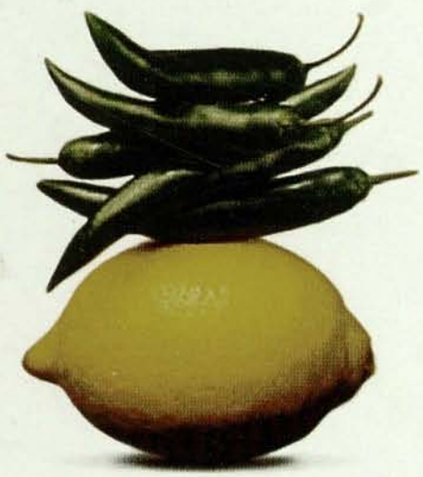
HORNBILL

April-June 2003

ABOUT NATURE AND US

BOMBAY NATURAL HISTORY SOCIETY

MEXICO
Wards off hunger



INDIA
Wards off evil

Never underestimate the importance of local knowledge.

To truly understand a country and its culture, you have to be part of it.

That's why, at HSBC, all our offices around the world are staffed by local people. In fact you'll find we've got local people in more countries than any other bank.

It's their insight that allows us to recognise financial opportunities invisible to outsiders.

But those opportunities don't just benefit our local customers.

Innovations and ideas are shared throughout the HSBC network, so that everyone who banks with us can benefit.

Think of it as local knowledge that just happens to span the globe.

For more information, visit us on **www.hsbc.co.in**

Celebrating 150 *years in India*

HSBC

The world's local bank

Issued by The Hongkong and Shanghai Banking Corporation Limited, India

HSBC 2317

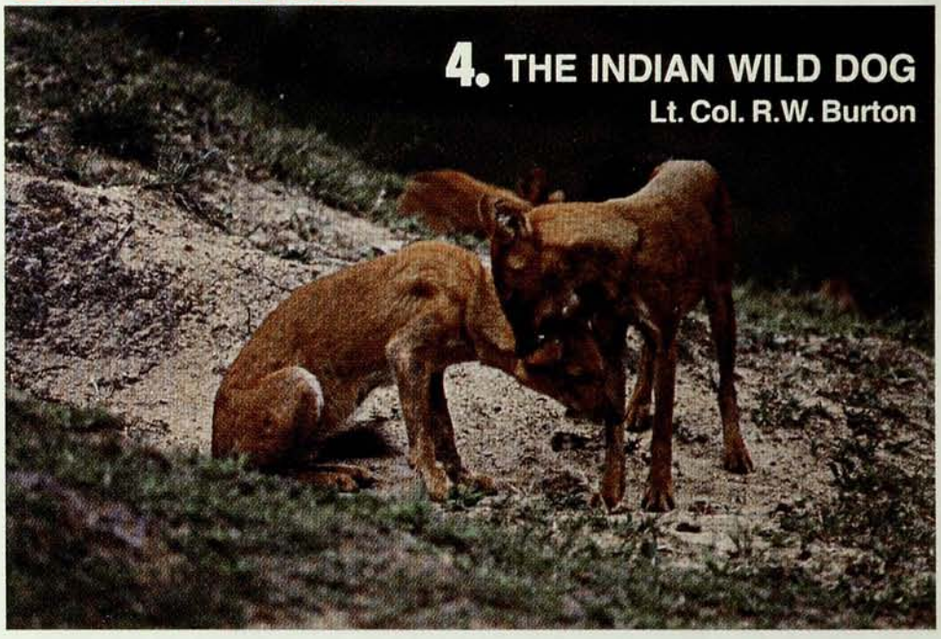
HORNBILL

April-June, 2003

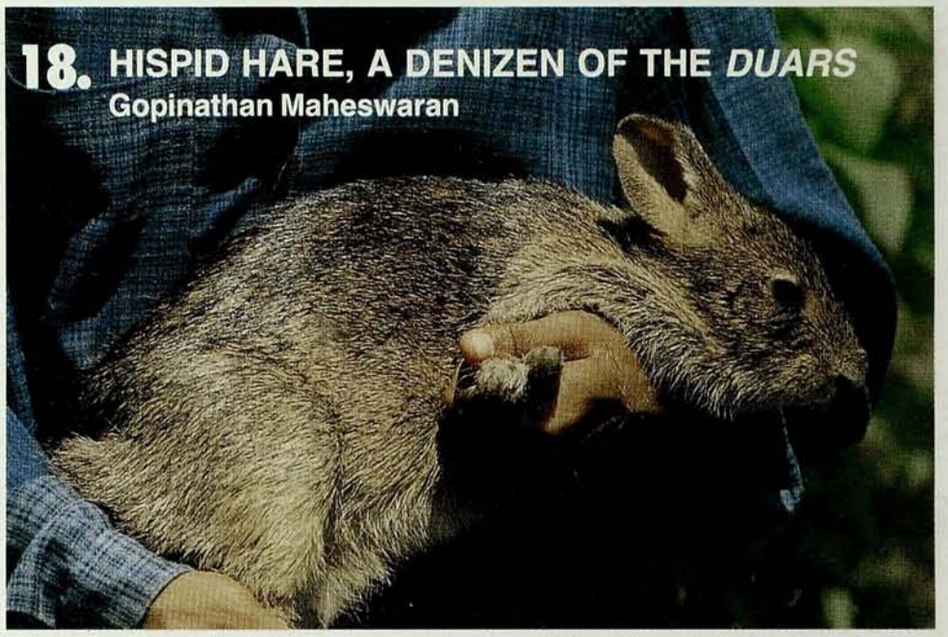
Published and printed quarterly by J.C. Daniel for the Bombay Natural History Society, Printed at Stusa Mudra Pvt. Ltd., Lower Parel, Mumbai.
Reg. No. RN 35749/79,
ISSN 0441-2370.

For more information on the Society and its activities, write to the Honorary Secretary, Bombay Natural History Society, Dr. Sálim Ali Chowk, S.B. Singh Road, Mumbai 400 023, Maharashtra, India.
Tel.: (91-22) 2282 1811
Fax: (91-22) 2283 7615
E-mail: bnhs@bom4.vsnl.net.in
Website: www.bnhs.org

CONTENTS



'The Indian wild dog' is another gem from the old *Journals* of the BNHS. Lt. Col. R.W. Burton collated all information on this interesting animal from the writings of others and his own knowledge and published his work in the *Journal* in 1940.



The elusive hispid hare was captured for the first time from the Jaldapara Wildlife Sanctuary. The author shares some exciting moments of this capture with us.

Others...

Other Features...

VIEW POINT

National Forests

"The impending water crisis confronting India can very largely be overcome by restoring "true" forest cover, to the maximum extent that present circumstances will permit, over the 33.3% of the geographical area of the country stipulated under the National Forest Policy, to be afforested.
Of the 328.7 mha comprising the geographical area of India, approximately 40% is what could be described as 'Uplands', consisting of Mountains, Hills and the Deccan Plateau. It is there that the headlands of all our rivers are located. With good cover of climax or secondary climax forests over the major portion of these 'Uplands', the entire hydrology of our country would dramatically improve. The duration of flow and discharge of many seasonal rivers and springs would increase, some becoming perennial. The widespread natural rainfall water drainage system that extends over a large part of the country, much of which has long since gone dry or levelled, could once again form the courses of active rivulets and streams, thus benefiting a large proportion of our rural population, thereby providing them ready access to potable water. This would greatly reduce the need to construct a vast network of expensive artificial canals with all the problems and limitations these would impose, not the least of which would be regular maintenance which today has been so notoriously neglected."

DULEEP MATTHAI

VARAD GIRI

THE INDIAN WILD DOG

By **LT. COL. R.W. BURTON**

Richard Watkins Burton (1868-1963) joined the Indian Army 1890 and the Society in 1893. The last of the illustrious band of 'Anglo-Indian' sportsmen-naturalists who contributed so significantly to natural history of the animals they hunted. In his later years, he dedicated himself with missionary zeal to the cause of conservation and wildlife preservation.

"For our white and our excellent nights — for the nights of swift running,
Fair ranging, far-seeing, good hunting, sure cunning!
For the smells of the dawning, untainted, ere dew has departed
For the rush through the mist, and the quarry blind-started!
For the cry of our mates when the sambhur has wheeled and is standing at bay,
For the risk and the riot of night!
For the sleep at the lair-mouth by day,
It is met, and we go to the fight.
Bay! O Bay!"

AJAY DESAI

The genus *Cuon*, to which the Indian wild dog (*Cuon alpinus*) belongs, is distinguished from the genus *Canis* (dog family) by the more rounded ears and proportionately shorter muzzle; by the line of the face viewed sideways being slightly convex, that of *Canis* being straight or concave, and by having only two true molars on each side of the lower jaw instead of three. The mammae are more numerous, there being usually 6 or 7 pairs instead of 5 typical in *Canis*.

The Indian wild dog has a wide habitat ranging from 'Saghalien, Amurland and the Altai Mountains, about lat. 50° N, over the whole of continental Asia, roughly east of long. 70° E, and occurring in the Islands of Sumatra and Java, but not in Japan, Ceylon or Borneo'. Within this wide range the older zoologists claimed to recognize two or even three distinct species. In colouring, the wild dog varies from uniform red to rufous gray or even light brownish-gray.

The breeding season is from November to February and the number of young at a birth may vary from two to six or more. Litters of seven and ten have been mentioned. There is a report of six puppies, which were described as 'six lovely little russet-red balls of fur', being reared in captivity using a village pie. The pie who had three pups of her own, after a great deal of trouble, became as attached to the jungle puppies as to her own. This was no doubt due to the fact that, in the course of a week or so, her own puppies got to smell as badly as their jungle confrères. At a very early age, the jungle puppies evinced an incorrigibly pugnacious disposition, and fought with appalling ferocity. It was incredible to see such small things fighting with so much resolution and tenacity. If the uppermost belligerent were lifted by the tail to the height of one's head it would carry its opponent up with it, and the latter would likewise decline to relinquish its hold. They would fight in this way day after day, the sluts (females) being quite as tenacious as the dog (male) puppies. The unfortunate pie-pups must have wondered into what company they had fallen. They would yell piteously when their wild foster brethren shook them up, and they had to be sent away when quite small to prevent them getting killed. Meanwhile, the wild pups continued to fight with each other with unabated ferocity until they were about seven or eight months old when — most singular to relate — they put a permanent period to their hostilities and lived in perfect amity. Apparently, they had decided which was the strongest amongst them,

Wild dogs are known to fight continuously with each other until they are seven to eight months old. Thereafter, the 'top dog' emerges who is the largest and strongest among them. To him the others pay deference.

KRUPAKAR SENANI

Wild dogs are known to follow their prey over long distances

HIRA PUNJABI

as they paid marked deference to one large dog — the largest among them who acted as their leader. They never fought with each other after they became adults. They would eat nothing but raw meat, though nearly starved to death in the endeavour to make them eat cooked food, but without avail. They would eat nothing but flesh, and not that unless it was raw. They would not eat stale meat... The dogs were dangerous to approach when feeding; but could be handled at any other time. They would never molest men; but would 'go' for any and every animal. In consequence, they had to be kept on the chain. It may be noted here that until the young ones are able to leave the place where born, they are fed by partially digested meat vomited by the mother.

Voice

The difficulty in describing the various voice sounds of the wild dog is apparent from the writings of naturalists and sportsmen. The word bark has been used, but does not convey a correct impression. Voice noises — growl, snarl, whine, are almost the same as those of the domestic dog. The sound uttered when startled, alarmed, or at time of disputing a tiger or panther kill, as I have myself heard, is a sort of hyena-like chattering, analogous to the 'chuck, chuck, chuck' of the Indian fox. The sound used when the dogs are communicating to one another, otherwise than when hunting, is difficult to express. A sort of soft whistling noise seems best to describe it.

The Indian wild dog does not bark: domestic dogs turned loose on the island of Juan Fernandez quite lost their bark after 33 years.

Calling up

Wild dogs can be successfully called up by a series of 3 toots on an empty .318 cartridge case, these representing the three whistling notes of the dogs calling to one another. Another method found successful is the use of a leaf blown upon edgeways between the thumbs, as employed in Burma (now Myanmar) for barking deer.

Blinding the eyes of animals with urine

Most writers remark upon the belief held by jungle inhabitants of all parts of India where *Cuon* is found, that the animal deliberately makes use of its urine to blind game being hunted, either by sprinkling bushes with it and then driving the animals through them, or whisking it into the animal's eyes with their tails. This belief will probably never be relinquished by the jungle inhabitants of India and other Eastern countries. Although we know that much of the wildlife lore of jungle peoples is accurate, or has a substratum of fact, yet in this matter it can be safely asserted that the wild dog's urine has no special blinding property, and that the animal does not deliberately use its urine as an aid to hunting.

Likes and dislikes as to meat

Wild dogs generally demolish their kill at one sitting, but they desert their kills, if any meat is left, at the first sign of decay. Wild dogs will appropriate a tiger or panther kill should they come across it. No doubt they prefer fresh meat, that of animals they have themselves hunted, but they do not refuse meals accidentally found. They will sometimes eat very foul and disgusting meat, but only exceptionally.

Domestic stock

Wild dogs do not ordinarily attack herds of cattle grazing in the forests, though there have been a few instances of the kind recorded. In the Nilgiris, they make frequent attacks upon the Badagas' buffalo calves, and the ryots' sheep and cattle of the Low Countries. A pack of fourteen or fifteen wild dogs, raided upon a herd of about thirty calves whilst out grazing, and killed five and wounded two of them, which died some days after, before they could be scared away. Such an affair is exceptional, but several cases of buffalo calves being killed out of Badaga herds is known, and under certain conditions, in the absence of game animals, wild dogs will stay in a locality and kill cattle. They did not kill cattle all the time, but did so in the dry weather when the sambhur were noticeably scarce. It is reported that some years ago there were large numbers of pig in the Billigirirangans: wild dogs then increased and killed scores of pig, which then became quite scarce. It is curious that wild dogs do not molest bullocks in a cart, or attack a pony ridden past a pack lying about by the side of a forest road.

Attitude to Mankind

I have been able to find only two instances of wild dogs being said to have been aggressive to man. One report relates that the wild dogs of Nimar were very bold; that they growled at the writer several times, and that just before he left the jungles, the Forest Ranger informed him that four or five of them had attacked two forest guards who had killed one dog with an axe. It is fortunate that the attitude of the wild dog to human beings and domestic animals is almost invariably wholly unaggressive: had it been otherwise, mankind in the forest areas would never have been safe from their attacks.

A lone wild dog is capable of pulling down a large prey, but in a pack they are more bold

RAJA PUROHIT

Attitude to larger Carnivores

No writer on the wild dog of India omits discussion of the widely prevalent belief and assertion of native shikaris and jungle people that wild dogs will, on occasion, attack and kill the tiger. I have recently obtained an authentic instance of a full-grown tiger having been killed by wild dogs. Mr. G.A. Tippets-Aylmer, a Planter in the Wynaad, South India, tells me that one day some years ago, when in the forests surrounding his

KEDAR BHIDE

Wild dogs take to water and lie in it to keep cool in very hot weather

Estates, he came across the skeletons of a full grown tiger and seven or eight wild dogs. These were, perhaps, ten to fifteen days old and had been eaten and pulled about by jackals, pigs, porcupines, etc. By the bushes having been laid flat and other signs, it was apparent that a great fight had taken place. Perhaps, in this instance also, the cause of the combat was interference by the tiger in a hunt in which the pack was engaged. It has been sufficiently established that wild dogs of the Indian jungles can, and do, kill tigers. Such happenings may not be very common. No case of the kind has come to my personal notice during jungle excursions in many parts of India scattered over a period of fifty years in this country. There are several recorded instances of wild dogs attacking panthers and bears. There is a record of a panther having been torn to pieces by wild dogs. It seemed that the panther had pounced upon one of the dogs, which went to drink at a pool, and the noise it made had brought the pack from the neighbouring cover. No trace of any other dog being killed in the fight was found.

Seizure by the eye is common. The Chenchus of the Nullamalais affirm that wild dogs always seize game by the eyes if possible. In some instances, the eye is removed without damage to the lids. That is a fact and is due no doubt to eyes of deer being rather protuberant. Packs may vary from a small number up to as many as forty, and perhaps even more. Various observers have remarked upon the apparently causeless fluctuating wild dog population in a given tract.

'It is possible that wild dogs have a period during which they progressively increase and then due to some unknown reason become scarce, again increasing until some unknown peak is reached. It is Nature's way of achieving a balance; and something of this sort may operate to keep wild dogs within limits.'

Who plants a garden, plants happiness

— Chinese proverb

SOAK CEREALS OVERNIGHT • KEEP INGREDIENTS READY BEFORE-HAND • COVER THE UTENSILS WHILE COOKING • SIM WHEN BOILING STARTS • USE A PRESSURE COOKER

पी. सी. आर. ए.

Petroleum Conservation Research Association

Sanrakshan Bhavan,10 Bhikaiji Cama Place
New Delhi -110066 Tel:26198809,26198856 Fax: 26109668
E-mail: pcrad@del2.vsnl.net.in / pcra@pcra.org
Visit us at : www.pcra.org

naa/PCRA/841/03

For oil-saving tips, contact: pcra@pcra.org

HIRA PUNJABI

Dhole on the hunt

Text: **A.J.T. JOHNSINGH**

Dr. A.J.T. Johnsingh is the Deputy Director of the Wildlife Institute of India. He is a well-known wildlife scientist and is a life member of the BNHS.

The following account is an edited version from the article 'Large Mammalian Prey-Predators in Bandipur' by Dr. A.J.T. Johnsingh, published in Vol. 80, pp. 1 to 57 (1983) of the Society's *Journal* and based on his Ph.D. dissertation. Details of the hunts are given in the thesis 'Ecology and behaviour of dhole or Indian wild dog – *Cuon alpinus* Pallas 1811, with special reference to predator-prey relations at Bandipur'.

In the study area (40 km^2) around Bandipur village in Bandipur Tiger Reserve, Karnataka, there was a pack of dholes varying in number between 7 and 18, giving a density between 0.35 and 0.9 dholes/km^2. The mean number of adults was 9.3 and when pups were present, the mean number was 16. Dholes were the major predators and accounted for 80% of the kills (n = 379). Two or three leopards and at least one tigress and a tiger hunted in the study area. Leopards accounted for 15% of the kills and tigers for 5%.

The exact time was recorded for 124 dhole kills made in the morning and 67 in the evening. Of the morning kills, 96 (77%) were made after sunrise and 28 (23%) before sunrise. Of the

evening kills, 52 (78%) were seen before sunset and 15 (22%) after sunset. Three kills were made on different nights, of which two were moonlit. At the beginning of the hunt, dholes often moved in single file with a trotting speed of around 9 km/hr. Occasionally, one or two dholes lagged behind, sniffing a tuft of grass, lapping up water or scavenging a bone.

Dholes have an excellent sense of smell and were able to locate the observer more than 100 m away. Dholes located prey by sight, but they also depended on smell. In scrub, where visibility was limited, they primarily depended on smell, and when the prey was out of sight, hearing helped them to follow their quarry. In one case, 6 or 7 dholes approached a herd of gaur, stalking them through tall grass.

Dholes primarily adopted two strategies to hunt. In one strategy, they moved through the scrub in an extended line formation, and it was possible that any adult may begin the attack once it had located a suitable prey. In the other strategy, some pack members remained at the periphery of the scrub to intercept fleeing prey as it was flushed. Both formations are effective for locating hidden fawns and flushing resting adults. Dholes were seen using the former strategy 39 times and the latter 14 times. On several occasions, it was not possible to decide which strategy was adopted in the beginning of the hunt.

Other than gaur, wild pig and an occasional sambar, all prey ran when chased by dholes. Handicapped prey such as a pregnant doe trailed behind during the chase. Dholes may be able to determine the vulnerability of the prey even by its initial reaction. It is a widely prevalent belief that dholes hunt in relays, pursuing prey casually at a loping canter until the quarry is exhausted. In a dense habitat, where the trails of many potential prey animals crisscross, it would be impossible for them to run in relays or follow a prospective prey for a long distance. Owing to their speed and teamwork, most of the chases did not last long. In 92% of 48 occasions, the chase ended within 500 m of the beginning of the hunt. Twice the chase went beyond 500 m and on several occasions, the distance could not be assessed.

Small prey like hare and chital fawn were seized by any part of the body as they ran. With a single head-shake, they were killed instantly. Larger prey like adult chital stags were generally attacked from behind, and the usual points of attack were the rump and the flanks. The dholes were wary if the prey was capable of injuring them with antlers or forelegs, and then they used the nose hold, seen in wolves and African wild dog. Nose hold was used when the speed of the prey was arrested. It enabled the dholes to accelerate their attack on the rump and flanks, which ultimately subdued the victim. If the prey's nose is caught while it stands in water, the weight of the dhole usually drowns the prey. This has been wrongly interpreted as intentional drowning of the prey by the dhole. Once the nose hold was used to drag a chital fawn out of water.

Attack on the rump and flanks leads to evisceration. The shock, wounds and loss of blood eventually kill the prey. In the process of biting on the rump of

RAJA PUROHIT

Dholes locate prey by sight, but they also depend on smell

the fleeing and struggling male prey, such as chital stags, dholes often remove the scrotum, and this has led to the popular belief that they deliberately emasculate the prey. The scrotum thus removed is usually eaten.

Prejudice against dholes as cruel and bloodthirsty killers arises from their method of disemboweling and eating the prey alive. Ten direct observations, however, showed that prey weighing 50 kg or less were killed within two minutes after the attack was begun. Killing was delayed by human interference as "some members of the pack hung back apprehensively and were not able to do their share in killing". Once, when the observer was not noticed, a pack of 15 dholes killed a yearling male sambar weighing around 90 kg within 7 minutes.

The study in Bandipur proved that dholes are not wanton killers, and they do not deserve the reputation of being cruel hunters, as their method and time required to kill are not very different from those of other predators. Studies in Africa have shown that hyenas take an average of six minutes to kill wildebeest, a lioness took more than eight minutes to kill a warthog, and three lionesses took more than seven minutes to kill a zebra. Tigers and lions are known to eat their prey alive. Dholes, being predators smaller than their prey, have to opt for an effective means of disabling prey (incapacitation) rather than delivering a quick and painless death.

Dholes are not wanton killers, and they do not deserve the reputation of being cruel hunters, as their method and time required to kill are not very different from those of other predators.

Competition between feeding dholes expressed itself mostly in the speed of eating rather than in fighting. Dholes consume their kills quickly. Once the pack (9 adults and 9 pups) ate 50 kg meat from a 70 to 75 kg chital stag within 90 minutes. Another time, 8 adults and 7 pups ate 14 kg meat from a yearling chital doe (30 to 35 kg) within 4 minutes. For three periods, ranging between four and six days, almost all the kills made by the study pack were collected. The prey killed varied from chital fawn to chital stag, number of dholes ranged from 15 to 18 and the meat available per dhole varied between 0.7 kg and 3 kg. The total quantity of meat consumed by a dhole during the 15 day period was 27.9 kg (1.86 kg of meat per day or 0.103 kg of meat per kg of 18 kg dhole).

Dholes were once seen scavenging a tiger kill and seven times feeding on leopard kills. Dholes returned and ate their own kills for the second time either on the same day or two to three days later. Although dholes were not seen hunting langur, the remains of this arboreal primate were seen in 6 dhole scats. This may have been the result of scavenging.

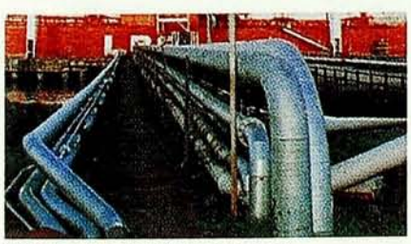
KEDAR BHIDE

Being smaller than their prey, dholes opt for effective means to disable their prey

Where there's energy, there's HP

Powering marine engines, propelling airplanes, energizing industries, mechanizing agriculture, igniting stoves, lighting lanterns ... HP is synonymous with energy in India.

For the last 28 years and more, Hindustan Petroleum has meant different things to different people. For some it represents an abundant supply of Petrol & Diesel. For others it stands for the easy availability of LPG and lubricants. Thousands of others see in it an inexhaustible reservoir of Kerosene and other petroleum products for meeting their energy needs. For all of them HP signifies an ever-radiant source of energy. Energy that is making a big difference to millions of lives. In the new millennium HP is all set to unveil an exciting new phase in its growth. Diversifying into Oil Exploration and Production, Power Generation, Renewable Energy ventures and much more. Confident of creating a future full of energy. Confident of enriching the lives of millions.



Visit us at: www.hindpetro.com

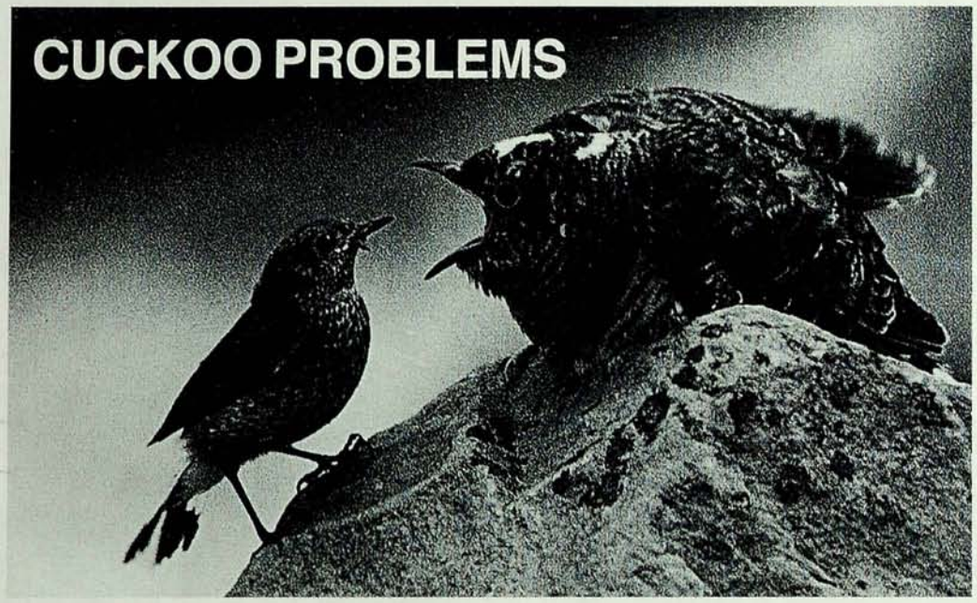
हिन्दुस्तान पेट्रोलियम

HP

Future full of energy

• PETROL • DIESEL • LPG • KEROSENE • AVIATION FUEL • NAPHTHA • FURNACE OIL • BITUMEN• LOW SULPHUR HEAVY STOCK • LUBES & GREASES • SOLVENTS • INDUSTRIAL SPECIALITIES

R K SWAMY BBDO HPCL 3753



by E.C. Stuart Baker. Published by H.F. & G. Witherby, London, 1942. 207 pp. 8 colour and 4 monochrome plates (13.5 x 21 cm).

Reviewed by **RANJIT MANAKADAN**

This is not a book review

and it cannot be, since the book discussed was published way back in 1942. At the same time, this write-up is not unwarranted, as the subject of brood-parasitism dealt with in the book needs to be brought to the attention of the present generation of Indian birders. This is more so, for though the record of brood-parasitism was first described in Sanskrit literature on the Asian koel *Eudynamys scolopacea* and its main fosterer, the house crow *Corvus splendens*, many centuries before Aristotle (384-322 BC) began to write about the common cuckoo *Cuculus canorus*, there is still no in-depth, scientific treatise on the Asian koel-house crow relationship.

Much of the curiosity and interest attached to the cuckoo family is due to its habit of entrusting its offspring to foster parents. I was startled when I saw the house crow feeding koel fledglings for the first time and also a pair of crows with four fledglings, two koel and two its own. Equally puzzling was the sight of the contents of a crow's nest on a 9 m tree that I had climbed in my school compound at Coimbatore. It had three koel young of different sizes, one of which was about half the size of the other two! I guess I had the makings of an ornithologist even then(!), as two valid questions plagued me. Why were the birds of different sizes and would the smallest survive into adulthood? Of the other Indian parasitic cuckoos, I had the fortune to observe, on different occasions, fledglings of the pied crested cuckoo *Clamator jacobinus* and the brainfever bird *Hierococcyx varius* in the care of a family of white-headed babblers *Turdoides affinis* at the Point Calimere Wildlife Sanctuary, Tamil Nadu. It was strange, and at the same time wonderful, to see the babblers accepting aliens of striking differences as their own.

I first came across CUCKOO PROBLEMS while rummaging through old books on birds in the Society's library for the write-up *Early Books on Birds available with the BNHS Library* for the newsletter (*Buceros*) of the ENVIS* (Environmental Information System) Centre at the BNHS. Finding the title intriguing, I had as usual 'planned to read it some day'. The catalyst that made me squeeze time to read the book was a biologist from England, who took my help in locating this very book in our library. Later, among other things, we discussed brood-parasitism in Indian birds, and it was then that I realised how little brood-parasitism has been scientifically investigated in Indian birds. This prompted me to go through the book and do the review (if I may call it so).

E.C. Stuart Baker, the author of the book, was one of the early doyens of Indian ornithology (and the BNHS) during the British era. Baker's eight volumes on birds (1922-30) under the *Fauna of British India* series was the Bible for Indian birds till the publication of Sálim Ali and Dillon Ripley's HANDBOOK OF THE BIRDS OF INDIA AND PAKISTAN

68-75). Baker's other major books include IAN DUCKS AND THEIR ALLIES, INDIAN PIGEONS AND 'ES, GAME BIRDS OF INDIA AND PAKISTAN and the IFICATION OF BIRDS OF THE INDIAN EMPIRE. Besides general interest in birds and Indian birds' eggs, er made a special study on the eggs and habits ndian cuckoos, and kept a collection of 6,000 s of cuckoos and their fosterers, many his own, le the rest were collections from others from ver the world.

CUCKOO PROBLEMS is a personalised account is inferences on the phenomenon of brood-asitism, based on his egg collections, ervations and the work of other ornithologists. ng familiar with only the koel, I was surprised earn the number of birds that are 'duped' by common cuckoo *Cuculus canorus*. Among other gs discussed, is the evolution of cuckoo eggs imulate the foster-parents' eggs to reduce the ihood of the duped bird deserting or destroying cuckoo eggs. This 'mimicry' is depicted in the t coloured plates in the book. The eggs of a coo species could vary in colour in different ons to match the egg colour of its host in a icular region. For example, the large hawk coo *Hierococcyx sparverioides* lays brown eggs imulate the eggs of its host, the great spider ter; and also blue eggs in areas where laughing-shes were fosterers. Other aspects discussed he methods of deposition of cuckoo eggs into nest of its host, ejection of fosterers' eggs or ng from the nest, number of eggs laid by a coo, and territory in cuckoos. There is also a ter on how to differentiate cuckoo eggs from e of their fosterers.

The book must have been a bestseller in its e in Indian ornithological circles for the rmation provided on Indian parasitic cuckoos. wever, one major criticism meted out on the thological work of Baker was his dependence thers for egg collections or data. By this, there always scope for falsifications, or making neous judgments on the eggs collected, and ks or adults seen around the nests — especially e collectors were paid, unlettered locals of the . This was proved true many decades later after Baker's egg collections deposited in the British Museum were subjected to scanning electron microscopy — see J.H. Becking's paper in the *J. Bombay nat. Hist. Soc. 78*: 201-231. Quite a few of the eggs in the collection were found not to be cuckoo eggs at all, or were eggs of species of cuckoos, other than claimed! The analysis even revealed that the so called blue eggs of the large hawk cuckoo, which Baker discussed in the book, were those of the common cuckoo! J.H. Becking concluded the paper with the statement that in spite of the work of Stuart Baker, brood-parasitism in Indian cuckoos was imperfectly known, and his egg collections and observations were doubtful. An unfortunate epitaph to a work on which a lot of efforts were invested.

Coming back to Indian cuckoos, there is still hardly any information on the koel-house crow relationship, which is the most well known case of brood-parasitism to Indians. Baker too commented on this lack of information in his book, in spite of their commonness in towns. As said earlier, the main purpose of this write-up is to kindle the interest of Indian ornithologists in brood-parasitism of the Asian koel. The Asian koel-house crow relationship could be a very rewarding study, with possibilities of obtaining interesting findings and throwing up new theories on brood-parasitism, unknown to science. The availability of improved or new equipment for studying birds, such as colour bands, radio or satellite telemetry, handy and powerful binoculars, spotting scopes, remote and digital cameras, etc. make things so much easier for present day birders. The abundance of these two species and their liking for 'city-life' make them ideal specimens for study and experimentation. Mumbai birders could record their observations from 'bird-eye's level' from the comfort of their flats! Literally a doctoral thesis for grabs - anyone interested?

*ENVIS is a network of presently 25 centres in India, set up by the Ministry of Environment and Forests, to disseminate information related to environment. The ENVIS Centre at the BNHS handles the disciplines of Avian Ecology and Inland Wetlands.

ATUL R. RANA

A MOMENT FROM THE GIR FOREST

Hispid Hare
A Denizen of the *Duars*

TEXT AND PHOTOGRAPHS: **GOPINATHAN MAHESWARAN**

Gopinathan Maheswaran is presently a Scientist at the BNHS.

The day was warm and sunny and my mood upbeat. I was raring to start my search for the elusive hispid hare *Caprolagus hispidus* at the Jaldapara Wildlife Sanctuary, but the Forest Guards who accompanied me appeared a bit skeptical from the moment I told them that I wished to study the ecology of the hispid hare that lived in the tall grasslands of the Sanctuary. Their skepticism arose from the fact that the rhinos of Jaldapara are thought to be dangerous, and on occasions had 'killed' humans who had ventured into their abode. The four guards, each armed with a gun, *kukri* secured safely inside its wooden scabbard, and a catapult, were there with me only because Mr. M.K. Choudhary, an experienced Forest Range Officer, had asked them. The presence of a catapult intrigued me and I asked them why they carried one, "to scare the rhino by shooting pellets at it"!

As we walked in the Sanctuary one of the guards told me that hares were common in Jaldapara and the villages nearby. For evidence, he pointed out the pellets of the Indian hare scattered all along the footpath. I was not surprised that they were completely unaware of hispid hares. The fear of rhinos may have stopped them from moving into the grasslands to look for evidence of hispid hares. But I had come to stay and track down this elusive hare and the presence of rhinos was not going to waver my decision. A long stay it was, as I took almost ten months to complete my mission.

A small remnant population of hispid hare still survives in the tall grasslands of the *terai* (moist flat lands south of the Himalayan foothills) in Uttar

Save Nature

Contribute to our efforts.
Become a member of the
Bombay Natural History Society

Please lift here ➤

Bombay Natural History Society

Hornbill House, Dr. Sálim Ali Chowk,
S.B. Singh Road, Mumbai 400 023, Maharashtra, India
Tel: 2282 1811, Fax: 2283 7615
Email: bnhs@bom4.vsnl.net.in Website: www.bnhs.org

Founded in 1883, the Bombay Natural History Society (BNHS) is India's largest Non-governmental Organisation (NGO), engaged in nature conservation, education and research in natural history. It has members in over 25 countries.

The BNHS Mission

**"CONSERVATION OF NATURE,
PRIMARILY BIOLOGICAL DIVERSITY,
THROUGH ACTION BASED ON RESEARCH,
EDUCATION AND PUBLIC AWARENESS"**

MEMBERSHIP

Membership of the BNHS is open to individuals, corporate houses, institutions and NGOs in India and abroad.

Membership Details: Membership Year begins from month of joining.

INDIVIDUAL ANNUAL: Indian: Rs. 400/-, Overseas Residents including SAARC Countries: US $ 50.

INDIVIDUAL LIFE: Indian: Rs. 7,500/-, Overseas Residents including SAARC Countries: US $ 1000.
Individual Life Membership fee can also be paid in six monthly instalments as follows: first instalment Rs. 3,000/-, second instalment Rs. 2,500/, third instalment Rs. 2,500/-.

STUDENT ANNUAL: Indian: Rs. 200/- (Up to age 25 only; bonafide certificate required).

FAMILY ANNUAL: Indian: Rs. 650/- (Only for couples. Both will have voting rights).

INSTITUTIONAL/NGOs ANNUAL: Indian: Rs. 1,075/-, Overseas including SAARC Countries: US $ 100 (Ten members of the Institution can be nominated in rotation; only one member has voting rights).

GREEN CARD MEMBER ANNUAL: Special membership package Rs. 1,000/- and above includes membership fee and contribution to the BNHS Conservation Fund.

ENTRANCE & JOURNAL FEES

For all types of membership there is a one-time **Entrance Fee of Rs. 50/-**. For overseas residents including SAARC Countries, the **Entrance Fee is US $ 2.00**. Annual Journal Fee for members residing within India is Rs 150/-. Overseas residents including SAARC Countries the Annual Journal Fee is US $ 30.

Use this form to become a member of the Bombay Natural History Society

1. Detach form along perforation at right.
2. Detach envelope from magazine.
3. Complete form, fold, and insert in the envelope along with your payment; seal, stamp, and post.

APPLICATION FOR MEMBERSHIP

Please write or tick (✓) as applicable

1. Type of membership — Overseas / Indian
2. Category — Annual / Life / Student / Family / Institutional / Green
3. Name (In block letters) _____
4. Date of birth — DD——MM——YY——
5. Mailing address (In block letters) _____
6. Telephone No. — Res: _____ Off: _____

Email: _____

7. Authorised Signatory of Institution

   Name: _____ Designation: _____

8. Do you wish to subscribe to the BNHS Journal YES / NO

9. Amount sent Rs. _____ by *Cash/MO/Cheque/DD No:* _____ *Credit Card* _____

11. If proposed and / or gifted by a BNHS Member please mention

    Name _____

    Membership No. _____

FOR OFFICIAL USE ONLY: Membership No: _____

SPECIAL MEMBERSHIP OFFER

Tick your option

3-YEAR DISCOUNTED MEMBERSHIP WITH GIFT ☐

*** FREE A copy of A Century of Natural History (Rs. 195/-) with**

Individual 3 Years Membership	Rs. 1,150/-
Family 3 Years Membership	Rs. 1,875/-

5-YEAR DISCOUNTED MEMBERSHIP WITH GIFT ☐

*** FREE A copy of Some Beautiful Indian Trees (Rs. 295/-)**
or Book of Indian Trees (Rs. 275/-)
or Book of Indian Shells (Rs. 295/-) with

Individual 5 Years Membership	Rs. 1,900/-
Family 5 Years Membership	Rs. 3,000/-

LIFE MEMBERSHIP WITH GIFT ☐

*** FREE A copy of Sálim Ali's India (Rs. 1200/-) with**

Life Membership	Rs. 7,500/-

* **Till stocks last**

I agree to abide by the Rules / Regulations and Bye laws of the Society

Place:_____

Date:_____Signature_____

Please note:

* Pay appropriate amount in cash or through Credit Cards/ Crossed Cheque/Bank Draft payable at Mumbai in favour of Bombay Natural History Society. **Outstation cheques** should include **additional Rs. 55/- up to Rs. 1,000/-** and **Rs. 65/- for above Rs. 1,000/-** towards bank charges. Do not send cash by post.

* In case of change in address from India to anywhere overseas (other than SAARC countries), postage for Journal and Hornbill will be charged at prevailing rates.

* Foreign remittances can be made to BNHS A/C 48512 with Deutsche Bank, Mumbai through Deutsche Bank branches at New York, London, Tokyo and Frankfurt.

* Overseas postage is by Sea Mail. For Air Mail, an additional fee of US $ 25 should be included.

* Donations to BNHS are exempt under Section 80G and Section 35(1)(ii) of I.T. Act, 1961

▲ *Detach here and return in attached envelope*

Please write your full name and address below:

_____

_____

_____

_____

Affix
stamp
here

Bombay Natural History Society

Dr. Sálim Ali Chowk, S.B. Singh Road,

Mumbai 400 023, Maharashtra, India.

Pradesh and the neighbouring Himalayan Kingdom of Nepal (i.e. in Nepal *terai*). Besides these areas, hispid hares were said to have occurred in *duars* in West Bengal (Bengal *terai* = *duars*) and in the grassland habitats remaining in the Mymensingh district of Bangladesh. Until 1971, the species was considered extinct and unfortunately, no zoo in the world has had a captive hare. Dr. William Oliver of the Jersey Wildlife Preservation Trust looked for this elusive species along with its sympatric the pygmy hog (*Sus salvanius*) and rediscovered them in 1971. Both, the pygmy hog and the hispid hare, are listed as 'endangered' in the IUCN Red Data Book and the Indian Wildlife Protection (1972) Act. Their rediscovery from Assam had caused a sensation among conservation biologists in India and abroad. As no detailed work has been done on hispid hares other than Oliver's survey, I decided to work on the ecology of this elusive species. I had seen hispid hares in the Dudhwa National Park while I was working on the black-necked storks, but selected Jaldapara Wildlife Sanctuary, which is small and is an ideal habitat for hispid hare.

I began my search in October 2000 and after about nine months I had some interesting observations, especially in terms of hispid hare population. Counting the number of hare pellets in an area is an ideal method to determine its population when visual sightings are difficult in tall grasslands, in which the hares prefer to live. Besides, identifying hispid hares from its sympatric Indian hare *Lepus nigricollis ruficaudatus* is another difficulty. I had seen the hispid hare in Dudhwa National Park earlier, and was confident of identifying the hare both by its pellet (indirect way) and visual sighting.

Hispid hare pellets have conspicuous shape and size, and can be easily

Tall grassland habitat along the Torsa river in Jaldapara Wildlife Sanctuary is ideal for hispid hares

distinguished from the Indian hare pellets, which are shapeless and dark green in colour when they are fresh and are scattered. Hispid hare pellets are dark yellow to greenish-yellow, round and slightly flat, and deposited in one place. After a long hectic search, I saw fresh and old pellets of the hispid hares just behind the Horingdinga watch tower, on February 6, 2001, in a thatch grass dominated grassland. Though February is a post-winter period in this region of the country, the grasses were almost dry and locating fresh pellet groups was not difficult. Besides pellets, hispid hares leave another mark of their presence in the area — thatch cuttings. Hispid hares have a peculiar habit of cutting grass stumps a few inches above ground level called 'thatch cuttings'. The hare cuts the grasses precisely with the help of its sharp incisors at one go. These cut edges look as if they were cut with a sharp knife.

Nylon nets were used to capture hispid hares in the tall grasslands

After days of searching I could only confirm that the hispid hare was present in the Sanctuary, but I was still to sight a live animal. I had seen almost all the other inhabitants of the Sanctuary during my long searches, but the hispid hare had eluded me. And why not! Hispid hares are like shooting stars, they disappear faster than they appear giving one hardly a few seconds to sight them. After almost seven long months and a few rapid sightings, I was still to photograph a hispid hare in Jaldapara. Meanwhile, the Principal Chief Conservator of Forests, to whom I had written, gave me permission to trap hispid hares and colour mark them. Knowing that the permission would arrive sooner or later I had procured long nylon nets. I decided to recruit five more assistants, so that

Hispid hare pellets are distinct from those of the Indian hare, and can be used to identify the animal in the wild

the seven of us could try capturing at least one hare a day. I soon realized that this was easier thought than done.

I selected tall grass patches near Torsa river, as they were neither quite contiguous and nor too long, and were often intersected by running water. We moved further north after crossing a stream, but in spite of the good habitat there was no evidence of hispid hares. The area we had selected first was very close to a stream stretching from Jaldapara to Torsa River. Even though it was intermittently cut off by brooks and forest, there was a possibility that the hares could easily cross these hurdles and move to the next grass patch.

Having laid one net, we were preparing to lay the second in continuity when the person clearing the grass close to the net heard some noise under a thick clump of grasses. He beat the clump with the stick in his hand and in a flash a hispid hare ran out, dragging the net for some distance. One of my assistants, who had seen the fleeing hare, tried his best to catch the hare while it was still entangled in the net. But the moment he reached the net, the hare broke loose and escaped before anybody else could react. I was standing quite far from the net screaming orders to drag the net and not try chasing the hare, but the events moved so fast that before anybody could register what I was saying, the hare had made his escape. We combed the area at least five to six times later, but netted nothing but disappointment.

While returning, one of our group suggested that we try at least once inside the swamp deer *Cervus duvaucelii* enclosure situated near the Jaldapara Range Office. I had seen fresh pellets of hispid hares within the enclosure, but feared that getting permission from the Range Officer may not be easy, as swamp deer are endangered and the four animals in Jaldapara were a part of a reintroduction programme. Fortunately, I got permission from the local forest official and the next day we decided to go there first.

A metal mesh enclosure of about 150 x 150 m restricted the movement of the deer and other wild animals on either side of the enclosure. The mesh wires were about 2.5 m high and fixed right up to the ground. The entire enclosure was divided into two equal halves. The western part was half submerged in about 1.2 m deep water and the eastern portion that was slightly higher was dry, and mostly preferred by the deer for resting. Immediately after entering the enclosure, I scanned the area for fresh pellets or other signs of hispid hare. Luckily, there was a heavy accumulation of fresh pellets, besides thatch cuttings. But only a little area was left without water and tall grasses occupied the remaining area, giving good cover to the hares. I took only two assistants inside the enclosure and as I was examining fresh

pellets, a hispid hare ran from a nearby bush towards another. Sighting the hare at such close quarters created quite a lot of excitement in camp. My assistants were confident of catching the animal this time, as the chance of the hare fleeing from the enclosed area was small.

Soon everyone was within the enclosure and ready to net the hare. I would describe it as an intense drive as twelve men were more than enough to catch a hare in that confined space. Alas! Luck eluded us just like the hare had done so far. After the initial miss we could not locate the hare again. Having cornered him in the east all of us rummaged through every grass clump thoroughly, while others stood guard close to the net. When I checked the ground close to the hole, I found nail marks and it appeared that the hares regularly moved in and out through the same passage. A small hole in the intersection between two fences had allowed the hare to escape into the larger enclosure.

Meanwhile, another hare appeared from the southern side, jumped into the water and disappeared as we chased it. We all waded through the water to reach the western side of the enclosure where the water level was lower and a little area was completely left without water. But there was no sign of the hare. I asked four people to check the fence inch by inch and fill up any openings. I was not going to take any more chances. This time it was difficult as the area was larger and we had to avoid disturbing the four swamp deer. Having laid both the nets close to the fence on the western side, I asked my assistants to drive the hares from the east. Within no time, we spotted two more hares, one was possibly the escapee. I had two men standing at two ends of the net, while I stood in the middle. Within a few minutes after we started beating the grass, a hare ran beneath one of the nets towards the west, but immediately turned and tried to hide in the southern side. Almost all of us could easily see the escaping hare, because the grass was short. After a short chase we finally caught him when he tried to use his earlier escape route. He struggled to get through the blocked hole, not wanting to turn around.

My calculations had been perfect this time; like a captain of a cricket team I had placed a fielder near the hole anticipating a catch and what a perfect catch it was. My assistant, who was waiting caught hold of the hare while his body was half in. Even after the catch, he was not sure whether he had the right hare or the more common Indian hare. It was only when I ran up and patted him on his shoulder for his excellent job that he realized what he had done. A hispid hare had probably been caught in Jaldapara for the first time. Within a few minutes, all my assistants ran up to have a glimpse of the animal, before it was kept in a black cotton bag in a shady place for measurements. There was much jubilation amongst the team. And a celebration was due to all. My assistants settled for a bottle of soft drink while I contented myself with the catch, a big one of my life. We had caught an adult male weighing about 2,300 gm. I released him within ten minutes after having marked him with red dyes. It was the shortest operation in three days and indeed a successful one. The sun had not yet reached overhead when we all returned to our base.

The rhinos of Jaldapara share the tall grasslands with the hispid hares

---

The project on hispid hare was conducted by the Bombay Natural History Society and funded by the Wildlife Conservation Society, New York. The project was mainly aimed at determining the present population trend of the hispid hare in Jaldapara, and give management recommendations to the Forest Department.

Erroneous Facts

I wish to bring to your notice some factual errors in the two recent issues of *Hornbill* so that you can correct them and avoid such blunders in future in this prestigious magazine.

In your *Oct.-Dec. 2002* issue, in the article titled "Oasis in a cold desert", in para two on page 11, line 2, it is stated "Two springs of meltwater — one from the north and the other from the south — nurture the lake..." This is factually incorrect. The streams that feed Tso Morari are, one from the north and the other by the side of Korzog Village and that is not in the south.

Whatever outflow is there is from the south end of Tso Morari goes to Norbu Sumdo and then along Chumur village. These facts could have been easily verified from the locals or from well-known researchers like Dr. Deskyong Namgyal or Dr. Raghu S. Chundawat or anyone else who knows the area well.

Similarly, in your *Jan.-Mar. 2003* issue, in the article titled 'Avian Guests', on page 21, the bird shown in not a spoonbill though it is titled as such. Again, a factual mistake.

I am sure you realise the implications of such factual errors. Researchers will quote a BNHS publication as 'gospel truth', and it will become a laughing matter among scientists. It will then be considered that BNHS data is unreliable.

You will agree, the readers of a prestigious magazine like the *Hornbill*, which we all have

grown to rely on for accuracy and clarity, must know of the real facts and avoid such errors.

It is therefore essential that these errors are corrected in your next issue and such inaccuracies avoided in the future.

Col. R.T. Chacko
Bangalore.

Contributors should know their direction of movement. We regret we slipped through the open bill. — Eds.

■ ■ ■

Think before you act

"Firdaus bar-ru-e-zamin ast" *Hornbill Jul.-Sep. 2002*, picturises the Valley of Flowers beautifully. The writer has referred to the presence of Dipteran pollinators in larger numbers than butterflies, honeybees or bumblebees. This corroborates our findings in the Kulu and Lahaul Spiti Valleys. The Diptera, particularly Syrphidae (hoverflies) almost reach the snowline. Butterflies are confined to lower elevations, unless they are uplifted by wind currents from the valleys below.

The "aggressive invader *Polygonum*", now known as *Aconogonum*, has a very interesting history. Back in the early seventies, *Polygonum polystachya* was present in the Valley, but had not assumed menacing dimensions. It was kept in check by the grazing of a small number of livestock (mostly cows), from the villages in the lower parts of the Valley. Though the grazing affected other species too, the cattle had established a mutually beneficial equilibrium with the vegetation in the Valley over the years. Then in the 1970s, a team of scientists recommended a complete ban on grazing, which was implemented. The result of this ban was the wild resurgence of *Polygonum*, the traditional check of grazing having been removed. Now the environmentalists entered the scene, and raised a hue and cry at the loss of biodiversity due to *Polygonum*. As a result of this noise, another survey was initiated in 1993, but the ban on grazing remains. The livestock population in the Valley is very small and has existed for centuries in complete harmony with nature. When man, in his arrogance, interferes with nature, the results can be disastrous.

The poetical description of the "Valley of Gods" by Sushma Dhumal is another piece of great literary merit. Incidentally, this title is generally applied to the Kulu Valley.

Santokh Singh
Agra

■ ■ ■

ERRATA

Hornbill Jan.-Mar. 2003.
pg 11, 2nd para, line 15.
For '... nearly two years ago...'
Read '... nearly two weeks ago...'

Fresh air in theatres.
Produced and directed by Blue Star.

You need more than a good script to enjoy a movie in a crowded theatre. You need cool, fresh air, not cold recycled air. And that's what you get when the theatre boasts a central airconditioning system of Blue Star. Because it removes stale air and brings in a continuous flow of filtered, fresh air. With uniform air distribution throughout the theatre. It also saves 25% on electricity bills through energy-efficient equipment and system design. Which means that the theatre owner has reason to smile too. In short, installing a Blue Star airconditioning system guarantees a happy ending.

BLUE STAR
BREATHE EASY


Expert service


Saves power and money


Evenly cools every corner


Allows continuous inflow of fresh air

The Wonder Bird of India

Text: **SAMAR SINGH**

Samar Singh is presently the President of the World Pheasant Association

PAINTING: CARL D'SILVA

India

is recognized as the country of origin of several species of wild flora and fauna. Among these, one bird stands out in a class of its own as its record is certainly unique and unsurpassed. This is the red junglefowl (*Gallus gallus*), popularly called *jungli murghi*, which is the real ancestor of all diverse forms of domesticated fowl throughout the world and thus the founder of the worldwide multi-billion poultry industry of the present time. From this single species, with its five sub-species, has arisen a phenomenon of great benefit to humankind. No other bird has proved so useful in human history. It is also amazing that from this species have originated such diverse forms as the Bantams and the Japanese Onagadori, with tail feathers ten metres long, and a black Orpington hen that produced a record 361 eggs in 365 days!

The red junglefowl is a pheasant belonging to the Order Galliformes, Family Phasianidae and Sub-family Phasianinae. Of the five sub-species of *Gallus gallus* the Indian one is classified as *Gallus gallus murghi*. The Burmese red junglefowl *Gallus gallus spadiceus* is found in some parts of northeast India bordering Myanmar, such as eastern Arunachal. China has its own sub-species and the other two are called the Javan and Tonkinese red junglefowl, but none of these are found in India.

An interesting point about the red junglefowl is that, whereas its domesticated forms are to be found all over India and indeed wherever human beings have spread out on earth, its distribution in the wild state in India is currently confined to the northern, eastern and some parts of central India, more or less coinciding with the Sal forests. In fact, there seems to be some kind of a symbiotic relationship between the sal trees *Shorea robusta* and red junglefowl. Thus, in the lower parts of central and western India and the whole of the south, its close cousin — the grey junglefowl *Gallus sonnerati* holds sway and the red junglefowl is not found in these parts. This distributional aspect of the two junglefowls in the country is a mystery,

Source: The Game Birds of India, Burmah and Ceylon by Hume and Marshall

which has not been resolved so far. Besides, it is to be noted that proper status surveys of these species in the country have not been carried out so far and hence reliable estimates do not exist.

Gallus species differ from other members of the pheasant family in having, in the male, a red fleshy comb on the head, lobed wattles (also reddish) hanging below the bill and a high-arched tail. The cock has shining silky plumage, crimson red on the head and back, and mostly greenish-black elsewhere, which undergoes moulting after the breeding season. The hen is rusty brown, with speckled neck and minimal comb. In courtship display, the male drops one wing and tilts his head, mantle and back, his most colourful parts, towards the hen; the domestic rooster behaves similarly. The hen generally lays 5 to 8 eggs at a time.

A noteworthy trait of the wild red junglefowl is its very shy and wary behaviour, and the agility with which it takes to flight, seeking cover at the slightest pretext. This makes captive rearing difficult and explains partly the reluctance of zookeepers and aviculturists in keeping this species. On the other hand, it is a tribute to the patience and skills of the ancient people for their success in taming and domesticating this wild and wary species, without facilities and technology in those days.

The story of domestication of the wild junglefowl is shrouded in the mists of the remote past. Perhaps, this development took place in India about 5000 years ago during the time of the Indus Valley Civilization. The seals and clay figurines found at Harappa and Mohenjodaro certainly bear testimony to this. The Chinese claim that their ancestors domesticated the species earlier. In any case, it is known that around 1500 BC *Gallus gallus* had reached central Europe and it was well established there in domesticated form during the Roman times. In Egypt, the bird caught the fancy of the people, especially on account of its egg-laying potential, and it received the patronage of the Pharaohs. In due course, its early morning wake-up call came to be regarded as liberation from darkness and the herald of dawn. Gradually, it was spread out to all parts of the globe in human company and today it is one of the most numerous birds worldwide.

A lesser known, but highly important fact about the red junglefowl is that it has been making major contributions to human health, from time to time. Even the ancient Indian system of Ayurveda recognizes that the fowl has great medicinal and nutritional value, being rich in minerals such as iron and copper. In recent times, new aspects have come to light. For instance, in the late 1930s, chicken infected by malarial mosquitoes helped in developing the drug *Paludrine*, which was used widely at that time and was especially useful to the soldiers during World War II. More recently, studies on the red junglefowl have helped in tracing the AIDS virus in human beings. The latest is the news that the eggs can become a source of useful molecules to treat snakebite. If this works out, it will provide relief to horses that have to undergo painful tests for deriving snake anti-venin.

In recent years, the morphological characteristics of the wild red junglefowl have been the subject of much attention and debate among scientists. Two features are considered critical in determining the purity of the wild birds. These are: (a) a complete moult to an overall dark/black 'eclipse' plumage by the male following the breeding season (generally June-September), and (b) virtual absence of a comb in the adult female. Lately, some western scientists have asserted that these critical features of the pure wild fowl have been lost over time due to hybridization and contamination with domestic fowl, and hence perhaps wild birds of the species having true genetic purity may no longer be in existence anywhere. The debate is still inconclusive, but there can be no doubt that it would be a calamity indeed, if this assertion turns out to be correct. It would mean the loss of a highly precious gene pool, that has given to humankind incalculable benefits over the past 5000 years or so. This could become a classic case of slaying the bird that has been laying golden eggs. The implications for the future of the various domesticated forms and the poultry industry, as a whole, could be disastrous.

Against this background, the importance of protecting and preserving whatever remains of the wild red junglefowl and its natural habitats assumes very special significance and this must receive the attention it deserves of all concerned, which includes not only decision-makers, field personnel, scientists and experts, but also the common people. To this end, a five pronged conservation strategy is suggested:

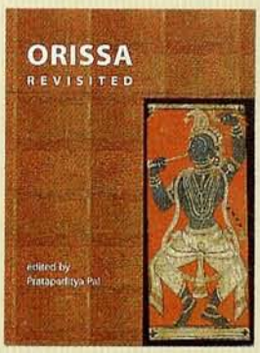
- An awareness campaign to generate appreciation and understanding of the special importance of the species.
- Rapid scientific surveys to determine the current status of the species in the country and also to identify prime areas likely to have pure wild birds.
- Molecular genetic studies to assess purity of the gene stock in the identified habitats on a selective basis.
- Field action to ensure utmost protection to the remaining population of the species and its natural habitats, along with regular monitoring of the prime areas.
- Further research and studies, specially on distribution and ecology of the species.

Based on this strategy, a detailed action plan will have to be prepared. In all this, the Central Government and the concerned State Governments have a major role to play. At the Centre, the nodal responsibility has to be assumed jointly by the Ministry of Environment & Forests and the Ministry of Agriculture (specifically the Department of Animal Husbandry & Dairying), along with related agencies such as the Wildlife Institute of India, Indian Veterinary Research Institute, Centre for Cellular & Molecular Biology, interested Universities and scientific bodies. Besides, interested NGOs, notably the WPA-India and the Bombay Natural History Society, can be associated in meaningful ways. In fact, there is ample justification for undertaking, on priority, a special project focussed on the conservation of the red junglefowl — verily the wonder bird of India.

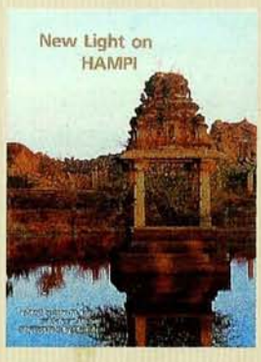
SPECIAL OFFER

for HORNBILL readers

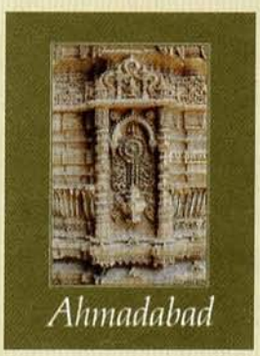
Marg books on various regions and cultures of India



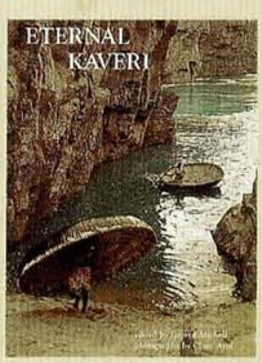
❑ 1.
Orissa Revisited
edited by Pratapaditya Pal
List Price: Rs 2250 per copy plus postage



❑ 2.
New Light on Hampi:
Recent Research at Vijayanagara
edited by John M. Fritz and George Michell
List Price: Rs 2250 per copy plus postage



❑ 3.
Ahmadabad
edited by George Michell and Snehal Shah
List Price: Rs 2250 per copy plus postage



❑ 4.
Eternal Kaveri:
Historical Sites along South India's Greatest River
edited by George Michell,
photographs by Clare Arni
List Price: Rs 1950 per copy plus postage

SPECIAL OFFER

All 4 books at Rs 4700/- Any 3 books at Rs 3600/- Any 2 books at Rs 2500/- Any 1 book at Rs 1300/-

* The above prices include courier charges within India

ORDER FORM

Please tick the required copies: ❑1. ❑2. ❑3. ❑4.

❑Enclosed is a cheque for the amount of Rs _____ favouring **NCPA (Marg Publications)** or

❑Please debit my VISA / MASTER / AMEX Credit Card Account Number _____

Card Expiry Date _____ Signature _____

Name: _____

Address: _____

_____

Tel.: _____ Fax: _____ E-Mail: _____

HORNBILL

Please complete this order form and post it with your payment or fax it with your credit card details to the attention of: Business Development Manager, Marg Publications, Army & Navy Building, 3rd Floor, 148, M.G. Road, Mumbai 400 001. E-mail: margpub@tata.com Website: www.marg-art.org

Ignore the optimists: The global warming horror stories are all true

Text: **MICHAEL MEACHER**

Michael Meacher is the Minister for Environment in the UK Government

There is a lot wrong with our world. But it is not as bad as many people think. It is worse. Global warming is slowly but relentlessly changing the face of the planet. We are only in the early stages of the process, but already carbon dioxide (CO_2) in the atmosphere has reached 375 parts per million, the highest level for at least half a million years. Temperatures are projected to rise in some parts of the world.

Does this matter? Evidence suggests that it does. In China, severe floods occurred once every 20 years; now they occur in nine out of ten. The number of people affected by floods globally has risen from 7 million in the 1960s to 150 million now. Flooding is only the beginning. The number of people worldwide devastated by hurricanes or cyclones has increased eightfold to 25 million a year over the past 30 years.

Even more seriously, 10,000 billion tonnes of methane (a greenhouse gas 20 times more potent than CO_2) is stored, according to the US Geological Survey, on the shallow floor of the Arctic, in sediments below the seabed. If the temperature surrounding the methane warms, it becomes unstable and methane gas is released, causing temperatures to increase further.

Warming oceans also cause the waters to expand and the sea level to rise. Sea level is predicted to rise by about 1 m over the next century, leading to huge areas of Bangladesh, Egypt and China being inundated. We don't know the limits of nature - how much rain could fall for how long a period, how much more powerful and frequent hurricanes could become, for how long droughts could endure. The ultimate concern is that if runaway global warming occurred, temperatures could spiral out of control and make our planet uninhabitable.

Five times in the past 540 million years there have been mass extinctions, in one case involving the destruction of 96% of species then living. But while these were the result of asteroid strikes or intense glaciation, this is the first time that a species has been at risk of generating its own demise. James Lovelock's Gaia hypothesis conceives of the planet as an active control system. It posits the existence of feedbacks at the global level which, so far, have served to keep the earth's surface habitable within a tolerable range, despite significant external changes, including changes in the radiation from the sun. However, with severe human-induced activity, that is now beginning to change.

We have almost become our own geophysical cycle. On a global scale, our biological carbon productivity is now outpaced only by the krill in the oceans. Our civil engineering works shift more soil than all the world's rivers bring to the seas. Our industrial emissions eclipse the total emissions from all the world's volcanoes. We are bringing about species loss on the scale of some of the natural extinctions of palaeohistory. We face a transformation of our world and its ecosystems at an exponential rate, and unprecedentedly brought about, not by natural forces, but by the activities of the dominant species. Climate change is only the most dramatic example. At a time when scientists say the world should be reducing its CO_2 emissions 60% to stabilise and then reverse global warming, they are projected to increase by around 75% on 1990 levels by 2020.

The dinosaurs dominated the earth for 160 million years. We are in danger of putting our future at risk after a mere quarter of a million years. The force of the Gaia thesis has never been more apparent. When an alien infection invades the body, the body develops a fever in order to concentrate all its energies to eliminate the alien. In most cases it succeeds, and the body recovers. But where it does not, the body dies. If we continue with activities which destroy the environment and undermine the conditions for our own survival, we are the virus. Making the change needed to avoid that fate is perhaps the greatest challenge we have ever faced. ■

This piece was sent in by our member Duleep Matthai, who is on the Board of Governors of the Indian Institute of Forest Management, New Delhi.

Biodiversity in Commerce — A Report

GHAZALA SHAHABUDDIN

Under the Joint Forest Management (JFM) Programme in southwestern West Bengal, sal dominated deciduous forests are being managed for the extraction of numerous plant products, both for commercial benefits and subsistence-level use, on a large scale. However, there has been little serious evaluation of the long-term biological sustainability of forest produce extraction or the accompanying ecological impacts. Lack of knowledge in the area of biological sustainability is likely to become a bottleneck in the long-term success of JFM initiatives in the region. A report has been compiled to bring together all the available scientific information on the ecological sustainability of the forest management practices currently prevalent in southwestern West Bengal in an attempt to delineate the lacunae in our knowledge regarding the issue and draw up realistic research and monitoring strategies that can be used to design sustainable management plans for the forests of the region.

It was found that currently there is little or no scientific data on the ecological impacts of forest produce extraction, either at the species or at the ecosystem level. For example, not even one of the 150-200 species under use has been studied for ecology, distribution or productivity. In the scientific literature that is available, there are problems associated with inadequate sample size, pseudo-replication, incorrect statistical analysis, experimental design and inadequate interpretation of data. In the absence of statistically viable or systematically collected data, few concrete strategies can be derived for long-term forest management.

In view of the status of current knowledge on the ecological sustainability of Joint Forest Management in the study area, (1) critical areas of research, (2) ways to expand the ongoing initiatives in participatory vegetation monitoring, and (3) generalized research strategies for long-term forest monitoring, are delineated for this region, based on similar research work carried out in other parts of India and the rest of the world. The emphasis is on realistic, inexpensive and time-efficient means of research that can be undertaken by scientists in collaboration with local communities and forest department officials. The 45 page report is available in electronic format for interested persons. ■ Write to <ghazalafarzin@yahoo.com>

Public Awareness Campaign Organised

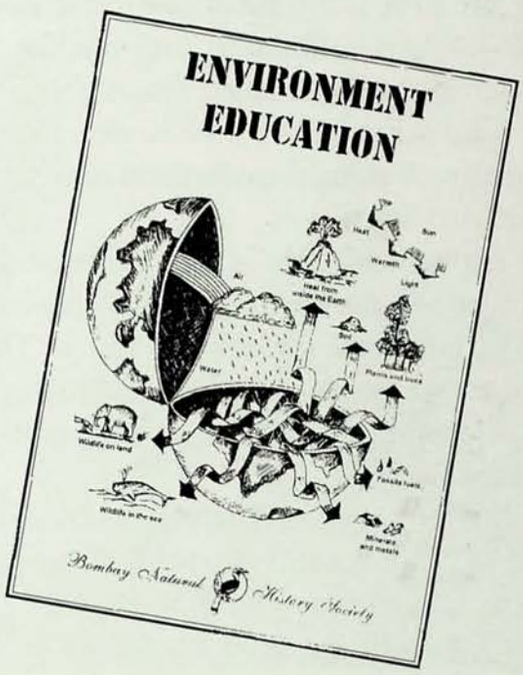
Mr. M.S. Nadgir, General Manager, Hindustan Aeronautics Ltd. flagged off the rally

THE Nature Conservation Society, Nashik (NCSN) organised a "Save the Great Indian Bustard" rally from April 15-17, 2003, as an advocacy activity under the IBCN programme coordinated by the BNHS, in the great Indian bustard habitat in the eastern part of Nasik District. Mr. M.S. Nadgir, General Manager, Hindustan Aeronautics Ltd. Ojhar (Nasik) flagged off the rally from the HAL township stadium, Ojhar on April 15, 2003. The rally was successful in motivating and educating the locals about the need to conserve the great Indian bustard in particular and nature in general.

Mr. N.B. Bhure, Coordinator, Mr. Meyipo Kyim DFO, Nasik, Mr. S.K. Khetarpal, C.C.F. Nasik, Mrs. Tina Raha and NCSN members were among others present during the flag off ceremony. ■

Green Teacher's Kit Launched

OUR constant interaction with environmental educators made us realize that there are many lacunae in environmental knowledge amongst them. However able and enthusiastic teachers may be, lack of knowledge on natural history hinders them in their efforts. Their needs are met partly by various education material brought out as a part of the conventional books and so on, but the focus remains on "syllabus" oriented teaching, which has little relation to the diverse aspects of the rich wilderness and biodiversity of our country. That is where we felt that we can provide teachers with a compilation of several aspects of natural history, which they can use to teach students the relevance of studies to their daily lives. Thus the Green Teacher's Kit concept came about. The kit comprises of seven booklets with titles such as Environment Education, Did you Know? National Parks & Wildlife Sanctuaries, Threatened Flora & Fauna, Trade in Wildlife, Green Projects and lastly Green Deeds. This kit is an attempt to popularize Indian Natural History with fascinating facts, interesting activities and meaningful action



to be undertaken by individuals and groups. In educating teachers one educates the coming generation. So we hope there will be more Green Teachers and more and more Green Schools.

The kit is available at the Society from June 5, 2003, World Environment Day. One copy of the kit is available free for schools on request (postage and handling charges will be applicable). The kit is also available at Rs. 100/- (postage and handling extra) for others. ■

Mumbai gathers for bird watching

ON May 17, 2003, the Bombay Natural History Society and Mumbai Port Trust (MbPT) organized a Flamingo Watch at the Sewri-Mahul mud flats near Mumbai. The Programme was sponsored by the Indian Bird Conservation Network (IBCN). The site is one of the internationally important sites identified by the IBCN as an Important Bird Area (IBA). More than a thousand people gathered on a hot May day at around 3 p.m. to watch these graceful birds. Besides flamingos, numerous waders in breeding plumage also enthralled the birdwatchers. Scientists at the BNHS estimate that about 10,000 flamingos of two species, the lesser and the greater, gather in these mudflats.

The Sewri-Mahul site is unprotected, but some portion of it is declared as a prohibited area under the MbPT and Bhabha Atomic Research Centre (BARC) notification. This mudflat, which is located along the Arabian Sea, is about 10 km long and 3 km wide, and is dominated by mangroves all along the coast and stretches from Trombay to Sewri.

Though the area was prohibited for the general public, the Mumbai Port Trust permitted BNHS to organize a Flamingo Watch. This site is a winter refuge for more than 20,000 migratory birds, including sandpipers, plovers, gulls, terns and flamingos.

Colour leaflets with information on the two species of flamingos that visit this site were printed and distributed by the BNHS and IBCN. Information on our activities was also given to the participants. The media covered this event extensively.

Thousands gathered at the Sewri-Mahul mud flats to watch the flamingos

Most participants showed great interest in participating in such bird watching events in future at other IBA sites. The IBCN/BNHS plan to organize such bird festivals in other parts of the country also.

There are around 450 Important Bird Areas (IBAs) in India and around 100 of them are congregatory sites, where large numbers of water birds gather during winter. The IBCN has already started an advocacy programme to conserve all the IBAs through community participation, awareness and publicity programmes. The Sewri-Mahul site is one such congregatory site for flamingos and other waders.

For more details on the IBCN and IBA, visit <www.ibcnetwork.org> or contact Zafar-ul Islam Projects Manager, IBA-IBCN at Email: <IBAbnhs@vsnl.net> ■

We are grateful to the

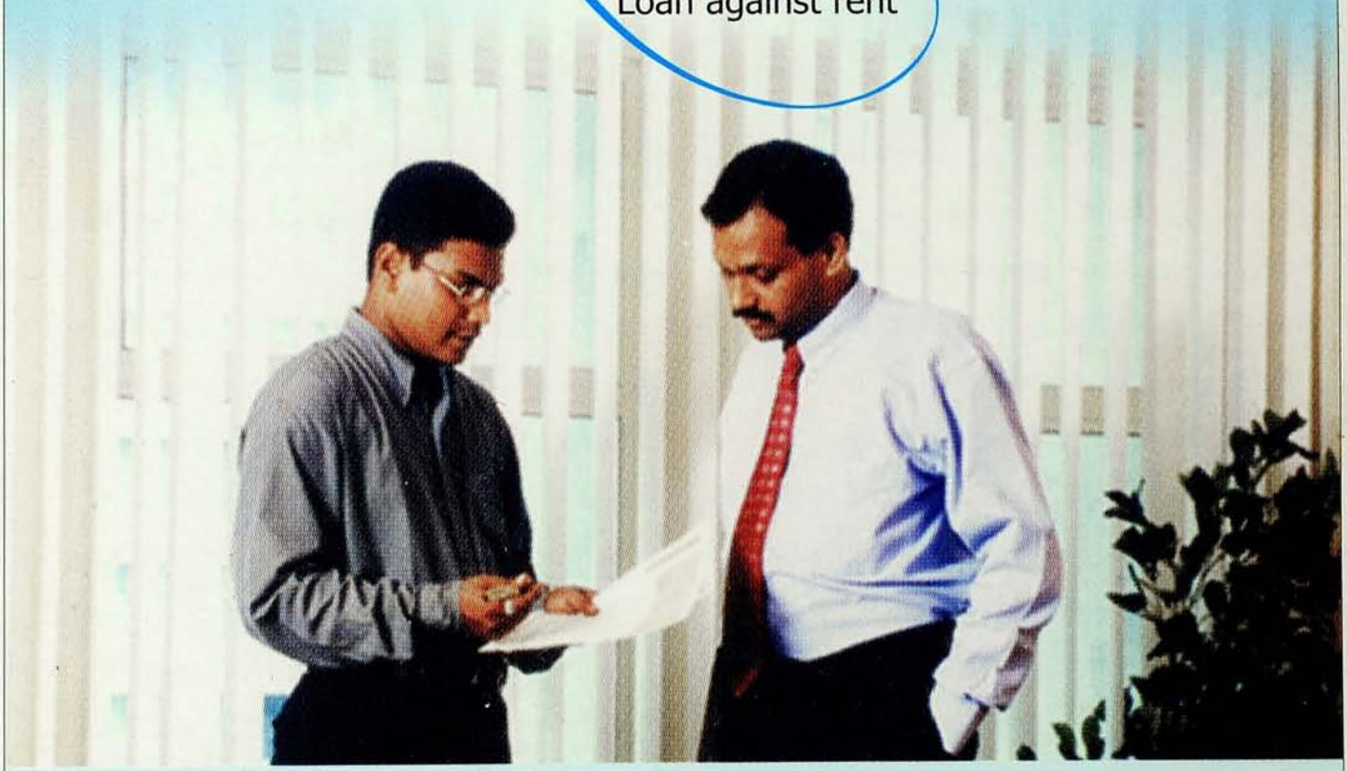
MEHTA SCIENTIFIC EDUCATION & RESEARCH TRUST

for a generous corpus grant to constitute
the *Pratap Saraiya Hornbill Fund*
to support the publication of *Hornbill*

C4C
Centralites for Customers

A loan that's as good as getting your rent in advance.

CENT RENTALS
Loan against rent



Cent Rentals is the loan scheme for finance against future rent receivables. Landlords in metros and urban areas who have leased property to reputable business and commercial organisations can get immediate finance against projected rent. Cent Rentals thus transforms your future rentals for meeting business and personal needs or any business activity including expansion.

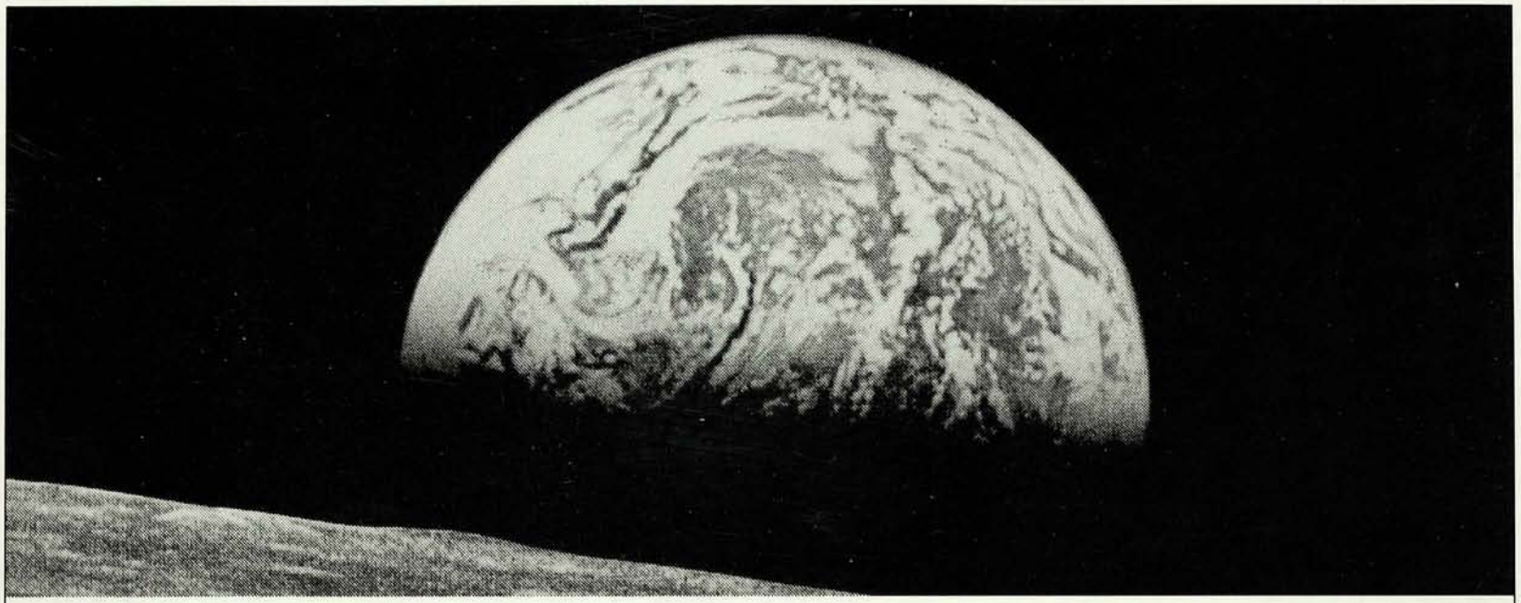
सेन्ट्रल बैंक ऑफ़ इंडिया
(भारत सरकार का एक उपक्रम)

Central Bank of India
(A Govt. Of India Undertaking)

Customised Banking Innovations

Visit us at http://www.centralbankofindia.co.in

Registered with the Registrar of Newspapers under **No. RN 35749/79**



apocalypse now?

It's not as though we have anywhere else to go. She is our only home. If she dies, we die.

Already, we have stripped her of her forests. Polluted her air and water. Blasted a gaping hole in her delicate protective atmosphere.

If we continue to live the way we do now, then by the year 2025, about 75% of her rain forests will be wiped out. Over 50,000 species will be extinct. 40% of her fertile land will be barren. Her rivers and seas will turn toxic. Her weather patterns will spin out of control.

But if enough concerned, aware people act now, there is still hope. And what is called for is not heroic but rather very simple.

Check your equipment and your processes regularly. Recycle waste products. Use technology that's environmentally sustainable. On an even more basic level, don't leave a tap running when you're not using it. Don't leave lights on when there's no one in the room. Write on both sides of a sheet of paper. Check your vehicle regularly. Recycle old plastic bags. Pool your car.

Such simple things, we can all do them. We can all teach our children to do them.

Start today. Because tomorrow, we may not have a planet left to save.

TATA

TATA ENGINEERING