

HORNBILL



BOMBAY NATURAL HISTORY SOCIETY



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LARSEN & TOUBRO LIMITED

A society's strength lies in its members and that is where we are fatally weak. Our membership has stagnated for many years refusing dourly to raise its head above a thousand. This is indeed humiliating to us who work for the Society. It is galling to know that what we do interests only 0.0006 percent of a population of 600 million Indians, and in fact the percentage is probably incorrect, for many among this thousand are members of other nationalities! We are therefore issuing an appeal in this issue hoping that our membership will multiply indefinitely like an uncontrolled infecting bacteria and that the infection of the Society would spread far and wide.

Another assistance which we need is advertisements for *Hornbill*. The rates we charge are Rs. 500/- for a full page and Rs. 250/- for half page, and Rs. 1000/- for the back cover. We require for an issue approximately Rs. 6000/- in advertisements to break even.

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On cover: *The Glory Lily*

Photo: O. C. Edwards

For a description of this superb lily, turn to p. 6.

EDITED BY

J C DANIEL

S A HUSSAIN

J S SERRAO

FEEDBACK

The Flame of the Forest

Colour variants of the Flame of the Forest (*Hornbill* Jan.-Mar. 1977) are reported from time to time in literature.

A yellow variety, said to be either pale yellow with primrose-yellow bases to the petals, shading to a creamy tint on the edges, or with golden sunflower yellow flowers is reported from Ghodra in Gujarat, Amraoti and Manpur Pargana in Madhya Pradesh, and Lalbagh Garden in Bangalore, Karnataka. Among others, a canary yellow variety is reported from Saugor, Burhanpur-Amraoti Road, a bright orange one from Jubbulpore-Katni Road, and a white variety from Saugor Civil Station and another at the exit of the Nasik temple in Maharashtra. The yellow flower is considered as a talisman for acquiring wealth!

A variety with simple alternate leaves instead of the usual trifoliate leaf was reported from Indore. The people of the locality believe it to be a miracle and hold it in great veneration.

Bombay (Mrs.) JOYCE PEREIRA

Sport shooting and Conservation

May I add a note of support to the President's Letter in your issue of January-March 1977? The Conser-

vation Committee Report of the Wilson Ornithological Society, in the *Wilson Bulletin* Vol. 89, No. 2, June 1977, pp. 360-9, is called 'Falconry: Effects on Raptor Populations and Management in North America'. Its summary states, in part:

"..... Declines in populations of Peregrines are attributed to pesticide contamination of food chains. ... Removal of raptors from wild populations for falconry has not had documentable adverse effects except possibly at local nesting sites. Continuation of the art of falconry under the framework of the recent federal regulations is not expected to have measurable impacts on region-wide populations."

Dr. Sálím Ali takes a similar stand in support of both sport and conservation. Perhaps this will become a global attitude.

Delmont, N.J.,

U.S.A.

C. BROOKE WORTH

ERRATA

Hornbill, April-June

p. 23, column 2, lines 20 and 21, for Kadamb (*Anthocephalus cadamba*) read Kadamb (*Mitragyna parvifolia*)

p. 29, caption to photograph, for Grey Heron read Purple Heron.

PRESIDENT'S LETTER

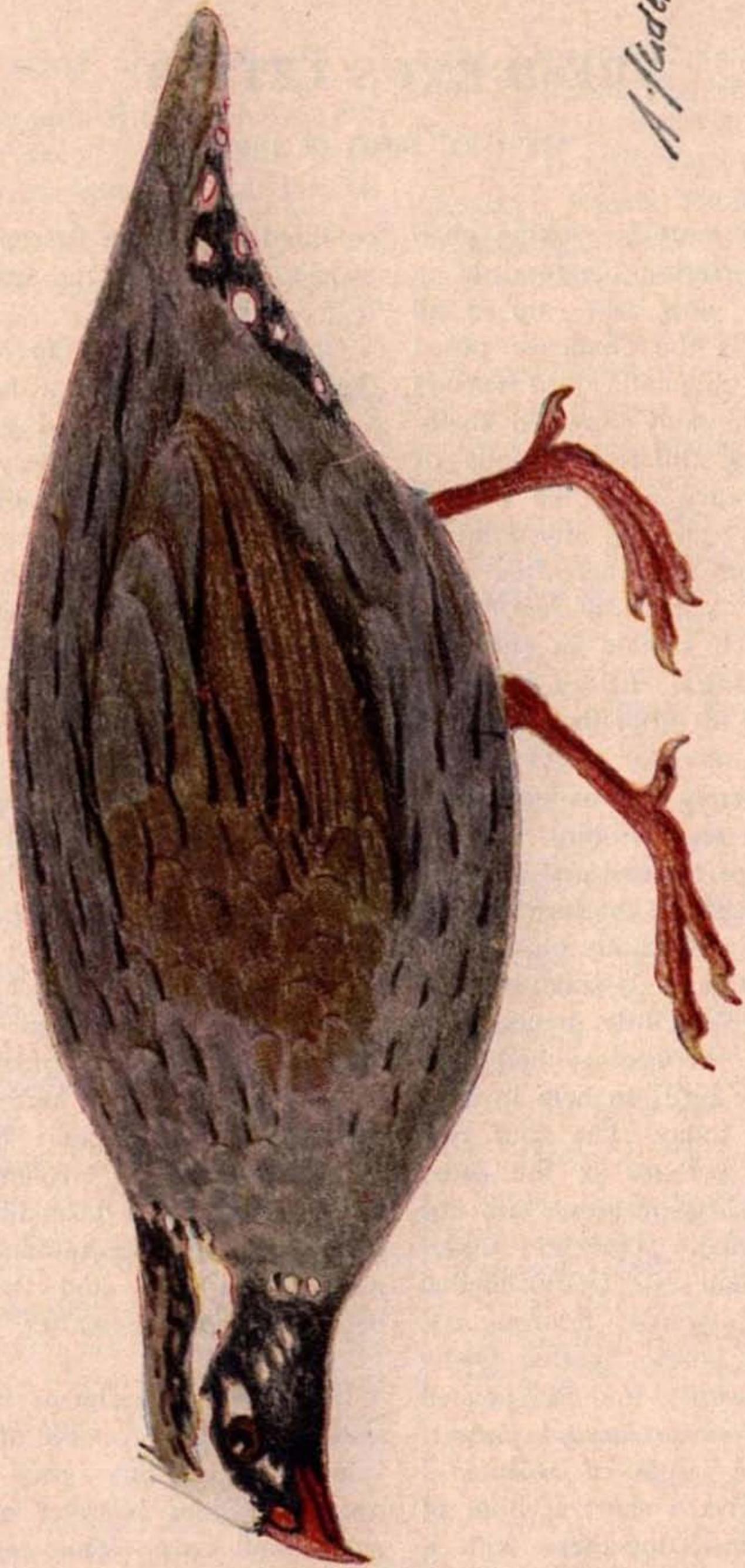
'MYSTERY' BIRDS OF INDIA

One of the more provoking challenges that serious naturalists in India must now take up in all earnestness is the challenge posed by certain enigmatic bird species that unaccountably revealed themselves during different periods of the last century and, like a flash in the pan, just as mysteriously vanished from ken thereafter. Fortunately for science a few specimens of each remain in some of the great Natural History museums of the world as proof that the birds did have a physical existence and were not merely the hallucinations of an over-zealous bird watcher, as they might otherwise well seem. Since the accent of the bird student of that time was mainly on the collection of skins, it is small wonder that we have so little precise data available on the ecology and habitats of these birds to help in their re-discovery today. The four mystery birds, perhaps in the order of their mysteriousness, are the Mountain Quail (*Ophrysia superciliosa*), Jerdon's or Doublebanded Courser (*Cursorius bitorquatus*), Blewitt's or Forest Spotted Owlet (*Athene blewittii*), and Pinkheaded Duck (*Rhodonessa caryophyllacea*). In successive issues of *Hornbill* I propose to give a short account of each of these, together with a

coloured illustration (except for the owlet), to help in the search.

Commencing with the Mountain Quail, then, here are a few clues. Size between quail and grey partridge, but tail relatively longer. Male (illustrated) slaty olive-brown overall. Black-and-white face markings and broad white eyebrow distinctive. Female largely cinnamon-brown with pinkish grey face and less prominent white eyebrow. Bill and legs red in both sexes. Plumage long and lax, with stiff bristle-like feathers on the forehead, and short stout bill—features reminiscent of both the bush quails (*Perdicula*) and the Blood Pheasant (*Ithaginis*). Only about ten specimens are extant in museums in the U.K. and the U.S.A., all collected between 1846 and 1876 in the Kumaon Himalayas between 1650 and 2100 m elevation—at Jharipani (a little above Dehra Dun), around Banog and Badhraj peaks (behind Mussoorie), and on Sher-ka-danda peak near Naini Tal—and there has been no record thereafter.

Most of the specimens were obtained during or soon after November when the grass on the opener hillsides is taller and provides good cover. This, no doubt,



A. Sidel

The Mountain Quail, Ophrysa superciliosa (Gray), male

led to the conjecture that the species was a winter visitor. But from where? It has not been recorded from any adjacent country, nor from anywhere else, and is therefore most unlikely to be a migrant. Moreover the one specimen collected in June could equally suggest it's being a resident species. Very little is recorded about the ecology of the Mountain Quail. The collectors have merely noted that the birds lay very close and were flushed from patches of tall grass in coveys of 5 or 6, only when almost trampled on, pitching into the grass again after a short heavy flight—therefore in their behaviour also very similar to the bush quails. The contact call of a feeding covey is described as 'low, short, quail-like'; the alarm note, upon disturbance, as 'a shrill whistle'. The normal call, or crow, is not described, but it is said to have been commonly heard in November and helped the shooters to locate the birds. This would perhaps be the

best cue for today's searchers to follow during the early winter months. Being an inveterate skulker, and living on steep rugged hillsides cut up by wooded *khuds* and stony nullahs, any quest for the Mountain Quail will probably prove fruitless (as has happened with me on several occasions!) unless carried out systematically by a team of at least 3 or 4 persons fanned out over a likely area and assisted by trained dogs. Without dogs it would seem impossible to flush the bird except by merest chance. But every unfamiliar bird call emanating from grassy cover in a likely habitat should be carefully investigated. If by good luck you do find the bird, every form of evidence should be collected to confirm the identification, preferably corroborated by two competent independent witnesses; and the event should be reported immediately to the Society with all possible details.

SALIM ALI

The Glory Lily, *Gloriosa superba*

The Glory Lily which is on the cover of this issue is by far the best among the flowers of the monsoon season. The plant is widely distributed in India. The description given below is from an early issue of the Society's Journal. — EDS.

The plant grows from a tuber 4 to 9 inches long, and about an inch thick. The external appearance of the tuber is brown. This is due to the thin paper-like epidermis which encloses it at all parts of the bulb, except the growing point, which latter looks like the eye of a potato. The epidermis is easily removed by the mere handling of the bulb, and is fragile. The old bulb, as the plant matures, shrivels up, and gradually throws out a new bulb at right angles which terminates in a growing point. It is from this growing point that the future plant sprouts out. The rootlets are chiefly confined to the part of the bulb directly opposite to where the stem is situated.

Usually a single stem arises from the bulb. It may branch off almost immediately after it leaves the tuber. The stem is put down as 10-20 ft., but is often much longer than that in the jungles, where it is seen in its natural condition. When the stem branches off immediately on leaving the tuber underground, three or four slender cylindrical green sprouts

shoot up above the ground, thus making it appear that they are separate plants from one and the same bulb; but it is not so. One bulb, one plant is the rule invariably in a number of bulbs carefully examined. The stem is nearly cylindrical, and though herbaceous, is tough and interspersed with woody fibres in close-packed bundles. At each insertion of the leaf, which is arranged in pairs in an opposite manner, the stem deviates from the median line, thus giving the whole plant an angular or regular wavy appearance.

The length of the leaves varies from six to eight inches; the greatest breadth is often as much as two inches. Mid-rib prominent, terminating into a stiff spiral coil, which resembles a tendril. This is a marked characteristic of the plant.

Flowers are solitary, on long slender variously curved peduncles, 4-6 inches long; deflexed, often giving the flowers with their reflex petals the appearance of a slender-winged butterfly poised in the air. It is this that gives the gorgeous flowers their unique appearance and

shows off their rich, varied and ever-varying hues. Petals bright green with a pale yellow margin when fresh opened; bright yellow up to a third from their insertion, and scarlet up to tip when full-blown; gradually converting into rich scarlet, with golden yellow margin and midrib when the ovary is maturing into fruit and growing in size. The flower retains its beauty for several days. The petals are persistent, and don't fall off even after the plant has dried. They fall off long after the fruit and seeds are mature. It is this that makes it so appreciable as a forest and garden beauty. The petals, which are reflexed when fresh-open, assume a spreading aspect as they grow older. The colour of the flowers depends a great deal on the amount of the sun or the intensity of it, to which the flowers are exposed as they are maturing and expanding.

Glory Lily is essentially a monsoon plant; it begins to sprout out in the early part of the rainy season, and dies soon after the rains. The bulb remains dormant throughout the cold weather. It flowers and bears fruit from July to September (October-December in areas receiving the NE. monsoon). Should the plant be cultivated as a garden beauty or ornamental trellis-plant, it is best to repot or replant it in February or March, or at the least in April, when the terminal bud of the tuber begins to sprout out.

This plant is one of the nine secondary poisons mentioned by Hindu writers in *Nighanta Ratnakar*

(Vol. 3, p. 255): *Euphorbia neriifolia*, *Calotropis gigantea*, *Gloriosa superba*, *Abrus precatorius*—red and white, *Nerium indicum*, *Strychnos nux-vomica*, *Datura alba* and *fastuosa*, *Jatropha curcas* and *Papaver somniferum* (its product opium). Very few cases of poisoning are on record, but the plant is well known all over the country as a virulent poison.

Symptoms of poisoning which appeared in a case in half an hour after taking the powder of the roots were: retching, violent vomiting, spasms and contortions of the body, with fearful racking pain; from time to time there were short intervals of relief, followed by recurrence of the same symptoms. Death took place in four hours. The *post-mortem* appearances were congestion of the brain and its membranes with extravasations of blood. The lungs, liver and kidneys were all deeply congested. The gastric mucous membrane showed signs of inflammation. The peritoneal covering of the fundus of uterus (unimpregnated) was also found inflamed.

Ancient Hindu writers agree in attributing violent emetic properties to the root; it is also said to cause abortion, and as such prescribed by Hindu physicians for expelling retained after-births.

K. R. KIRTIKAR, IMS

Extract from an article entitled 'The poisonous plants of Bombay' in the Society's Journal Vol. 7: 489-93; April 1893.

NOTES, NEWS AND COMMENTS

Falconry and Conservation in the Middle East

The recent International Conference on Falconry and Conservation held in Abu Dhabi has announced the formation of Abu Dhabi Foundation for Falconry and Conservation under the patronage of His Highness Sheikh Zayed bin Sultan al Nahaya, the President of the United Arab Emirates. The objectives of the Foundation are to conserve living natural resources of the U.A.E. and to create an awareness of the importance of conservation measures in the neighbouring countries of the Middle East and Asia.

Conservation of the birds of prey has become a matter of urgent consideration the world over these days. Pesticides, habitat destruction and pollution have been the three main causes for their decline. Demand for falcons in the international bird market has created a clandestine trade channel in spite of prohibitive restrictions.

The Foundation, it is hoped, will not only initiate and sustain conservation programmes in the desert region but also extend cooperation to the efforts made in the surrounding countries. Bombay Natural History Society has pledged its support to the Foundation and has offered to collaborate in the Foundation's various projects, especially in the fields relating to waterfowl migra-



Laggar Falcon

tion, avifaunal survey and the study of the ecology of the birds of prey.

Point Calimere Sanctuary

Recently there has been a proposal to set up a marine chemical complex along the swamp area close to Point Calimere Sanctuary in Tamil Nadu, S. India. The Society's long standing involvement with the Sanctuary has resulted in an increased awareness of the potential of the area as one of the major and important refuges for migratory waterfowl in peninsular India. Therefore it was heartening to note that in a recent letter to the Society the Tamil Nadu Government expressed its anxiety about the possible deleterious impacts of the project on the ecosystem of the Sanctuary and has sought the Society's advice.

There is a large concentration of migratory ducks and waders on the lagoon in the southwestern corner of the Sanctuary and it is suggested that proper consideration be given to this lagoon so that the water remains at the required level for providing suitable feeding niches for the birds. It was also pointed out that there is a considerable movement of the birds in the latter half of the migratory season to an area about 16 km south of the Sanctuary, when the rest of the surrounding area dries up. Apparently this lagoon, due to the discharge into it of various irrigation canals, remains less saline in the summer months and thus provides an almost freshwater feeding ground for the resident waders.

The Tamil Nadu Government is advised to examine possible water level changes owing to the proposed project and its effect on the feeding grounds of the smaller waders. It was suggested that a model prepared

by a hydraulic engineering organisation may help in gauging the environmental effects precisely.

Photographing endangered species

The following news item appearing in the *Bulletin of the Indian Council for Bird Preservation*, No. 31, dated 31st May 1974, has been communicated to us by Mr. Humayun Abdulali, a member of the Society.

“The German Society of Animal Photographers has agreed to abstain from photographing a number of bird species threatened by extinction, at or in the vicinity of their nests. Species included are several herons, birds of prey and owls. The German Section of the International Council for Bird Preservation has also asked editors of magazines on ornithology, nature, hunting, conservation, etc. to reject pictures of certain species taken at the nest and not to publish them in their magazines.”

Lagoon at Point Calimere

Photo: V. S. Vijayan



The necessity to curb the ever increasing photographic incursions into the nesting domain of endangered birds in Germany is evidently quite appropriate, considering the conditions prevailing there. However, it is doubtful that such measures are desirable elsewhere also. In India for instance a large section of population is not aware of even the commonest birds of the country, let alone the endangered birds. We have very few, if at all any, specialist nature photographers in India.

Honeyguides in Bhutan

Several species of birds known as Honeyguides occur in Africa, the Himalayas and SE. Asia, though all do not have the peculiar association with man seen in Africa, where Honeyguides are reported to guide man to beehives and in return eat the honey combs left be-

hind as a reward. Another peculiarity is their habit of laying their eggs in the nest of other birds. Very little information is available on the Asian species.

The recently instituted Sálím Ali Nature Conservation Fund (SANCF) sponsored a study of the rare Himalayan Orangerumped Honeyguide in Bhutan. S. A. Hussain, visited central Bhutan during May-June this year to investigate their breeding and other behaviour.

Though no definite evidence of brood parasitism or guiding habit could be obtained, the study revealed some aspects of flight, mating and feeding behaviour of this bird. His Majesty's Government showed keen interest in the study and offered cooperation for any future study by the Society. A second trip in October this year has been planned.

'Honey Rock' — study area in Bhutan

Photo: S. A. Hussain



Eastern Ghats of India—an endangered area

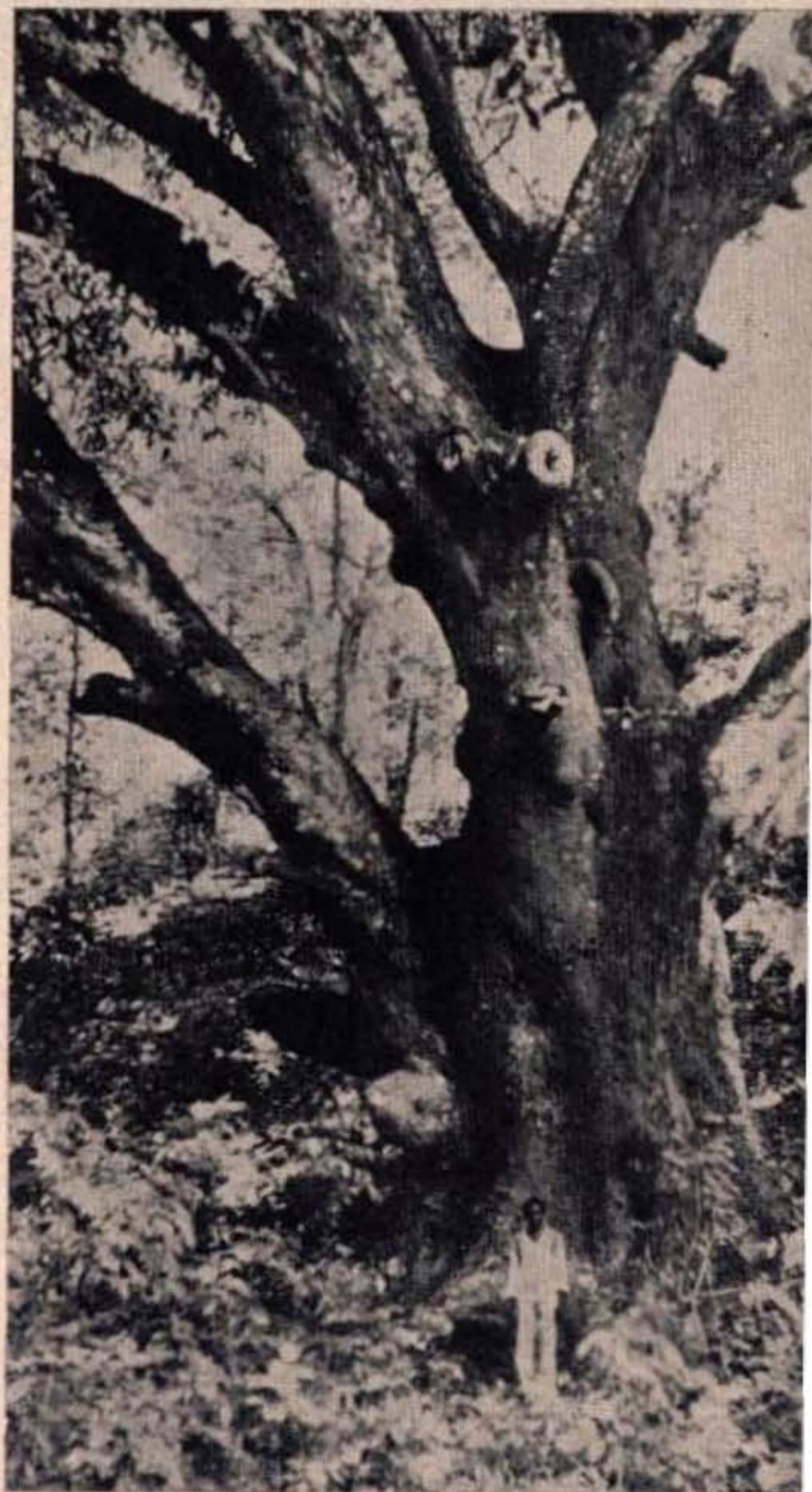
I have been conducting a year long study since August 1976 on the birds at Lamasinghi, Vizag district, Andhra Pradesh, 2500 ft., on the edge of the Eastern Ghats.

The work has involved catching birds in mist nets on several days each week to find out: (a) which ones are present, (b) how the population changes through the year. The birds were colour ringed, measured, weighed and released. By following the food supply of these birds (mainly through insect collections), I have gathered some idea on the times of hardship, i.e. starvation, which is the commonest form of death in wild birds, and why different birds come when they do. There are winter visitors from the Himalayas and beyond, birds of passage between summer and winter quarters, and summer visitors from the plains, as well as residents.

Lamasinghi and the surrounding plateau has a rich and diverse avifauna, unique in the world. Part of the reason is the diversity of habitat types, but tropical forest (notably semi-evergreen) supports a large number of species alone, and in addition there are 'relict' species, confined to the hills here and in the Himalayas or Kerala, after the last Ice Age. There are still more species to be discovered on the Chintapalli plateau and if I were to return I would concentrate on making a thorough avifaunal survey over the whole area. The most important

function of the forested plateau is as a stop-over point for transient migrants to fatten up before moving on. Both in October and April there are large numbers of birds passing through the area.

In all I identified 185 species at Lamasinghi alone, and about another eight; notably several species of birds of prey went unidentified.



One of the old mango trees now being cut down

Photo: Trevor Price



Forests being cleared at Lamasinghi

Photo: Trevor Price

In addition approximately 20 more were added through visits to other areas in the Ghats. I would estimate that about 30 more remain to be found, albeit some present only for brief periods of the year, and when you add many species exclusive to the coastal plain (for example ducks and waders) the total number of regularly occurring birds in Vizag district cannot be far short of 300, or about 50 more than the whole of the United Kingdom.

I only became aware of the tremendous pressures on the land when half of my study area was felled in January. From then onward I became increasingly interested in conservation possibilities.

Making the area at Lamasinghi a haven for little birds is a dubious desire; they are barely noticed and not persecuted and none are in any

way threatened with extinction. However, the best way would be to create a marsh, wet the year round (and attracting mosquitoes so not seriously suggested). Flowering trees, notably Silk Cotton, are a very important food source for normally insectivorous birds in January-February. Fruit trees are obviously more important for specialized fruit-eaters, but particularly during the winter months a wide variety of species rely on them to supplement their diet.

Groves of natural forest surrounded by agricultural land or plantations hold disproportionately large numbers of birds. In any extensive plantations I would suggest that some areas (2-3 hectares) be left natural, thus providing refuges for all wildlife (insects, mammals and reptiles as well as birds) which

could then forage in the unnatural areas. I am not sure that they will forage in pine, but certainly it would be of value in teak and coffee areas.

Absolutely vital for the area is the establishment of a reserve with proper controls. Merripakala has been often suggested as the place, having virgin forest etc. It was therefore something of a shock to find much of the magnificent semi-evergreen forest along the Gudem-Merripakala river felled, only in the last year or two. Of the three villages along that route, contractors can only reach the first; the last two clearings were less extensive, although still considerable, and the timber has been burnt. The soil looks very poor and rocky and will be difficult to cultivate. Between the villages there is impressive forest and the actual ghat face down to Merripakala is superb. Clearing may now have finished; it is a matter of

urgency to ensure that it has.

It is time that the Forest Department's rules were implemented. On several occasions I, and the local guard, saw 'sportsmen' go into the forest with guns. They shot little because it has all been shot before. At Merripakala, where the villagers use only bow and arrow, many animals were easily seen—a clear indictment of the gun.

Illegal felling, as is well known, is widespread. Although extreme in unreserved lands it is occurring in reserved lands also.

Clearly the major problem is population pressure, and it appears intractable. But this is one of the last major areas of natural forest. Stringent efforts should be made to keep it, and its fauna, as intact as possible.

TREVOR PRICE

There has been an increasing awareness of the Zoogeographical importance of some of the hill zones of peninsular India. The occurrence of a few forms of typical Himalayan element in the Western Ghats of south India and the hills of Sri Lanka suggests a possible incursion of Indochinese elements into the Peninsula during the early Ice Age. The gradual climatic changes have left the evidence of such an incursion in isolated niches scattered over the higher slopes of hill zones like the Eastern Ghats, where recent surveys have revealed the occurrence

of a number of species of Himalayan elements hitherto overlooked. Unfortunately there has been a drastic denudation of large tracts of forest cover on these hills in recent years, and as pointed out by Mr Price, further exploitation of the area would not only endanger a large number of relict forms but also wipe out a stop-over point for the transient Himalayan migrants to the southern part of the Peninsula and Sri Lanka. It is a tragedy that in the name of 'Progress' India should lose so much of its irreplaceable natural wealth.

— EDS.

PERSONALIA

Talks at the Society

Prof. P. V. Bole spoke to the members of the Society on 'Indian flowering trees' on 29th June 1977. The talk, illustrated with slides, gave a short characteristic of the trees shown, including uses to which a particular tree is put to and its economic importance.

Prof. Bole advocated the wise use of recurrable resources of a tree rather than cutting them down. *Inter se*, he cited the example of *Shorea robusta* (the Sal) whose wood is a coveted item of trade, the demand for which may some day exterminate the species. But the seed of Sal yields 19-20% of a fatty oil called Sal Butter, used in cooking, lighting and soap making and which is also a suitable substitute as cocoa butter in the manufacture of chocolates. Its oil cake with 10-12% of protein and about 50% of starch is an excellent cattle and poultry feed.

* * *

On 16th July Dr. Robert B. Grubh spoke in the serial talks on 'Seasonal plumage variations in Indian birds'. Some of the common bird species that show seasonal plumage variations were described to members. These were mostly resident birds of India showing sexual dimorphism. The plumage of eight species was illustrated with specimens from the Society's collections.

* * *

Prof. Jerram L. Brown of the University of Rochester, U.S.A. who has been working on the behaviour of babblers in Australia spoke to members on 30th July 1977. Prof. Brown primarily concentrated on the helping behaviour of some of the individuals of the babbler flocks. The main features of a communal group are the presence of helpers, the small and constant group size, a stable home range, the expulsion of intruders and the stability of social relationships arising from the concise nature of the group.

He defined a helper as an individual assisting another individual other than its mate or offspring; such helpers are generally the offspring from the preceding years' brood, for in the fourth year starts their breeding activities. Helpers are, hence, genetically related to their parents, being their own sibling. This close inter-relationship is genetically advantageous as it prevents random dispersion of the parents' genes, and helps in the propagation of a desired and more adapted set of characters to the ensuing generations.

Preliminary analysis of data pointed out to the fact that helpers contribute to the breeding success of a community, but the disadvantage or the actual benefit of the helpers to their parents can be clarified only after further data is analysed.

Gir National Park

Gir Lions

Paul Joslin



The Gir forest in the Kathiawar Peninsula of Gujarat State is unique as the last stronghold of the Asiatic Lion (*Panthera leo persica*). The Gir Lion has been a protected species from the first decades of the Century though the forest area unfortunately was permitted to be reduced from over a thousand square miles to less than half the area. In 1975 the Government of Gujarat constituted 14040 hectares of the forest into a National Park.

The Gir Forest is a hilly piece of country situated in southern Kathiawar, southeast of Junagadh city and perhaps 17 miles from it at its nearest point. Much of the central, southern, and western parts of the forest are thick, but on the northern side it quickly degenerates into

scrub jungle before giving way to open country. The eastern Gir is largely covered with a growth of Acacia, although there are thick patches of jungle along the rivers and nullahs. At the end of the monsoon, the forest which is of what is known as the 'mixed deciduous type', presents a most attractive appearance, as the variety of plants and trees is great and it is then green and luxuriant. During the hot weather, when the trees have shed their leaves, it becomes a desolate wilderness.

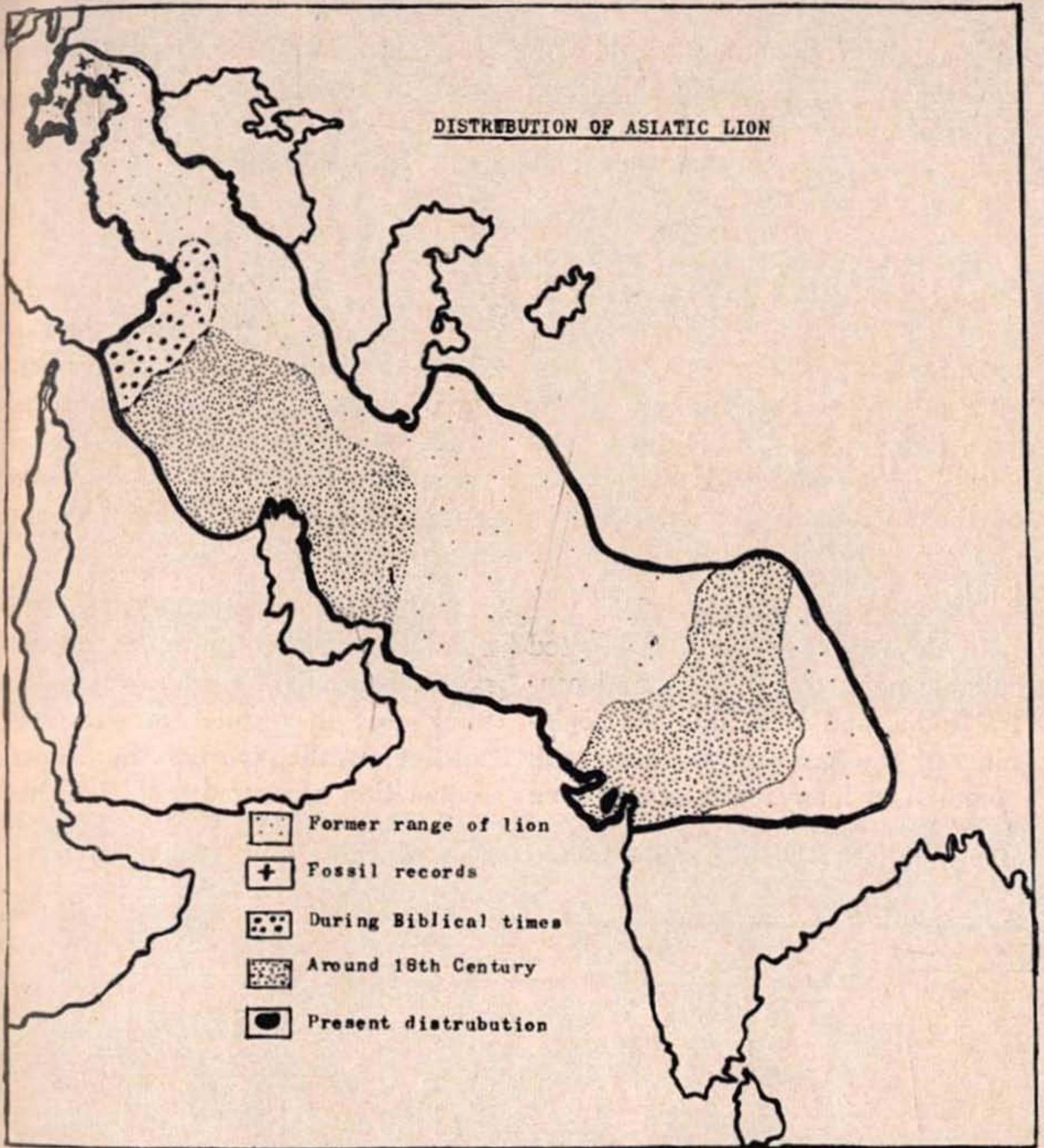
By far the commonest tree is teak, often disreputable in appearance owing to the depredations of the defoliator. After teak the most noticeable trees are perhaps kudi, flame of the forest, tendu, laurel-

Lioness on the alert

Photo: E. P. Gee



DISTRIBUTION OF ASIATIC LION



wood, ber, karai with its broad paper-white trunk and gnarled spreading branches, the graceful water-loving jamun, karanj, simul or silk-cotton, and a variety of Acacias of which the most numerous are *Acacia arabica* (babool), and *Acacia catechu*, though *Acacia suma*, *Acacia ferruginea*, and *Acacia leucophloea* are all plentiful. Less common are bael, the Indian laburnum, haldu, awla and amlosa (*Bauhinia*)

though none are rare and the last named is most abundant round Sasan. Here and there a pipal or banyan overtops all other trees, the latter, because there are no goats to nibble its pendent aerial rootlets, growing to a fine tree with the main and subsidiary trunks often covering many square metres of ground.

Of shrubs perhaps the twin-leaved *vikalo*, *dhowda* (a name that must be hard to beat), and *murdasing* are

among the commonest, and of climbing plants, of which there are not many, *ala*, *makai*, and a plant with palmate leaves that they call the 'water creeper'.

As the Gir Forest is the only forest of any extent in Kathiawar it is of considerable importance, not only for its forest produce (which after all are of poor quality), charcoal, and firewood, but also for its effects on climate and water table of the surrounding districts, and, above all, for its excellent grazing lands.

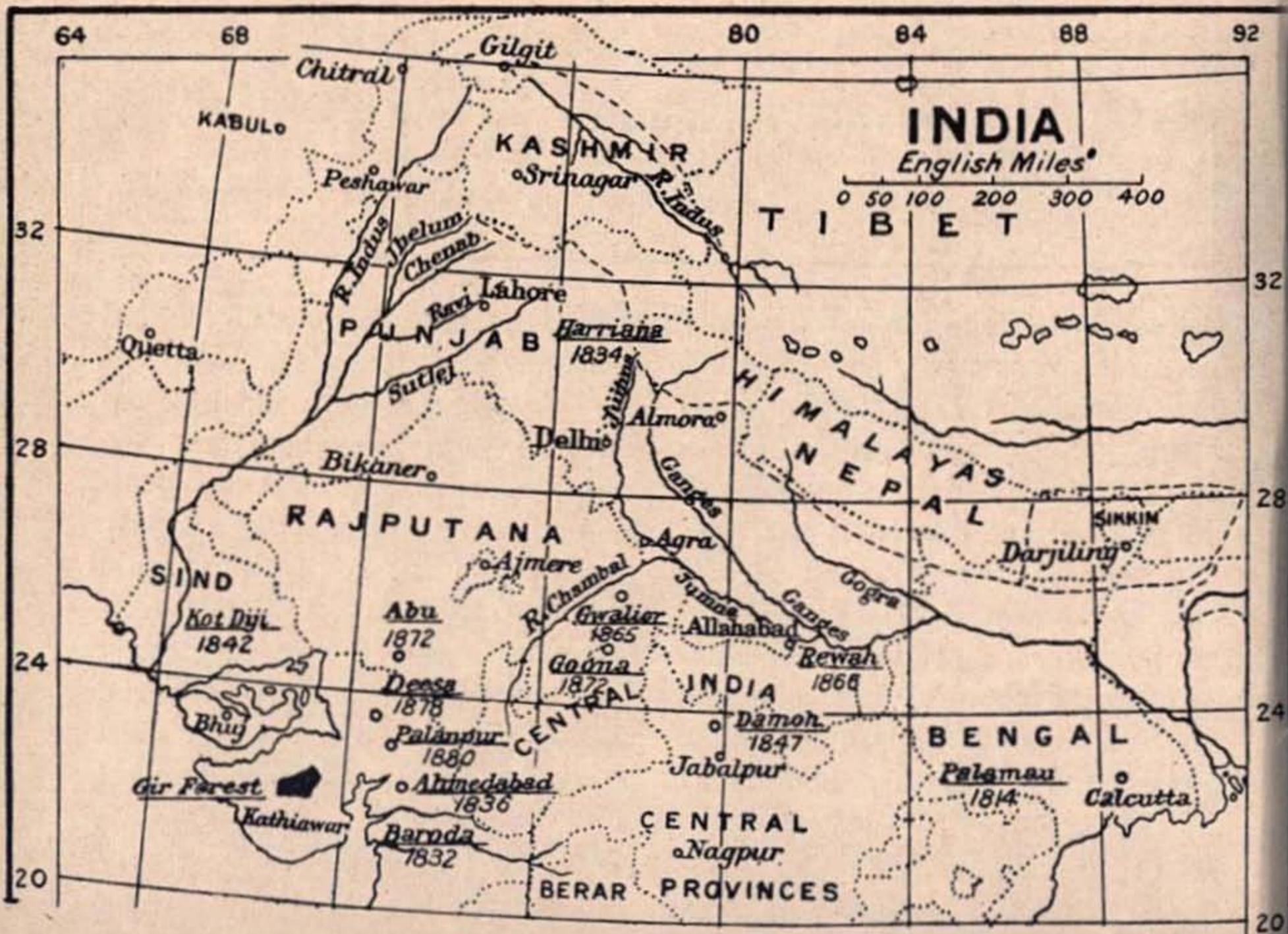
In days gone by lions inhabited suitable parts of all north and central India, and even until the beginning of the last century were still common in many parts of this area

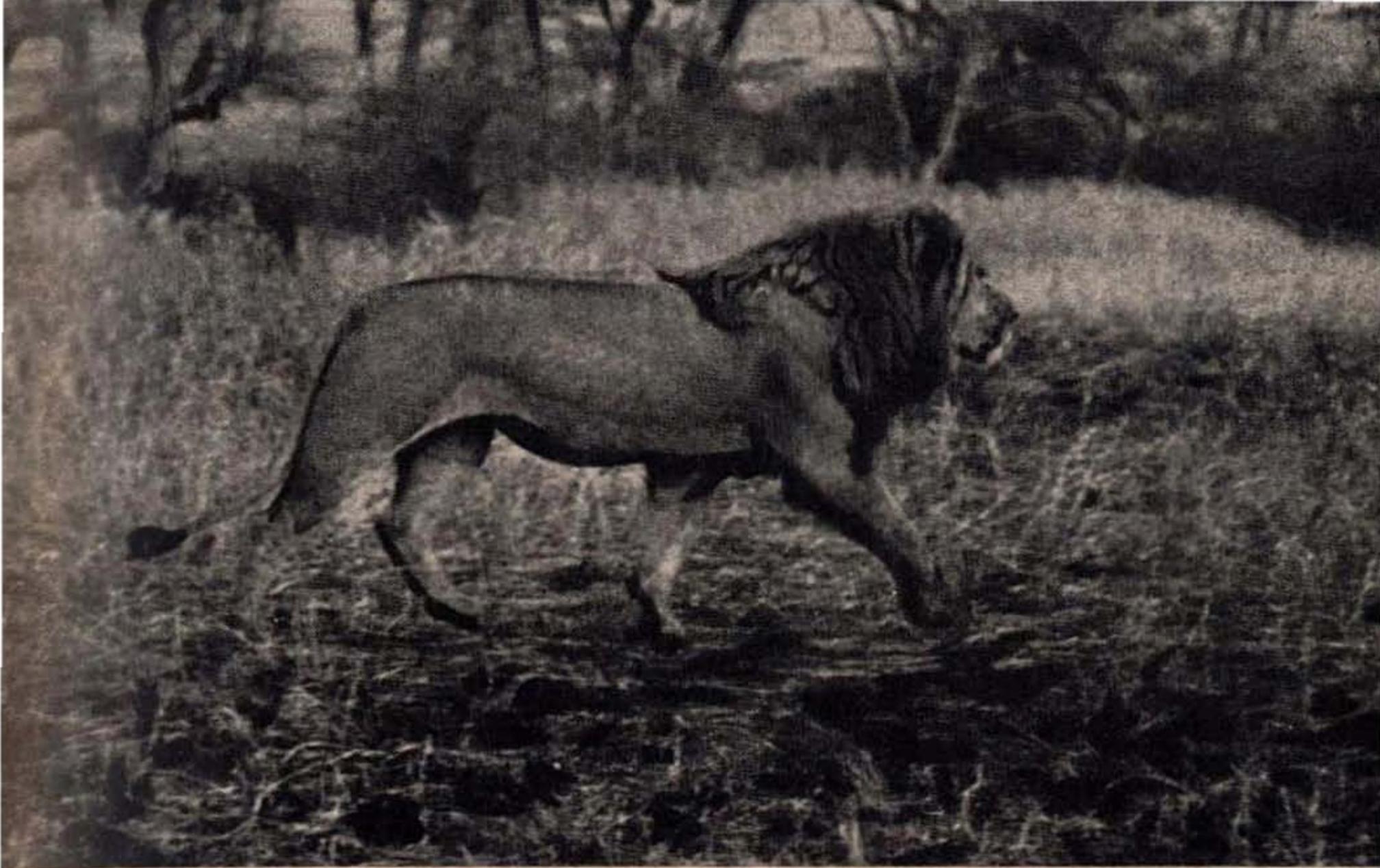
(see map). With the gradual settlement of the country much of the jungle was destroyed and, when areas became separated from one another by cultivation, the lions finally retired to the protection of the Gir Forest.

At the time (1911) when the decision to rigidly control the shooting of lions was enforced, the estimates of the population varied between 20 and 50 animals. Presently there are less than 200 lions in the Gir.

Indian and African lions seem to differ little either in habits or appearance nor is there any reason to think that they differ in size. According to the *Journal* the record Indian lion measured 9 ft. 7 inches

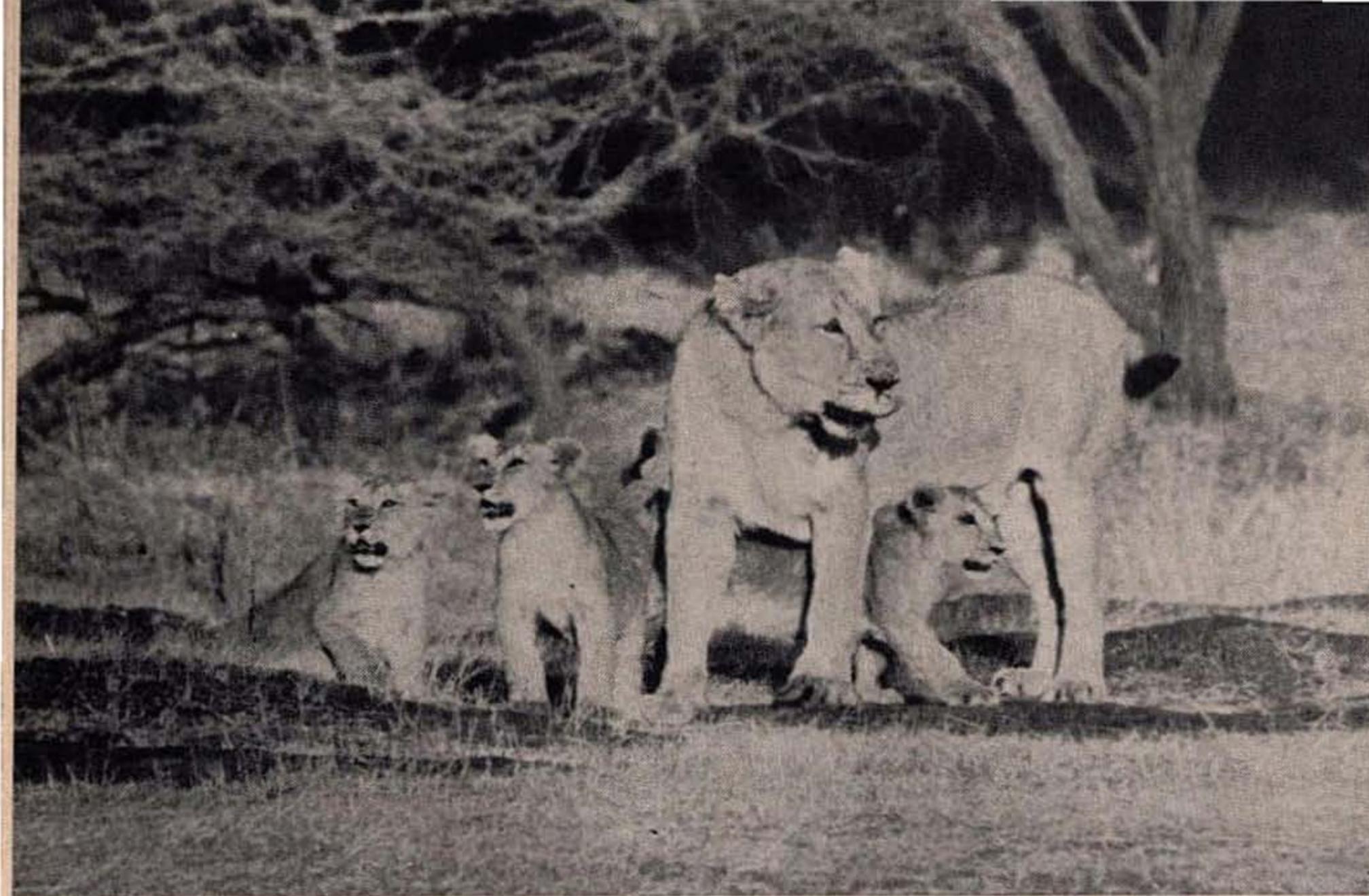
Map from an early issue of the *Journal* giving the last records of Lion in India.





Lions on the move — African, above; Indian, below





Lioness with cubs

Photo: E. P. Gee

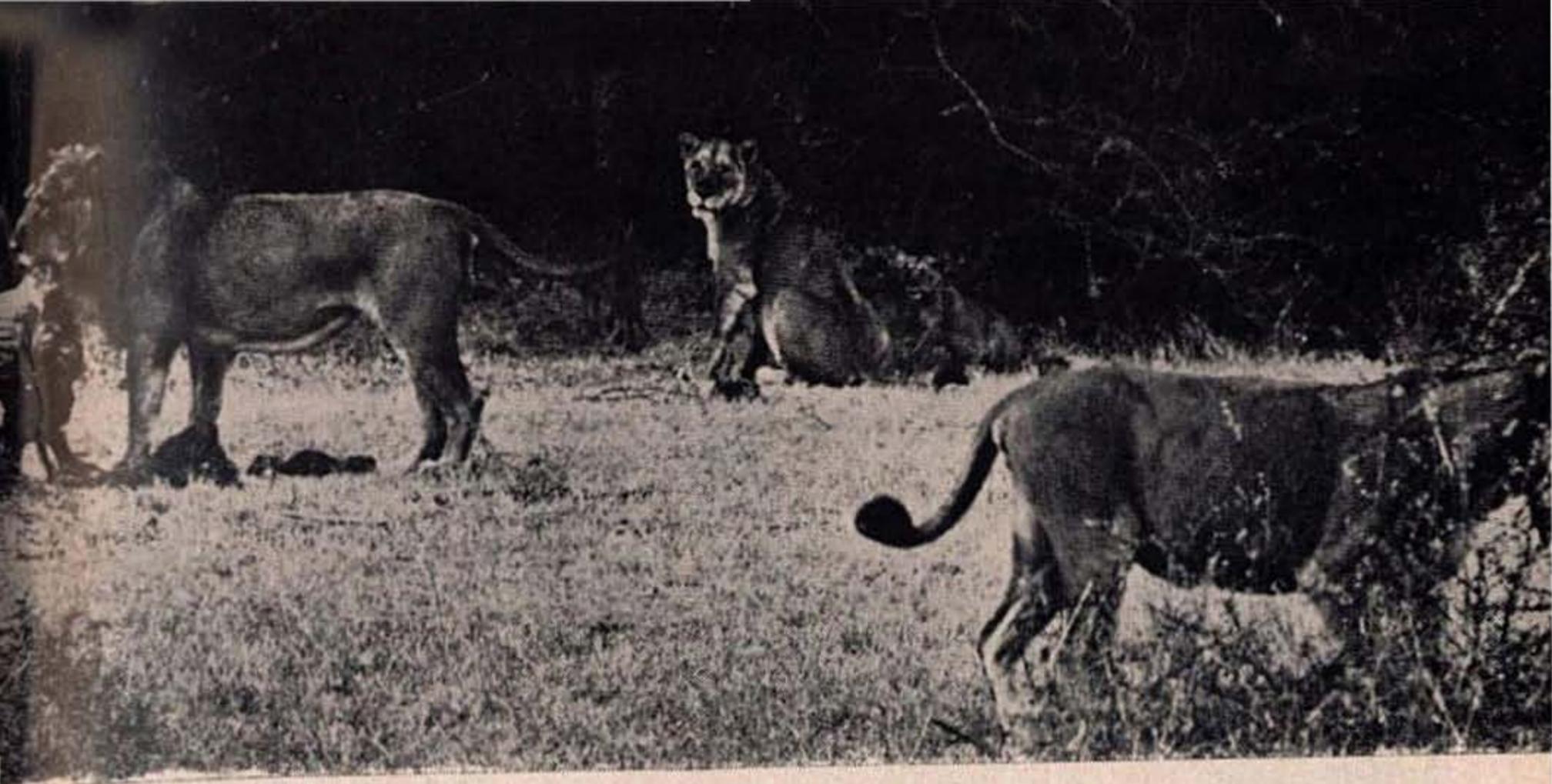
and the African 10 ft. 7 in., but the Indian figure relates to the end of the last century since which time data have not been generally available. However, it must be remembered that the Gir is but a tiny territory when compared with the haunts of the African lion and it would be most unlikely for it to produce any record-breaking animals. Average measurements compare very well with those of African lions.

The Indian lion is a more shaggy creature than the African, with a fuller and with a longer tuft of hair at the end of the tail and on the elbow joints, as well as a fuller fringe along the belly. In conjunction with these characteristics the lion's mane is scantier. Occasionally the mane is blackish, or interspers-

ed with darker hairs. The only obvious difference between the African and Asiatic lion is the pronounced 'belly ridge' in the Asiatic variety which is uncommon in the African lion.

The Gir lion is a gregarious creature and often travels about in parties and hunting may be done in concert, some of the group separating a beast from the herd they are attacking and driving it towards the others which are waiting to kill it.

For food they will kill whatever is most easy to come by, and, as they show little fear of man and his dwellings, are in consequence inveterate killers of cattle and buffaloes, which in fact, as kills of forest game are seldom found, seem to form much the larger part of what



Above: Lion pride at kill—note belly ridge in the male. *Below:* Lion with Chital kill.



they eat. Efforts are now being made to move out of the Park the large number of villages or nes within the forest and the over 20,000 head of cattle belonging to them. It is hoped that the natural prey of the lion, the chital and sambar deer and the nilgai antelope and wild pig will increase substantially to form the natural food of the lion.

During the daytime the lions lie up in the shade of a tree, especially a banyan, or inside a dense carwanda bush to come out at dusk to haunt the vicinity of a village or nes at the time when the cattle are driven home. The Gir lions also hunt wild ungulates and this is normally done at night. Often the male spends much of the night roaring, female is more silent. They may also travel a long way at night and can be found sleeping some miles away from where they have killed.

Other than the lion the following animals occur in the Park: Common Langur, Leopard or Panther, Jungle Cat, Small Indian Civet, Common Mongoose, Striped Hyena, Jackal, Indian Fox, Ratel or Honey Badger, Fivestriped Palm Squirrel, Indian Porcupine, Indian Hare, Chinkara or Indian Gazelle, Four-horned Antelope or Chousingha, Nilgai or Bluebull, Sambar, Chital or Spotted Deer, Indian Wild Boar, and the Indian Pangolin.

About 200 species of birds have been reported from the Gir.

There is also a sizeable population of the Mugger or Marsh Crocodile in the Kamaleshwar Lake in the Sanctuary.

Location and Access. The tourist

facilities are at Sasan Gir, in the Gir forest, 887 km from Bombay and 1288 km from Delhi by rail. By road Sasan Gir is 400 km from Ahmedabad. There is a daily air service from Bombay to the nearest airport Keshod, 90 km from Sasan Gir.

Management. The Park is administered by a Sanctuary Superintendent located at Sasan Gir. Enquiries and reservation requests should be addressed to him. Reservations can also be made through Government of Gujarat Tourist Centres in various cities or through travel agents.

Visiting Season. Mid October to mid June. Best period January-March.

Lioness on the run



Photo:

E. P. Gee

BIRDWATCHER

Trailing a Flycatcher



Black-and-Orange Flycatcher—female

Photo: Reza Khan

It was on a dull day in September 1974 that we reached Coonoor in the Nilgiris. A message that someone had recently sighted the Black-and-Orange Flycatcher *Muscicapa nigrorufa* at Coonoor brought us down to this hill station of southern India. I had recently arrived from Bangladesh as a student of Dr. Salim Ali, and had decided to study the little Black-and-Orange Flycatcher which is found only in the Western Ghats and nowhere else in the world. It is said to occur from south Karnataka to about Kanyakumari (Cape Comorin) in all the hills of the Western Ghats usually in the plateau country about 1000

metres from the sea level. An enigmatic species, very little was known about it.

Mr. E. R. C. Davidar, a life member of the Society, had informed us about the presence of this flycatcher at Coonoor, and I had promptly accepted his offer of all help in my studies. India as a whole was a new country to me and the southern section was more strange because of language. Usually a Bengali can manage with Hindi or Urdu but not Tamil or Malayalam. I was no exception. Luckily, Coonoor is a tourist centre and the language problem did not hit me hard.



Shola forests

Photo: Reza Khan

Setting aside the problem of language and *idli-dosai* the task of looking for the flycatcher started becoming a tough job. In Bombay I had seen a few stuffed specimens collected almost a century ago and had gathered some background information, but in the field the rufous breast of the Tickell's Blue Flycatcher, or of the Blue Chat or the Rufousbellied Shortwing (but with really a long wing!) confused me as I could not see the colour of a bird's body because of the dim light inside a shola.

It took three strenuous days to see the first flycatcher, a female *nigrorufa*. This was along a path known as the Lover's Lane, but



Blue Chat

Photo: Loke Wan Tho



Flycatcher in the nest

Photo: Reza Khan

more frequently used by wood poachers. One follows this path occasionally crawling for some distance through pokey *Smilax*, *Rubus*, *Lantana* and *Solanum* shrubs—additional excitement is provided by a grouchy watchdog of the nearby fruit garden watchman.

Every morning I used to walk up to the main bus stand and ask some of the bus conductors or drivers where and how far a parti-

cular bus was going; was there any *solai* in that area or anywhere on the way; and if so when was the last bus towards Coonoor. If the return trip was anywhere near two in the afternoon I boarded the bus and started my day's journey.

In the remote areas the break for a cup of tea at the small roadside tea stalls saved me from the suspicions of the villagers as they could not understand why a man with binoculars, ruck-sac, shooting stick and a jungle bag should enter the forest. Sometimes the shopkeepers saved me from being mistaken as an undesirable element (usually a spy!). Later many of them volunteered to take me to unknown sholas. Tamil Nadu has prohibition, and liquor stills inside the sholas were not rare. But in most cases the illicit brewers or liquor sellers took to their heels mistaking me for a forest official. This was a blessing in disguise. Other than this the sholas are as safe as they are totally devoid of ticks and leeches.

By the end of October I was greatly depressed and unable to decide whether to study this species or to switch over to some other which could be found easily. This second thought came because I could not locate a sufficient number of the flycatcher within easy access.

However, as I continued trailing the birds over days I became very familiar with a call-note produced by both sexes of this flycatcher and no other species—a soft *chi-ri-rirr* and *tui* or *twee*. These two call notes proved to be the break-

through in my search. The bird lives in shola undergrowth close to the ground, usually in the darkest parts, but with this note I could easily locate it in the densest forest.

Once the call identification was known locating the species was no problem. During the 1975 breeding season I located seven pairs of the flycatcher in the Forest Lodge shola at Coonoor, and five pairs in Botanical Garden at Ooty where at the beginning of my study I could hard-

ly locate one or two birds. I found in all over 50 pairs of the bird within the Coonoor Municipal limits. On March 1975, a female in the Hebron School shola started collecting nest material which really marked the first step towards the completion of my assignment and later when I came to know this species more fully it turned out to be one of the commonest among the flycatchers and a common bird of the sholas.

REZA KHAN



Waiting for food

Photo: Reza Khan

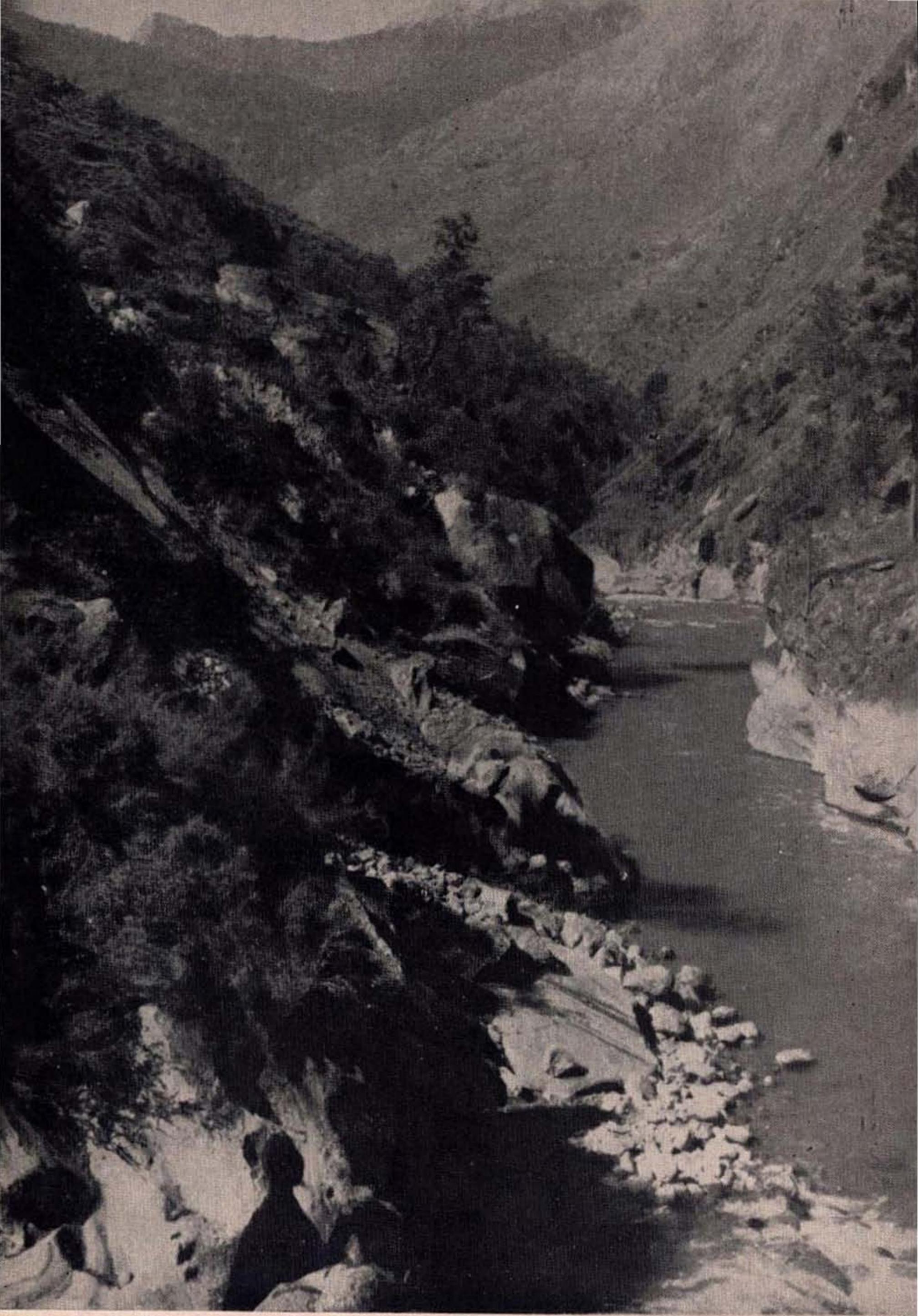
Animal life of the Ganges

The study of the animal life of the Ganges is no new thing. For many centuries it has attracted the attention of rulers, of religious leaders and of naturalists, who have regarded the matter from a practical, a superstitious or an intellectual point of view. Even in a strictly scientific sense it dawned in Bengal before the beginning of the 19th century. Apart from casual mention of a few real and mythical animals, the earliest document we possess is the Fifth Pillar Edict of Asoka by which game laws and fishery legislation were instituted in northern India in the 3rd century B.C. In this inscription the Emperor Asoka had carved on enduring stone a list of birds, beasts, fishes and possibly even insects which were to be strictly preserved from slaughter, and he decreed that no fish of any kind should be caught or sold on fast days throughout the year or for three days at four full moons in each year.

Unfortunately the names of aquatic animals in his list of protected species are very obscure. To judge, however, from modern Bengali two names have preserved their meaning for all these centuries and are still in use in a modified form. They are those of the Sting-rays (of which two species are common in the Ganges) and of a common river tortoise or terrapin now known to science as *Kachuga donghoka*. Possibly Asoka also included the Gangetic Porpoise in his list, for the

word *gangapuputakas*, which has puzzled the commentators, may be partly onomatopoeic, representing the noise made by the animal as it expels its breath on the surface.

After about seventeen centuries another emperor appeared in Hindustan who was a real naturalist—Babur, the first of the Moghuls. Babur is one of the most human characters in Indian history, in which he lives as few others live because of the intimate personal memoirs he left behind him. These included not only an account of his own adventurous and momentous life but also a description of India and its natural products—the first Gazetteer. Amongst many practical and intellectual activities Babur, who was probably in a sense illiterate, was a keen botanist. The only two things he admired in India were the wealth of the country and the red Hibiscus flower, but he took an interest in its animals also. He was the first to describe a peculiar habit of the commonest of our north Indian frogs (*Rana cyanophlyctis*), which skips lightly along the surface of the water when disturbed. He gave also a description of the Gangetic Porpoise, evidently from his own observation, and of the crocodiles of the river, all of which must have seemed strange and unnatural beasts to a man from central Asia. After Babur more than two centuries were to elapse before the animals of the Ganges were first studied in a scientific spirit.



Vishnuprayag

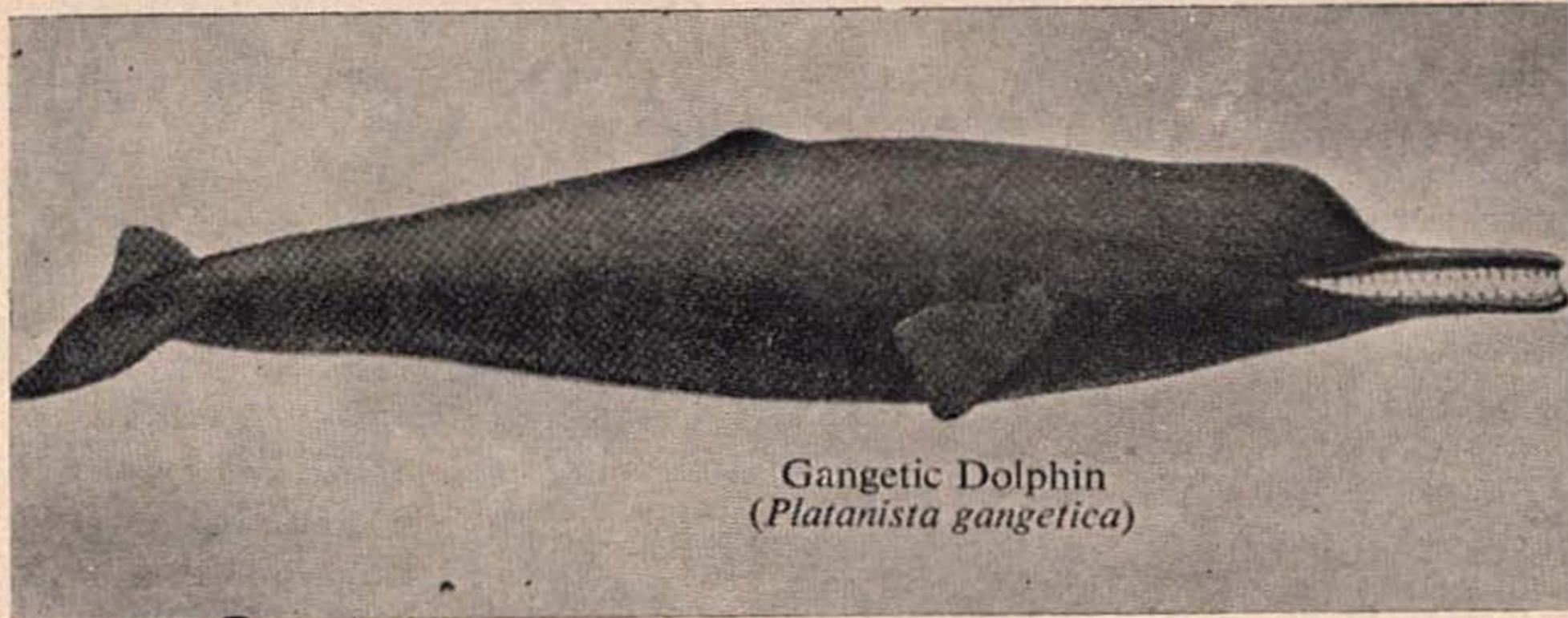
Photo: S. R. Shah

The initiation of this new work was due to a Scotchman, but he was by no means the first European naturalist who wrote on the fauna of the river. To the Greeks and the Romans India was a land of marvels. Herodotus, the Father of History, remarked in his sober way some twenty three centuries ago, how strange it was that uttermost parts of the earth produced the most admirable products. He gave as an instance the supposed fact that the animals of India, except the horse, were larger than those found elsewhere. Later writers greatly improved on this. They talked of eels 300 feet in length, of the monstrous turtles of the Ganges and of a sky-blue worm 60 cubits long and armed with a pair of tusks (or gills) by means of which it seized the elephants which came to drink at the river's edge. The elder Pliny, who lived in the 1st century A.D. quoted this story of the elephant-eating worm with some reserve, but also gave an account, only exaggerated in point of size, of the Gangetic Porpoise, which he called by the modern generic name *Platanista*. Further, he recorded the fact that certain fish of the Ganges migrate overland to breed in isolated pools. After Pliny the next writer of importance on the Gangetic animals was Aelian, who wrote in Greek about a century later. He added little, except a fairly accurate description of the Gharial. Neither Pliny nor Aelian had visited India: they relied on travellers' tales. We need not follow out the history of the myths they transmitted, but may

note in passing that for once, Sir John Maundeville, the notorious liar of the Middle Ages, was more moderate and reduced the length of the Indian eels from 300 feet to "30 foote or more".

From the faunistic point of view the Ganges system is divided into three parts, but the divisions are not quite the same as in the vegetation. Firstly we must distinguish the little streamlets which rush down the southern slopes of the Himalayas and unite in the valleys to form the larger tributaries; secondly we have the middle reaches, in which the Ganges and its great tributaries the Jumna and the Sone roll slowly across the great plain of northern India, and finally there are the deltaic tracts, where the main stream breaks up into innumerable tidal creeks and estuaries. Each of these regions has its own type of animal life.

In the tiny mountain streamlets there is an assemblage of very curious little animals, few if any of which could be mistaken for those from any other habitat. This is an interesting fact, for the animals of mountain torrents in Europe or North America or Japan, or even in the extreme western parts of the Himalayas, are few and very ordinary in appearance. It is only as we approach the tropics, though temperature can have little to do with the matter in the cool Himalayan waters, that we find the fish and tadpoles of the little hill streams assuming peculiar forms and developing apparatus that will enable them to



Gangetic Dolphin
(*Platanista gangetica*)

overcome the sudden floods and rapid rush of water to which they are exposed.

We must now consider the animals of the middle reaches of the river, but before doing so I would point out that there is a transition between the two faunas, as is nearly always the case in nature, which does not, as the old saying goes, move by leaps. In the larger streams which occupy the deeper valleys among the mountains even at considerable altitudes, we find certain of the torrent-haunting forms. We also find an invasion of species from the plains and finally among the fish at any rate, there are a few conspicuous animals which make such streams their proper home. I will only mention two, the Mahseer and the Goonch. The Mahseer, which is an assembly of allied species rather than a single form, is known to all Indian sportsmen as the chief of Indian sporting fish. It is merely a gigantic migratory Barbel sufficiently muscular to make its way upstreams against the strong

currents of the rivers among and at the base of the hills. The Goonch, though like the Mahseer the giant of its tribe, is in many respects the Mahseer's antithesis. It is a huge sluggish catfish which skulks in crevices amongst the rocks and thus protects itself from the force of the current. Its enormous mouth enables it to gulp down almost any prey that approaches its retreat, while the long and sensitive tentacles which surround its mouth keep it in contact with all that moves around.

Generally speaking the river-life of the plains is much less remarkable than that of the hills. Pliny's gigantic eels and his elephant-catching worms have departed into the limbo of imaginary beings. Pliny, however, was perfectly right in saying that certain of the fish were capable of migrating overland. In a tropical country in which a heavy rainfall alternates with a definite dry season animals which live in water are subjected to very special dangers and among the fish of all countries

in which such conditions occur we find a number of species that have developed special means of living out of water for considerable periods. The main difference between the breathing of an air-breathing animal and the breathing (if we may call it so) of a true aquatic animal is that the latter obtains the oxygen

be stored in these cavities and the oxygen is extracted from it and makes its way into the blood through the thin walls of the vessels. In other fish such as the Koi (*Anabas scandens*) the membrane in the region of the gills is greatly elaborated and much folded as well as being full of blood vessels, so that



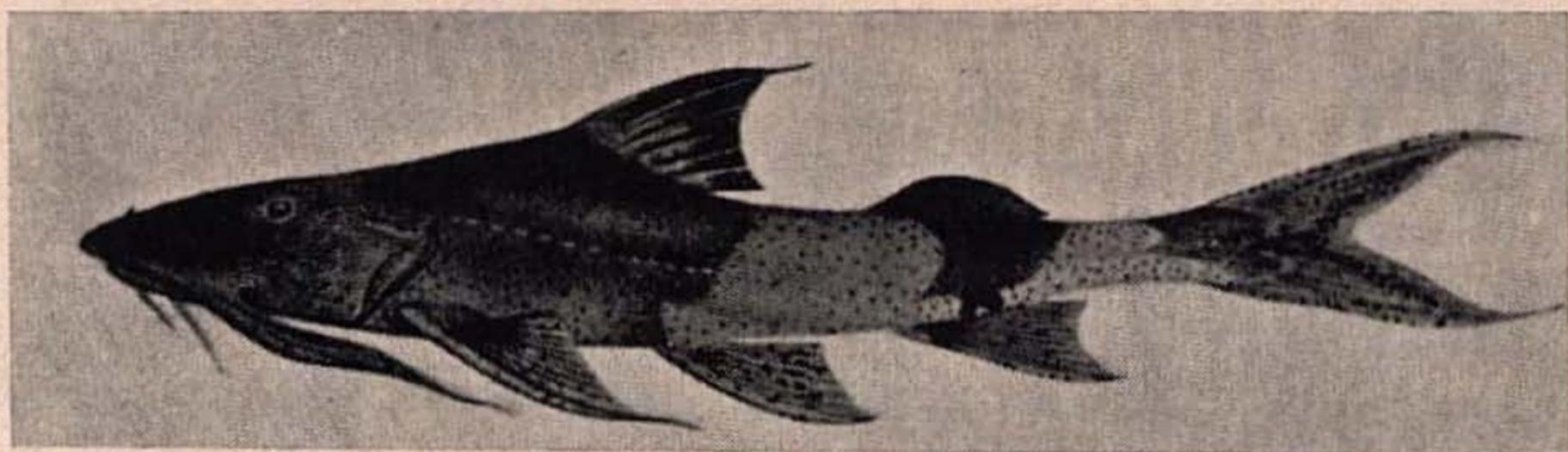
Mahaseer at the foot of the Himalayas

Photo: E. P. Gee

necessary for its existence from the water, while we obtain it from air.

The simplest modification is found in the murrels or snake-heads (*Ophiocephalus*), in which there is at the back of the neck a pair of large cavities lined with membrane containing many blood vessels. A considerable quantity of water can

there is a much greater surface through which oxygen can be extracted from the water. These structures are situated in cavities behind the head; in the Koi the membrane is supported by a bony labyrinth on which it is spread out in a thin film. In some of the catfishes and eels again, notably in the Singhi (*Saccobranthus fossilis*), a pair of sack-



Freshwater Shark or Goonch

like organs have appeared which have practically the functions of lungs, that is to say are capable of extracting oxygen from air instead of water. Such fishes also have gills by which they get oxygen from water and they are, therefore, said to be amphipnoöus or breathing in both.

Strictly speaking, all freshwater animals are of marine origin. The most conspicuous member of the little group of marine animals which live in the Ganges above tidal influence I have already referred more than once. It is one of the most conspicuous animals of the river and was possibly mentioned by Asoka in the 3rd century B.C. and certainly described by Pliny in the first century A.D., by Alberuni in the eleventh century and by Babur some five hundred years later. It is the Gangetic Porpoise now known to science as *Platanista gangetica*.

The terms porpoise, dolphin and whale have no very precise scientific meaning. Porpoises, dolphins and whales are all members of the group of mammals, the Cetacea, in which there are many species and genera which it would be difficult to place without doubt in any of the three

categories. Generally speaking porpoises and dolphins are much smaller animals than whales, and frequently the name porpoise is given to forms with a short rounded head while the so-called dolphins have a long and slender snout. The Gangetic Porpoise is small for a Cetacean (not more than 12' in length), but has an even longer and narrower snout than the true Dolphin. I will return to its physical peculiarities in a moment, but the most interesting fact about its life is that it lives in both the Indus and the Ganges and never goes to sea. The vast majority of the Cetacea are marine animals. The fact that this animal is found both in the Indus and the Ganges points to some former connection between the two rivers at a period when their physiography was very different from what it is now; but this connection may have existed, and in my opinion probably did exist, before the birth of either the Ganges or the Indus as a great river. Not improbably the genus first appeared in great lagoons or gulfs in what is now the Gangetic trough at a period when the present relations between land and sea had not yet been established in northern India.

In spite of its ancient ancestry *Platanista* is highly modified in certain respects, particularly in its long sensitive snout and in being practically blind. In these respects it is modified for life in very muddy water and is adapted to obtain its food, which consists of prawns, molluscs, etc., from the soft mud at the bottom of a sluggish river.

The great majority of the animals of the deltaic creeks and estuaries the third stretch of the river are, however, what is called euryhaline. That is to say they are (within certain limits) indifferent to the amount of salt dissolved in the water in which they live. Most of them are of marine origin and comparatively few can endure pure fresh water for any length of time. This feature is well illustrated by a little jellyfish called *Campanulina ceylonensis*, which was originally described from the sea off Ceylon but has also been found in brackish water in both India and Siam. When the water in the Belgatchia canal on the outskirts of Calcutta sinks very low, as it does as a rule at some date in April every year, lock-gates are opened which admit the brackish water of the Matlah river. With the water come swarms of this little jellyfish, and they lay their eggs in the canal. From the egg arises a simple larval form called a planula and this turns into a minute hydroid, which is fixed to bricks and mooring posts. The hydroid again gives rise to a second brood of jellyfish by means of budding and the alternate generations of medusa and hydroid are rapidly

perpetuated for some months, until the water is thick with little medusae and the submerged bricks of every ghat and the surface of every post are covered with the hydroid. Then come the rains and the water grows gradually fresh. When its specific gravity falls below a certain point both jellyfish and hydroid are killed and the species disappears from the canal, until it is re-admitted with the inflowing water in the following April.

These facts illustrate the manner in which the animals of the estuaries are attempting to establish themselves inland. I may give another and even more striking instance, that of the little crab *Varuna littorata*. This animal is still more tolerant of changes in salinity than the jellyfish and its hydroid, for it can live equally well in the open sea and in pure fresh water, but its real home is in the estuaries. Every year a double invasion of the Varuna crab takes place in the neighbourhood of Calcutta. The crab breeds a little before the beginning of the rains. For some time the female carries her eggs tucked up under her tail, but the eggs, unlike those



Varuna crab

of the true river crabs, give rise to a little larva different from its parents, though not so different as the caterpillar is from the butterfly. The larvae are produced in countless millions at the edge of the Hughli below Calcutta and in every creek of the Sunderbans. Their natural instinct leads them upstream: they swarm into every ditch of fresh or brackish water to which they can gain access, and not infrequently they block up pipes carrying water from the river.

As soon as the parent crabs have got rid of their family, to which as a matter of fact they pay no regard whatsoever, they too proceed to migrate inland. They crawl and swim into ditches and water-courses; they proceed along the gutters of the streets of Calcutta and leaving the water, walk amongst the damp herbage of gardens and jungles and so penetrate into isolated ponds and tanks. They frequently appear in the tank in the Museum compound and I have seen one surrounded by a flock of crows in the middle of the lawn of the United Service Club.

And yet, in spite of this double migration inland, in spite of its tolerance of fresh water, the Varuna

crab never establishes itself as a permanent denizen of inland waters in the Gangetic delta. From the Calcutta tanks it disappears rapidly and can as a rule be found only in a few of the ponds in the immediate neighbourhood of brackish water, in places such as Chingrihatta. Why is this? Apparently because it cannot compete with the true river crabs which are already established in fresh water. It has appeared too late on the scene.

N. ANNANDALE, D.SC.

This is a condensation of an article published in the Society's JOURNAL Vol. 29, pp. 633-42 for the year 1923. It may be interesting to know if the conditions described by Dr Annandale for the Calcutta area still exist and if there is still an annual invasion by jellyfish and Varuna crabs or if environmental alterations have changed the pattern of life. We hope to hear from our Calcutta members. Dr Nelson Annandale was the first Director of the Zoological Survey of India and held office from 1916 till his death in 1924. — Eds.

p. 35, CONSERVATION ACTION, please shift the subheading *Blacknecked Crane—News from China* to top of the ultimate paragraph in the righthand column.

CONSERVATION ACTION

A new lease of life for Marine Turtle

The idea thought up by some enterprising members of Sri Lanka's Wildlife and Nature Conservation Society to tackle the island's turtle-egg lifting problem is laudable.

Quite a number of Leathery and Loggerhead turtles visit Sri Lanka's vast shore line to deposit their eggs on the sandy beaches only to have them dug up and illegally sold in their thousands as a delicacy. The Society buys up the eggs offered for sale and takes them to specially

Blacknecked Crane—News from China

built enclosed hatcheries on the sea shore where they are reburied under careful supervision. The successful hatchlings are then set free in the ocean to start a new life. The experiment has proved to be a great success writes Mr. Ranjan Fernando in *IUCN/SSC Marine Turtle Newsletter* of April 1977. According to this report, of the 3280 eggs retrieved during 1975-76 season in one such hatchery 2705 young turtles emerged and were set free. In the meantime it is hoped that preventive action will be taken against the unscrupulous egg-poachers. The ready market available by way of sale to the Society, we trust, will not prove an added inducement for further nest stealing!

The status of the endangered Black-necked Crane in the Tibet region of China has till now been obscure. In response to an enquiry from Dr. Sálim Ali, Prof. Tso-Hsin Cheng of the Peking Institute of Zoology, Academia Sinica writes: 'With reference to the Blacknecked Crane (*Grus nigricollis*), our collecting team happened to see in September 1973 a large flock migrating southward from the Tanga Range Pass, and again in the autumn of 1976 in the southwestern parts of our Tibetan Autonomous Region those Cranes were seen on the move in couples, but the total number was small'.



Blacknecked Crane in Ladakh

Photo: S. A. Hussain



Scandinavian Wolves in captivity

Photo: Mart Mavend

The Wolf in Sweden

Faced with overwhelming odds, the Wolf in Sweden seems to have lost its battle for survival. Hunted by farmers and cattle raisers, hounded out of their former habitat by the development programmes, their number declined rapidly until about 10 years ago when the Swedish Government clamped down laws to protect it. By then an estimated ten wolves were surviving in the wild. According to May 1977 issue of the Swedish Institute's *Current Sweden*, the present wolf population in Sweden has come down to just one animal.

The Swedish Society for Conservation of Nature has now started Project Wolf to establish a captive breeding stock to be reintroduced in Sweden. Under the scheme about 14 captive wolves of Scandinavian descent were collected from various

zoos in 1969 and were housed in several large open fenced areas. Care was taken to maintain a pure strain of the original sub-group and the breeding programme has shown a considerable success.

The task of reintroducing the wolf, however, was not easy. The wolf normally prey on reindeer, which have been domesticated in Sweden. Any programme to reintroduce free ranging wolves will be resisted by the reindeer raising Laps, who have appropriated most of the wolf's habitat. A survey revealed that the forested mountainous region of north Sweden could be suitable to establish a stationary population of wolves under semi-natural conditions. Ecological studies are being carried out to explore the possibilities of maintaining a viable wolf population on natural prey species, like moose, roedeer, elk as well as feral reindeer. Depending on the

success of these experiments, the Swedish biologists hope to send the wolf back to wilderness to regenerate under natural conditions.

Gharial on the move in Orissa

Gavialis gangeticus, commonly called the gharial or gavial, is one of the critically endangered species of crocodilians. Confined to northern India, Nepal and Pakistan, they inhabit the Ganges, Brahmaputra, Mahanadi, Gandak, Kosi rivers and their tributaries, and extend westward along the Indus and its tributaries. In India, there are hardly about 100 adults left. To prevent their extinction, attempts are being made to protect the species in nature and to breed it in captivity.

At Nandankanan Biological Park, 15 km away from Bhubaneswar, Orissa, a gharial breeding pool has been constructed. The pool measures $60 \times 30 \times 9.15$ m and holds 2.70 million litres of lake water pumped into it. A slow current of water is maintained by an outlet and a 2.5 metres high sand bank on the side of the pool has been provided, as well as suitable vegetation so as to give the pool a natural ap-

Gharial at a new breeding pool

pearance. The gharial pool is the largest pool in the world provided for captive crocodilians. Three adult gharials—a male and two females—kept in a small concrete tank in the Biological Park were moved to the new pool.

About 16 persons with the help of six forked bamboo poles tackled the job. First the water was emptied from the small pool. All the three gharials were basking on the sand bank. One by one their head was covered with a gunny bag, the snout carefully tied and the limbs tied to bamboo poles, and thus immobilised the gharial was carried on a plank to the new pool.

The gharials were released near the breeding pool about a metre away from the water. The male and one of the females went into the water after about 15 minutes and the other female remained still for about an hour, but on hearing the sound of falling water being let into the pool it also entered.

It is hoped that the gharials will soon adjust themselves to the new environment and breed.

M. V. SUBBA RAO

Photo: M. V. Subba Rao



The mystery of the Pied Crested Cuckoo

At the commencement of the SW. monsoon when birdwatchers come across a Pied Crested Cuckoo *Clamator jacobinus*, its identification presents a dilemma, whether the bird seen is a resident or a migrant from Africa, visiting India for breeding purposes. An enquiry therefore of the African origin of the Pied Crested Cuckoo is desirable.

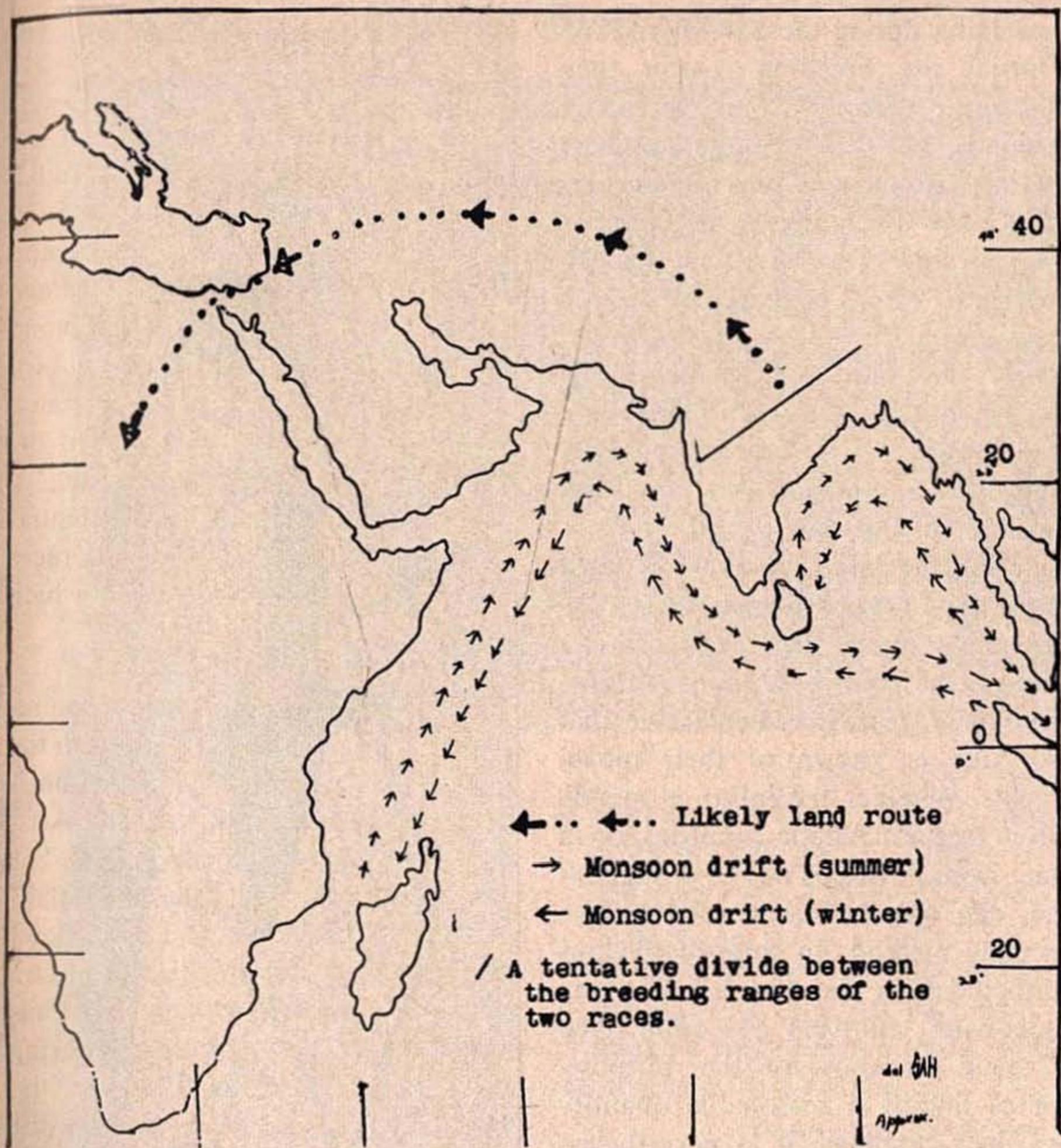
Two races of this cuckoo concern

us in India—the resident race *C. j. jacobinus* of south and SE. India, said to occur south of about 15°N. latitude, as well as in Assam and Burma, south to Karenni, Pegu Yomas and Sri Lanka. The second race is the migratory northern bird *C. j. serratus*. They are separated from each other on the length of the wing, the northern race having a slightly longer wing. This differentiation is so very fine that both races should contain individuals which overlap in wing length!

A Pied Crested Cuckoo absolutely impossible to distinguish from the Indian bird is found over a considerable portion of Africa—E. Africa, Ethiopia to the Cape—and has a race inseparable from the Indian! The absence of the northern Pied Crested Cuckoo from Afghanistan, Pakistan, NW. India, Kashmir, Punjab and the Uttar Pradesh during the winter months has led to the conjecture that birds breeding in the north of the subcontinent winter in Africa, but return to India during the SW. monsoon to breed. An arbitrary line of demarcation of the two Indian races is said to be a line drawn on the map of India from about 18°N. latitude (i.e. just south of Bombay) to Darbhanga in north Bihar. Birds found breeding north of this line are considered to be those of the northern race *serratus*, and the breeding birds south of it are assigned to *jacobinus*.



Pied Crested Cuckoo
Courtesy: Oxford University Press



It is possible that the Pied Crested Cuckoo breeding in north India winters in tropical Africa, either migrating overland through Baluchistan and Arabia or riding the monsoon drift in the Arabian sea, which runs east-west in winter, and west-east in summer between India and Africa. The specimen of the migratory race obtained by Dr. Sálím Ali on 17.xi.1939 at Bandipur (Karnataka), far south of its normal breeding range could have been an ex-

ample of the bird preparing to move out of India with the east-west monsoon drift. There is also an African race which breeds at least in Ethiopia from March to mid June, laying a blue egg as does the 'inferred' migratory bird in India.

The question, however, that looms large before birdwatchers in India is: What happens to the large numbers of Pied Crested Cuckoo that come to breed in the north and cen-

tral India during the SW. monsoon? Outside the breeding season they disappear from the breeding grounds. How these large numbers of this conspicuous bird remain unnoticed by birdwatchers in winter is inexplicable. Do they really go to Africa to return to India for breeding during the following SW. monsoon? Dr. Sálim Ali in his review of Herbert Friedmann's book *THE PARASITIC CUCKOOS OF AFRICA* suggests a method to find an answer to this query thus: "Considering the large numbers of Pied Crested Cuckoos which arrive to breed in north and central India during the southwest monsoon season every year, it is deplorable that so little is known of their movements. Whether the influx is merely from western Asiatic countries, or in fact from Africa as has been suggested, can only be ascertained by the ringing method. In spite of obvious difficulties in the way of trapping adequate numbers of adult Pied Crested Cuckoos for the purpose, or of finding a reasonable quantity of their nestlings, it is nevertheless a line of field work which holds important possibilities and one that can be earnestly commended to those with the necessary opportunities."

This would indeed be a rewarding enquiry for the Society.

J. S. SERRAO



Pied Crested Cuckoo

Photo: Peter Jackson. Courtesy: WWF

Wildlife Blow-ups



Tusker at Bandipur

Photo: E. P. Gee

The Society has some of the finest black-and-white photographs of animals and birds by renowned photographers like Loke Wan Tho and E. P. Gee. Enlarged prints of these photographs are now offered for sale at the following rates double weight matt:

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Blacknaped Terns

Photo: Loke Wan Tho



AN APPEAL

We give below an editorial published in Vol. 28 of the Society's *Journal* for the year 1921, concerning conditions in 1920 when the Society's subscription was raised to Rs 25/-. The matter in parenthesis gives figures for each item of income and expenditure as obtaining in 1974 when it was decided to increase the subscription to Rs 50/-.

"In 1920 our income from subscriptions was Rs 18,993/- [Rs 33,780/-]. Our expenses on account of the *Journal* in that year were Rs 9,000/- [Rs 49,216/-] and we had notice of a very heavy increase in the cost of printing it. Similarly with salaries and office expenses. In 1920 the former were Rs 14,700/- [Rs 78,704/-] and the latter Rs 10,536/- [Rs 32,000/-].

"The Committee, therefore, recommended to members the advisability of increasing the annual subscription and at the same time raising the entrance fee. Out of a nominal roll of 1832 at the beginning of 1921, 432 names have disappeared, some because the increase in the cost of living necessitated a careful pruning of subscription lists, others because absence from India had lessened their interest in the *Natural History of India*, a few we regret to say, because of death, but practically none because they did not consider membership of the Society worth an annual subscription of Rupees Twenty-five."

The membership of the Society has remained remarkably static, never going much above 1000 in the last 56 years. Membership must increase if the continuously increasing gap between income and expenditure is to be bridged. As an example we may look at the finances of the Society in the year 1976.

	<i>Income</i>
Membership fee	Rs 51,667/-
	<i>Expenditure</i>
Journal	Rs 60,505/-
Establishment	88,731/-
Other expenses	39,000/-
	<hr/>
<i>Total</i>	Rs 1,88,236/-
	<hr/>

This wide gap between membership receipts and expenditure towards the administration is met largely from Government subsidies for the *Journal* (Rs 27,000/-), profit on the sale of publications, and what are termed miscellaneous receipts which fluctuate widely, leaving the Honorary Treasurer moving on very thin ice indeed.

Over the years we have accumulated a debit balance of Rs 66,525/-. The Society's finances are so precariously balanced that there is no room for expansion of activities or for recruiting and retaining staff of high calibre.

What is the remedy? There are two possibilities:

(a) seek more government support in which case the Society will lose its flexibility of action and its ability to act independently, fostered over all these years in spite of enormous difficulties;

(b) an increase in membership which would assure that the Society remains free to express opinions and lead in the Conservation movement.

To set the Society on a sound financial footing a minimum three-fold increase in membership is necessary, i.e. Rs 50 × 4,000 or Rs 2,00,000/-. Administrative costs do not automatically increase with membership.

Another possible source of assured income is to raise a corpus of Rs 10,00,000/- which would yield an annual income of Rs 1,00,000/-. This could be achieved by recruiting not less than 1,000 corporate life members valid for 25 years on a payment of Rs 1,000/- as Corporate Life Membership fee.

We require your urgent assistance, to recruit more ordinary members and if possible Corporate Life Members. If a member can at least interest three of his or her friends to join, he or she has indeed done well by the Society.

It is perhaps time to recapitulate what the Society does and what it has to offer to its members.

(i) The two aspects in which the Society has specialised are field studies and publications on natural history.

(ii) The Society is uniquely situated for the study of field problems, particularly animal ecology. As the only organization in India with a continuing history of field-work extending over ninety-four years, the Society's competence to undertake field-work in animal ecology is internationally recognized. The Society's specialist library and its research collections, indispensable references for ecological work, and its trained staff are largely the results of its activities in this field.

(iii) At the moment one of the Society's most important functions is to liaise with Central and State Governments through their various committees like the Indian Board for Wild Life, the State Wild Life Advisory Boards, the National Committee for Environmental Planning and Coordination, the Tourist Development Council and several others. The Society also maintains the closest cooperation with the International Union for Conservation of Nature and Natural Resources, World Wildlife Fund, Smithsonian Institution, Washington, and several universities in India and abroad.

The facilities available to members are:

(a) A four-monthly natural history journal acknowledged to be the finest of its kind in Asia.

- (b) A forum for discussing and pursuing all aspects of Nature Conservation and the Environment.
- (c) A library with many rare books on shikar and natural history unavailable elsewhere, which may also be borrowed by outstation members.
- (d) One of the finest research collections in India on Mammals, Birds, Reptiles, Butterflies and other forms of animal life. These are available

to members for study on the Society's premises.

- (e) Up-to-date information and advice on birdwatching, wildlife photography, and fishing; natural history field trips and information on possible areas for field trips.
- (f) An illustrated, popular, quarterly newsletter, *Hornbill*.

We address this appeal personally to you. We hope you could persuade your friends to use the membership application sent with this appeal.

TERMS OF MEMBERSHIP

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., such members being referred to below as corporate members.

(a) Entrance Fees:

Ordinary and Life Members	..	..	..	..	Rs. 25.00
Student Members	..	..	..	..	Rs. 10.00

(b) Subscription:

(a) Ordinary individual Members	..	..	..	..	Rs. 50.00
(b) Ordinary Corporate Members	..	..	..	..	Rs. 100.00
(c) Ordinary Members resident outside India	..	..	..	..	£ 3.50
(£ 3 plus 50 p to cover extra postage on Journal)					
Life Members	..	..	..	..	Rs. 750.00
(Rs. 250.00 after 20 years)					
Compound Corporate Members	..	..	..	..	Rs. 1000.00
Student Members (without <i>Journal</i> but with <i>Hornbill</i>)	..	..	..	..	Rs. 10.00

Applicants for membership become members of the Society on election by the Executive Committee of the Society and payment of the entrance fee and annual subscription or life membership contribution or compound corporate subscription, as the case may be. The election is liable to be declared void if payment as aforesaid is not made within six months of election.

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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BOMBAY NATURAL HISTORY SOCIETY

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

Our members enjoy:

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

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

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

Bombay Natural History Society
Hornbill House
Shahid Bhagat Singh Road
BOMBAY 400 023 (INDIA)