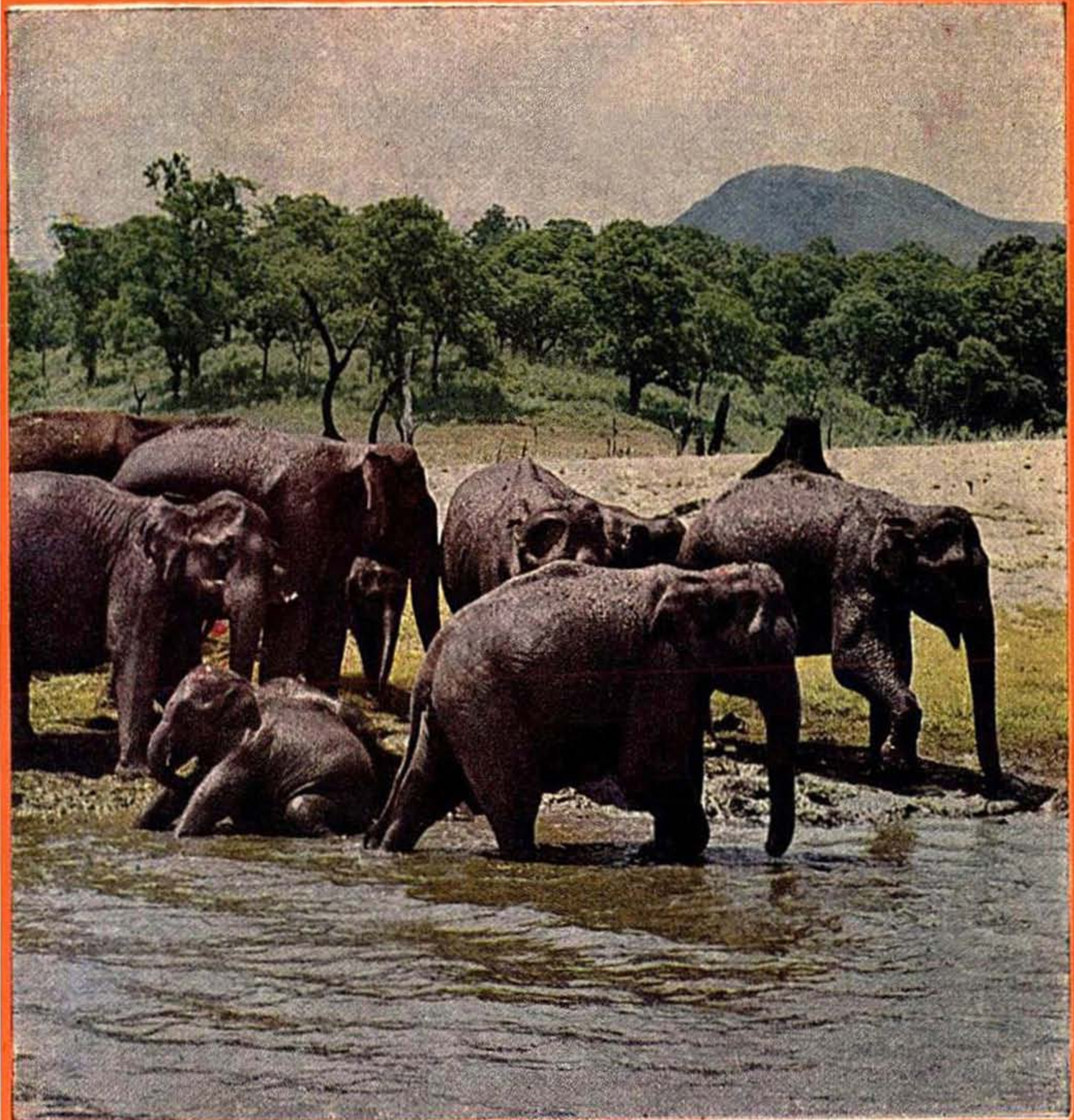


HORNBILL

1980 (4)



BOMBAY NATURAL HISTORY SOCIETY

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

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

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Members receive during a year three issues of the *Journal of the Bombay Natural History Society* now in its 76th volume, and four issues of *Hornbill*, the Society's popular publication.

Journal Editors

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

Advertisements for publication in *Hornbill* are welcome. Rates: Inside full-page Rs 500/-; half page Rs 250/-; back cover Rs 1000/-.

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Entrance Fees	Rs 25.00
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Life membership	Rs 750.00
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The first annual subscription of members elected in October, November, or December will extend to the 31st December of the year following the election.

Write to :

The Honorary Secretary
Bombay Natural History Society
Hornbill House, opp. Lion Gate
Shahid Bhagat Singh Road
Bombay 400 023.

On cover: *A herd of elephants at Periyar*

EDITED BY

J. C. DANIEL
S. A. HUSSAIN
J. S. SERRAO

EDITORIAL

There is little chance for the survival of wildlife in India if it remains an elitist facility available to the very rich only and people at all other levels of Indian society are denied the opportunity to visit sanctuaries and to learn and enjoy wildlife.

India's wildlife sanctuaries are presently being priced out of the financial capacity of the majority of Indians. For the conservation of Indian wildlife this is a retrograde development indeed.

Another factor which receives little attention from government officials is the involvement of the local people in the management of a sanctuary. Unless they have a stake in a sanctuary, that is, they get a share of the money that a sanctuary generates there will al-

ways be antagonism to a sanctuary as it denies withdrawal of resources traditionally taken from it by the surrounding human population. One of us had drawn attention to this point many years ago in the context of the Point Calimere Sanctuary, an area very much involved in the economy of the local people. It is saddening to see the degradation that has occurred in the sanctuary since then. In recent years Dr. Robert Bustard, the FAO consultant to Government of India's crocodile captive breeding has repeatedly emphasised this need but the official mind remains obtuse.

EDITORS

Nesting White Ibises at Ghana, Bharatpur. A view now priced beyond the capacity of Indians

Photo: E. P. Gee



FEEDBACK

“Koondakulam Heronry”

Following up V. K. Suresh Kumar's write-up [*Hornbill* 1980(2)] on Koondakulam Heronry, there are many obscure village heronries in Tamil Nadu but whether man and these birds co-exist everywhere is a moot point.

At Kadayanodai, a small village near Alvarthirunagari in Tirunelveli district, there was one such heronry, rather 'cormoranry' having exclusively the little cormorants in 1972. The southern channel of River Tambraparani from Srivaikuntam runs touching this village to feed the big lake called Kadambakulam, less than half kilometre from this village. As I was teaching in a college at Polayamkottai at that time, I used to visit this place once or twice a month. A few birds first frequented a coconut grove of about 65 trees adjoining the channel. And in a few months they gathered in hundreds and built their nests on these trees in due course. They used to feed on fish in the channel as well as in the nearby Kadambakulam. Their excreta on the crowns of these trees gave them a whitewashed look and when the rain came it started dripping from the ends of the leaves, emitting a very foul smell reminiscent of stale fish. This however was objectionable to many a villager. Despite their being accustomed to human presence, I had specially requested the owner of the

grove, who told me that ever since the habitation of the cormorants damage to coconuts from squirrels and other pests was almost nil, not to let any one disturb these as I was convinced that they would stay there permanently. In spite of my best efforts and the cooperation of the owner, something totally unexpected and very unfortunate happened. When the nests were full of fledglings and the owner was away for a day, at the instance of a village youngster who happened to consider the flesh of this bird as palatable, more than a hundred young ones were taken out of their nests by a group of youngsters and were distributed to the villagers. Later I was told that some of them found their way to villages, more than 10 km away! Once the young ones which were left could fly, all the cormorants, young and old left the village. Seldom do they visit this village now. As they had lived there for more than a year, they would have continued to do so had it not been for this unwarranted ravishment by a few greedy men.

I am convinced that more than one such heronry exists in the localities around Kadambakulam and an intensive search will undoubtedly be rewarded. Even now a variety of birds including pelicans frequent this lake most of the year.

P. DANIEL

Nehru Park, Dehra Dun 248 001

"The enigmatic buffalo"

I refer to 'The enigmatic buffalo', p. 26 of *Hornbill* 1980(2).

The possibility of the wild buffalo, straying into Panna district, M.P., is far more, than its being, as a calf sired off a domestic she buffalo by a wild bull buffalo in Bastar and brought to Panna as a calf or in womb of she buffalo from Bastar to Panna.

The traffic in buffaloes is from Panna towards Raipur and Bastar and not vice versa. Bull buffaloes are used for ploughing and agricultural purposes beyond district Balaghat towards Raipur, Bastar and Orissa. Panna and around, these agricultural operations are done by bullocks exclusively, and this is the reason why prices of buffaloes are far higher in Raipur and Bastar than in Panna and as such there is no traffic from Bastar towards Panna in buffaloes.

The buffalo in the picture is definitely a wild one according to its physique and horns.

You are wrong in stating that 'Today the buffalo exists in the Peninsula only in west and south of Bastar in Madhya Pradesh approximately 600 km south of where the "Panna Bull" suddenly appeared.' Wild buffalo exists in the Torenga and Indagaon blocks of Raipur district, M.P., which are about 225 km from Panna. They exist up to Vijayanagaram in Andhra. When I say it I have chased them and seen them.

Straying far off by wild animals is not an impossible phenomena. It is being done either, when wounded or in search of food, water or security.

Buffalo are on record to travel far. J. W. Best mentions in his book *INDIAN SHIKAR NOTES*, one being shot in district Bhandara and to my knowledge one in Kanthranala Block in M.P. in the year 1938. In these two cases buffalo were at least 125 km away from their nearest known habitat.

I remember having read in an old book that herds of wild buffalo about the year 1870 used to visit Mayurbhanj (now in Orissa), then in undivided Bengal from the valley of the Brahmaputra during the rains and return after the rains. The distance would be 350 miles at least. Of course there was a continuous stretch of forests.

In the case of the buffalo shot in the Kanthranala Block in 1938, the buffalo lived there for two years. It was difficult for sportsmen to believe that it was wild until a shrewd sportsman judged correctly and bagged it. That sportsman was of course taken to task for his illegal act, but this is a different story, the emphasis being on the buffalo far away to be suspected to be a wild one.

THAKUR ARUN SINGH

Mohan Niwas, Ujjain
(M.P.) 456 010.

PRESIDENT'S LETTER

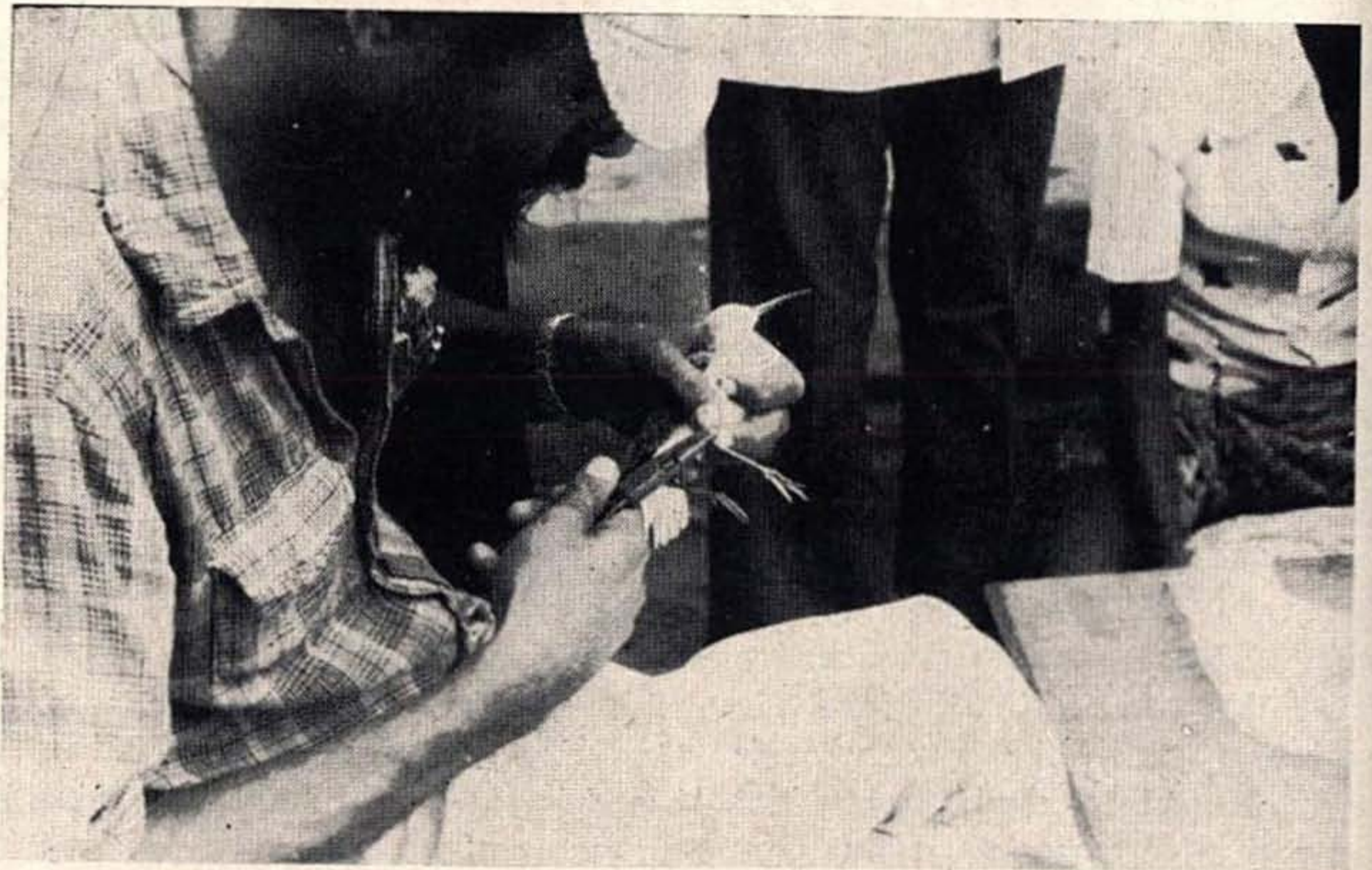
One of the Society's major projects between the years 1960 and the mid seventies has been the ringing (or banding) of birds in the Indian sub-continent for a definitive study of their annual migrations and seasonal local shifts about which very little is precisely known. In the course of the work some 300,000 birds of over 500 species were ringed, mostly extralimital winter visitors but also many resident species with enigmatical movements within the country. The recoveries of some of these birds at distant places and after varying lapses of time have adduced valuable scientific information and should reveal many other fascinating details when the computerization of the voluminous data is completed. Due to certain untoward circumstances the work had to be suspended, but happily it has now become possible to revive it for the next five years and on a much wider and more elaborate scale. Previously our two main field stations for these studies were the Keoladeo Ghana Waterbird Sanctuary at Bharatpur (Rajasthan) and the Point Calimere Wildlife Sanctuary in Tamil Nadu supplemented by temporary prospecting substations from time to time in various parts of the country. It is now planned to establish a wider network of permanent stations covering the entire subcontinent with the collaboration of our neighbours—Pakistan, Sri Lanka, Bangladesh and, hopefully, also Nepal and

Bhutan. Encouraging negotiations have been in progress with the first three, and it is hoped to start work in Sri Lanka next month under the joint auspices of the Sri Lanka Wildlife Department, and Colombo University and other non-official organizations. Two nominees from Sri Lanka have recently completed a 3-months' course of practical training in the relevant techniques at our Pt. Calimere field station. The concerned organizations in Pakistan and Bangladesh have also expressed keenness to collaborate, but the official formalities remain to be cleared and the modalities finalized. In India itself with the enthusiastic participation of the Wildlife Department of Punjab State we have recently set up an additional unit for ringing and monitoring bird movements, chiefly waterfowl, at Harike Lake—an expansive, comparatively shallow impoundment at the junction of the rivers Beas and Sutlej with abundant submergent vegetation and a number of low islands, some up to 200 acres in area, covered with tall elephant grass. A fourth station which it is planned to establish during the current migration season with the help and cooperation of the Orissa government is on Nalban island in the Chilka Lake—the winter resort of fantastic congregations of duck, geese and other waterfowl and the erstwhile favourite duck hunting venue of Calcutta sportsmen. Besides these four permanent

stations for the present, we would like to have several other substations scattered strategically throughout the country/subcontinent, for example in the Eastern and Western Ghats, along the routes by which most land birds putatively travel from the Himalayas and beyond to South India and Sri Lanka. It is obvious that the Society by itself cannot organize the finance or manpower for all these ambitious schemes over such a vast area. They can only be implemented through the sustained voluntary effort and

participation of local bird enthusiasts, naturalists' clubs, university biological departments and the like. The Society would, however, be happy to impart the necessary training in the relevant field techniques and arrange for the supply of rings, nets and other equipment. Capable and seriously interested parties should write to the Project Scientist, Avifauna Project, Bombay Natural History Society.

Salim Ali



*Bird banding at Point Calimere
Photo: S. A. Hussain*

The 'holy' turtle of Bangladesh

Bangladesh is a country with thousands of shrines, *dargas* and *mazars* (tombs of saints and cemeteries) spread over the country. Of the many, Byazid Bostami of Chittagong, Shaha Jalal of Sylhet and Khan Jahan Ali of Khulna districts are the most famous. The three shrines have some animals captive in their ponds. The Byazid Bostami has a turtle (*Trionyx nigricans*), Shaha Jalal has a Snakehead fish (*Channa merulius*) and the Khan Jahan Ali shrine has Marsh crocodile (*Crocodylus palustris*). At these three sites, the animals are strictly protected. Outside the shrine areas the above species are killed mercilessly either for meat or for the skin for export. The Bostami Turtle (since this turtle does not have a common English name it may be perhaps termed as 'Bostami Turtle') as a species is safe from extinction but it does not apparently occur outside the Bostami pond.

The Bostami Turtle was first reported in 1875 from a couple of specimens received at the Indian Museum; the 'Chittagong Tanks' were given as the type locality of the species. Later in *Journal of the Asiatic Society Bengal*, 1914, Vol. 10: 131 Annandale, who was the Director of the Zoological Survey of India gave the following account of his visit to the Chittagong Tanks:

'They live in a large pond attached to the shrine of Sultan Bagu Bastan (a saint who is said

to have lived in the eighteenth century), about five miles from the town of Chittagong. The Mahomedans will neither kill them nor permit them to be killed; they believe they are in some way connected with the saint. The tank is surrounded by steps leading down to a platform a few inches under water, and the turtles are so tame that they come to feed when called, placing their forefeet on the edge of the platform or even climbing upon it and stretching their necks out of the water. The largest are tamer than the smaller ones. Some even allowed us to touch them, and ate pieces of chicken from wooden skewers held in our hands. The only sound they emitted was a low hiss. When undisturbed they remained at the bottom of the pond half buried in the mud. A man connected with the shrine told us that they left the water every evening and climbed a small hill on which they slept. He said that they laid their eggs in the same hill during the rains.'

Every day hundreds of people visit the shrine of Byazid Bostami and a number of them go down to the pond to see and to feed the Bostami Turtle (locally termed both as *Gazari* and *Madari*). Like many others I have paid several visits during my student days and a couple of visits this year when I photographed these turtles. The Bostami pond is situated at the foot of a 50 m (msl) high hill, the



The Bostami tank and the turtle feeding area



The author's son feeding a turtle

Photos: Author

top of which has the shrine of Hazrat Byazid Bostami. The pond has been excavated and expanded many times and currently it is about 50 by 100 m, rectangular in shape in a north-south direction.

The Bostami pond is a 2-tier one, the first one having a 3 m high wall on the west and north, the other sides having no walls. The top of this wall is level with the metalled approach road of the shrine. The east side has an earth bank above which there is the boundary wall of the shrine. There is a small wall on the north and an opening on the SE. corner through which the turtles may climb up the hill, if they want to do so. There are two well-laid rows of steps on the south and west sides of the first tier which allow visitors to offer food to the turtles.

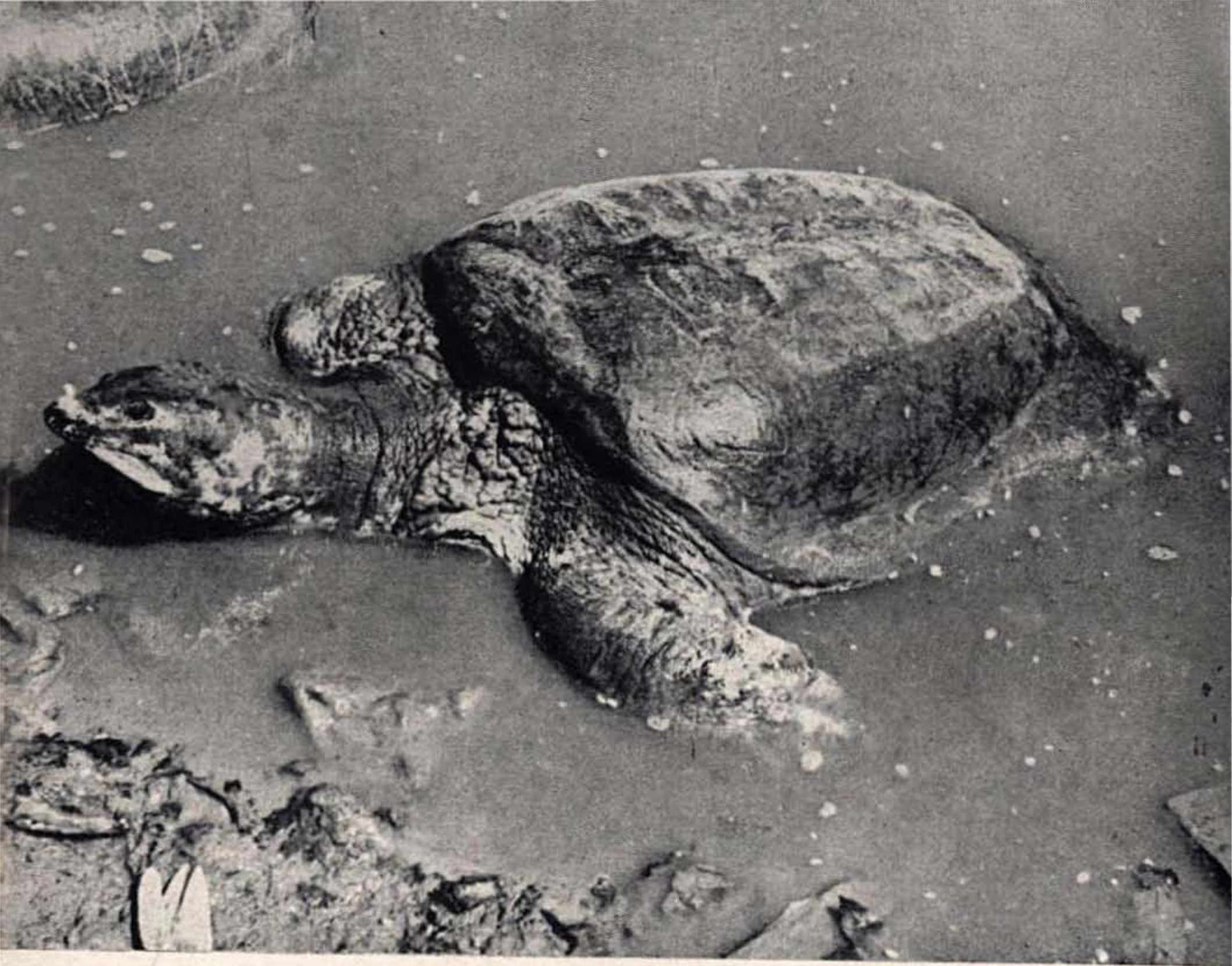
The second tier of the pond starts from the last step of the first tier and has no wall. But its sides are slanting, the slope leading to the bottom of the pond and the gradient is so good that the turtles can easily climb. The height of both the first and second tier is about three metres each. During the monsoon the water level of the pond may go up to about 5 m or so, which drops down to about 2.5 m before the onset of the monsoon. In the dry season the entire first tier dries up. The water is less muddy when the water level is high during the rains.

Otherwise the pond water remains turbid throughout the year and

hence it is not a productive pond. It is literally devoid of any vegetation and possibly does not support any plankton except algae. *Tilapia nilotica*, *Labeo* spp. and other carps have been introduced into the pond which are often harvested. Crabs, prawns, *Channa punctata* and some smaller fishes are possibly natural.

It appears that the pond was dug centuries back with a view to storing rain water from the hill. This water was used both for drinking, cooking and for washing parts of the body—a religious pre-requisite for offering prayers in the mosque attached to the pond or for that matter at any other mosque. It is learnt that the Bostami Turtles were introduced into the pond. One section of the people believes that the turtles are 'related to the saint' as has been reported by Annandale. Another group believes that they are sacred and *djinns* who were brought by the saint from his native place. Still others believe that the turtles were once 'human beings' associated with the saint and as they disobeyed the saint they were cursed to lead a 'turtle life'!

The Bostami Turtle is almost entirely dependent on artificial food supplied by human beings. There are 10 to 15 cubicles keeping a huge stock of cattle lungs and liver, plantains, prawns and fingerlings of many fishes. Bits and pieces of these are purchased by the visitors to the shrine and are offered to the turtles. Pieces of meat, fish fry or slices of plantain are pierced with thin bamboo sticks or skewers and are pre-



A large turtle approaching feeding area
Close-up of an old turtle

Photos: Author



sented to the turtles, which are accustomed to snap at the tip of the stick and swallow the food. As they often hold the stick firmly between the jaws both food and broken pieces of the stick go inside the gullet. The poor turtle has a very hard time trying to regurgitate the stick. The visitors who are scared to offer food with the skewers just throw it on the water and the turtles grab it.

I have estimated the population of the Bostami Turtle as between 150 and 200 in the Bostami pond. The East Pakistan District Gazetteers, Chittagong, 1970, reported several hundred in the same pond. The population that I have estimated had some 30 to 40 young, 60-90 juvenile above 20 cm in shell-length and about 60 to 70 adult and old animals. The old turtles appeared to be diseased and most had warty wounds on skin of the shoulder and at the base of the forelimbs. They had some skin disease on the neck and head region. The oldest ones were the most sluggish and were reluctant to leave the bank where food was offered. The juveniles feed by opportunistic visit to the food offering area. The young ones possibly supplemented their dietary requirements by feeding on the floating pieces of lung, fishes and slices of plantain. These young were too shy to even remain floating for a minute or so in the middle of the pond.

The turtles do not leave water

and climb up the hill to retire for the night as was told to Annandale. Previously they might have left the pond and climbed the hill for egg-laying only. Now they probably lay eggs on the eastern and southern sides of the pond and the neighbouring areas.

An interesting account of the turtle and the saint is available in the East Pakistan District Gazetteers, Chittagong, 1970: 'There is a shrine of this famous saint (Hazrat Sultan Byazid Bostami) on a hillock at Nasirabad, formerly an idyllic spot of panoramic beauty about four miles to the northwest of the town. He was born in 777 A.D. at Bostan in Iran. He came to India and it is said that he visited Chittagong. There is no *mazar* of the saint in the shrine. It is an *astana* and *chilla* associated with the name of the great saint. Khan Bahadur Hamidullah Khan in his *Jawarikh-e-Hamidia* strongly asserts that there was a Buddhist *stupa* at the spot where the present shrine stands.

'A mosque built during the reign of Emperor Aurangzeb stands on the bank of a big tank at the foot of the hillock on which the shrine is situated. There are several hundred tortoises in the tank. Tradition has it that these animals are the descendants of the evil spirits (*djinns*) who were cast into this shape because they incurred the wrath of the great saint who visited the place about 1100 years ago.'

MD. ALI REZA KHAN

NOTES, NEWS AND COMMENTS

World Pheasant Association—India

The WPA—India has recently been formed, and invites those among our members who may be interested in Galliformes, specially the Pheasants to support them. They are planning to carry out status surveys in the various parts of the outer Himalayas and desire various nature clubs to consider holding their Nature Camps in these areas. In this way they hope that participants will not only enjoy their trip to the Himalayas but help them in determining the status of the pheasants which are gravely endangered.

The Second International Symposium on Pheasants is due to be held in September 1982 in Srinagar. About 150 foreign participants are expected. Indian workers are invited to consider submitting papers for the Symposium. A number of excursions are also being planned mainly for the benefit of the foreign delegates though any member of the WPA/WPA-India can join.

Address your correspondence to

MR K. SURESH SINGH
ADMINISTRATOR, WPA—INDIA
DIVISION OF PARASITOLOGY
INDIAN VETERINARY RESEARCH
INSTITUTE
IZATNAGAR, U.P. 243 122.

Snakes alive

The Society's exhibition of live snakes organized by H. K. Divekar of the Society's Executive Committee and P. B. Shekar, the Society's Chief Technical Assistant proved to be an enormous success. The main objective was to dispel the many myths and fallacies on snakes that are firmly believed by people in India. 31 species of Indian snakes were exhibited in cases and pits.

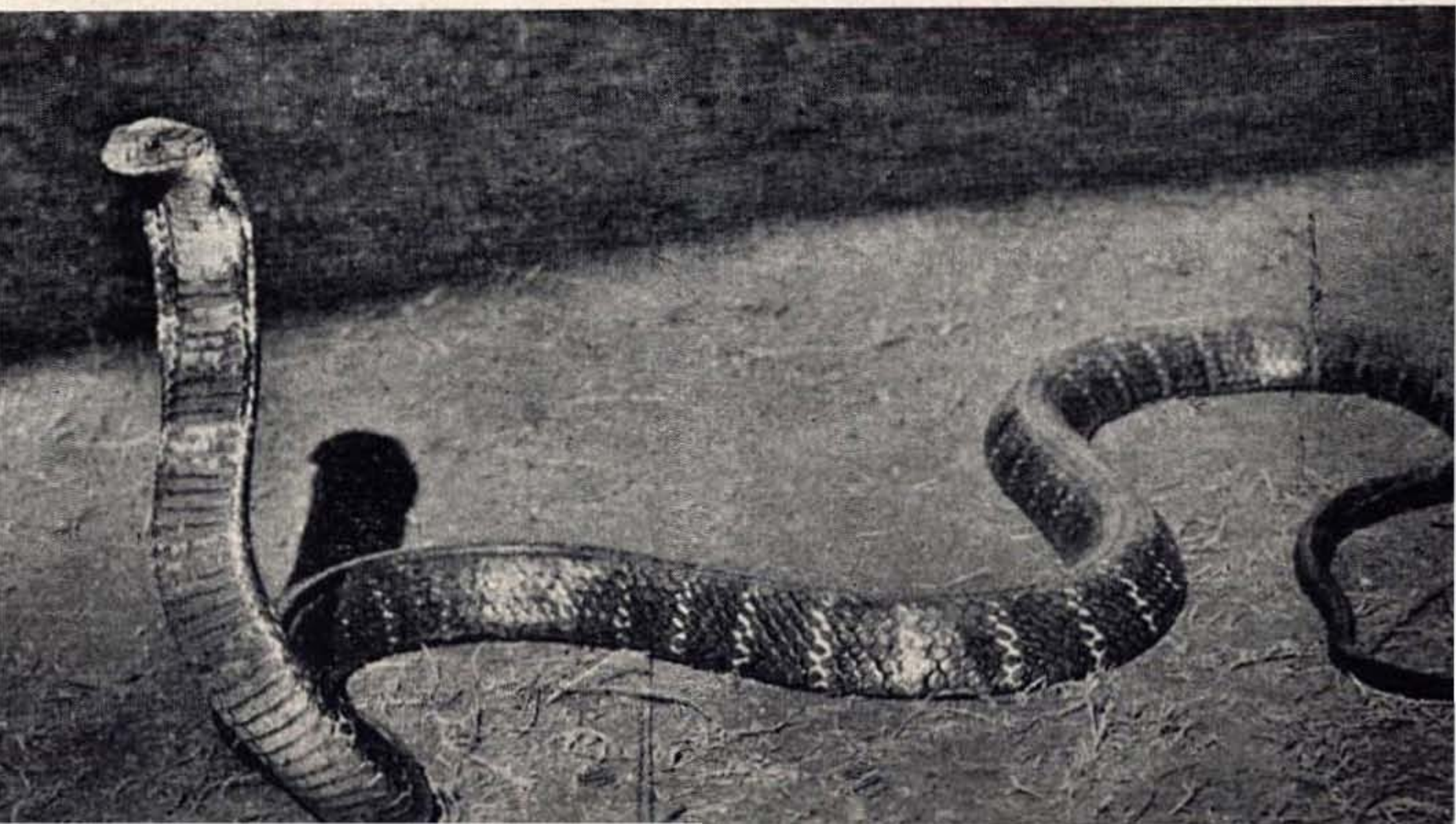
The star of the show was the large King Cobra, over 15 feet in length whose vibrant personality drew fascinated visitors again and again to the glass case he lived in. We had, at the beginning planned to keep him in one of our large pits, but when he went from the tree stump in the pit straight up like a band of shining blue steel, towards the light fixture, a good seven feet above, we prudently moved him into a large glass fronted cage.

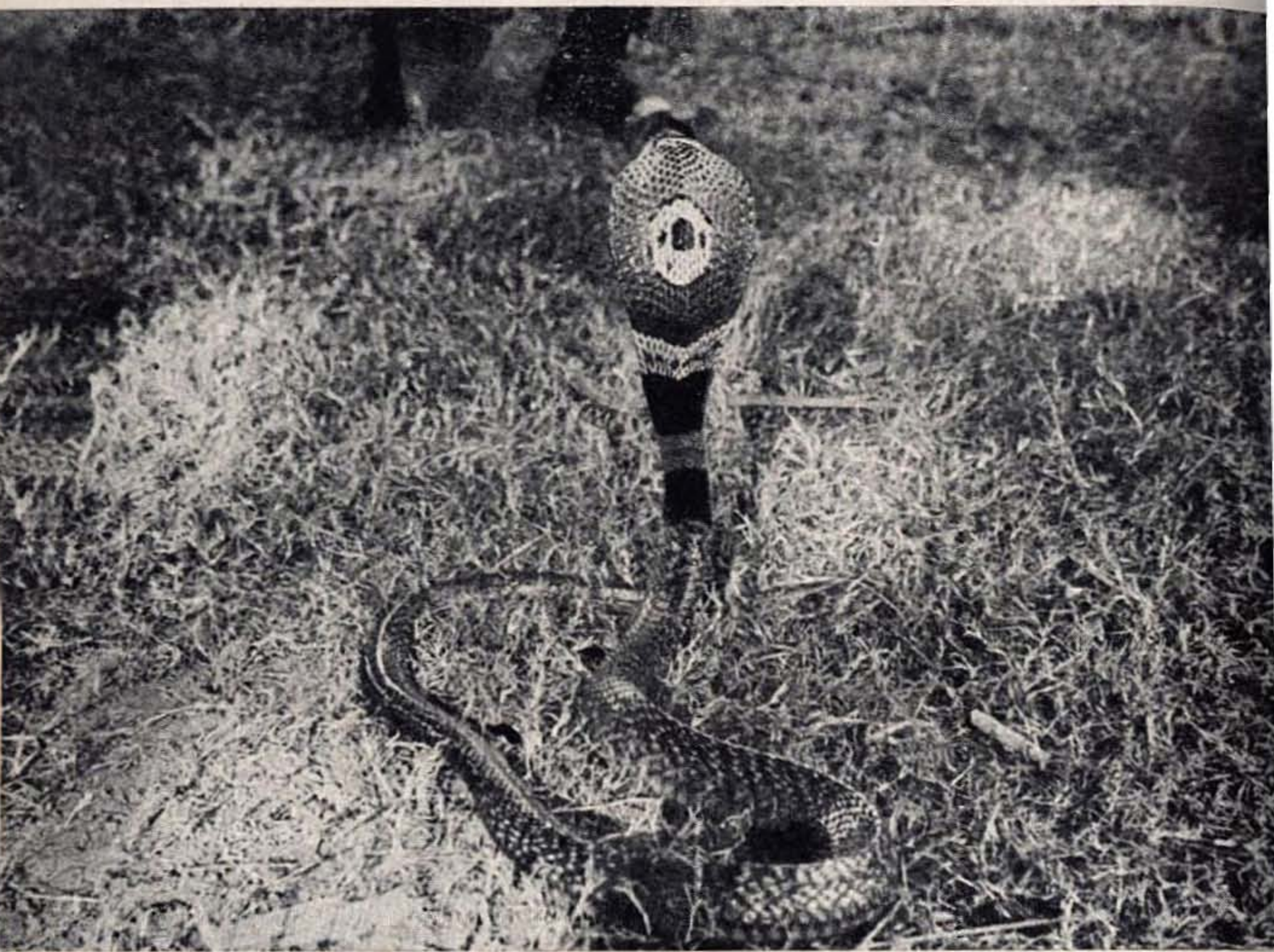
A demonstration lecture was held every half an hour when the Society's librarian, Isaac Kehimkar, gave an able presentation on snakes and people were permitted to touch snakes and dispel some of their fears. The exhibition had an unusually good response and over 200,000 people including 20,000 school children went through in the 45 days the exhibition was open.



.....
Snake clusters in the main pit
The star of the show, the 15 ft King Cobra

Photo: G. C. Patel





An impressive display by a monocellate cobra



A view of the serpentine queue of visitors

Photos: G. C. Patel

Permaculture

A recent visitor to Bombay and the Society was Mr Bill Mollison, author of PERMACULTURE ONE and PERMACULTURE TWO which advocate the webbing in of man into his natural environment. On Permaculture in cities and towns he comments: "All cities have unused open land: roadsides, corners, lawns, areas in front and back of houses, tubs, verandahs, concrete roofs, balconies, north-facing glass walls and windows. And many suburbs are well planted but if one deliberately selected a group of plants useless for man, these are what we see in the city. It is as though a useful tree, shrub, vine or herb is shameful; as though it is a sign of status to grow only unusable plants; a form of conspicuous wealth. The city could, at little expense, provide a great deal of its food and in so doing, use much of its own wastes as mulch and compost. But perhaps the most valuable product of a city devoted to permaculture would be peace of mind; a paranoia pervades cities and it is a product of helplessness in the face of approaching energy shortages and uncertain futures."

Marine Fisheries Information Service

A new and welcome addition to the Indian fisheries is the very in-

formative and well-brought-out bulletin of the Central Marine Fisheries Institute at Cochin. One hopes a suitable acronym like *Techmar* will in course of time shorten the title.

A vignette. On the fishery of the Bombay Duck (*Harpodon nehereus*) which looks and tastes as if it is made of jelly and is curiously enough well thought of by many, the 20th number of the bulletin has nine pages of data. The annual catch in 1979 was 1,18,948 tonnes, and the west coast accounts for 98.21% of the total catch. Maharashtra (59,667 tonnes) and Gujarat (57,140 tonnes) top among these. The maximum single haul was 90 kg (Arnala, Maharashtra). From age class indications two different populations contribute to the fishery in Gujarat and Maharashtra. The Bombay Duck feeds on prawns and other fishes including other Bombay Ducks and is in course of time is eaten, fresh or dried, by man.

Indian Journal of Malariology

The Malaria Research Centre (Indian Council of Medical Research) announces the revival of the *Indian Journal of Malariology* in 1981. The journal is to be published in June and December of each year. Further details can be had from

THE EDITOR
INDIAN JOURNAL OF
MALARIOLOGY
MALARIA RESEARCH CENTRE
(ICMR)
22, SHAM NATH MARG
DELHI 110 054, INDIA.

Kalpavriksh Environmental Action Group

Our member, Jagdish Krishna-swamy writes:

"You might perhaps know that our group of 75 students and youngsters was instrumental in saving the urban natural areas of the Delhi Ridge from destruction. A couple of weeks back we saved another green area of the Kushek Nala from the bulldozers. Not only have the authorities stopped the de-greening but have sought our cooperation in planting trees and shrubs on 5 acres already cleared. The Delhi Development Authority Vice-Chairman promised us that next year the DDA would give all help regarding planting of trees and provision for tree guards.

We quote from their newsletter, *Echoes from the Wild*

"THE DELHI RIDGE—THE STRUGGLE CONTINUES"

"Following our demonstration in October against the deforestation in the New Rajender Nagar Ridge area, we are trying to generate greater public support and working out concrete programmes to stop such cutting once and for all. After meeting various people in the administration, and others concerned,

we have decided to try and obtain a stay order from the Delhi High Court. This will give us a bit of time to organize more people, and finally, if need be, resort to a Chipko-like movement. But the human power needed to make this a success is still lacking, so we are asking for support from all of you. Please contact us if you are willing to help. It's a long long way before we achieve the aim of getting the Ridge declared as a National Park, but *we are going to do it.*"

We believe the group needs the support of all conservationists. The contact address is:

KALPAVRIKSH ENVIRONMENTAL
ACTION GROUP
A-7, GULMOHAR PARK
NEW DELHI 110 049.

An appeal for Spider photographs

Dr. B. K. Tikader, Joint Director, Zoological Survey of India, has started writing a semi-popular and scientific book on spiders entitled THE HANDBOOK OF INDIAN SPIDERS. He desires to insert in this book as many photographs as are available in colour and in black-and-white of spiders and their webs. Photographs loaned will be suitably acknowledged in the book and returned after being used in the book. Members having such photographs could get in touch with Dr. Tikader at the

ZOOLOGICAL SURVEY OF INDIA
WESTERN REGIONAL STATION
1182/2, FERGUSSON COLLEGE
ROAD
POONA 411 005, INDIA.

Eclipse 1980

February 13th, 1980 saw the five of us, H. K. Divekar, S. R. Amladi, J. C. Daniel, P. B. Shekar and S. M. Satheesan, members and staff of the Society speeding towards Golapalli in Bastar, Madhya Pradesh in HKD's car driven at a steady 60 km per hour by HKD's driver, a 'defrocked' policeman. We had started off with a fair amount of fanfare to watch the effect of the total eclipse of the sun on wildlife. HKD had selected Golapalli as the best undisturbed area known to him within the total eclipse belt. We reached Golapalli on the second day late in the evening, the guide we had picked up while crossing into Madhya Pradesh from Andhra having lost his way a couple of times. The next morning was spent in selection of action stations. Four observation points where wildlife could be observed were selected and we settled down for three days' pre-eclipse, eclipse and post-eclipse observations. I and SM had under observation a colony of flying foxes, the large fruit bats, which being nocturnal should be the most likely to respond to sudden darkness. As we gradually came to know our subjects we could obtain some interesting information on their daytime behaviour. The permanent roost was among the dense foliage of a *Holoptelia* tree and they had a subsidiary roost, in a more open foliated *Albizia* tree nearby, which they occupied when frightened off their permanent roost. In the morn-





A cloud of fruit bats above their roost

Photo: H. K. Divekar

ing they were alert and easily took alarm. The slightest disturbance near the base of their roost raised a cloud of them into the air, the majority settled on the *Albizia* tree after some time and only flew back to the main roost when they were confident that there was no further danger.

The characteristic squabbling and jostling for space accompanied by annoyed screeching continued till noon. The colony went into deep slumber at noon and continued in that state till early afternoon when preening and movement recommenced. They started flying around the roost after 6 p.m. and left the roost on their foraging flights and in small parties from 6.30 p.m., when it was nearly dark and the roost was empty by 6.45 p.m. There was no change in the pattern on the day

of the eclipse.

Behind where we sat watching the bats was a large clump of bamboos, the roost of the local population of common mynas. The birds settled in at 6.10 p.m. and for the next 22 minutes were as exuberantly noisy as a room full of schoolgirls held back by a thin wedge of time from an ice cream treat. The roost became suddenly and completely silent at 6.32 p.m. There was no change in this pattern on the day of the eclipse also. The only effect on birds was that at the time of totality between 3.50 and 3.53 p.m. no bird call was heard except the contact calls of a small flock of four mynas flying overhead. The crepuscular birds like the nightjar and the lesser stone plover did not react and the first call of both species was heard after 6.30 p.m. on both days.



Busy hives of Rock Bees
Photo: H. K. Divekar

The Rock Bee *Apis dorsata* was seen completely covering the surface of a bee-hive being newly built up to the commencement of totality. When brightness returned suddenly after 2½ minutes of totality the bee-hive surface was seen almost naked except for a few bees swarming around. Twenty minutes after totality the bee-hive was once again completely covered by bees.

The eclipse had no visible effect on wildlife probably because darkness came on abruptly and not gradually as in a normal setting of the sun. The period of darkness was also too short and apparently caused only a momentary dismay.

The domestic stock, however, re-

acted very definitely. During the period of complete darkness, the cattle on the bank opposite to the bund where I was sitting could be heard lowing in panic and moving towards their stables. The noise subsided as soon as the light came back after the period of maximum darkness and the cattle started grazing again.

We could perhaps have spent our time more profitably watching the effect of the eclipse on credulous humanity. Bombay City apparently looked like a city under curfew as everyone kept indoors to avoid the evil effects of the eclipse!

J. C. DANIEL.

BIRDWATCHER

7th May, 1980 was one of the happiest days in the life of Sm. Savitri Mukherjee of South End Park, Ballygunge, Calcutta. This august day saw the birth of a parakeet in an ordinary iron-mesh network cage, 12" × 10" with a circular base.

This chick is the progeny of a pair of Roseringed Parakeet (*Psittacula krameri*) which has been caged together since 1973. It is only this year that the female bird laid eggs. The first egg was laid on the morning of 11th April, followed by another after 7 days, i.e. on 18th April. Unfortunately, both were destroyed—one accidentally, the other purposively by the mother bird, or at least it appeared so, by pecking. Another egg was laid on 23rd April

which to our pleasant surprise produced a hatchling.

The chick is still alive and barring the head, nape and shoulder has already grown small, green feathers, though the ventral side is relatively less feathered. The tail feathers are well developed.

For the first few weeks, both parents took care of the baby bird. But recently, the father seems to show a certain aggressiveness towards it. The baby, most of the time is still being cared for by the mother and is growing quite rapidly on a mixed diet of parboiled rice and soft, mashed pulses. A photograph of the baby when it was 2 months old is reproduced with this note.

KUMAR CHATTERJEE

Two-month old baby parakeet in the centre

Photo: Kumar Chatterjee

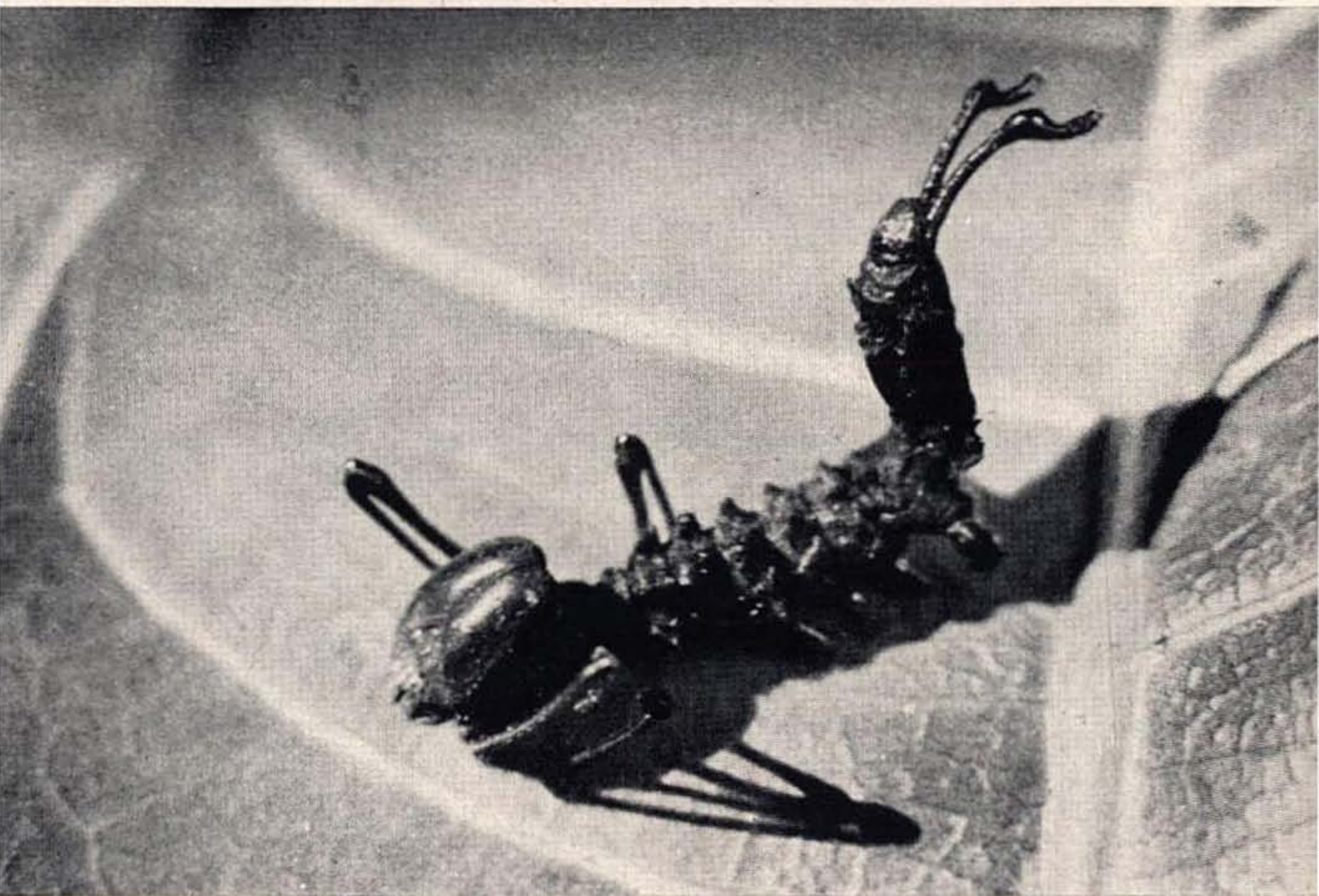


Cobra caterpillar

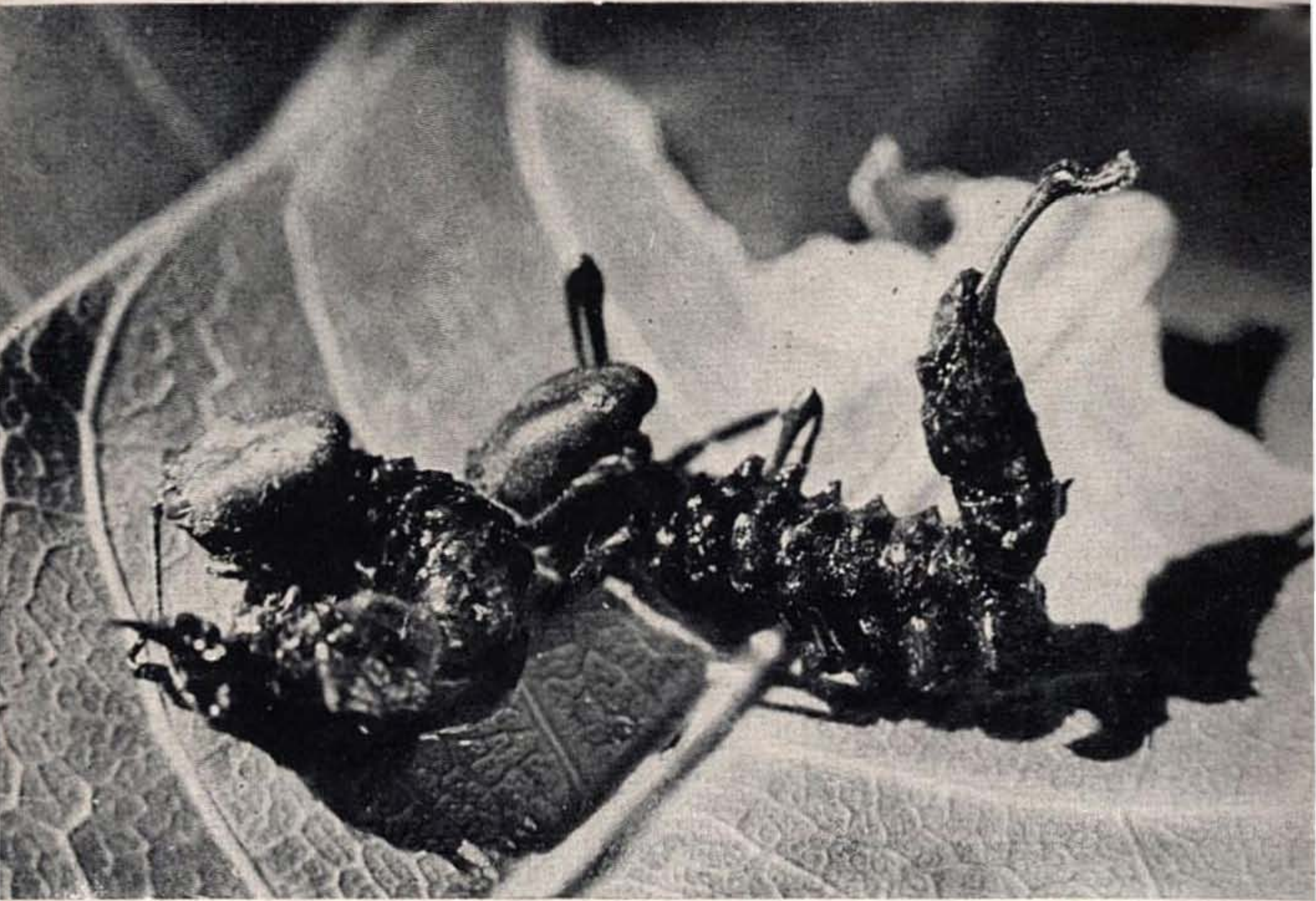
During visits to Borivli National Park near Bombay in the month of August I saw an unusual caterpillar on an acacia tree. The head of the rufous-brown caterpillar was large and resembled that of an ant and the second and third pair of thoracic legs were unusually long and slender. On the upperside of the metathorax and on each abdominal segment there was a pair of tubercles and the last three segments of the abdomen were expanded at the sides into a flange with the terminal segment bearing a pair of long appendages and a pair of pseudo

legs on the third to sixth abdominal segment. When disturbed it raised its abdomen and in this posture looked like a mini version of an aggressive cobra. The long thoracic legs are thrust forward and quivered. The alarming appearance the larva presents probably protects it from predators.

The larva was identified as of the moth *Stauropus alternus* belonging to the family Notodontidae. Its larval period lasts about 4 to 5 weeks, when it pupates in a loosely woven cocoon, yellowish brown in colour.



Cobra caterpillar displaying
Photo: G. C. Patel



Cobra caterpillars at rest and displaying
Photo: G. C. Patel



Adult 'Cobra moth'

The adult moth is pale grey, suffused with dark grey shades with a marginal row of reddish brown spots on the apical edge of the forewing. The moth rests with forewings covering the abdomen so that a part of the hindwings is exposed in front of apical margin of forewings.

Besides acacia the larva is recorded feeding on mango, Indian laburnum and tamarind trees.

NARESH CHATURVEDI

CONSERVATION ACTION

Himalayan Musk Deer

The Himalayan Musk Deer is a 'threatened' species whose range and populations have been drastically reduced by intense poaching. The musk fetches exorbitant prices in the black market for use in cosmetics and medicines. An ecological study of the Himalayan Musk Deer is being undertaken by World Wildlife Fund Project No. 1328 to identify its conservation requirements.

The project would greatly appreciate your help. If you have any information about poaching or sightings of musk deer please write to

WORLD WILDLIFE FUND
PROJECT NO. 1328

HIMALAYAN MUSK DEER
KEDARNATH FOREST DIVISION
GOPESHWAR 246 401.
CHAMOLI DISTRICT, UTTAR
PRADESH.

The Project Tiger in 1979

The Project Tiger, as a Central Sector Plan Scheme of the Ministry of Agriculture (Dept. of Agriculture & Cooperation) was initiated in 1973 with the objective to ensure the maintenance of a viable population of the Tiger in India.

The Scheme is being implemented in eleven tiger reserves in the states of Assam (Manas), Bihar (Palamau), Orissa (Similipal), Uttar Pradesh (Corbett), Rajasthan (Ranthambore, Sariska), Madhya Pradesh (Kanha), Maharashtra (Melghat), Karnataka (Bandipur), Kerala (Periyar) and West Bengal (Sunderbans). The total area of the tiger reserves including the buffer zone is 15,800 sq. km out of which core area is 4,963 sq. km.



A Musk Deer male about 6½ years old

Photo: M. I. B. Green



A tigress in Kanha resting in the corridor between the bole of a banyan and its pillar root
Photo: M. Krishnan

The population of tiger in 1972 was 268 in nine reserves. According to census carried out during 1979-80, it has now been estimated to be 711 in eleven reserves.

Books and journals for collection and research offered for SALE:

1. Birds of Paradise, limited edition, Reprint 1977.
2. Gray : Indian Zoology, 40 plates, lithographed by Hawkins.
3. Williamson: Oriental field sports 2 Vols, 545 pp, 40 etchings; 1808.
4. Simson : Letters on sport in E. Bengal.
5. Journal of Bombay Natural History Society : Vol. 1-76 (1886 to 1979) Bombay

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A visit to Yala

Among the many features of exceptional value that the Emerald Isle, Sri Lanka, has, are the excellent wildlife sanctuaries which have not, fortunately, so far fallen victim to the enormous pressure on land for human needs. Through the courtesy of Mr Lynn de Alwis, Director, Wildlife Department, Sri Lanka, we spent two days at Yala after the meeting of the Asian Elephant Specialist Group of the Species Survival Commission of the International Union for Conservation of Nature and Natural Resources at Colombo, Sri Lanka, in August this year.

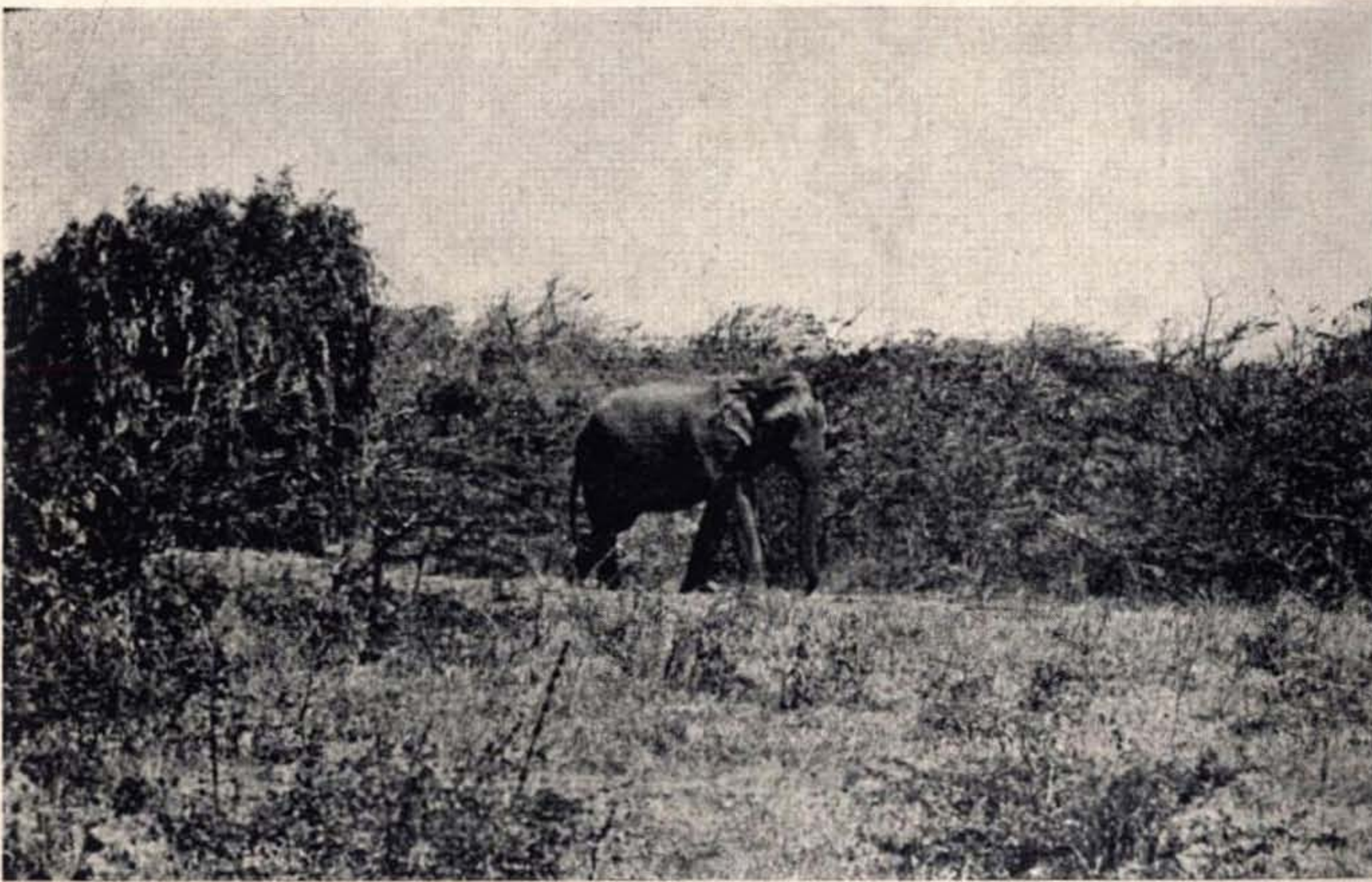
As we, the delegates from India, drove into the city from the airport we were pleasantly surprised by the close resemblance the countryside had to south India. In fact the scene was so familiar that we felt as if we were motoring through rural India except that the scene lacked that distinctive feature of the Indian countryside the 'man with the lota' relieving himself behind the nearest bush.

Situated on the southeast coast, Yala is a long 6 hours drive from Colombo, but the roads are excellent. The bungalows in the sanctuary are situated with an eye to the view and panorama whether of the forest, or the sea or the forest and the sea is magnificent. We spent the two nights we had in a bungalow on the banks of the Menik Ganga, the main river and water source of the sanctuary apart from

numerous *villus* or tanks of varying sizes which supplied water to the wildlife and was the habitat for numerous crocodiles. In the two nights and a day we had at the Park, we saw all its large mammals except the sloth bear. The elephants were our major interest, and provided some excitement also. The first bull we saw was on his way to water near the bungalow, and as we drove close to him in the landrover, cameras clicked as rapidly as teeth in a rigour of high fever, but the bull, with well-bred disdain, ignored us completely. The second encounter was in the evening of the same day on our way to a tank to watch elephants coming to the water for the evening drink. The bull was standing hardly 20 feet away from the road in not very thick cover and we would have missed seeing the bull, as did the car which passed us, but for the sharp, practised eyes of the Game Warden. We waited till he crossed the road which he did after some time not happily and with some rancour at our close presence. The third encounter provided the most excitement. We sat on the bund of the tank waiting for the main herd and watching two bulls, a *mukna* and a tusker, on the far side. The bulls which had kept a good distance between themselves started walking towards the forest on our side and while the tusker went into the forest well in advance of where we sat, the *mukna* came towards us by the side of the bund and gave us some anxiety as he



A view of Yala Sanctuary, a bay of the sea in the foreground



with well-bred disdain ignored us completely...

Photos: Vijaykumaran Nair



with some rancour at our close presence. . . .



Moth Brana calopasa

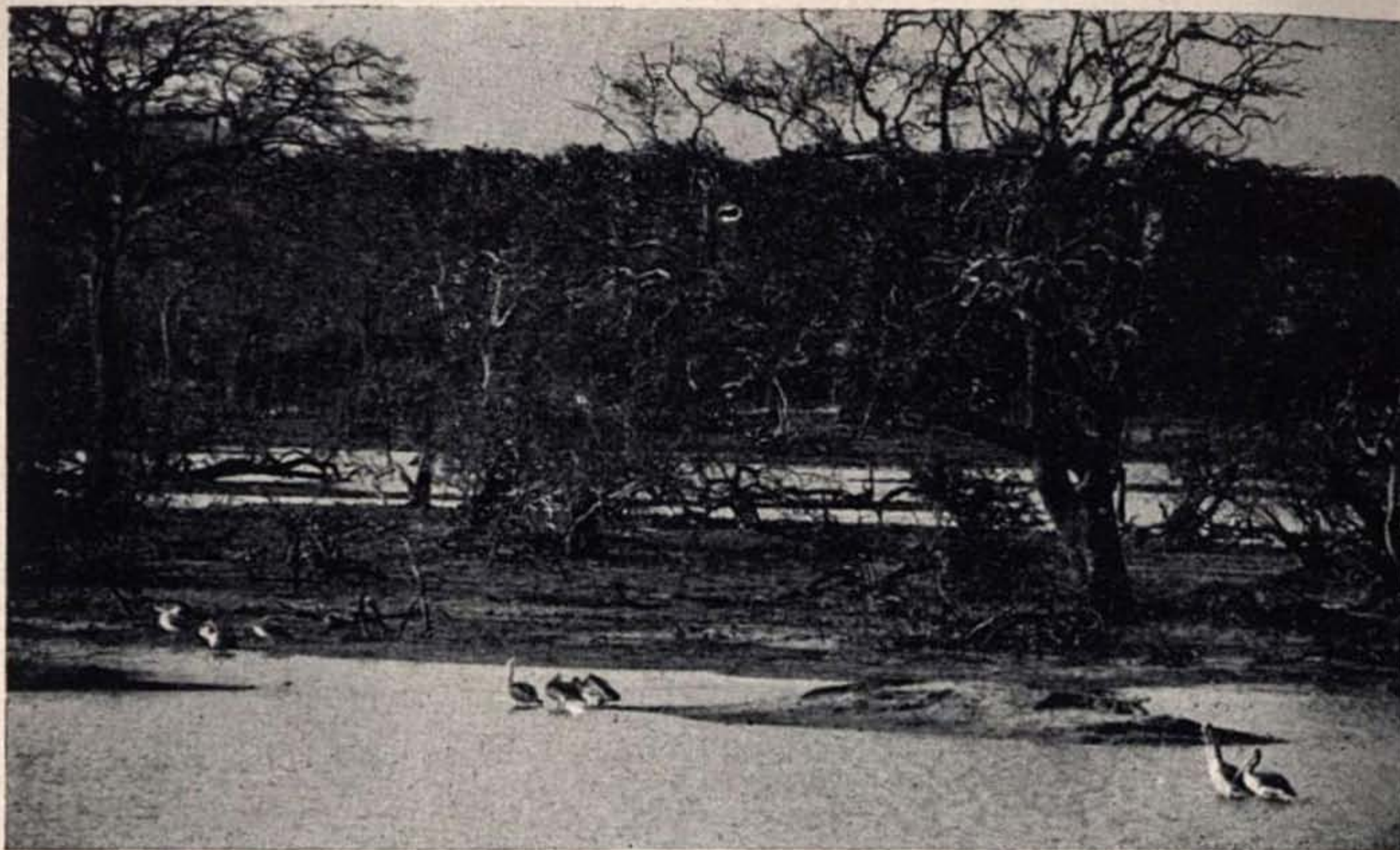
stood looking in our direction from about 50 feet off before turning into the forest. As dusk started deepening into night we returned to the landrover and as we drove past the forest saw the herd inside with the tusker in their midst and the *mukna* on the periphery. Suddenly the *mukna* charged the landrover and was only turned at the last moment by shouts from the back. The opinion was that he perhaps had a disagreement with the tusker over a cow and tried to take out his frustration on us. The final excitement of the day was the sighting of a leopard on the road.

An early morning drive and a walk along the river showed us some of Sri Lanka's 'wild buffaloes', a degraded version of what one sees in the swamps of the Manas, and a crocodile which gave a demonstra-

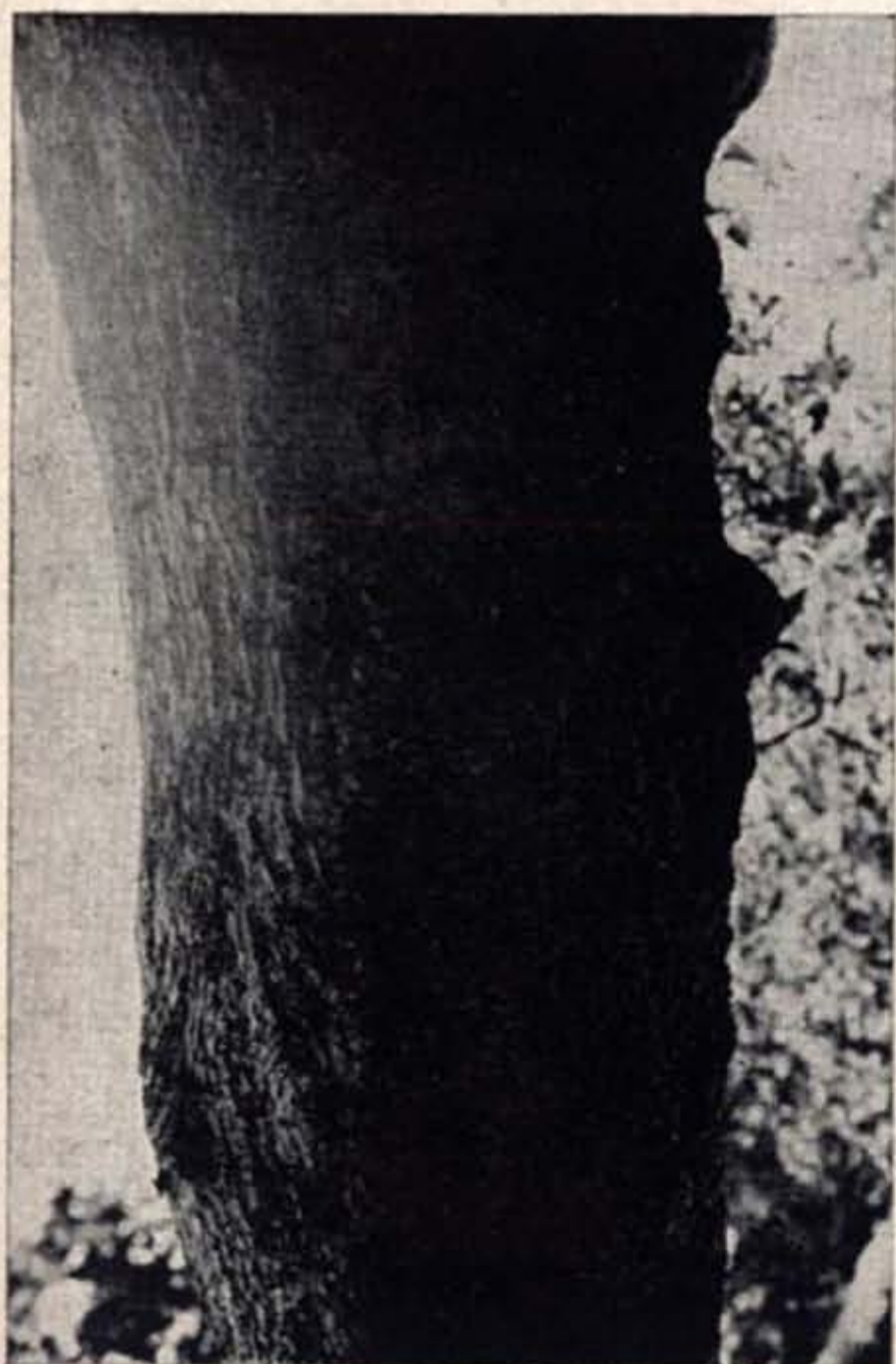


Stirring up a crocodile in a pool in the Menik Ganga

Photos: Vijaykumaran Nair



A forest pool with crocodiles and pelicans
Photos: Vijaykumaran Nair



In the centre an additional 'bark' of moths

tion of how easily it can make itself invisible even in the smallest stretch of water. One memorable sighting remains to be recorded, the countless numbers of Noctuid moths of the species *Brana calopasa* recorded from Sri Lanka and New Guinea seen in a particular stretch of the river bed. The moth was so densely packed on the trunk of a tree that it looked like an additional layer of bark. When disturbed the moths rose in flight in the manner that one peels off the bark. Lianas on the opposite bank of the river held similar dense clusters. One was reminded of pictures of congregations of migrating monarch butterflies in America. Was this also a migration?

J. C. DANIEL

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Butterflies of Bombay-4

In continuation from page 28 of *Hornbill* 1980(3), we are describing nine more butterflies of the family Pieridae.

24. GREAT ORANGE TIP *Colotis etrida* (Boisduval). Fairly common butterfly. On the wing from July to September and again from January to March. It flies close to the ground. Larval food plants are varieties of capers. Female has two additional black spots on the forewings and the terminal black spots of the hindwings are slightly bigger in size.

25. GREAT ORANGE TIP *Hebomoia glaucippe* (Linnaeus). A common butterfly of the forest. Flies from August to October. It is difficult to net these butterflies during their flight. When settled, forewings are covered by hindwings so that protective marking of hindwing and top of forewings are only visible and in this condition it is very difficult to locate them. Larval food plants, *Crataeva religiosa* and varieties of capers.

26. COMMON WANDERER *Valeria valeria* (Cramer). Commonly seen in the months August to October. Unlike male, the female is blackish brown marked with white streaks and spots, like the Blue Tiger. Males are more common than females. Larval food plants are varieties of capers.

27. COMMON EMIGRANT *Catopsilia crocale crocale* (Cramer). Very common. On the wing from June

to November and again in February and March. It can be seen settling on damp patches in large numbers. Larval food plants *Bauhinia racemosa*, *Butea frondosa*, *Cassia fistula*, *Cassia tora*.

28. LEMON EMIGRANT *Catopsilia crocale pomona* (Fab.). Habits and larval food plants as above: the variety *catilla* has purple blotches on the underside of the wings.

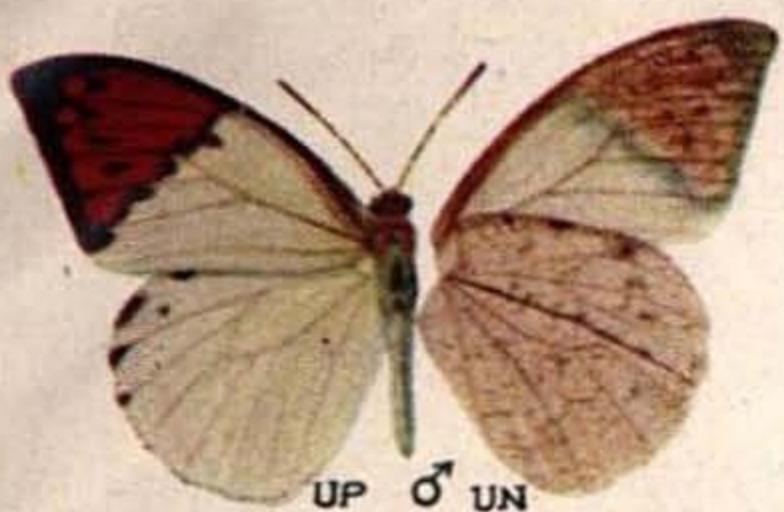
GRASS YELLOWS. These are bright yellow butterflies with apical and terminal black markings. They fly at low level among grasses and frequently settle on flowers or damp patches of earth. They are active during sunny days.

29. SMALL GRASS YELLOW *Eurema brigitta* (Cramer). Common throughout the year. Wet season forms have broader black areas. Larval food plants *Cassia* spp.

30. SPOTLESS GRASS YELLOW *Eurema laeta* Boisduval. Common on the wing throughout the year. It shows seasonal variation. Habits as above.

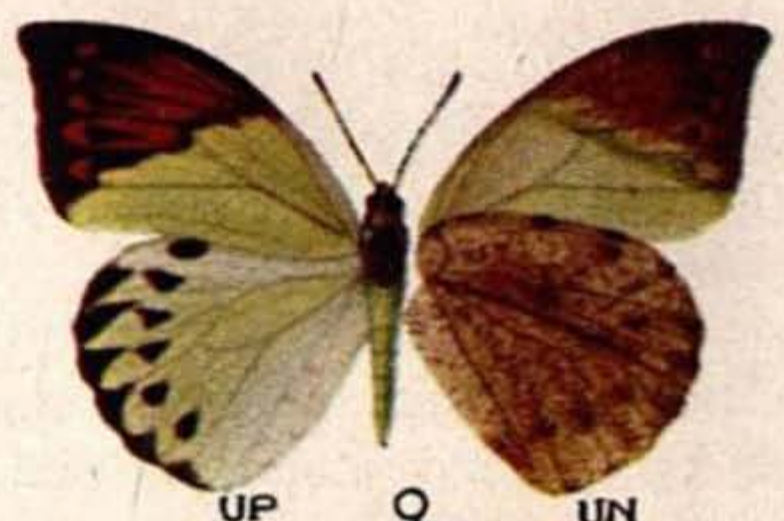
31. COMMON GRASS YELLOW *Eurema hecabe* (Linnaeus). Common among the Grass Yellows due to the variety of its food plants. On the wing throughout the year. Larval food plants are *Cassia tora*, Indian Laburnum (*Cassia fistula*), *Pithecolobium saman*, *Caesalpinia* spp. etc.

NARESH CHATURVEDI
S. M. SATHEESAN



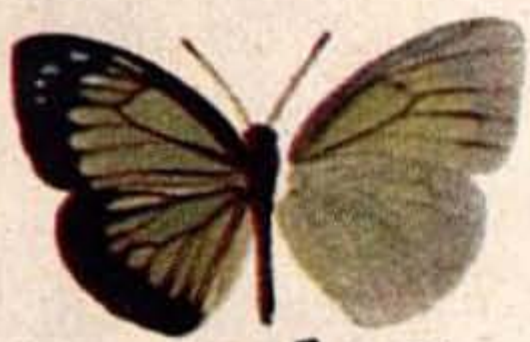
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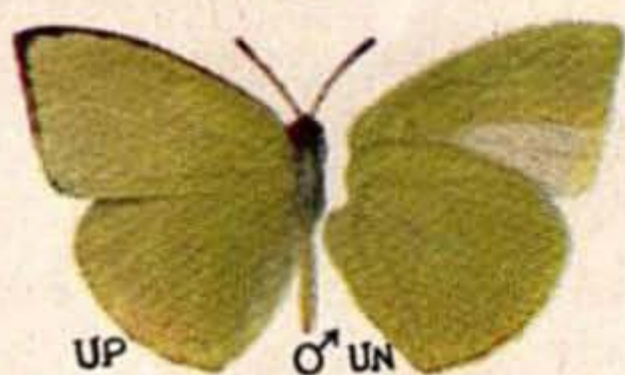
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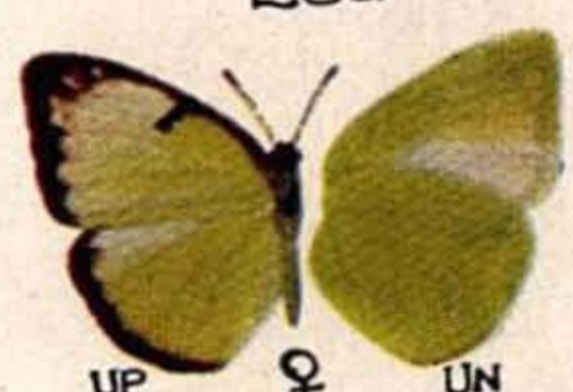
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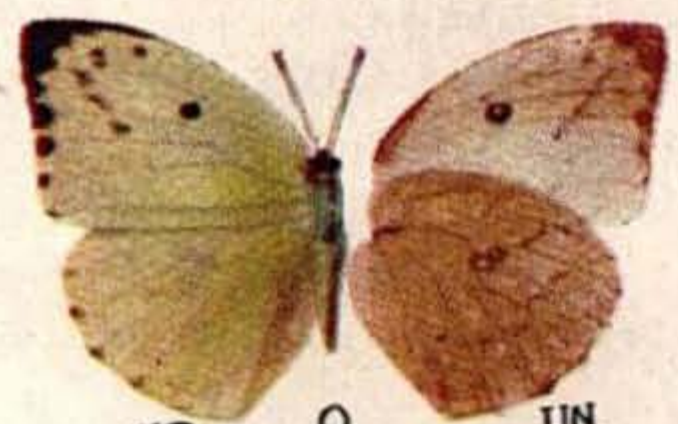
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Var. catilla

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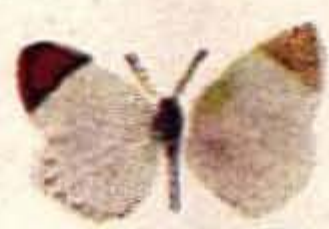
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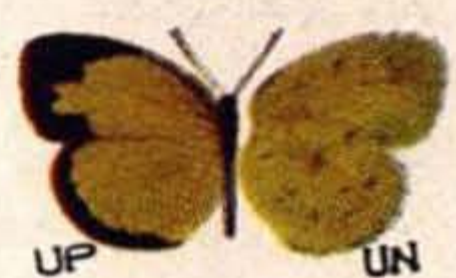
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Wild elephant seeks assistance

'The following incident experienced by my mahout and myself, will undoubtedly be of interest to your readers.

'In April last, coming down the bed of the Bargang river one evening on my male elephant, we crossed a very recent track of a single elephant with her small calf followed by a large tiger. The tracks were so fresh (water was still discoloured in the footprints) that we expected to hear of some domestic trouble very soon. We had not long to wait, for all of a sudden there was a tremendous loud trumpeting, with intermittent screams coming from the forest and about 200 yards in. We immediately made for that direction, but as we got nearer to where the sound was coming from, we came into terribly thick cane, with the usual 3 inch thorns, so we had to cut our way through, foot by foot, which delayed us considerably.

'All of a sudden a mother elephant appeared holding up her front foot, which was bleeding, and placed her trunk on my elephant's trunk, as much as to say, "Do come and see what awful trouble I am in!" She turned and led the way: we followed, and approximately 10 yards off, we came on to her calf which was about 3 ft 6 in. high, standing with its head completely scalped, and holding up its front

foot, which was turning round on a piece of skin—its foot, all but severed. With its little trunk about a foot or so long, it kept feeling its terrible head wounds.

'We kept moving around slowly, trying to obtain a view of the tiger for fully half an hour, but due to the necessity of continual cutting, we never saw it, although we could see its footprints and smell it.

'Whilst we were hunting for the tiger she stood by her calf, never leaving it after having led us to it. We also stayed alongside the calf for full 5 minutes while she herself was holding up her bleeding foot.

'It was getting dark, and we had very reluctantly to leave that sad scene and I with a lump in my throat. I have been asked by people why I did not shoot the baby, and put it out of its misery. To me, and to all people who have been associated with elephants, it would have been sheer murder, and mother elephant would never have forgiven me. The baby must have died shortly afterwards.'

FRANK NICHOLLS

Upper Shillong, Assam
September 6, 1951.

—From the *Journal of the Bombay Natural History Society* Vol. 50: 396-7; 1951.

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