating a *ber* (*Zizyphus mauritiana*) orchard on the the foothills at Anadra. Except for the female with two cubs, they were oblivious of the presence of drum beating wardens. Quite often people are mauled by bears. This beast is not cruel or ill-tempered, but man has usurped its habitat by introducing crop farming on the hills. Man harvests all palatable fruits for human consumption and the edible vegetation is over-grazed by livestock. The bear has to sustain itself on fruits of *Lantana*, which can hardly suffice.

High-school was great fun at Mt. Abu. We were keen anglers, and used hand-made fishing rods — a fishing hook on a cord tied to a thin bamboo pole. One evening, I was almost pulled by a fish into the Nakki lake. With a great jerk, I landed my catch. Before I could realise what was happening, an elderly man, also fishing nearby, pounced on it and threw it back in the lake. It was a fair-sized cobra! Shocked, I enquired of my rescuer ‘The cobra lives on land, how come it was hooked liked a fish?’ The gentleman informed me that the lake had a large number of snakes. He advised me to be very careful with the catch.

The jungle fowl, *Gallus sonneratii*, was very plentiful throughout the hills especially on Kodra dam, Gomukh slopes and on the Shanti Shikar-Adhar Devi ranges. We used to follow coveys of fowl, trying to hit them with catapults. We never succeeded. I had an earnest desire to kill or capture one myself as I used to see them being sold in the market for a rupee each. The tribals were experts in netting them. One afternoon I came back empty-handed from a fishing trip. Sometime later, we were alarmed by a peculiar noise emanating from our courtyard. Everyone rushed out and found the neighbour’s prized *minara* dangling on the fishing hook with a split

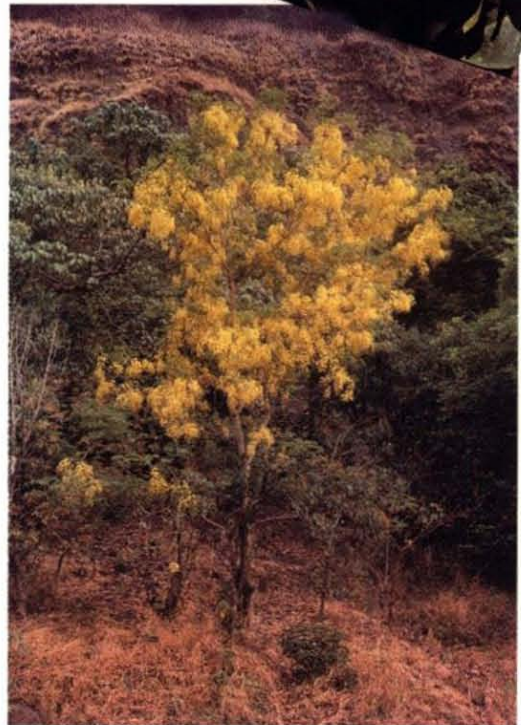
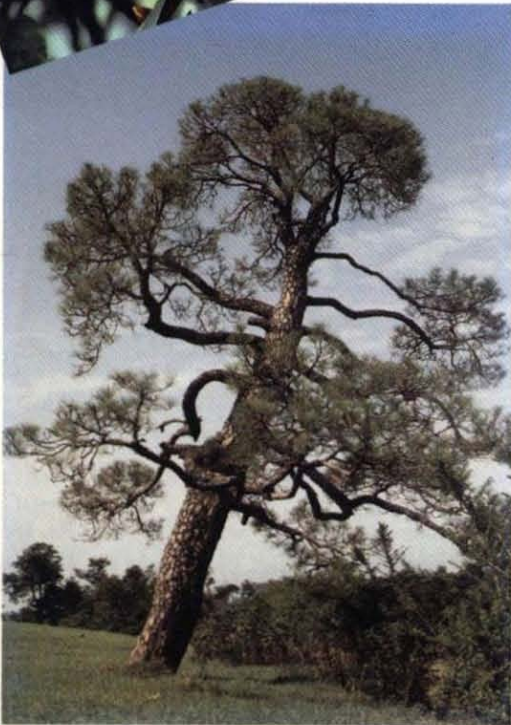
neck. I had to swallow a severe scolding for leaving a small fish on the hook. The poor unfortunate cock was baited. This episode sparked off an idea — why couldn’t we “fish” jungle fowl? We purchased long cords and fishing hooks. The lines were tied to *karaonda* shrubs, the fish-baited hook hanging about half a metre off the ground. Conservationists would not admire it, but the technique worked. We got six fowl early next morning. This novel method of fishing jungle fowl continued till, to our amazement, the mongoose *Herpestes edwardsi* and small civet, *Viverricula indica* proved to be smarter than us, and made off with our bait.

During 1993 and 1994, I had heard only a few jungle fowl calls and watched one female as she ran along a runnel. Fifty years have taken their toll on the population of this innocent bird.

As a young primary class student, I used to watch with curiosity the small animals hanging inverted in several thousands on the branches of silver oak (*Grevillea robusta*), tall rows of which were planted along the avenue between our school and the one-doctor hospital. During my high school years there were few of them. At dusk, before starting to feed they would fly very low over the lake. From the shores of Nakki lake I used to watch them dip and skim the water surface for a split second. The water that adhered to their ventral fur was sucked up. It was a splendid sight, thousands of fruit bats *Pteropus giganteus* making a noise — *chhapaak* — before gaining height. My recent estimates indicate the presence of only a few hundred fruit bats in Mount Abu. This spectacular flying mammal, which is not hunted, has also suffered at the hands of man; there is severe paucity of food due to marketing and consuming edible fruits.

The Abu hill is a Wildlife Sanctuary but in this democratic age, who can stop the felling of trees, unlawful grazing, poaching and burning of the forest for fuel. We must work to restore the ecology of this most vital habitat of our country. □

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□ *Dhanesh* - A wall magazine for children



Mr. G. Gokhale releasing *Dhanesh* while Maj. Gen. E. D'Souza, Chairperson of the Conservation sub-committee, looks on.

The Bombay Natural History Society's Conservation Education Centre that deals with informal environment education has come out with the first issue of a bi-monthly wall magazine *Dhanesh*. *Dhanesh* in Marathi means Hornbill, which is the mascot of the BNHS. This unique wall magazine has been specially designed for the municipal schools of Mumbai and is being distributed to all the municipal schools in the city.

In order to stimulate awareness among students, interesting features on nature, endangered species and India's natural heritage are highlighted in this informative wall magazine. *Dhanesh* was released by Mr. Girish Gokhale, Commissioner of Brihanmumbai Municipal Corporation, on 22nd October, 1997 at Hornbill House. Mr. Gokhale was kind enough to offer support and cooperation to BNHS. □

□ BMC plans mangrove plantation

The Brihanmumbai Municipal Corporation has decided to undertake mangrove plantation at Vikhroli in collaboration with the Godrej Trust to compensate for their destruction at Bhandup and Ghatkopar after the setting up of aerated lagoons. The project is slated to cost Rs. 1,19,18,850.

The plantation will be carried out on 40 ha of private land at Pirojsha Nagar, currently in the trust's possession. Plantation work will be carried out in the next three years. As per an agreement drafted by the BMC, the trust has agreed to plant mangroves and also protect them on an annual payment. The trust will receive Rs. 69,65,200 towards the plantation, and will be paid Rs 30,000 per acre per year as plantation and maintenance cost for the next three years. The BMC will bear the entire financial burden involved in planting the mangroves and its allied activities. The labour involved in the plantation will, however, be paid for by the trust. □

□ New Photography equipment for BNHS



Mr. Adhik Shirodkar handing over photographic equipment bought from the surplus funds of the Sálím Ali Centenary Photography Contest to the Hon. Secretary Mr. J.C. Daniel, BNHS. Also seen, left, Mr. N. Chaturvedi, Curator and Dr. Asad R. Rahmani, Director BNHS.

In Trust

*This Earth I hold in faith
My son's birthright
My son's son's heritage.*

*The plains I may not ravage
Nor the forests corrupt
Nor the greenness savage.*

*The valleys I may not scar,
Nor the rivers depoil,
Nor the oceans desecrate.*

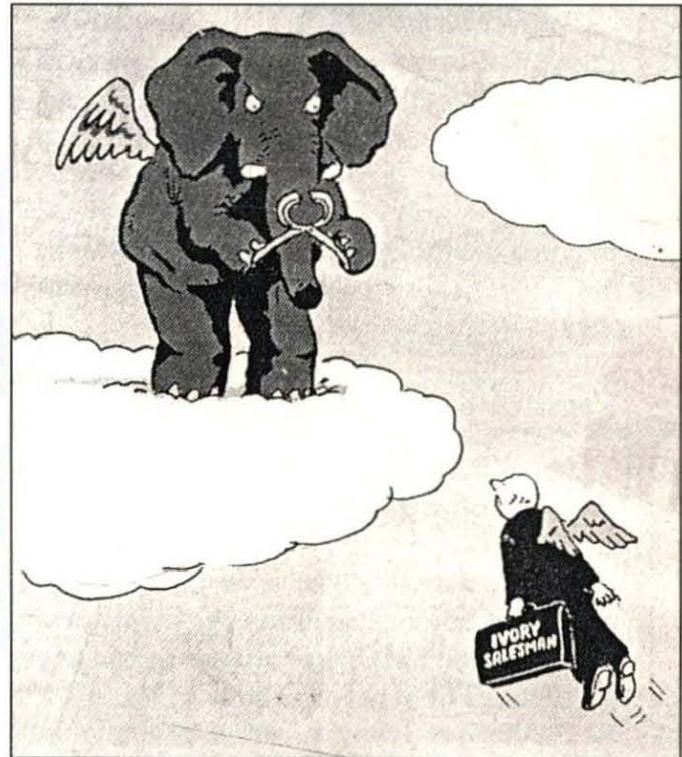
*This air I may not taint
Nor the clouds befoul,
Nor poison the rain.*

*For the land and the trees
Sky and cloud,
Ocean and seas,*

*Were my father's gift to me
To be held in trust
For the generations to be.*

S.L. Chullani

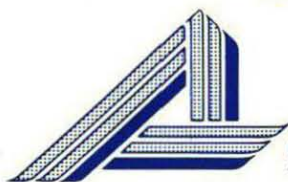
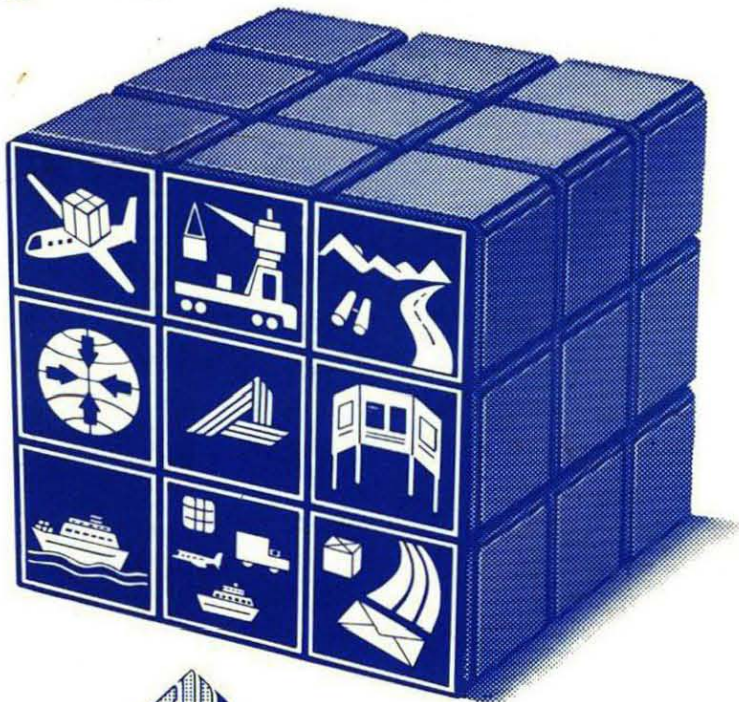
EDITOR'S CHOICE



An elephant never forgets

Courtesy: Chris Madden

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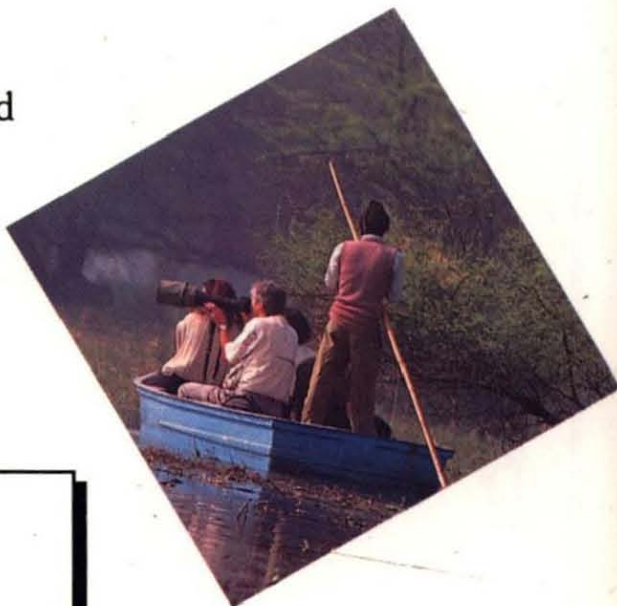
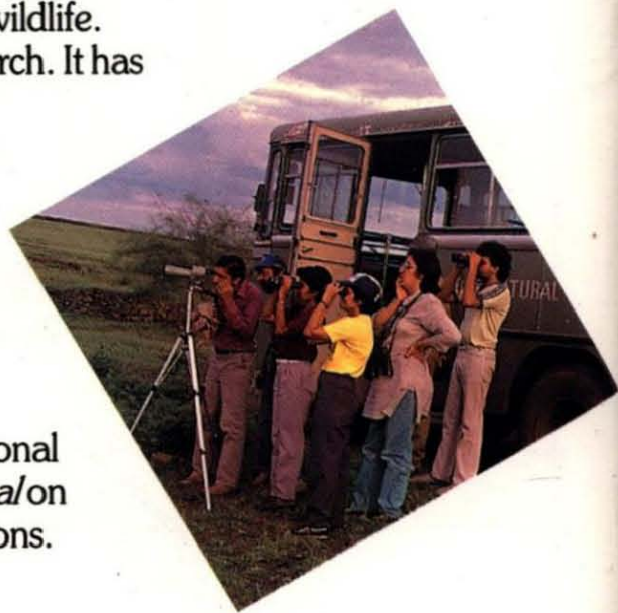
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