

HORNBILL

1982 (1)



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 79th volume, and four issues of *Hornbill*, the Society's popular publication.

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

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The first annual subscription of members elected in October, November, or December will extend to the 31st December of the year following the election.

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EDITED BY

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J. S. SERRAO



You want me to give a new name for the Society. That is not an easy choice.

EDITORIAL

The Society completes 100 years of its remarkable existence in a matter of 18 months. Its successful survival, when similar societies started in Calcutta and Madras and other cities gradually faded away, can be traced to certain felicitous circumstances. The most remarkable among these was the fortunate selection of H.M. Phipson as the Society's Honorary Secretary. Phipson, who was a wine merchant, found rooms for the Society in his centrally situated office, in the Fort area of Bombay's main business centre. The present offices at Hornbill House are a 100 metres south of the original office in Phipsons. He started the *Journal* and looked after the affairs of the Society as its Honorary Secretary for 18 years. The symbiosis the Society had with the house of Phipsons was to last for nearly 75 years and was to be the rock on which the Society was built. The house of Phipsons provided Honorary Secretaries and or Honorary Treasurers during the 75 years of association, men who devoted as much time and care to the growth of the Society as they did to their business. Natural History in India is indebted to the house of Phipsons.

Another factor that the Society's President pointed out, while discussing the proposal to change the name of the Society, is that the British, who formed the majority of members up to the country's Independence, entered the country through the port of Bombay. Those

who were inclined to Natural History (and most of the British were) visited the Society's office, met the genial Honorary Secretary, and the Society's mascot William, the Great Indian Hornbill, who held court in the Honorary Secretary's office during the 26 years he lived. The members thus recruited scattered all over the country and the Society grew in numbers. It was no longer a Society of Bombay residents. Its membership covered India, Burma, Sri Lanka, Europe and America and had on its rolls kindred societies, museums and scientific institutions throughout the world.

The Society may have a parochial name but was, and has remained an all India and an international organization. The several names that have been suggested are listed below:

1. Natural History Society of India
2. National Natural History Society
3. Indian Natural History Society
4. Natural History Institute of India
5. National Institute of Natural History.

We have asked the Registrar of Societies whether any of these names are available, but the name with which the Society was born and which earned it respect and recognition in the first hundred years of its existence is always available.

PRESIDENT'S LETTER

SQUARE PEGS IN ROUND HOLES

It is generally agreed that the conjunction of stars in India's conservation firmament was never so propitious as it is today. In the Wildlife (Protection) Act of 1972 we have the most comprehensive piece of legislation the country has ever had for the safeguarding of our national biological wealth; the Forest Act of 1980 is an insurance against the short-sighted cupidity of State governments who continually contrive encroachments on forest land for settlement of displaced persons or for hydel projects or other schemes of 'development', and the newly started Department of Environment which will, hopefully, act like a sluice-gate for controlling runaway and often dubious development schemes in ecologically sensitive areas until after they have been cleared by expert scientific scrutiny. At the apex of all this we have a Prime Minister who is also the Chairman of the Indian Board for Wildlife—the ultimate policy-making body for nature conservation. Mrs. Gandhi is a 'hereditary' nature lover and well known for her deep concern for the natural environment and everything that adds to the betterment of life. The central Government's solicitude for environmental conservation is clearly reflected in the States which are, by and large, anxious to respond to the Centre's suggestions and recom-

mendations, or at least to make reasonable compromises over controversial development plans sometimes even at some short-term sacrifice for themselves. The conservation machinery at the Centre is run by able and seasoned executives with a sense of dedication and personal involvement: thus the top administration is admirably geared to serve our needs.

Unfortunately, however, in the case of field administration and practical wildlife management the position is less reassuring. With a few notable exceptions the States seem inclined to give low priority to wildlife and nature conservation. Many of their Chief Wildlife wardens who—in order to efficiently organize a new and upcoming department should be men of unusual ability and drive, specially trained in the techniques of scientific management of wildlife and natural habitats—are usually conventional forest officers with a minimum of knowledge of wildlife or aptitude for the type of work they are expected to do. Many even regard the posting as a sort of imposition or punishment rather than an enviable and challenging opportunity because of comparatively easy routine under which they have been used to work heretofore. They take up the job with little en-

thusiasm buoyed by the knowledge that they would revert to the territorial cadre as soon as their next promotion became due. In some cases such 'misfits', whose only qualification for the post perhaps is seniority of service, are pitchforked into the job on return from furlough and while marking time for a permanent territorial posting elsewhere. I know one State, of the highest importance from the nature conservation point of view, where three Chief Wildlife Wardens were changed in the course of 2½ years and one of the most dynamic and knowledgeable wildlife DFO's transferred from a primeval rain-forest area in whose study he had specialized for years and for reasons other than any professional short-coming. The boast of one of these ephemeral Chiefs—a senior forester of Conservator's rank—who on his own unperturbed admission had no knowledge or experience or training in wildlife matters but was prepared to begin learning! He claimed that since he was a total vegetarian and had never eaten any meat in all his life he was best qualified to be the Chief Wildlife Warden! With such material at the head of a young and what should be a dynamic department, manned by a similarly ignorant and untrained field staff

what achievement can one expect? It is a sorry state of affairs when a Chief Warden *begins* to learn about wildlife when he should be teaching and guiding his subordinates, some of whom being forest-dwelling locals are perhaps better informed than himself. The frequent transfers of deputy wildlife wardens in charge of individual sanctuaries and lower field staff from a sanctuary with which they have become familiar to a new one for reasons not directly connected with their service is another bogey that demoralises the staff. Such transfers are particularly undesirable in the case of persons who have diligently striven to acquire a deeper insight of the areas concerned.

Everything considered, it is obvious that without a carefully selected and adequately trained and motivated staff at all levels nature conservation in many of the States is a travesty. And this applies more specially to the Chief Wardens of the various States on whom rests the initiative and responsibility for preparing, executing and monitoring the scientific management plans of conservation areas.

Salim Ali

Periyar - A profile in decay

Twenty years ago, on the way to Periyar from Cochin, a country bus was held up for 20 minutes by a lone tusker, a few kilometres before reaching Thekkady. Today, the same drive is totally uneventful from the wildlife point of view. Kilometres of forest have disappeared and, all one sees are plantations till the check-post at Thekkady is reached, a kilometre from the township of Kumily, which today even boasts of a cabaret.

The Periyar Tiger Reserve and the moist-deciduous forest begin at the Thekkady check-post and then nature lover's nightmare begins. This peripheral area even today sustains a large variety of birds from sunbirds to eagles and hornbills, and mammals such as, wild dogs,

The Boat Landing at Periyar

sambar, barking deer. Nilgiri langur and giant forest squirrel, still frequent and inhabit this area. Thanks to blinkers worn by the authorities, this area within the periphery which incidentally has no buffer zone at all, is turning into housing colonies for staff and workers of the Tamil Nadu Inspection Bungalow, Kerala Forest Research Institute, and the expansion of Kumily and surrounding villages and townships, whose dependence on this forest area is ever increasing. The cutting down of trees is not restricted to villagers alone. The two large hotels resort to it for their vast firewood needs; allegedly dry branches but, in practice, there is felling of trees. Coupled with deforestation, there are daily disturbances from grass and wood cutters, quarries where stone

Photo: E.P. Gee



blasting goes on intermittently and free use of the forest by visiting film units to shoot their movies.

Deep within the sanctuary, poaching is probably Periyar's most pressing problem. Elephant and wild boar populations have tremendously decreased and the former have degenerated in 'quality' over the years due to the fact that most large tuskers have been poached off. In fact, large tuskers today are a rarity and are rarely seen. Untrained and psychologically low in morale as they are, forest guards have proved impotent in curtailing the poachers' activities, especially as they have no incentives or motivation and, as the latter are superior in numbers, more sophisticatedly armed and sometimes tend to be quite aggressive when apprehended.

Every summer, man made fire sweeps the landscape for miles around. Most hillsides and tops are bare and erosion has alarmingly set in. Fires open up the forest and its interior to honey collectors and wood cutters and the natural vegetation does not grow to its optimum, as when left alone. In fact, continuously fired areas sustain only a scattering of fire resistant trees and grasses where once a healthy mixed forest must have existed.

What is as distressing is that 40 sq. km of Eucalyptus plantations exist deep within the park to feed the upcoming Kottayam Paper Mill and Eucalyptus is being planted on many hill tops to prevent erosion. Foreign introductions like Eucalyptus do not benefit the fauna and

Burnt hillside with eucalyptus plantation in the background

Photo: S.A. Yahya





Fuel stack for the tourist lodge

Photo: R. Naoroji

lend monotony to the scene and may even have long-term adverse effects on the environment; not taking into account the disturbances that will be created when they are finally harvested. There are also three cardamom plantations in and around the vital core area—the very heart of the reserve.

Cattle grazing is another hazard to this reserve. The large gaur (Indian bison) herds that Periyar used to be famous for have all but vanished (except for a few scattered herds that are hopefully building up their populations) owing to widespread death through rinderpest, transmitted to them through these domestic ungulates. Cattle and elephant grazing side by side is not an uncommon sight today.

In recent years, a new type of tourist, as opposed to the nature lover, has been seen in increasingly large numbers; the Hippy tourists. They should be discouraged from

staying in the log-huts inside the park, as should transistor toting local tourists who should be made to deposit their transistors at the check-post, as boat rides in the Periyar lake are usually accompanied by loud filmy music and shouting and clapping when an animal is sighted. Today, the Periyar Tiger Reserve is an example of accelerated degeneration and degradation. The problems that beset Periyar are sadly analogous to some of the other wildlife areas in the country. Periyar is the perfect standard by which one can judge the erosion of an animal utopia. These problems are not unsolvable and as Periyar has recently been designated as a Tiger Reserve, let us hope that the authorities concerned who are definitely aware of what is happening will face up to the serious task of solving these problems in the best possible way.

RISHAD NAOROJI

An Unusual death of an Indian Python (*Python Molurus*)



A python's misadventure

The ability of snakes, particularly boids (boas and pythons) to swallow large prey is well known. Corbett (JUNGLE LORE, 1953), for example, encountered Indian pythons which had swallowed spotted deer (*Axis axis*) and barking deer (*Muntiacus muntjac*); adult female deer of these species weigh about 40 kg and 20 kg respectively. A 7.5 m long Indian python swallowed a domestic pig weighing 54.5 kg and later it swallowed a 47.5 kg goat (Grzimek, 1975, ANIMAL LIFE ENCYCLOPEDIA Vol.6, p. 367). He also notes that a leopard (*Panthera pardus*) was found inside a 5.7 m long Indian python, but does not mention its size. A 3.0 m long Indian python is reported to have swallowed a spotted deer fawn weighing about 7 kg. A snake also can regurgitate its prey if whatever it

swallowed causes too much discomfort. Sharma (*J. Bombay nat. Hist. Soc.* 77: 350; 1980), however, found a cobra (*Naja naja oxiana*) which had died with a Little Bittern (*Ixobrychus minutus*) stuck in its throat. A dead Indian python was found by guards in Royal Chitawan National Park, Nepal, with an adult male hogdeer (*Axis porcinus*) stuck in its throat. The snake measured 4.9 m long. Adult male hogdeer weigh about 40 kg and have antlers that measure 30-38 cm. The contour of antlers was evident on the lateral-ventral side of the dead python, and it was surmised that it was unable to expell or completely swallow the deer and this led to its death.

I would like to thank Fiona Sunquist for providing the photograph.

M. E. SUNQUIST



The *Kusum* Tree

The *Kusum* tree (*Schleichera oleosa* = *Schleichera trijuga*) is the Cinderella of the Indian forests. Except for a few weeks in spring it looks no different to so many other forest trees of dark green foliage. As summer sets in, it transforms itself into an object of great beauty adding to the riot of colours in the Indian jungle in spring. All the leaves of *Kusum* turn from green to a radiant blood red or a rust orange—at times a delicate pale pink. When back-lit by the slanting rays of the morning sun, the tree is a luminous mass of incandescent colour.

A few weeks later, the red leaves are shed, and are replaced by young

green shoots. Once again the *Kusum* goes back to its normal self.

I know of a particular *Kusum* tree next to a forest bungalow in Bihar which mistook a spell of warm weather in October after unseasonal rains for spring, and started turning red. A few days later it realised its mistake and promptly went back to being green for a few more months.

The accompanying photograph was taken in the Shivalik foothills and shows a *Kusum* tree turned a shade of pink instead of the usual red. It can be mistaken easily for a flowering tree.

ASOK KUMAR

Why do Blackbuck males turn black?

It is August and blazing hot. We are sitting in a hide on land that once was the favourite hunting ground of the Nizams of Hyderabad. Here, the royal hunting parties used to come out looking for the blackbuck which once roamed this scrub country in their thousands. Luckily for us, there are a handful of these enchanting creatures still around, roaming fearlessly in the Mahavir Harin Vanasthali on the outskirts of Hyderabad. One of them automatically commands our attention; he is the biggest buck of them all; jet black and with a lovely head of horns. His posture and gait are truly magnificent. Head held high, he struts and prances around, herding his does and driving off stags. For we are watching the dominant male defend his territory and keep his harem from straying off. A great pile of dung in the middle of a circle rendered barren by constant pawing and scraping marks the centre of his territory of a few hectares. And there is no rest whatever for the territory owner, since other stags are constantly straying on to his ground attracted by the does that make up his harem. As soon as an intruder appears on the periphery, our buck has to rush off barking to challenge and chase him away. He returns only to discover part of his harem wandering off. And no sooner has he rounded them up and brought them back, another male infringes on another corner of his territory. And so it goes.

One may naturally ask why a male should so willingly accept all this sweat and toil? For this hard life is the lot of just a few blackbucks who succeed in establishing a territory. The others seem to enjoy a much easier life, grazing at leisure, occasionally teasing a territorial male, resting when they feel like. The explanation of course lies in the fact that these other males have no access to females. So they have no chance of passing on their hereditary material—their genes—to the next generation. It is only the territory holders that succeed in doing so; and if the trait of fighting for and trying to hold a territory and a harem has a hereditary basis, then we expect such behaviour to spread in the population. In other words, natural selection would favour males subjecting themselves to all the hardship that they seem to. In fact, the non-territory holders are constantly attempting to oust the territory owners and embrace their life of sweat and toil—with the concomitant reward of reproduction.

To start with all blackbuck males are brown. As they grow bigger and add more and more spirals to their corkscrew horns, some of them turn black. The black males are physically most vigorous ones and a male may revert to a brown coat if he loses condition. Physiologically it is known that the black coat colour is related to high levels of male sexual hormone—testosterone in the

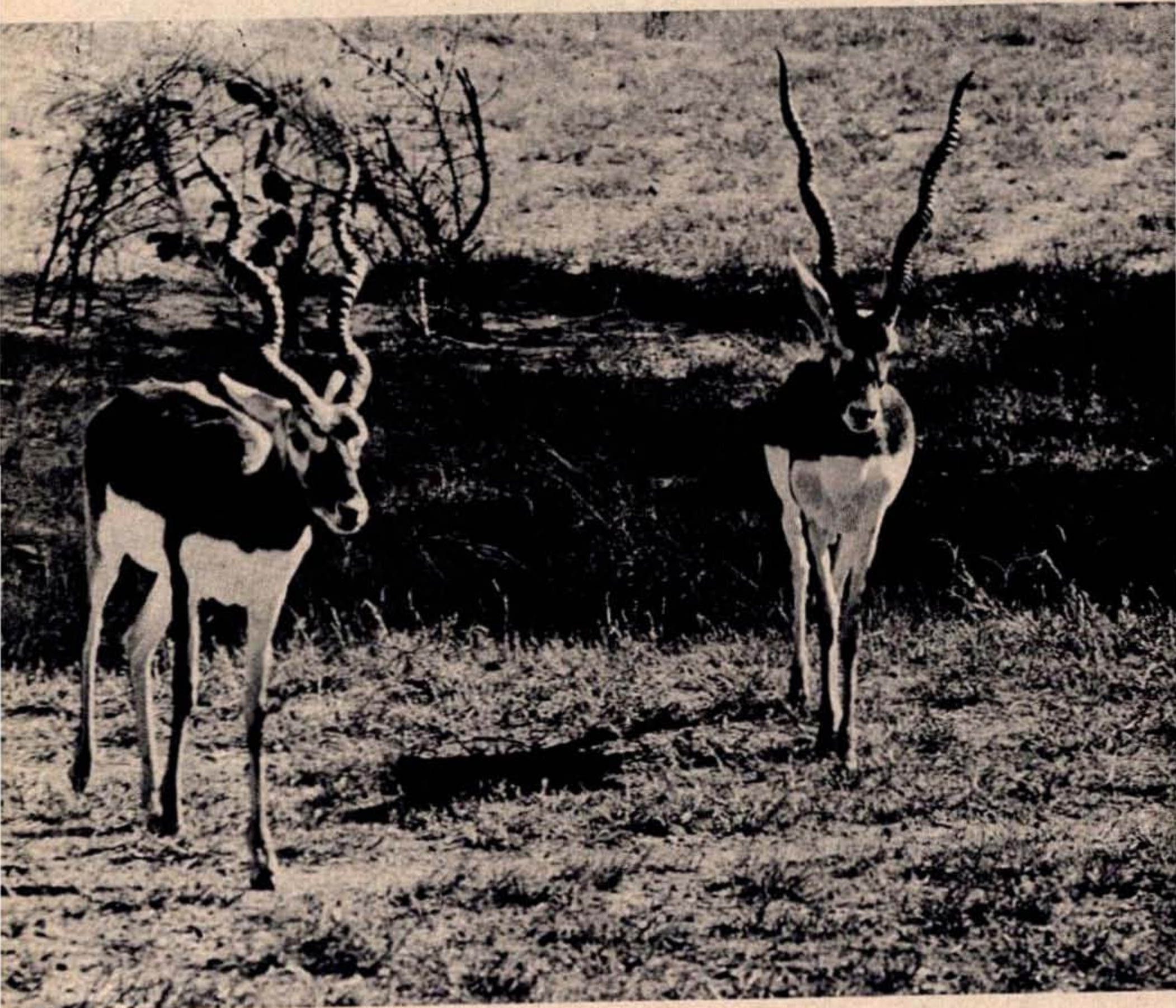
animal's blood. So it is the big vigorous males that maintain high levels of testosterone in their blood, turn black and contest for territory and overlordship of a harem. While not all the black males succeed in holding a territory, a brown male never does so. Thus, the black colour is a passport to reproductive success. While it does not guarantee a harem, it is a pre-condition to it.

It is a pre-condition to reproductive success because it acts as a signal to other males that a male

with a black coat is not to be taken lightly. He is necessarily a vigorous fellow, and with the high level of testosterone in his blood, a very aggressive one. Colour is thus one component of a whole variety of messages that blackbuck males transmit to each other about their respective strengths and weaknesses. For it is very important for them to know where they stand with respect to all the other males competing for the ownership of a territory and overlordship of a harem.

Two adult Blackbuck stags

Photo: E.P. Gee



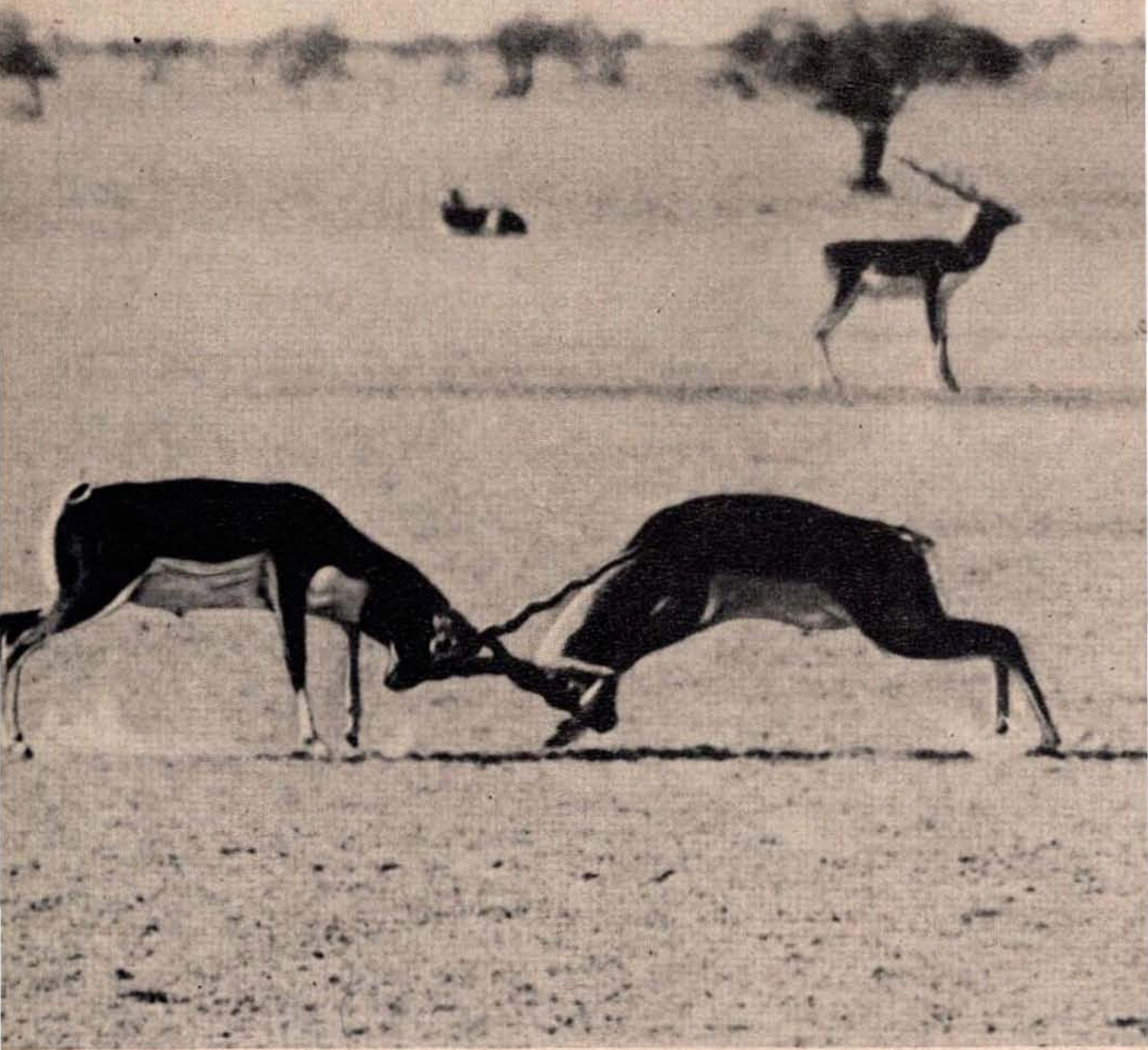
The one aim in life of every blackbuck male in the breeding season is very evidently to acquire a territory and a harem. But this is going to be actually possible for only a few amongst them. Each male would of course try his hardest to belong to this privileged class. And the non-territory owners are continually testing the territory owners to see if they can find a weak one that can be ousted. But the territory owner is going to stand his ground and if necessary fight. Interestingly enough, the fights rarely result in very serious injuries or death. They are more in the nature of tentative tests of strength, and once one of the males is convinced that the opponent is stronger, he gives up. It is only when two males are very evenly matched that there will be a prolonged fight which may end only with a serious injury to one or both of them.

This makes sense, for if a male is unlikely to win, it is best for him to quickly withdraw and save his energy for another occasion when he may have a chance of winning. A whole variety of animals, including blackbuck, have therefore evolved a large repertoire of messages about each other's abilities. The colour of the coat, the length of the horns, the size and smell of the dung pile, the prancing gait, the threatening bark, and finally the force with which it pushes when engaged in a sparring combat, all serve to tell the others of a blackbuck male's strength and chances of winning in a fight. Each male sizes the other males up and

makes up his mind as to how far he is willing to go in staking his own claims.

But if black coat colour signals vigour and is respected as such by others, what is there to prevent a weak male from donning black colour anyway? What indeed prevents nature from evolving such sheep in wolf's clothing? A beautiful test of this is now available with an American bird known as Harris Sparrow. In this sparrow, the dominant birds have a black throat, a throat colour which, as in the blackbuck, is correlated with high levels of male hormone. Rohwer, an American ornithologist, took some pale-throats and painted their throats black to see if they would rise in social hierarchy. They did not; for the other behavioural signals they were giving failed to match with the signal of the black throat and the pretenders were even worse off than they were earlier. But if the pale throated sparrows were given a shot of male hormone to make them behave aggressively as well, and then had their throats painted black, all the signals matched and the birds did rise in hierarchy. At the same time, if the light birds were given only a shot of hormone and rendered aggressive, without painting their throat black, there was again a mismatch of signals and the birds were in for a lot of trouble. Consistency of all the signals is then critical to an animal's success in life.

You may be inclined to pursue this further and ask: why does not a



Blackbucks sparring

weak male produce high levels of testosterone, turn black and acquire a harem any way. This won't work, because testosterone steps up an animal's energy expenditure and unless a male is in peak of his physiological condition, he will rapidly deteriorate if he tries to maintain such high levels of

testosterone. Besides he would never pull off success in an actual sparring match with another genuinely vigorous black male. There is then little that a blackbuck male will gain from pretence. Honesty is after all the best policy.

MADHAV GADGIL

CONSERVATION ACTION

Conservation of Orchids in India

Orchids, the most fascinating of flowers are facing the danger of extinction in the wild throughout the world and especially so in the developing countries like India with accelerated deforestation.

India has a very high variety of orchids of about 1600 species out of which about 270 species are restricted to Khasia and Jaintea hills, 150 to the Western Ghats and the rest are distributed throughout the great mountain chains of the Himalayas, Vindhya, Satpuras and Chota Nagpur area, etc.

Indian forests are under tremendous pressure owing to the fast growing human population and industrialization, and planting of commercially viable timber. Deforestation for agricultural land is another factor for the fast depletion of the Indian orchid species. Jhumming or shifting cultivation has been stopped by the Government of India, but the tribes of Nagaland and Mizoram have ruined the existing populations of *Vanda caerulea* and species of *Dendrobium*.

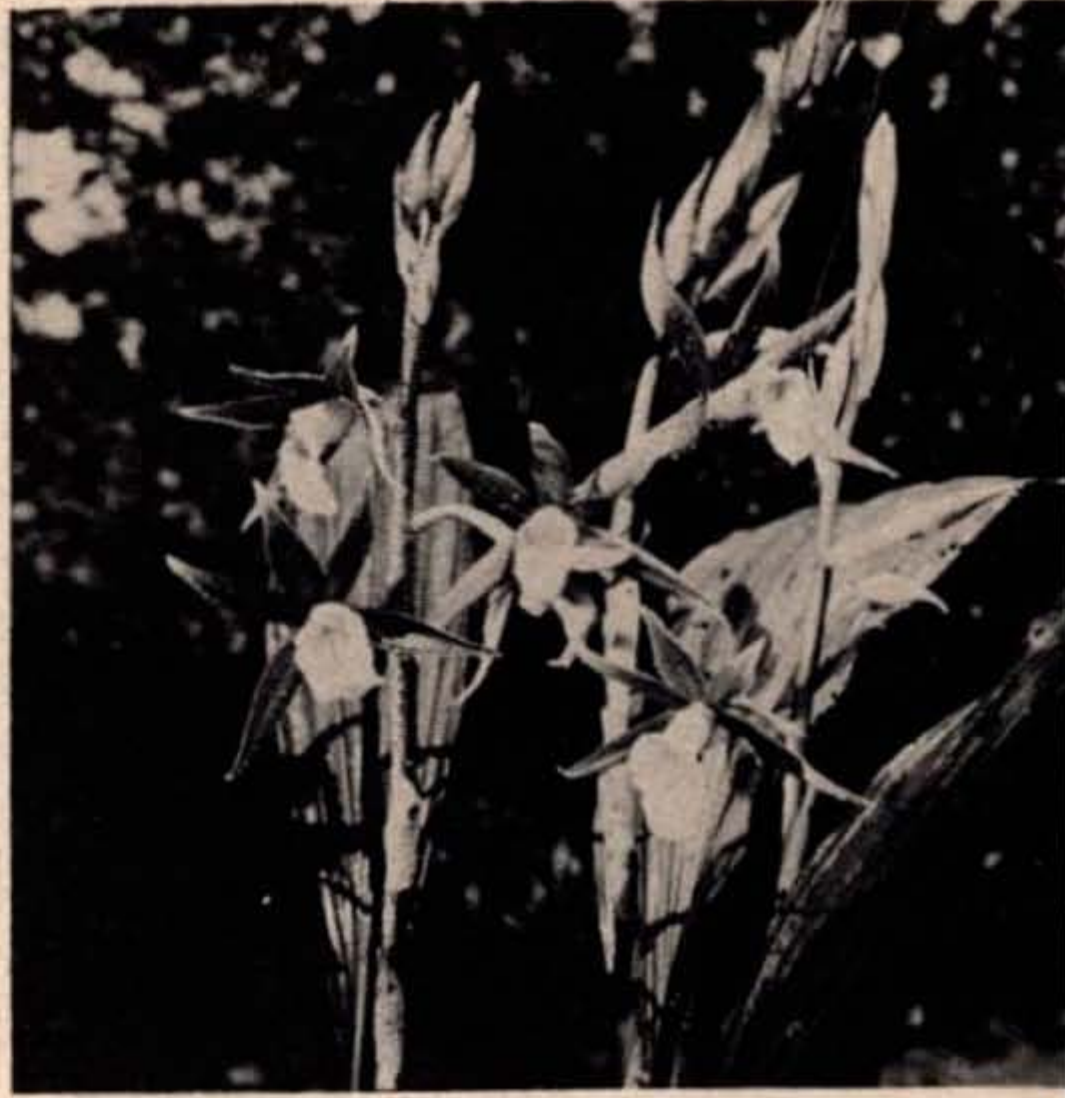
The Indian Council for Agricultural Research initiated some steps for the conservation of orchids in India. The guidelines were prepared at the meeting of orchid workers at Shillong in October 1977. It was decided and recommended to the Government of India that positive steps have to be taken

immediately to conserve the orchid wealth. A 100-acre primary forest area in Lolaygaon about 25 miles from Kalimpong has already been selected for an orchid sanctuary. Similarly sites were selected in the Western Ghats, NE Himalayas, etc. The Forest Department declared certain areas in the Darjeeling district as 'Orchid Reserves' from which no orchids can be collected. It is also envisaged that when a forest area is cleared all the orchids should be suitably planted at commercial nurseries or in orchid reserves. Sikkim which has more than 550 species has totally banned the collection and export of orchids, and has also established two beautiful orchid sanctuaries at Deorali and Singtom.

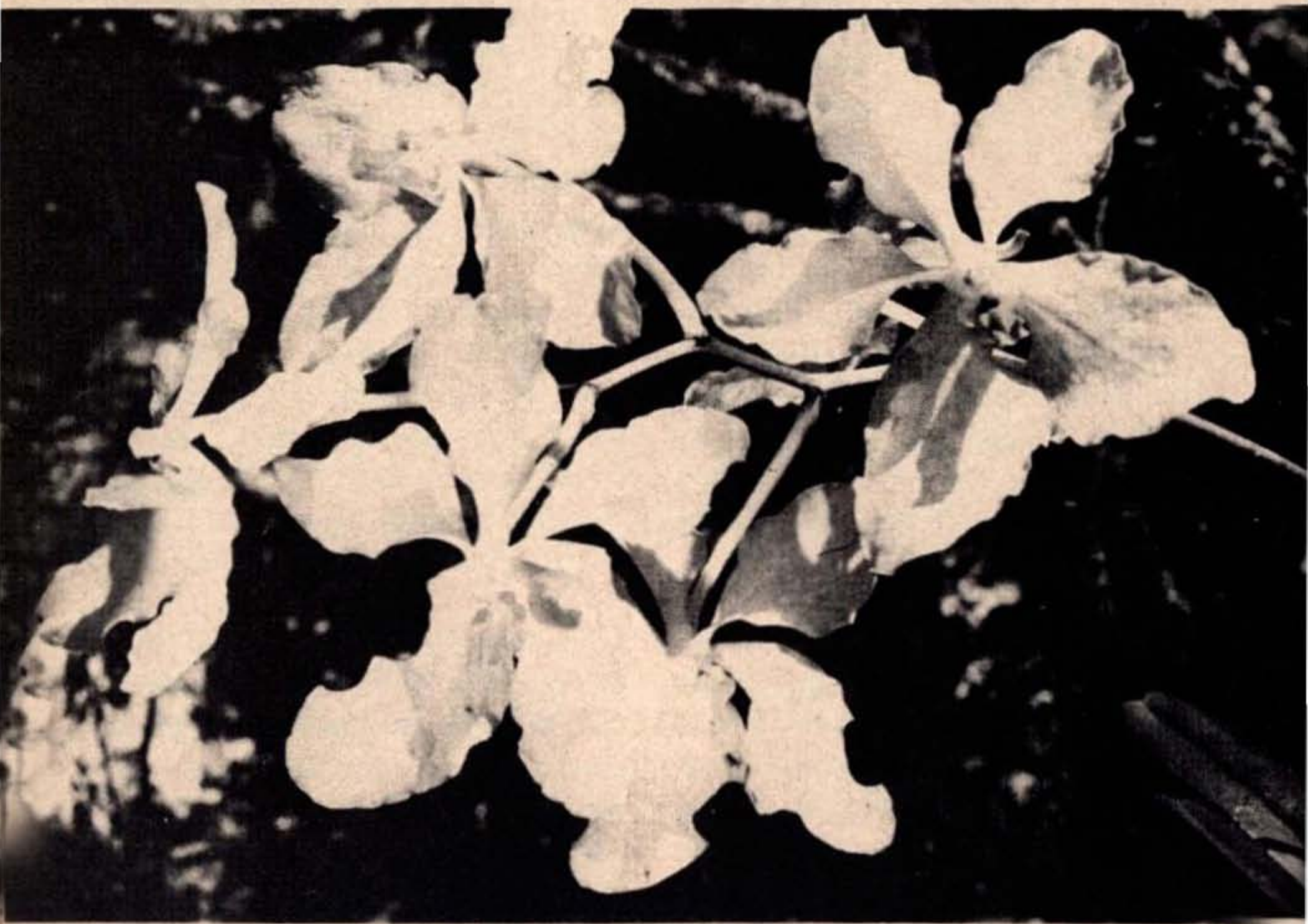
Some of the Indian orchids have totally disappeared from their original localities. Hooker, in his HIMALAYAN JOURNAL in 1854 gives a vivid description of the presence of *Vanda caerulea* near an oak wood in the Jowai area (Khasia and Jaintea hills) and states that he collected seven headloads of this plant for the Kew Gardens. In the 125 year interval there is hardly any plant left of this species in this area. It is on record that in 1884 the first consignment of *Paphiopedilum spiserianum* from India consisted of 40,000 plants and each plant was sold for Rs 350/- and above by the famous orchid firm Veitch & Sons. Similarly the Lady's Slipper orchid *Paphiopedilum fairieanum* from



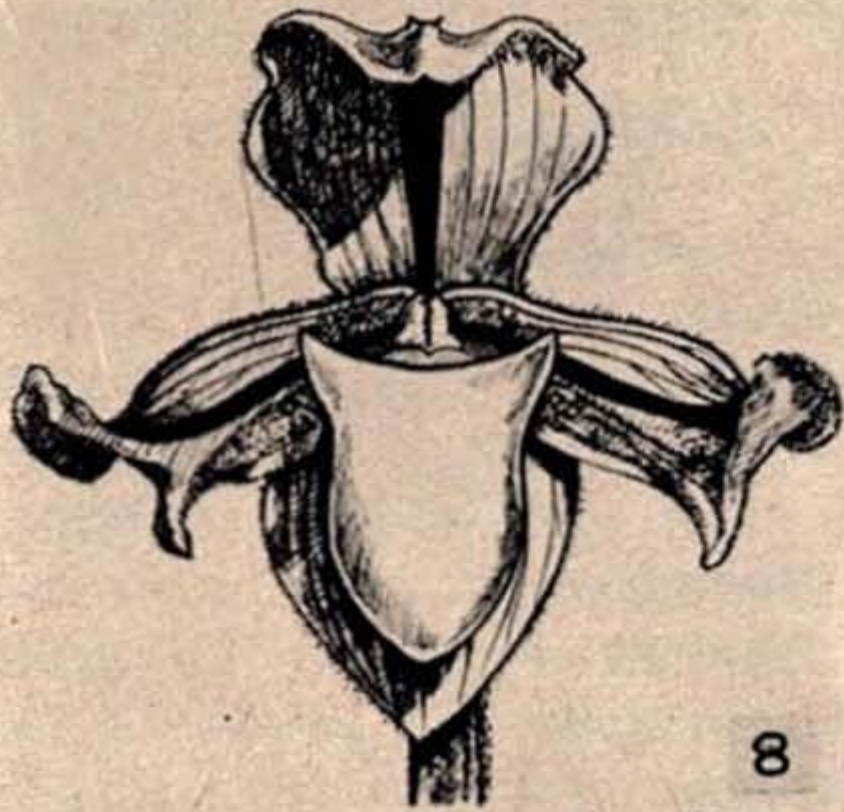
Paphiopedilum fairieanum



Phaius wallichii



Vanda caerulea



8

Paphiopedilum druryi (Bedd.) Pfitz.

Arunachal Pradesh, *P. insigne* and *P. venustum* from Khasia and Jaintea hills, *P. villosum* and *P. hirsutissimum* from Mizoram, *P. druryi* from Agastarmalai (South India), *Dendrobium densiflorum*, *D. farmeri*, *D. nobile*, *Arundina graminifolia*, *Phaius wallichii* etc. have all become rare or extinct from the places where they were in abundance. This is also true of some very less attractive orchids or botanicals like *Oberonias*, *Anaectochilus*, *Goodyera*, *Habenaria* etc.

The conservation of orchids is a very complicated issue and the problems are principally social, aesthetic and economic. Smithsonian report on the observation of endangered species has recommended that 'Preservation of endangered and threatened species of plants in their natural habitat should be adopted as the best method of en-

suring their survival. Cultivation or artificial propagation of these species is an unsatisfactory alternative to *in situ* perpetuation and should be used only as a last resort when the extinction appears certain, with the purpose of re-establishing the species in natural habitat.'

FOJA SINGH

Tigers in Burma

At my request U H.G. Hundley, Wildlife Consultant, Forest Department, Government of the Socialist Republic of the Union of Burma has very kindly furnished me with the estimates of tigers. There are two races or species. A. Mazak in *Mammalia* Vol. 32, pp. 104-112 states that the Irrawaddy is the boundary between the Indian race and the race *corbetti*. The view seems to be that there is no sharp division, nor a gradual transition of one race to another over a wide area.

ESTIMATES OF TIGER POPULATION

	1960-61	1980-81
East of the Irrawaddy	1225	2232
West of the Irrawaddy	396	904
Total	1621	3136

No systematic census has been carried out. There are 36 Forest divisions. The rough estimates are furnished by the Divisional Forest Officers. U Hundley comments: 'The latest estimates may be taken with caution.'

U TUN YIN

Peafowl census in the Gujarat State

A primary census was carried out during 1981 by sending out a questionnaire to all the field staff of the Forest Department in July 1980. The fact that the Forest Department of the State has now extension staff in the non-forest areas, where peafowl mostly occur, in practically every taluka of the state was taken advantage of. The staff was directed to fill up details of the numbers seen in a village, whether peafowl feathers were being collected by traders in the village or not, and the names of such traders, and whether the bird was killed in the village or not. The data collected therefore is a very rough estimate of the peafowl population in each village and serves the purpose of giving an idea about the bird's distribution, rather than making an accurate estimation of the bird's numbers.

The results of the 1981 census districtwise are as under

DISTRICTS	PEAFOWL
Junagadh	27,470
Ahmedabad	21,147
Surendranagar	20,140
Kheda	15,049
Vadodara	11,265
Banaskantha	8,079
Valsad	7,124
Bharuch	6,242
Panchmahals	6,143
Sabarkantha	5,170
Kutch	4,766
Mehsana	3,516
Bhavnagar	3,231
Rajkot	3,231
Surat	2,905
Jamnagar	3,092
Gandhinagar	1,554
Amreli	900
Dangs	407
Total bird of both sexes	151,431

A more detailed census based on direct visual count is now proposed to be undertaken during the current year when a count of the sexes is also proposed to be done.

M.A. RASHID

Spl. CCF. (Wildlife), Gujarat

SOME BEAUTIFUL INDIAN CLIMBERS AND SHRUBS

BY

N. L. BOR AND M. B. RAIZADA

The second revised edition of this book will soon be available at the Society at Rs. 100/- (members Rs. 75/-). Please register your orders early.

BIRDWATCHER

Survival of Hornbill in the KFD Area

Malabar Grey Hornbill *Tockus griseus griseus* is a resident bird distributed all along the Western Ghats from about Bombay south through southern Maharashtra, Goa, Karnataka, Kerala and Tamil Nadu. It is the commonest member of the family in the Kyasanur Forest Disease (KFD) area, Shimoga district, Karnataka.

In the sixties this arboreal species was seen in groups of two or more throughout the year both in evergreen and moist-deciduous forests, their flight preceding a flock of green pigeons, when disturbed by human presence. The KFD forests used to echo with the squeals and cacklings of these birds. The sight of their dashing flights and the sound of their squeals have been gradually becoming rarer and rarer through passage of time. Human factor is very much involved in the sad phenomenon.

In the KFD area the species breeds during January to April in hollows in the trunks and boughs high up on the lofty trees. The brooding female seals the entrance hole with a mixture of mud and faecal matter leaving a narrow slit for receiving the regurgitated food from the male. During incubation the female undergoes an almost total moult of contour feathers and

accumulates a lot of fat. This vulnerable plumpy golden brown female and its eggs or newly hatched nestlings are considered delicacies by the local farming communities. The large size and the acquired taste of the farmers for the bird has been engaging a considerable number of farmers in hunting for the nests during the breeding season. Some of them have become experts, like honey hunters, in locating the nests and determining the ripe time for harvesting the nest for the tender nestlings and the plump mother bird before she comes out. Every season a considerable number of broods are being consumed by the local farmers.

The match and plywood industries have been bringing down the height of the forests by felling the lofty upper canopy trees and forcing the birds to nest on the lower levels and rendering the nests easily accessible to the hunters.

A two-hour trek through the KFD forests used to bring at least a dozen hornbills into sight during the sixties. Now a trek of the same duration through the same forests hardly brings a couple of birds into sight.

Obviously Malabar Grey Hornbill is dwindling like other species of wild birds and mammals of the area with the dwindling forests.

H. R. BHAT

The mad elephant of Mandla

The installment that follows completes the serial on 'The mad elephant of Mandla'. Its first and second part appeared in Hornbill 1981 (3) and 1981(4). —EDS.

Ganpat Singh of Mate afterwards told me that when I passed through his village it was commonly said: "There goes the Sahib; he looks cheerful and grand now but wait till he meets the elephant; the like of the brute was never seen and no earthly bullet can touch him. He will eat up the Sahib horse and all."

Ganpat Singh added: "He has so frightened me that the bare sight of your tame elephant makes me tremble."

The news, that the elephant had tried Faizu and was coming, reached the people assembled at the Dhaidi market. A general panic and stampede ensued, and everyone skeldered with as much as their own and other people's things as they could lay hands on, leaving not a little scattered about the ground.

About sunset, the elephant was seen passing through the fields to the north of Sale and breaking down all the machans as he went (why?); he turned round the hills towards Kinhi.

The people of Sale were well satisfied with themselves. The elephant had for a considerable time been quite near to their village, but had never once invaded it nor hurt any of the inhabitants. They particularly impressed this upon me;

and their headman, as I passed through, repeatedly assured me that frequent prayers (pooja) to the God Ganesh, and the many ceremonies performed in his honour, had caused the elephant to spare their lives and property.

The people of Kinhi, had no idea of the impending danger. They had heard that an elephant had killed several people above the hills, but, had not heard of the havoc he had caused at Mate and the neighbourhood

Destruction. A man and a woman killed.

The elephant then went off to the village of Kandra about 2 miles north, and after he had partly demolished a house, disappeared in the jungle.

He then went to Kadoburra and demolished a house.

Thence he passed on to Kakori about 5 miles south and there threw over a man in his machan and stamped upon the fleshy part of his leg, but he marvellously escaped without any further injury.

Following up this trail of destruction from the early morning at Saswa, I arrived about 3 p.m. at a place called Junawanitola. There all I could learn was that in the early

morning of 6th November 1871 he had crashed through some of the outer enclosures of the village and gone off in an easterly direction. Where he had gone to no one knew. None had left the village during the day lest the monster should appear from the heavy jungle not a quarter of a mile away, and, for the same reason no one had ventured to come from elsewhere.

The continued trudge through the heat of two consecutive days had nearly worn us all out. There had been no halt since the morning, nothing to eat, but plenty of water as opportunity offered.

I therefore collected them under a large tree just outside the village, and having arranged for food to be supplied to them, I mounted "Mozart" and rode off to find the trail. Outside Pipalgaon I came upon it. A man named Misr Konbi, in charge of the headman's threshing floor, had, as the day broke seen the elephant approaching.

Having thus struck the trail I deputed several of the villagers to follow it up and returned to Junawanitola to prepare my people for a fresh start. While I was doing this a report came up that, as the day was breaking the elephant had passed through Joditola and had been seen in the jungles not far off.

When we were nearly ready to move on, I was not a little pleased to see my friend Naylor ride up. I knew then that I had with me a companion on whom I could implicitly rely

to stand with me against any charge the elephant might make or anything else he might do. I believed that Manohar Singh my spare gun bearer, would stand fire, though I felt some misgiving on the subject. Soon we were ready to start without spare gun carriers and some of the Baigas. At the edge of the jungle two of the villagers I had sent forward offered to show us the trail. Leaving our horses outside we entered the thick scrub and soon came upon the fresh tracks. It was not long, however, before we perceived that our village friends were showing the white feather, and, instead of following the best trail, were fooling us by taking up the older ones.

We at once sent them to the rear and putting on Bakt and Garour the two best baigas, before we had gone a mile came upon tracks so fresh that we expected every moment to see our enemy rush out. But we were disappointed for just then we heard loud shoutings outside the jungle that the elephant had appeared. At first we thought the frightened villagers had made a mistake and had seen the tame elephant we had with us. But louder and louder grew the shouts and no room was left for doubt. We rushed out of the jungle to our horses and mounting, rifles in hand, galloped back to Kakori where the brute was said to be. Close by Kakori village we rounded a corner of the jungle and there about a quarter of a mile ahead we saw the huge black monster going away just outside the scrub. We

galloped after him, but before we could get within shot he disappeared into the jungle. It was then nearly dark and nothing more could be done.

It appears that he had coolly strolled out of the jungle towards Kakori and amused himself by knocking over the machans and kicking down the banks of the rice fields without deigning to notice some 20 or 30 men, who from a safe distance were watching his operations.

Darkness had come on before we reached Junawanitola, where I had ordered our tent to be pitched. I had previously cautioned my people, since we had commenced the chase, that it was most important to pass the night in secure places that all might sleep undisturbed. What then was my disgust to find, that notwithstanding we had sighted the enemy and knew that he must be in the jungle near by, our people had located themselves in an exposed position, well away from the village.

On a mound close to the jungle stood a square of large mango trees, planted at regular intervals, except in one place on the jungle side; by this gap had they pitched our little tent. A large fire was burning in the middle of the square and round this were clustered our native attendants. There was nothing to prevent the elephant attacking us whenever he liked, and if he had come he must have first come on our tent. But, not wishing to show any anxiety, we made the best dispositions we could

for the night. It being certain death to dogs to leave them outside exposed in these jungles we fastened them to pegs round the inside of our tent, that they might give the alarm on anything unusual approaching. Then, between our two beds of straw, we placed a chair with matches and a candle on it, and weapons heavily loaded leaning against it, well within our reach, in fact we quite filled the tent. All ought to have been asleep by 9 o'clock. We slept lightly, but whenever we awoke we heard the incessant subdued chatter of the natives sitting round the fires and it was quite certain they were not getting much sleep.

About 2 o'clock in the morning I was awake and I heard a servant say "A-re Manohar Singh, did you hear that?"

Manohar Singh "No, what is it?"

Servant "Listen! — *tarr; torr, tarr;* — there is the elephant breaking down something."

Immediately afterwards a servant rushed to our tent and exclaimed "Sahib, Sahib, the elephant is coming!"

In a moment we were up, and rifles in hand, were standing in the dark outside our tent, ready for action. A distant "*torr, tarr*" certainly could be heard and there could be no doubt that it was the destroyer at work. Exactly what was being broken it was impossible to tell, though in the stillness of the dark night no other sound could be heard, no human voice or cry of any

kind. All in our camp was still as death, not a move anywhere; the *torr, tarr* gradually ceased and all was again quiet. But we remained standing there fully expecting that we should have our turn.

But, about ten minutes after the noise had ceased, the Kotwal (village watchman) of Lorangi crept quietly into our camp and trembling and shaking from fear, told us the elephant had passed through their village, smashing down houses right and left as he went. Whither the brute had gone they had no idea. Nothing of course, could be done in the darkness, so cautioning some of our men to be on the look out, we again returned to our tent and fell asleep.

After this, all remained quite and we were not disturbed until just as the false dawn began to lighten the eastern horizon, when one of our servants rushing up to the tent, and shaking us both in short of suppressed terror-stricken voice said "Sahib, Sahib, here comes the elephant!", evidently meaning he was close upon us. In an instant, we were up and out, barefooted and in our night suits (commonly in England called pyjama) and took our positions outside the tent, facing the east. "There he is", "There he is", whispered our servant, and there sure enough was the huge outline, clear against the dimly-lighted sky, of a dark mass slowly moving towards us. What will he do? I thought. Will he come for us or go for the tame she elephant we had brought with us? But, where

was the tame one? She was nowhere visible in the dim light, almost darkness under the trees surrounding our camp! So I shouted out. "Where is the Hutta Elephant?" A voice from one of the trees replied "No one knows; when the alarm was given at midnight the mahout let her loose and got up one of the trees where he is now." I immediately turned to Naylor and said "Don't fire that may be the tame one."

We stood quite still and allowed the monster to approach. When it came within about 20 yards without showing any signs of attack, we knew that it was the friend, and not the enemy. The mahout was called down from his lofty perch where he had secured himself with some of his elephant ropes and gear.

As soon as it was fairly daylight we sent out men to bring in information of the evening's movements and leaving our men to break their fast and prepare for another day's hard work, we walked over to Lorangi to see what damage had been done. Destruction more wholesale than I had yet seen met our eyes. The brute had literally walked straight through the village, not along the roads and paths, but through gardens and enclosures, breaking down houses and fences as he went.

We had not finished our inspection of Lorangi when our scouts brought in word that about daybreak the elephant had disappeared into the jungles of Kosmara, about 4 miles to the east, after hav-

ing chased several people of that place.

It appears he had passed near Kosamdehi where he chased the village watchman.

Destruction, knocking down houses, chasing people and destroying their store of corn, and thus matters stood when we arrived at Kosmara about 10 a.m. All the inhabitants of that village turned out to receive us, but of the other villages we had passed through that morning not a single man accompanied us. All was intense excitement. The wrecked houses, the partially burnt log and the unthreshed corn that the elephant had scattered about were all shown to us, and many came forward to tell us of the perils they had escaped.

We had no time to listen to their stories, for, the time had arrived for real action. The fact that the elephant generally had begun his work about 4 to 5 p.m. and not retired into the jungles, until 6 to 7 a.m., forced upon me the conclusion that about the middle of the day he must be asleep or bathing or otherwise recruiting himself.

Many ways of destroying him had been suggested to me, e.g. sitting upon a tree over the tied up she-elephant; beating him out with much noise of drums, horns, firearms, etc.; following up on horseback, etc. But I had determined that should opportunity offer we would walk him up in dead silence in the middle of the day, and if possible see him before he could see

us. Now was the opportunity. We had come upon his last track in the very nick of time, so that we might probably come up with him about noon, the time most likely for him to be in his deepest sleep. There in front of us was pointed out on the opposite side of the nala (water-course) into which he had chased Rupra, his huge footsteps up the bank and his wide track through the long grass and scrub above. Our arrangements were quickly made. First the tame she-elephant was divested of all her trappings and one of her heavy ropes was fastened round her body and neck and under the tail, to enable the driver to stick on or step down in any direction necessary. We determined to take her to attract the wild one, and thereby give the chance of an extra shot in the event of a dangerous charge.

Leaving behind at the houses, our horses and everything else we did not want, we formed our line of an advance. The two best Baigas—Bakt and Garour—armed with spears led the way followed by me; Naylor, Manohar Singh with my smooth bore, Suklal Singh with Naylor's second gun, a policeman with police musket, 2 Baigas, two men leading my 5 dogs taken ready to be slipped and create a diversion in case we were hard pressed, then the tame she-elephant and last 2 more Baigas.

All expressed their readiness to accompany us except the elephant driver who was in so manifest a state of fright that we had to assure him we would shoot him if he lagged

behind. All were cautioned to make no more noise than was necessary, and that no one was to speak under any pretence whatever, except on a sudden attack by our enemy. Rupra volunteered to show us the way, but when we descended into the nala and approached the track, he would come no further, having seen enough of the elephant. All three sets of Baigas were cautioned to keep a sharp look out, for with the grass and scrub above our heads it was impossible to say from which direction the attack might come. He might double back near to his track and attack us in rear.

In this order we entered the track. The undergrowth of grass and scrub was above our heads, so thick that we could not see more than 5 to 6 yards through it. Slowly and without a sound we steadily, for more than a mile, followed the trail, the leading Baigas pausing occasionally closely to examine the trail and communicate the result by sundry movements of the hands.

On a high piece of ground overlooking a low place full of long reeds and grass, Bakt suddenly stopped. Starting out with excitement, and pointing forward with his right hand, said in almost a whisper, or rather hissed out, "*Wuhhai*" "There he is", and drew back behind me. And there he was sure enough, only 35 paces off, lying sound asleep in the long grass.

He was evidently lying flat on his side with his back towards us, for we could see only the huge arch of his ribs and some of his spine, no

parts of his head, neck or tail, were visible. It would have been worse than useless, if indeed not absolutely foolish, to have fired at what I could see. So, I began to creep forward and give him two good shots in the head at close quarters. But just as I began to move, Naylor touched me on the shoulder and signalled for me to move to the left. I had not taken three steps in that direction when I disturbed some dry leaves and twigs. This aroused the elephant and he immediately raised himself on his forefeet as if to listen for more certain sounds. Now was the time his right ear was clearly visible. I fired straight at his ear entrance and immediately afterwards a shot from Naylor followed. The brute disappeared for a moment and thinking to myself "now comes the charge", I re-loaded the barrel I had fired. I had barely done so when I saw the huge back of the brute going up the opposite bank. Again I fired and hit him in the back. A cane pushed into the wound when he was dead entered nearly 3 feet. Again loading we gave chase as fast as we could, some of our followers after their manner calling out (*khub laga*, etc.) "he is hard hit, he can't go far". The grass was very thick and high and I could barely see ten yards ahead. But exclaiming to Naylor, "He must be kept going! We must keep the pot boiling and not give him time to get himself together for a charge", we plunged along the track, not knowing the moment we might blunder up against him.

About 200 or 300 yards on we sighted him about 40 yards ahead under a large tree, with his tail towards us, with a small piece of his right cheek visible. I immediately fired and on he went again at a pace that seemed that we should see him no more. There was no elephantine gallop or long trot that we sometimes see depicted, but after him we rushed and again came suddenly upon him. This time also his tail was towards us, but I could just see behind his left ear, over which he was looking out for us. I got a good shot and planted a bullet behind his ear.

In this way we went on for nearly a mile, pegging into him whenever we got a chance. At last, as we descended into a dry nala we saw our enemy on the top of a high sloping bank opposite. He had chosen an admirable position and was apparently in the act of wheeling round for a charge. But his whole left broadside was exposed, which Naylor immediately took advantage of and planted a bullet in the left side of his head. On this he spun round exposing his right side and I emptied both barrels into the region of his right ear. With a shrill trumpet, he fell on his side, burying one of his tusks deep into the earth. Immediately the she-elephant, coming up behind, probably recognizing the death cry of her race, wheeled round and bolted to the rear, doubtless encouraged therein by her timid rider.

As we rushed up, two police

muskets were fired into the fallen monster but there was no movement except a few slow stretchings out of his trunk. The two leading Baigas sprang forward and balancing their spears above their heads and shouting that they must put their spears into the (*badmash adamkhor*)(scoundrel, man eater) plunged them in with all their might, though with microscopic effect.

At first, we could hardly believe our eyes. There lay the monster, the terror of the country for many miles, that for about a week had been the object of our every movement and the subject of our every thought. The effect on our nerves was most peculiar. A heavy weight seemed lifted up and innumerable tightly compressed springs unloosed. Our success had been complete. We threw our helmets into the air and cheering as if we should never cheer again, patted our Baigas on the backs and congratulated each other all round.

He was in perfect conditions. His skin was glossy black, not the sickly brown of some poor elephants in confinement. Under the skin was a thick coating of fat, and so round was the body as the natives expressed it, as he lay on the ground "a man standing on one side could not see the man standing on the other side of it".

The place where he fell was not far from the edge of the jungle, so that the smoke of our last shots had hardly cleared away, when the people from the villages outside began

to stream in to gaze on the monster that many looked upon as the incarnation of one of their deities. Until darkness came on and for two or three days afterwards the people crowded in to see the wonder. Even as we marched away we met many still going to see what remained.

Our first thought was how to secure so grand a trophy and we decided to preserve as much as possible. How to sever the head from the body was a puzzle. Among the spectators was a native gentleman armed with sword and daggers. We said to him "Now is your chance to test your weapons". But in vain he tried for his sword though fairly sharp, made hardly a visible scratch. Certainly the skin was very tough. We could not cut it at all until with a sharp pointed leather cutter's tool called a "rapi" we had pierced it and made way for the insertion of a sharp knife. We wished to take off the head and take it to our camp lest the hyaenas and jackals should spoil it during the night.

At last we severed it from the body, but what was our astonishment, when we found that all the men we could crowd round it and all the power we could apply were not sufficient to lift it on to the back of the tame elephant. Nothing could be done but leave it where it was, until by removing the skin and the flesh, we could lighten and make it moveable. We however took the precaution to cut a few boughs and place them on both the head and the body, having learnt from our jungle

experiences that no wild animal would come near them, knowing full well that wild animals do not sleep with boughs on them, and recognizing therein some human strategem.

In the crowd that stood around when the huge head and the four feet were being cut off, were many low caste people who eat meat of any kind when they can get it, and that, but at very long intervals; some even feasting on carcasses of animals that have died from any disease. For the benefit of these we called out that they had now a chance of a good meal all round. But all declined and explained that their fathers and grandfathers before them had never eaten anything of the kind. They were in no way moved when we told them that we intended to eat some. That evening we had a piece from one of the feet cooked, but it was so tough, like a steak from a huge ship's cable cut crosswise, that we could get through but very little. Flavour, it had none. Perhaps it required keeping! Even the next day when all knew what we had done no one followed our example. "Oh, no, Sahiblog (Europeans) are unaccountable people and will do anything, but we have a caste to care for and preserve its native purity!"

We probed all the wounds we could find. Besides that quite through the head and the deep one into the loins we found one near the right ear and another near the left

(continued at p. 32)



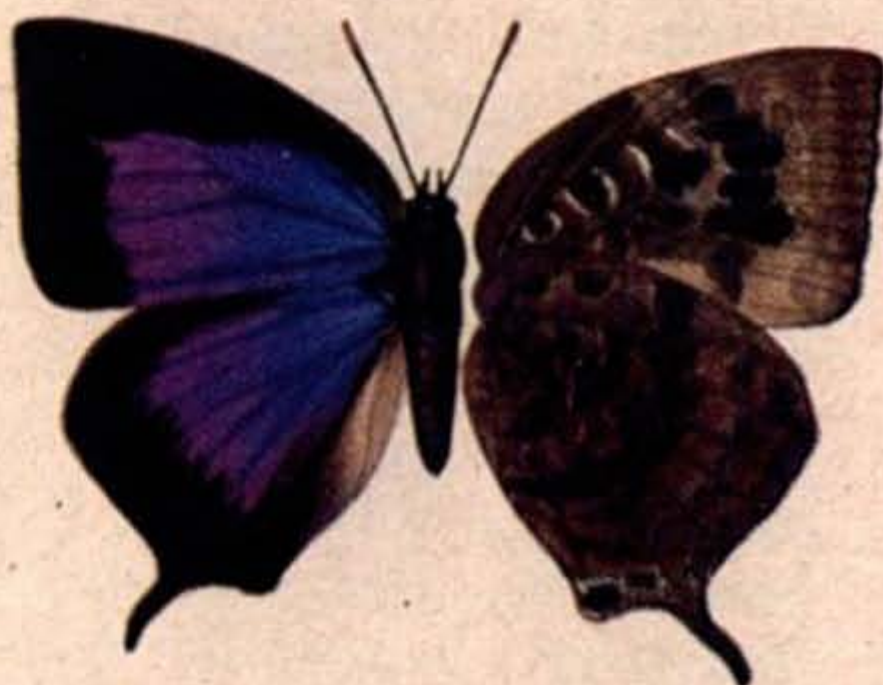
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73

Butterflies of Bombay—9

In continuation from p. 34 *Hornbill* 1981 (4), 8 more species of the family Lycaenidae are being dealt with in this installment.

66. COMMON SILVERLINE

Spindasis vulcanus Fab. Common from August to November, again in February-March. Larvae feed on *Zizyphus rugosa*, *Z. jujuba* and *Claredendrum* sp.

67. COMMON SHOT SILVERLINE
Spindasis ictis Hew. Not common; seen in March and October. Frequently settles on cold ashes of woodfires and burnt grasses.

68. LONGBANDED SILVERLINE
Spindasis lohita Moore. Common from September to November; again in March. Larvae feed on *Terminalia*, *Xylia* and *Dioscorea* spp.

69. LARGE OAKBLUE *Amblypodia amantes* Hew. Common from July to September. Larval food plants are *Terminalia* and *Lagerstroemia* spp.

70. CENTAUR OAKBLUE
Amblypodia centaurus Moore. Common. Seen in July-August. Can be differentiated from the Large Oakblue by the presence of continuous discal line on underside of forewing and below dark brown coloration. Larvae feed on *Terminalia*, *Lagerstroemia* and *Xylia* spp.

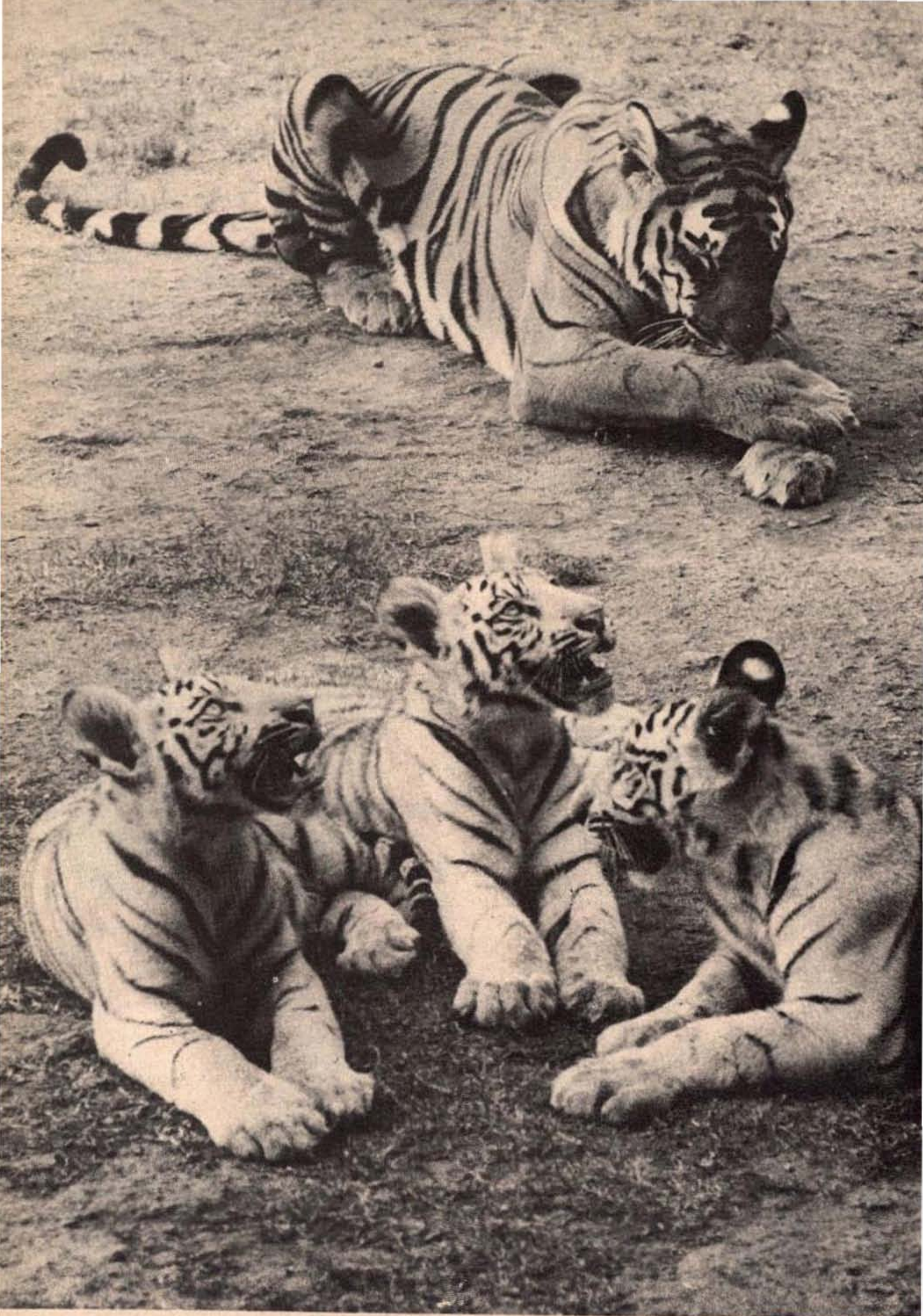
71. INDIAN OAKBLUE
Amblypodia alemon DeNiceville. Recorded, but so far we have not seen it in Bombay.

72. COMMON GUAVA BLUE
Virachola isocrates (Fabricius). Common from July to November and again in March. Larvae feed on *Psidium guava*, *Tamarindus indicus*, *Randia dumetorum* and *Punica granatum*.

73. LARGE GUAVA BLUE
Virachola perse (Hewitson). Not very common; can be seen in July-August. Larvae feed on *Randia dumetorum* and *Psidium Guava*.

Cover picture: *Dendrobium infundibulum* by the late E. P. Gee.

This orchid is a native of the hills of NE. India. The flowers are profusely produced from the top of its bulbs. Their sepals, petals and lip are pure white with a splash of deep golden yellow in the throat. They last about 8 weeks in perfect condition.



A family of white tigers

Photo: E.P. Gee

White Tiger Records

Records of Big Game indicate that in past 40 years more than 20 white tigers were shot in the various jungles of Bihar. The last record of shooting a white tiger is that of a tigress in the Satganwe Forest Range of Hazaribagh by an unknown shikari in the year 1958 and the trophy is kept at Tisri with the Agarwalla family.

Mr Arthur Musselwhite has mentioned the shooting of a white tiger in Lachwar jungle (Monghyr) by the then Maharaj of Gidhaur. The late Maharaj Chandra Mauleshwar Singh of Gidhaur shot a 9 ft 8 in. white tiger on 2nd February 1932 at Lachwar jungles of Gidhaur raj. This fully mounted trophy was later presented by the Maharaj to the Calcutta Museum where it is still a source of great attraction. According to available records the largest number of white tigers were shot in the forests of Hazaribagh. Four white tigers were shot respectively by J.G. Wakefield, Manager, Tikari Raj near Hazaribagh in the year 1930, Raja Bahadur of Ramgarh at Itkhorji jungle, Sri Kartik Singh of Mashnodih in his own forest and

Tikait of Gawan, the late Krishna Prasad Singh at Bhaiya Bahini Pahar, Gawan. Besides these in the year 1936 Kumar Fateh Narayan Singh of Tikari shot one 10 ft white tiger at Searkorni jungles, another was shot by Mr Tirky, S.I. Police at Satgawan.

The white tigers were shot by a Mr Murphy and Mr Robinson in the forest of Bhagalpur as noted in Rowland Ward's BIG GAME RECORDS. The late Kumar Krishnanand Singh of Sultanganj had also shot a white tiger in Bhagalpur forest. Purnea district of Bihar was famous for its tigers and Mr Shlingford shot one white tiger in 1907. Another white tiger was shot at Gurpa Forest by the Third Raj Kumar of Amwan Raj of Gaya district.

The late Maharaja Capt. Gopal Saran Singh of Tikari Raj (Gaya) shot two white tigers in 1926 and 1933 respectively in his own forest. There are no recent records from Bihar forests.

KUMAR SURENDRA SINGH

GRASSES OF WESTERN INDIA

BY

TOBY AND PATRICIA HODD

A limited number of copies of this recently published book will soon be ready and available at the Society at Rs. 50/- (members Rs. 37.50). Please reserve your copies.

(continued from p. 27)

that went deep into the skull. The balls from the police muskets had only pierced the skin and appeared like the swellings of incipient boils. There was no trace of any former wounds.

That night we gave an ample feast, both solid and liquid (too much of the latter perhaps) to our Baigas and all our people. Until a very late hour that night the loud noises of merriment were a strange contrast with the usual quiet and repose of our camp.

The next day, the Government reward of Rs 200 offered for the destruction of the elephant was paid to the Baigas in attendance. A huge windfall for them, for ordinarily their money earnings, when anything at all, not more than Rs 2 per month (say one shilling per week). Some soon spent all, but Bakt and others bought bullocks and started as tillers of the soil, a calling quite new to them, but alas! that is another and long story.

The whole of this day was occupied in skinning and cleaning the elephant's head and skinning the body. In the latter, there was a serious difficulty. That part which lay upwards was easily managed, but how about that part between the carcass and the ground? Ten times the power at our command would not have raised that huge mass from

the ground. We rolled the skin up close to the carcass, and in vain the tame elephant and about 100 men pulled at the ropes tied on the upper legs and tried to turn it over. Such was the height of the body that the pull was as hard as possible and the rigid mass refused to move.

At last, we devised a series of levers. With long forked pieces of wood in the shape of a leaning W (pieces of young trees 15 ft long), passing the ropes over these, we at last succeeded in pulling over the carcass with a crash that threatened to burst it altogether.

But even when the skin was altogether separated, it was so thick and heavy that any number of men could not lift it. This skin was so lined with fat that it defied drying and rotted except tail and feet. We cut it into four pieces and then got it on to the tame elephant.

Thus ended the career of what, Sir Samuel Baker, of African fame told me, was the worst Rogue Elephant he has ever heard of. I certainly think I may claim for him the proud position of being "the record monster" whose atrocities have been or will be seldom or ever equalled.

Private letters and copious notes written at the time have enabled me now to write this fairly complete narrative.

A. BLOOMFIELD

(Concluded)



An endangered species losing its habitat. -Rhinoceros and domestic stock at Kaziranga.

Photo: Juan Spillett

BOMBAY NATURAL HISTORY SOCIETY

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