

HORNBILL



BOMBAY NATURAL HISTORY SOCIETY

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 of 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, fishing, shooting and natural history specimen collecting opportunities.

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)

Launching a new journal is like launching a paper boat in a turbulent stream. One watches with anxiety to see whether it will be swamped by criticisms or will float to the safety of appreciation. The editors heaved a collective sigh of relief when the inaugural issue of *Hornbill* was received with mild enthusiasm from some members and complete silence from the rest. An odd feature of the Society is that the bulk of our members belong to the 'Silent Majority' and refuse to indicate their positive or negative reaction!

In this issue the President's letter comments on a subject—hunting as a sport—on which many people hold definite views, either for or against. Sportsmen have been one of the mainstays of the Society, and back issues of the *Journal* contain some of the best writings on hunting as a sport in India. The older generation of Indian conservationists have all been sportsmen in the truest sense of the word. The question now is whether under the present conditions, will hunting be an additional and probably a fatal strain on diminishing wildlife populations? We do not have sufficient data for an accurate appreciation. Game ranches as advocated by Mr. G. S. Ranganathan, a former member of the Executive Committee of the Society may be the answer. Chital and Blackbuck would be ideal for the purpose and marginal lands could be put to productive use.

CONTENTS

Editorial	1
Feedback	2
President's Letter	3
The Flowers of Spring	4
Notes, News and Comments	6
Low budget Trekking in the Himalayas — S. R. Shah	12
Personalia	18
Fish and Biological Control — C. V. Kulkarni	22
Birdwatcher	26
The Gaur and the Gayal — E. C. Stuart Baker	30
Catleg Spider — S. R. Nayak	36
Of Spiders and Wasps — J. S. Serrao	37
Encounters — A. J. T. Johnsingh	39
Conservation Action	42
Hobbies	45
Book News	48

On cover: *Flame of the Forest*
Photo: E. P. Gee

EDITED BY

J. C. DANIEL

S. A. HUSSAIN

J. S. SERRAO

FEEDBACK

Life is as you look at it!

The note on the Giant Wood Spider *Nephila maculata* Fabricius in the inaugural issue of *Hornbill* was just the type of note on animals, big and small, we would like to read, and Dr. S. R. Amladi certainly should give us more insight into the lives of the little creatures he has stalked with a camera and physician's eyes.

These large spiders are so very visible that one wonders why birds don't snap up the Amazons from the centre of their lairs. Is the creature unpalatable or venomous?

It seems my friend could not resist sneaking in a bit of 'science' into his writings. Surely the spider keeps her nether end to the sun for no other excellent reason than that which any creature with eyes would do, namely to keep the sun out of the eyes! Spiders have quite a few more eyes than many other animals have, and lack, besides, the benefit of irises and eyelids to control the light impinging on them. Surely the heat theory has no substance when one realises that this sort of orientation would have maximum value if the sun rose due east, went up to the zenith and set due west, and that the webs were oriented due east-west. They are randomly oriented and as often as not, the sun's rays strike the spider webs at considerable angles to their planes, thus heating the creatures from below or above.

LAVKUMAR KHACHER

A hornbill story

I read with great interest the origin of the name of the Society's building—from the pet hornbill kept alive for years at Messrs Phipsons.

Your readers might enjoy the following story about the Helmeted Hornbill of Malaysia. This bird utters a series of loud *toks* increasing in volume as well as speed and suddenly ending in a raucous note sounding like wild laughter. The Malays call it 'Kill your mother-in-law bird'. According to legend, the bird was, once upon a time, a youth who heartily disliked his mother-in-law. Once he was so exasperated that he chopped down the bamboo supports of her hut while she was inside it, and thus killed her.

The gods, in order to punish him for his misdeed, changed him into a helmeted hornbill, and condemned him to relive his criminal act for ever. Therefore, the bird recreates the sound of the axe striking the bamboo posts, ending in an outburst of maniacal glee when the hut came crashing down.

B. F. CHHAPGAR

HORNBILL

List of Donors

Dr B. Dasgupta, Bombay	Rs. 101
Mr H. K. Divekar, Bombay	Rs. 101
Dr Seaver A. Ballard, California	Rs. 56
Mr D. G. Patil, Bombay	Rs. 51

PRESIDENT'S LETTER

SPORT SHOOTING AND CONSERVATION

Persons who do not shoot wild animals for sport, or have never done so, tend to be axiomatic that shooting and conservation are a contradiction in terms. They feel cocksure that a total ban on shooting would automatically increase wildlife, and are loud in advocating their prescription. When considered dispassionately—without intrusion of sentimentality—this has been demonstrated by experience to be a fallacy. A distinction must of course be made between shooting for sport and shooting for the pot or otherwise killing for commercial purposes. The true sportsman is expected to, and usually does, strictly observe certain time-honoured ethics which include among other things the scrupulous observance of Close Seasons (when the animals are breeding) and the sparing of females and young animals in the Open Season. On the other hand the pot hunter and the poacher, kill an animal solely for the kilogrammes of meat it will yield. The commercial poacher has little regard for the age or sex of his quarry; he sits up over water-holes to murder the animals as they come to drink, or by the use of powerful headlights from a Jeep at night. Such a man is the greatest menace to our wildlife, and it is through *his* despicable activities and not through legitimate sport that wildlife has reached its present sorry plight, and even been completely wiped out from certain parts

of the country. It is recognized throughout the world that the presence of a legitimate sportsman in a wildlife area is the most effective deterrent to the poacher. It has also been found from our experience in India that the understaffed Forest Department is insufficient for providing the necessary watch and ward in the vast forest areas over which it is responsible for conserving the wildlife. Most poaching occurs during the Close Season when there are no *bona fide* sportsmen in the forest to restrain the poacher. The statutory Close Season thus becomes the *de facto* Open Season for the poacher who knows only too well that the forest guards are inadequate in strength, and sometimes also amenable to reasonable offers. And thus it is during the Close Seasons that most of the damage is done. In areas outside reserved forests the situation is worse. Wildlife there is a veritable orphan. These areas are outside the jurisdiction of the Forest Department and therefore even the exiguous restraint of the forest guards is absent. The poacher has a field day to himself and plies his trade throughout the year with virtual impunity, regardless of season. Thus small and feathered game such as hare, quail and partridge has all but vanished from non-forest areas.

A statutory ban on *all* shooting is certainly not the answer for the conservation of wildlife. It is only

the presence of the legitimate *bona fide* sportsman in the areas where such game still exists that can, to some extent, act as a restraint on illegal netting and trapping by professional tribes which does far more wholesale damage than the man with the gun. A blanket ban on all shooting which would mean the exclusion of the law-abiding sportsman from wildlife areas, seems singularly unwise in the absence of adequate official machinery to check poaching and enforce the other provisions of the Wildlife (Protection) Act. Moreover, the absence of any population statistics or periodical censuses of the various animal species makes it dubious to assume that a ban on legitimate shooting would by itself foster an increase in wildlife! Unless we can know the

number of animals present in an area at the time the ban is imposed, it will be impossible to get a reasonably correct idea at the end of, say, two years of whether the ban has achieved its purpose in any and what degree, or on the contrary has made the position worse.

Scientifically controlled shooting normally does no harm. On the contrary this sort of culling or 'game cropping', by removing from the population a number of individuals that would anyhow have died through natural causes, may even help to maintain the ecological balance. It is the professional commercial poacher that is the real culprit. His activities must be totally banned, and for all time.

SALIM ALI

The Flowers of Spring

On this issue's cover we have a photograph of the flowers of one of India's distinctive flowering trees, the 'Palas' or the Flame of the Forest. Its flowering marks the end of the cold weather in the Indian peninsula. The description given is extracted

from the Society's publication SOME BEAUTIFUL INDIAN TREES. A reprint of this book is now in press and copies will be available in about two months' time.

— EDS.

The Flame of the Forest

Butea monosperma

"This is the tree we consider the true 'Flame of the Forest'. In parts of the country where these trees abound, such as the forests of the Western Ghats and Central India, their massed crowns of bright orange flowers, seen in the glitter of the sunlight suggest the semblance

to a forest in flames. So brilliant, so vivid is their colouring!

"*Description.* — An erect tree growing from 20 to 40 ft in height, with a crooked trunk and irregular branches. Its bark is ash-colour and rough, though the younger portions of the tree are downy. The leaf is

trifoliate. It is composed or made up of three leaflets, leathery in texture.



“The flower-buds are blackish and appear on the bare branches in January, and from the end of that month to the end of March the trees announce the approach of the hot weather by bursting into a blaze of flaming orange flowers, presenting a gorgeous sight. When in flower, the tree is either entirely leafless or there are some leaves on the lower branches. The flowers co-



ver chiefly the upper part of the tree. Flowering continues, according to locality, up to the end of April. The time of flowering is greatly influenced by seasonal conditions. In dry seasons the flowers appear earlier than usual.

“*Popular beliefs.*—The tree is sacred to the Moon, and is said to have sprung from the feather of a falcon imbued with the Soma, the beverage of the gods. It is supposed to be thus imbued with the immortalizing Soma. It is much employed in the Hindu ceremonies connected with the blessing of calves to ensure them providing good milkers.



“The red flowers are offered to the gods, and in the spring festivals they serve to give a temporary yellow-dye to the clothes of their votaries. They are likened by the Buddhists to penitents dressed in red; and Amir Khusru, the Turko-man poet, likened them to a lion’s claws stained with blood.”

NOTES, NEWS AND COMMENTS

Checkmate

One among the sophisticated protective devices in the insect world is the repellent secretion of the Bombadier Beetle which it squirts from its abdomen at its enemies with an audible pop. But there is an answer to this strategy also. While the Giant Wood Spider gets it in the face and is nonplussed as it rudely rushes in and bites the Bombadier caught in its web, the Orb-weaving *Argiope* shows more finesse and gets its meal. It gently immobilises the Bombadier in a cocoon of web making it impossible for him to aim, and eats him at leisure.

— *New Scientist*, May 1976

Flatworms and Mosquito control

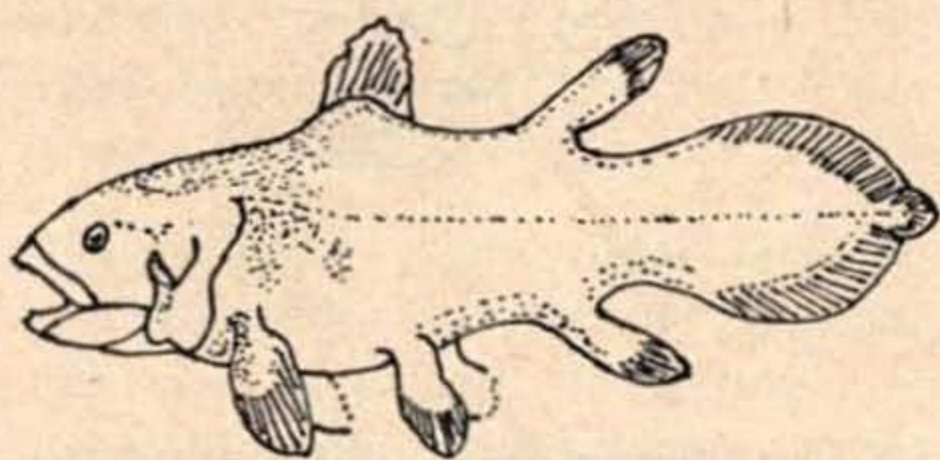
Flatworms have so far been of interest only to the student of zoology. They apparently have hidden virtues. Scientists at the Division of Biological Control in California have used them successfully in the control of mosquito and midge larvae and pupae. Introduced into rice fields they completely eliminated mosquito pupae, within a short time. The easily raised planarians or flatworms which reproduce asexually also provide a practical substitute for chemical pesticides.

— *New Scientist*, May 1976

Conservation and the Coelacanth

From the time of its discovery in 1938 *Latimeria*, the coelacanth which dramatically brought among the living a group of fishes which

had been thought to be extinct for hundreds of million years, has continued to be among one of the



Coelacanth—the living fossil prime objects of enquiry. Recent findings show that the coelacanth is ovoviviparous, that is, the young hatch within the mother. The eggs, each of the size of a large orange, take about a year or more to develop, making the species vulnerable throughout the year. Coelacanths have been invariably caught at night and if necessary night fishing could be banned. However, since 1952 records kept of the coelacanths caught show that the living coelacanth is probably in no more danger now than it has been since man first lowered a hook into the waters around the Comores.

— Adam Lockett in *New Scientist*, May 1976

Vanishing Forests

R. S. Mathur, assessing the reasons for the decline of forested areas in India, lists eight causes, namely grazing; fire; shifting cultivation; encroachment; illicit cutting; rights, concessions and free grants; mining and quarrying; and clear felling for irrigation projects, housing, etc. and agriculture.

Grazing pressure is enormous in most forests. In some sal forests in Uttar Pradesh the intensity of grazing is as high as 0.8 hectare per cow unit against the safe limit of 2-3 hectares per cow for better areas and 4-5 hectares per cow for poorer areas.

Clear felling is probably the major cause. The State of Kerala for instance is estimated to have lost in the three decades between 1940 and 1970, 25 per cent of its forest land to clear felling for agriculture, encroachment, land distribution, plantations and submergence under hydel and irrigation projects. The total forest area lost by the country between 1951 and 1973 through human interference is estimated to be slightly over 3,401,000 hectares.

— *Indian Forester* Vol. 102(10),
October 1976

Invading Alien

Eupatorium odoratum a native of South America now widespread in



Eupatorium odoratum—single plant

Eupatorium odoratum—stand: Photos: Samsun-Edward



SE. Asia is a serious pest in the moist-deciduous, semi-evergreen and evergreen forests of eastern India and the Western Ghats. Its colonisation is so insidious that in Kerala its local name has a political flavour, the weed being known as 'Communist green' in Congress strongholds, and 'Congress green' in Communist strongholds. The seeds are spread by wind and the weed grows in dense patches in sunlit areas, especially colonising clear-felled areas. Blessed with extraordinary regenerative powers, the weed even when slashed to the ground springs up with new shoots again like a many-headed hydra. Herbicides, particularly gramaxone in combination with 2, 4-D sodium salt is effective when sprayed at short intervals, but is prohibitively expensive. A fast growing cover crop with good foliage acts as a biological control by denying sunlight.

— S. N. Rai in *Indian Forester*
Vol. 102(7), July 1976

Lantana and the Lantana Lace Bug
Introduced into India about 1809 as an ornamental, the lantana had by the end of the Century become a serious pest. Three factors were responsible: absence of effective insect enemies, spread of the seed by fruit-eating birds, and overgrazing by cattle of the indigenous vegetation which is replaced by the lantana which is not eaten by cattle. Once lantana is established, other vegetation is excluded.



Lantana bush and Peacock Pansy butterfly. Photo: S. R. Nayak

The lantana lace bug *Teleonemia scrupulosa*, a natural enemy of the Lantana in Mexico was introduced on an experimental basis in 1941, but the initial stock was destroyed as there was the possibility of the bug becoming a pest of the Teak. However, escapes had occurred and the bug had established itself in the Dehra Dun Valley about 40 km from the point of escape. Since then the bug has spread from Kangra to Kumaon and experimental releases have been made in Bhopal, Hyderabad, Shillong and Bangalore. The effect of the bug, though it may completely defoliate bushes of lantana, is not sufficient to check the

spread of the weed. But repeated defoliation combined with the introduction of heavy foliated indigenous plants can break the stranglehold of the lantana. Biological control has thus to be through insects as well as plant competition to suppress the weed.

— Pratap Singh in *Indian Forester*
Vol. 102(7), July 1976

Bird calls record

The Society is considering the possibility of bringing out a sound record of the calls of Indian birds, if sufficient material is forthcoming. Members who have with them tape-recorded calls of Indian birds are requested to contact the Honorary Secretary.

Salim Ali Nature Conservation Fund (SANCF)

At a time when many urgent conservation programmes have to be shelved owing to the lack of necessary funds, Dr. Salim Ali's recent gesture has come as a shot in the arm to the Bombay Natural History Society.

In keeping with his dedication to the cause of Nature Conservation in India, he has handed over a sum of Rs. 3,50,000/- from his recent Getty Prize to the Society. Using this amount as the corpus, the Society has established a fund named SALIM ALI NATURE CONSERVATION FUND. "The object of the fund shall be to promote Nature Conservation in the Indian subcontinent. This

includes the preservation and management of all forms of wildlife together with the natural habitats, i.e. the total environment, for its scientific, cultural, recreational, educative, aesthetic and economic values. Conservation shall be undertaken in any and every way considered worthwhile by the Society—such as by assisting financially or otherwise any schemes for conservation already in operation, by instituting and financing new schemes, by engaging researchers to carry out specific schemes bearing on conservation problems, by research grants to university students (or private individuals/persons) and others for specific investigations, by educating the public in the value and imperative need for nature conservation through the publication of literature, films and other mass communication media—in fact any means whatever that are likely to promote conservation directly or indirectly."

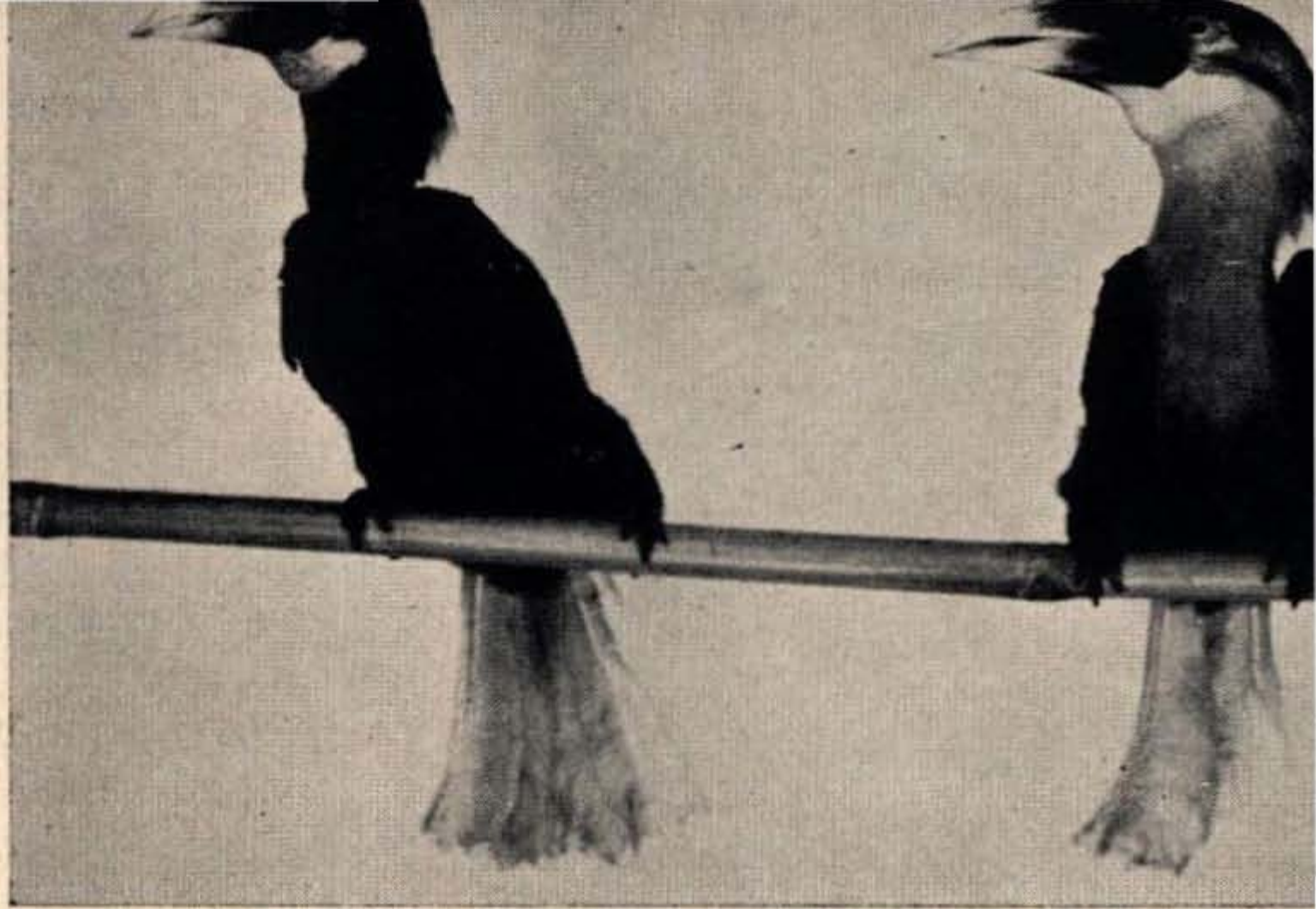
A sub-committee comprising of three members of the Society will advise the Executive Committee of the Society on all matters concerning the fund. Further donations to the fund, applications for research grants and project proposals should be sent to the Honorary Secretary.

The hornbills' dilemma

The time was opportune. The male was master of the roost. We thought the stage was set for the first ever record of the breeding of the Narcondam hornbills in captivity. It now appears that all is not well. Within a few days of the release of

*Narcondam
Hornbills,
female on left.*

*Photo:
S. A. Hussain*



*"I never yet beheld that special face
which I could fancy more than any other"*

— Taming of the Shrew

the inaugural issue of this newsletter the female showed great interest in the hollow tree-trunk that had been placed in the cage. Normally, it was the male's duty to take over from there on, according to hornbill custom. No such thing happened.

One fine morning the female was at his throat and the poor male had to be rescued. To avoid further damage, the female was removed and kept in the Society's hall adjoining the cage to allow the male to nurse his injured pride and re-establish his territorial dominance. But the female could not be consoled. She flew around the hall, complaining vociferously whenever one went in to feed her, tugged at curtains, tore the brown paper stuck to the window panes, and hammered away at the glass through which

she could see the male in the cage, happily oblivious of her tantrums. After what appeared to be a sufficient time for the male to smoothen his ruffled ego, the female was put back into the cage. This time the terrified male scrambled for the exit.

Advice and offers of help poured in. The demoralised male was fed pep food—protein, vitamins and choice fruits. It was suspected he had his wires crossed, and had thus failed to respond to the female's advances.

However, it now appears that it may be the female that has got her sex life mixed up! According to Dr. A. C. Kemp, the hornbill expert from Transvaal Museum, South Africa, the reason for the female's aggressiveness may be due to her

being imprinted on humans, and she regards the male as a threat to her pair bond. Facts seem to fit. It is now clear why the female tries to draw a particular person's attention to the nest hole and attempts to chase the male away! The remedy? It may be too late this year, but Dr. Kemp feels that the female's thinking can be rechanneled. We hope to have better luck next year.

Hornbill stickers

The Society has now brought out coloured stickers of two kinds—one which could be pasted on an

opaque surface, and the other on glass. The sticker depicts William, the hornbill—the Society's crest—in natural colours, on an orange background. The stickers are 10 cm in diameter, with the words BOMBAY NATURAL HISTORY SOCIETY inscribed under the crest, and are priced Re. 1/- each. The purpose is to advertise the Society and its activities. Members and friends are requested to display them prominently to attract the attention of the public. They could be purchased from the Society's office in Bombay.

With Best Compliments from

**MORARJI DORMAN SMITH
PRIVATE LIMITED**

**(Manufacturers of LOADSTER Miniature
Circuit Breakers & Distribution Boards)**

**Prospect Chambers, 317/21 Dr. D. N. Road,
Fort, Bombay-400 001.**

Low budget trekking in the Himalayas

The Himalayas remain one of the last wilderness areas of the world and many feel drawn to their magnificence. Trekking in the Himalayas is one of the most pleasant ways of spending a holiday. If you have a real liking for trekking you should obtain (from friends, or libraries, or clubs) books on the Himalayas and read them. You will soon find yourself involved in complementary hobbies like birdwatching, botany, etc. In a short time you develop the ability to recognize many trees, flowers, rocks, and different species of birds. If you are in Bombay, membership of a climbers' club and the BNHS helps. You will not only meet people with similar interest but get guidance and help from them.

There are some basic necessities for Himalayan trekking, and the most important ones are Fitness and Health. The Himalayas are not the place for a person with high or low blood pressure or any ailment of the heart. You may have walked 10 miles on level ground but it is imperative that you should have done a dozen trips where you have climbed (in a stretch of about 5 miles) from sea level to two or three thousand feet. The Western Ghats are a good practice ground. If you are not excessively out of breath or tired, you are fit to undertake a Himalayan trek. In a Himalayan trek, altitude (after 7000 ft) may tell upon you; you may feel out of breath, giddy or have a severe head-

ache (altitude sickness), but with a little experience and acclimatisation it can be easily overcome. Generally one gets altitude sickness if after coming from the plains (sea level) one suddenly climbs from 6,000 to 12,000 ft. Here too if your maximum speed is two miles or less, the chances of getting sick are less. One very essential condition is that you should enjoy your climb, and photography, birdwatching; collecting leaves and flowers are very powerful instruments for forgetting fatigue.

Quite a number of young people have often asked me of places in the Himalayas which they could trek to in a ten day period. My invariable reply has been 'don't go'. The Himalayas are not the place to carry one's city hurry along.

From Bombay it takes three days to reach the point from where you begin a trek; three days to return. So you must allow for the Himalayas at least a minimum period of 15 days. I believe 22 to 24 days is the minimum, because you must allow for some upsets in the schedule owing to unexpected factors like rain, landslides, accidents, porter troubles, etc. It is wise to err on the safe side and plan to walk 9 to 10 miles a day and no more. For in that case you are not overdoing a good thing in a fit of enthusiasm.

Many regions have peculiar climatic conditions and one must



Pindari Glacier: 4 days trek from Kupkot bus terminus—a day's bus ride from Kathgodam

Photo: S. R. Shah

choose a time which is favourable. Ordinarily May and October are the best months. In May you get flowers, but mist and haze dim the distant panorama for photography. In October you do not get flowers, but clear skies and clear views for photography. Fresh milk in some villages is an added attraction! Much of the trekking is restricted by the time taken by the passes to 'open', e.g. Rohtang opens at the end of May; Kunjumla in July; Pisurghati and Mahagunas at the end of June. Spiti is good from July to September. Valley of Flowers is good only between 15th July and 30th July. You cannot go to the Sandakphu,

Phalut in the Darjeeling Himalayas or to Sikkim in July because of heavy rains. Generally as you go west from Darjeeling the rain gets lesser and lesser. To the north as well as to the east of Wangtu on the Sutlej and Kilar on the Chandra-bhaga is the region of the rain shadow, and here July to September are good months.

I did not go to the Himalayas from 1948 to 1956 because I thought a trek there was beyond my means. But by doing things ourselves, we found to our surprise that 62 days in Kashmir cost us, a family of three, a total of Rs. 1230/- with treks to Alpathar, Kolahoi, Amar-



Manaslu near Bhimtakothi, 10 marches from Pokhara

Photo: S. R. Shah

nath, Thajewas, Tulian Lake, Choras Lake, etc. We did our own chores, and cooked our food and *never stayed or ate in a hotel*. Once we did a trek engaging three porters. The same trek was done by another party of three with 22 porters, 1 sirdar, 1 cook, and a bearer. They had a tent each and a mess tent. This is mentioned merely to show that a month's trek can cost Rs. 500 per head or Rs. 5000 per head, depending upon what luxuries you call necessities. A trip covering 36 days from Bombay to the Himalayas and back should not cost you (including second class train and bus fare) more than Rs. 500 per head. If you take equipment like a tent, air mattresses, sleeping bags, add hire charges and washing charges. We generally take everything from Bombay.

Milk powder, tea, sugar, kerosene, foodgrains, and other provisions which go towards reducing the cost. If you try you can even do it for an amount less than Rs. 500. Trekking need not be a costly hobby, if you can rough it out a bit.

There are quite a number of known treks, you can select from according to the time at your disposal. In the beginning a number of short treks are recommended before one goes in for a long trek. In a short trek you are back to civilization in five or six days. For example in Kashmir with Pahalgam as base one can go on an one-day trek to Tulian Lake, one-day trek to Choras Lake, five-day trek to Kolahoi, or a five-day trek to Amarnath. Similarly there are a number of one-day as well as 5-day treks

with Gulmarg or Sonmarg as bases. In Himachal Pradesh Dharmashala to Truind is one of the best one-day treks, and Arsu (bus terminus near Rampur Bushahr) to Kulu is one of the best 6-day treks. Karchham to Chitkul is also one of the best five-day treks. The 5 to 6-day trek to Pindari Glacier is well known.

On long treks tents may be required or not. From Kathmandu to Thyangboche and south to Jayanagar (total 360 miles) you can do without a tent for you can find lodging in village huts. Muktinath from Bhairava or Pokhara is the most beautiful trek one can do, and many have done it without a tent.

For trekking in restricted areas permission from the district magistrate is needed and generally given, but permission for photography is often difficult to get if not impossible.

Nowadays the greatest difficulty is availability of porters. If one has ample funds and can pay train and bus fare both ways and for wages at Rs. 15 a day he can get porters from the Sherpa Association in Darjeeling—but this is not economic to persons like me whose budget is around Rs. 500. With difficulty you can get porters at known places at about Rs. 15 a day, but they do not carry more than 20 kilos. Generally the porters are reliable—Nepali ones are good. You do not have to carry a tent for the porters. They sleep anywhere in the open up to 14- or 15,000 feet, but it is good to

keep a big plastic sheet. It will cover him in rain and your baggage also. In a trek, porter expenses are the costliest item. However, in selecting porters some care should be exercised and one should assure that he is not old, weak or with defects in lungs—which can be guessed if he coughs too often—and that he has a pair of shoes. Some porters do have certificates from expedition people. Two porters are sufficient to carry baggage for a party of three on a 20 to 25-day trek.

Food is a very important item and one should aim at eating as well as one does at home. We are vegetarians and take everything from Bombay. The list is given as an indication for a family of three. Pressure cooker with three vessels, 3 small stainless steel *thalis* (stainless, because it is easier to clean), mugs, tongs, frying pan, milk powder, tea, coffee, rice, pulses, wheat flour in three or four grades of fineness, Indian wheat macroni, small oil tin, small ghee container, tender green coriander and *methi* leaves dried in shade, sugar, jaggery (coarse sugar), citric acid, all masalas, kerosene in a jerry can, matchboxes, etc. On many of the treks after leaving the bus terminus, you may see a village but will not find a shop where you can buy even a matchbox. For non-vegetarians the position is better. Very often one can get eggs, chickens, etc. When you plan a trek of which you know the duration, take the quantity accordingly. Medicines including first aid are necessities.



*Phoksumdo Lake—still pristine and unpolluted—10 days trek from Jumla, Nepal
Photo: S. R. Shah*

A water bottle, a torch, Bata hunter or golf shoes are other basic needs. When you buy shoes take one size larger because you will require two pairs of woollen socks when you have to walk a couple of miles in the snow. I prefer Bata golf shoes. Clothes in all, two woollen pants, two vests, 2 shirts and 2 sweaters and a couple of cotton pyjama suits. Sleeping bags are not essential. Eider down sleeping bags are good. The Delhi chicken-feather filled sleeping bags stink after six days of use and cost a fortune (Rs. 500). Razais or quilts are better. Even good woollen rugs will do.

A light plastic rain coat is also a must.

Quarter inch, half inch or one inch Survey of India maps help considerably in planning your trek, but being restricted they are not available in the market. In Bombay and some other cities there are several mountaineering and trekking clubs. Become a member of one of the clubs. You will meet many trekking friends and it will not be difficult to borrow a map for a couple of hours just to have a look and plan your trek.

S. R. SHAH

PALLONJI HIRJEE & CO.

Gilder Lane, Lamington Road
Bombay 400 008
Telephone: 374168

REPRESENTING QUALITY AERATED WATERS

PERSONALIA

Talks at the Society

On 13th November 1976, The Hon'ble Mr. Solomon Ole Saibull, Minister of Natural Resources and Tourism in the Tanzanian Government, spoke on aspect of conservation in his country.

The Honourable Minister who had worked as a forester before entering politics, is an ardent conservationist who has made a detailed study of conservation problems. As such, his remarks were of great interest.

Though wildlife tourism accounts for a large share of Tanzania's revenue, Mr. Saibull was of the opinion that conservation, not tourism, must be our primary object. Tourism must be carefully regulated and controlled so that there should be no ecological disturbance to the life of a sanctuary. This is far more necessary for what he described as our 'fragile' sanctuaries, covering a few square miles and supporting small numbers of animals, than for those in East Africa which are several thousands of acres in extent with many thousand heads of the constituent species.

On the role of the hunter and shikari in conservation and the proposals to engage them as honorary game wardens, Mr. Saibull was uncertain. In colonial times, licences were restricted to an elite, known to the authorities personally, who could be relied upon to behave with responsibility. In a democracy, however, there is no room for an elite.

Any citizen can claim and obtain a licence so long as he remains within the law. Such people, either through ignorance, or through deliberate intent misuse their position and may do incalculable harm before their activities can be stopped. The question of hunting licences and of honorary game wardens must therefore be considered very carefully and in relation to circumstances existing in each area.

* * *

On 27th January, 1977, Dr. B. K. Follet, Professor of Zoology, University of Wales, spoke on 'Biological clocks and seasonal breeding cycles in animals'.

Dr. Follet discussed how animals use environmental information to tell them of the impending arrival of the breeding season, in particular how birds measure day length using their biological clocks. This information is then used by the brain to stimulate the flow of reproductive hormones from the pituitary gland and so lead to full gonadal activity. Man is exceptional and has succeeded in having many of his domestic stock breed at all times of the year. Most animals and plants reproduce seasonally which provides maximum chance of survival for the young, as well as for the parents.

* * *

On 1st February, 1977, Prof. Dr. Ferdinand Starmuehlner of the Zoological Institute, University of Vienna, whose main interest is Hydrobiology, spoke on a study so-

jour in the Andamans which form a transition zone between the Indian and the Pacific oceans. Isolated islands like the Andamans, Sri Lanka, Madagascar, Seychelles, Comoro and Mauritius have preserved the primitive forms in their undisturbed virgin forests and mountain areas, and according to the speaker form a laboratory of nature for zoologists to study the evolution of animal species. In his talk, illustrated by slides made in the areas studied by him, he compared the freshwater animal forms dwelling in the very cold streams of alpine mountain regions of Europe with those inhabiting biotopes in tropical habitats.

* * *

On 4th February, 1977, Mr. Ronald Sauey spoke on 'International Crane Foundation, Wisconsin, USA'.

The Foundation was apparently organized in the USA in 1973 to focus attention on the crane family and to sponsor and coordinate efforts to conserve the existing populations of these birds. The Foundation's master plan has five objectives focussed on checking the decline of each endangered species: (1) Research; (2) Habitat protection; (3) Captive propagation; (4) Restocking; and (5) Public education.

For a review of his talk, held on the terrace of Hornbill House, overlooking Bombay Harbour, see Craniac below.

Craniac

The late evening sky golden with a full moon rising over the masts and sails in the harbour seemed an appropriate backdrop for the young man earnestly reproducing the unison call of the Siberian cranes. A chart on the illuminated screen further explained the process which begins with a kind of whine from the wale and ends in a melodic *too-toot, too-toot* in alto and bass, sounding, according to the craniac, like clarionets in harmony.

He defined it himself—a person who is a crane enthusiast. As a craniac he goes all the way. From his doctoral work, which is on the Siberian crane, to the launching of the International Crane Foundation, which he has set up with a fellow enthusiast. The I.C.F. works on research, habitat protection, captive reproduction and arousing public interest—in cranes. The involvement is complete.

While cranes adapt to captivity in most respects they do not readily breed; patterns of behaviour take unexpected turns. An I.C.F. Japanese crane, for instance, developed a deep affection for one of the research workers and looked upon him as a suitable mate. Since the cause is put above everything else, the solution was typical of the ingenuity of the craniac. He responded to her advances with an ardour equal to a male crane's, complete with trumpeting and dancing; artificial insemination climaxed the ritual. In this fashion the I.C.F. has



Sarus Crane at Bharatpur Sanctuary, the haunt of the Craniac
Photo: E. P. Gee

successfully achieved reproduction in captivity.

The humour of the situation came out well in the narration; one also admired the total immersion and commitment to the cause. The I.C.F. is working on the whooping crane

of North America, a fast vanishing bird—only 42 birds were registered in the 1960 census. Its nesting areas in Western Alberta, its migratory route and wintering grounds in the coastal marshes of Texas are closely watched and protected.

The protection of endangered species has taken him to Korea where a crane sanctuary has been set up appropriately at the foot of a mountain called *The-cranes-live-here-forever*. The cause has brought him to Bharatpur, now the only winter home of the Siberian cranes.

In an interesting project under way in Iran, the wintering place of the common crane, the I.C.F. is marking birds in order to establish their breeding grounds in Russia. This will be followed by the placing of eggs of the Siberian crane in the nests of the common. When the adult common crane migrates to Iran in the winter it will be accom-

panied by a Siberian foster child. In this way the Siberian crane will find a new migratory route to fresh wintering grounds.

Right from the slide of the three-toed footprint of the crane—a feature that distinguishes it from other long-legged, long-necked, long-billed birds—through its territorial, courtship and nesting habits, to the I.C.F. in Wisconsin, he talked of nothing but cranes. And carried his audience totally with him. You guessed right: at the end of the evening he was not the sole craniac in our midst.

NEELA D'SOUZA

(*Courtesy: The Times of India*)



SHOP

Tent

A 2-men, Indian-made, very sparingly used, tent is available for sale with Ashvin Mehta (9, Pushpa Griha, Khar-Pali Road, 16th Road, Bombay 400 050: Phone: 451777). The details are: Waterproof Nylon with sewn in rubber groundsheet, Cotton inner lining with pockets, Water-proof Nylon fly-sheet, separate compartment for luggage, entrance from both the sides, light

telescoping aluminium poles, total weight 16 kg in a separate compact kit bag; Rs. 1,800/-.

Fishing Reel

Finest quality MARK IV Japanese open face spinning reel—smooth drag; chromium carbide line roller guide; all parts treated corrosion resistant. Unused. Price Rs. 250/-. Contact the Curator, Bombay Natural History Society.

Fish and Biological Control

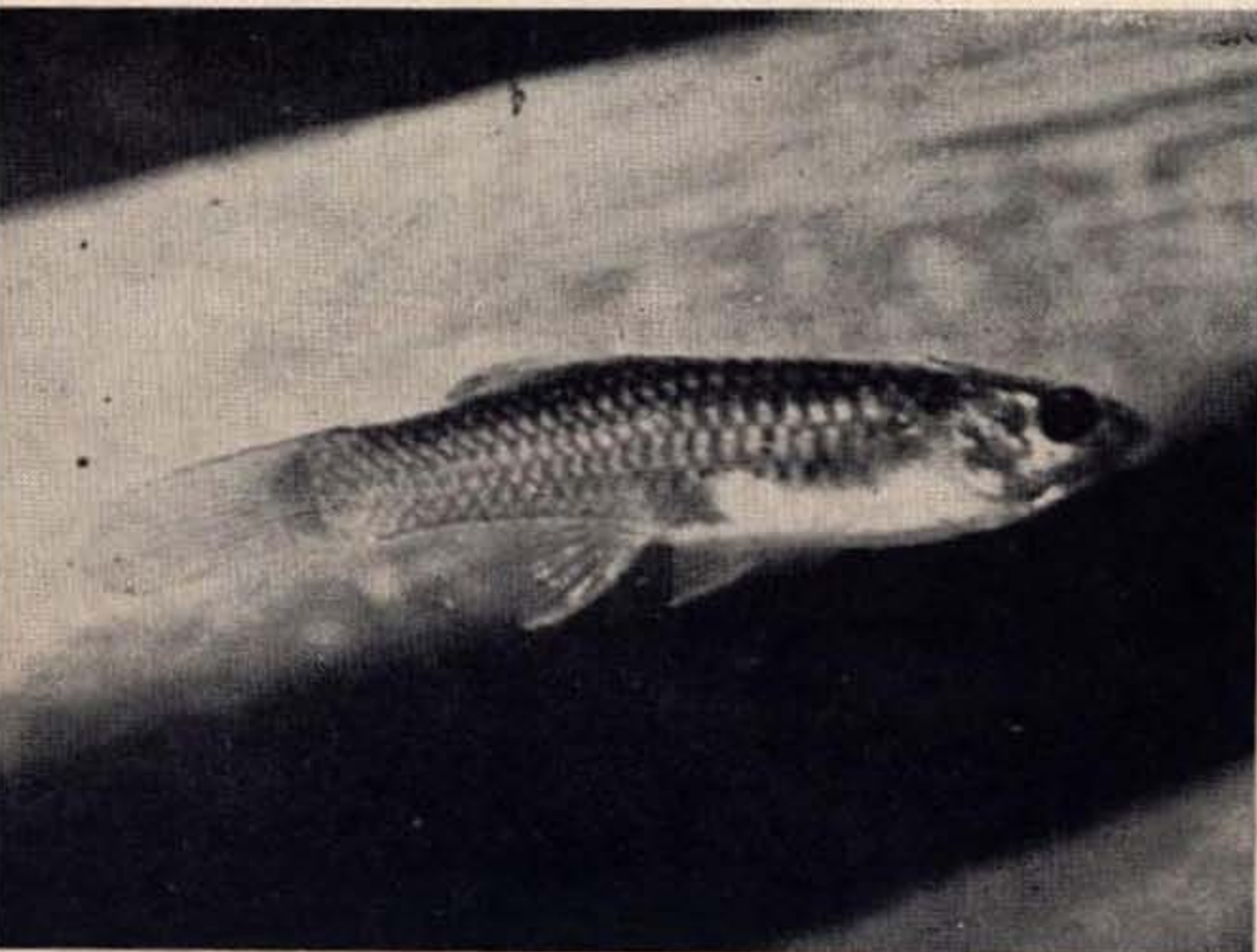
Very few realise the importance of some of the minor inconspicuous fishes in maintaining public health. These are the small and ordinary looking fishes which feed on the larvae of mosquitoes, and the cyclops or water fleas in natural waters. The larvicidal fishes have a natural liking or preference for mosquito larvae which are a constant nuisance to human beings, and some of which carry the parasites which give man malaria and filaria. The cyclops are intermediate hosts for guinea-worm, a dreaded parasite of warm climates. These small fishes feed on larvae of these parasites and thereby act as natural control of mosquitoes and cyclops.

The commonest among these beneficial fishes is the Gambusia (*Gambusia affinis*) introduced into many of the municipal tanks of most cities in India. It is an exotic fish, imported into India from Central America in the early twenties of this century, specially for the

purpose of controlling the incidence of mosquitoes. Females are larger and normally about two inches in length. Males are thinner and shorter and decorated with colourful spots. A surface feeder with upturned jaws, it is quite an effective larvicidal fish which has a special preference for mosquito larvae in stagnant waters.

Another similar but smaller fish of the same family, and hailing from the same region as the Gambusia is the common Guppy, *Lebistes reticulatus*. Aquarists know this fish very well for the colourful males and the different races of exuberant colour patterns evolved by selective breeding. In this case too, the females are comparatively large, dull coloured and almost unwanted by aquarists, but the fish is most helpful to man, and because of its special affinity for mosquito larvae, it is known in some quarters as 'mosquito fish'.

Among the Indian species a Top



Gambusia

Photo: S. R. Sane

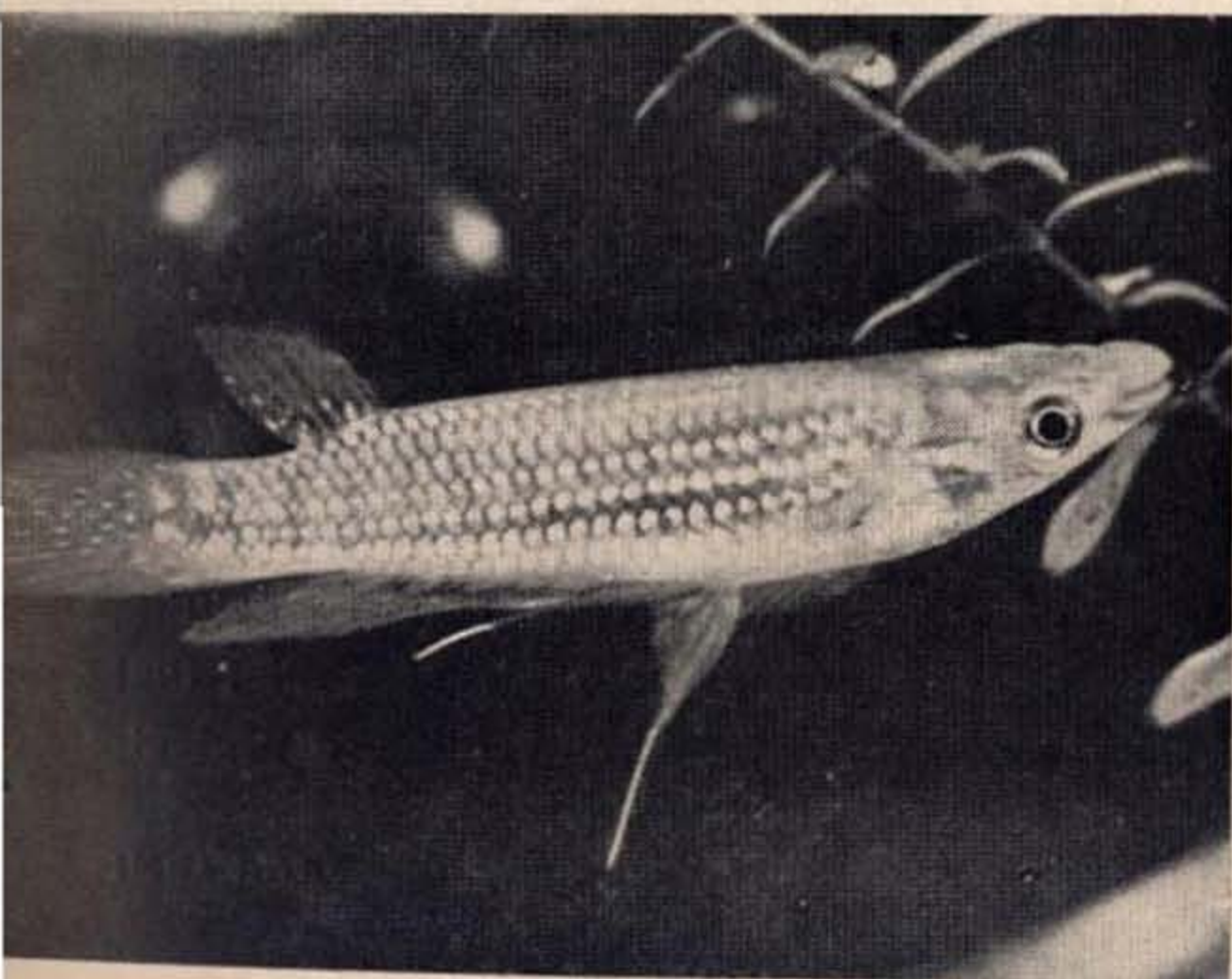
Common Guppy
Photo: S. R. Sane



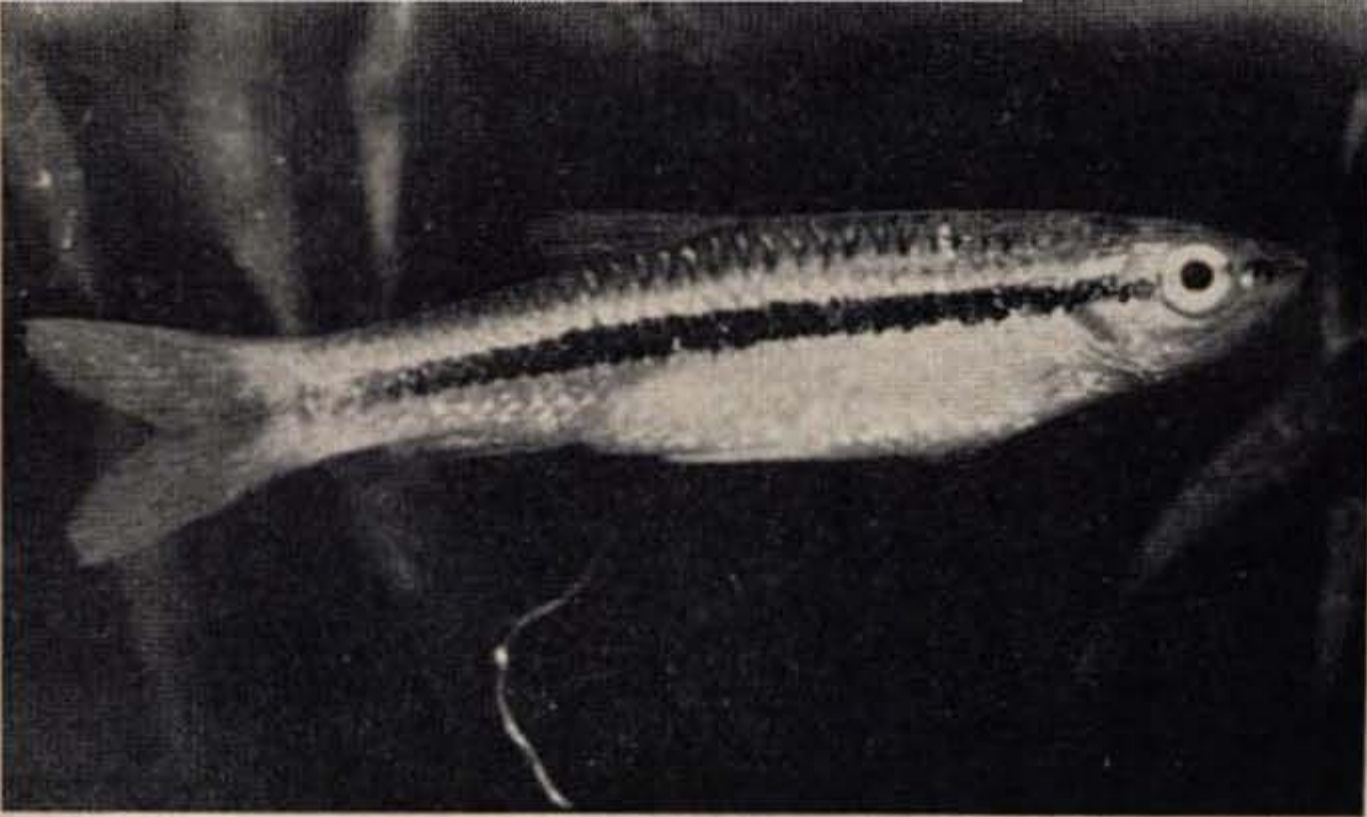
Minnow known locally (Bombay) as *piku* and scientifically as *Aploncheilus lineatus* is quite an effective larva feeder. Its cousins *A. panchax* and *A. blochii* also are very useful destroyers of mosquito larvae. They too frequent shallow waters where hordes of mosquito larvae thrive. *A. lineatus*, especially the male, is also a colourful aquarium fish with its spots and stripes. Its ability to stand both fresh as well as brackish waters makes it remarkably effective in coastal areas. Being a surface water fish it can tolerate a certain amount of pollution also, but

its slow breeding rate is a handicap. The number of eggs produced each time is comparatively small and they are attached to weeds with the help of a long process and take almost a week to hatch. However, if these are bred in large numbers and released in shallow waters they would certainly be of considerable benefit.

Another common Indian fish, which is quite useful is *Rasbora daniconius* Ham., locally known as *dandavan*. This is a 4-inch long fish and rather insignificant as food; but being a larvicidal fish, its value is



Lineated Minnow
Photo: S. R. Sane

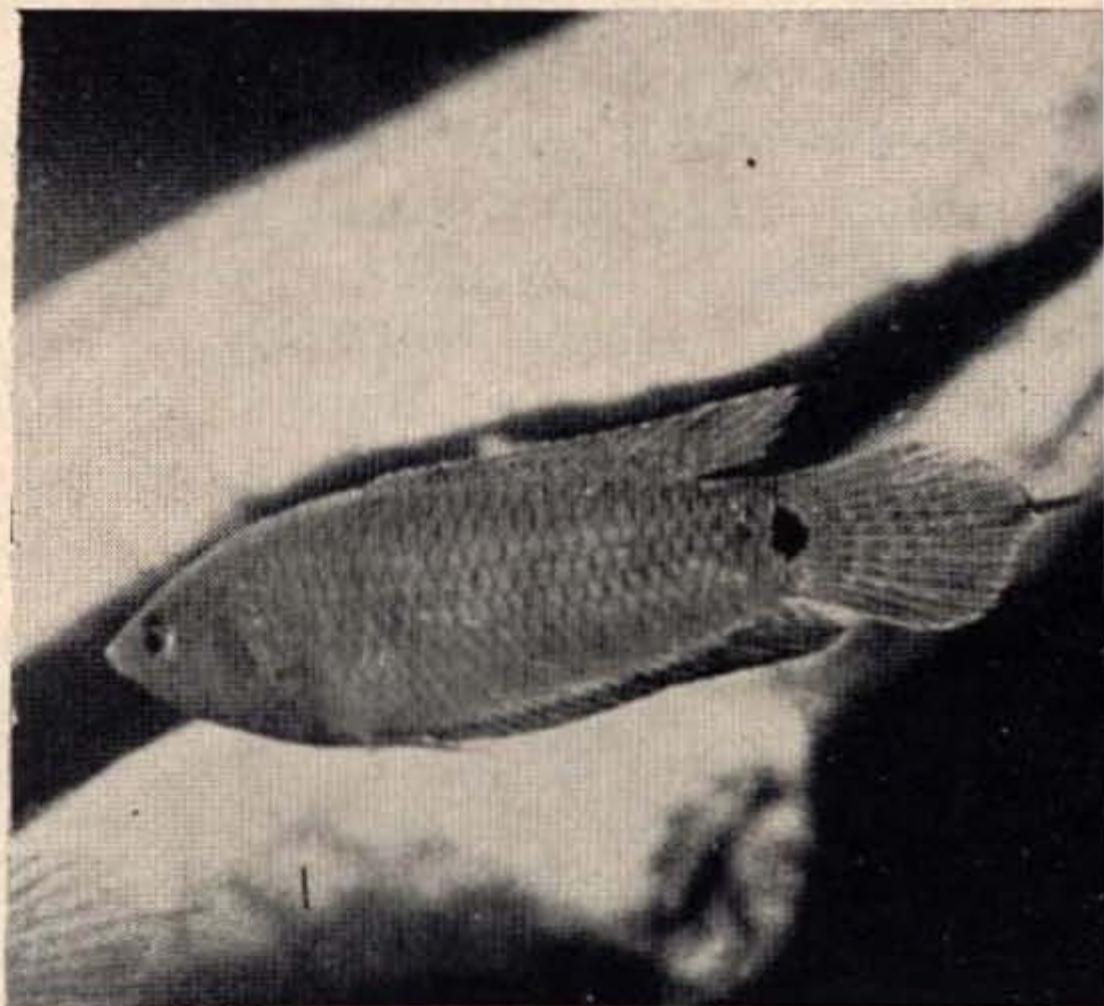


Rasbora
Photo: S. R. Sane

considerable. They feed on cyclops, a small water flea which is an intermediate host of the guinea-worm. Infection by the guinea-worm can be effectively avoided if the cyclops which carry one intermediate stage in the life history of the worm are destroyed by the fish. All fishes do not feed on cyclops, but some like the *Rasbora* do so. The glass fish, *Ambassis nama* or *Chanda nama* is also a great destroyer of cyclops. This fish is known as *chandava* in Marathi, and is usually found in the marginal areas of rivers. In fact in view of its special capacity to destroy mosquito larvae as well as cyclops the fish should be protected as far as possible.

Other fish namely, *Polyacanthus cupanus* and *Anabas testudineus* which feed on mosquito larvae and cyclops and *Horaichthys setnai* which feeds on the early instars of mosquito larvae were once common in the waters of the Bombay suburban districts, but unfortunately they are becoming very rare. These

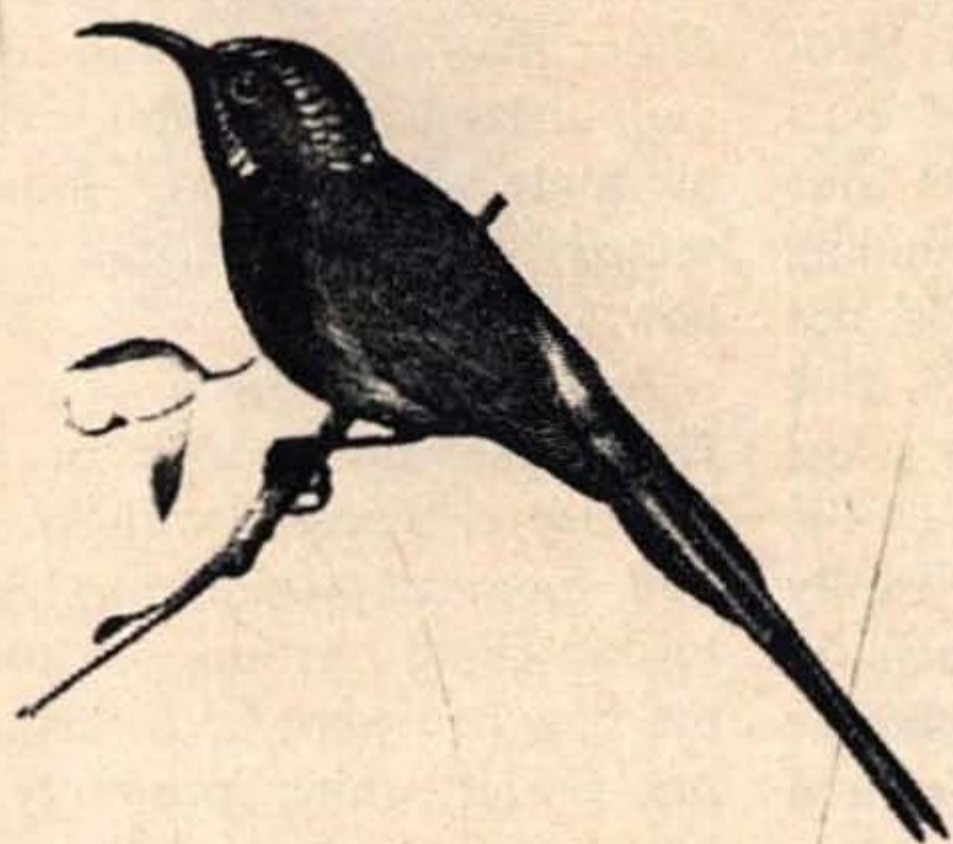
small fishes though absolutely insignificant as food, do a silent but effective service to man and offer an alternative to dangerous chemi-



Polyacanthus cupanus Photo: S. R. Sane

cal control of disease-transmitting pests. It is, therefore, essential that these small, dainty fish are protected as far as possible.

C V. KULKARNI



*Fieldguide
to the Birds of the
Eastern Himalayas*

SALIM ALI

The fieldguide illustrates about 350 birds in colour and 25 in black-and-white. It thus covers nearly all species which an average bird-watcher in Sikkim, Bhutan, Nepal and the eastern Himalayan region in India is likely to encounter. The coloured illustrations are accompanied by concise descriptions of the habitat of birds, the altitudes at which they are met, and other points about their habits, food, nesting, etc.

Ready shortly

270 pages with 37 colour plates
& 25 line drawings. About Rs 75

OXFORD UNIVERSITY PRESS

Bombay Delhi Calcutta Madras



BIRDWATCHER

Of bird calls and other sounds

One of the less understood and confusing aspects of amateur birdwatching is the intricacy of bird calls. The oft heard Iora has four or five different call notes sounding like four or five different birds, not necessarily of the same species. Just as one draws attention to the sweet richness of the four-note call of the elusive Spotted Babbler to a raptly attentive group of birdwatchers in flies the Iora and with it a barrage of embarrassing questions from a disillusioned audience.

A colleague thinks he has a solution for such emergencies. 'Next time you are out', he advised, 'pretend not to have heard the call to begin with. Talk rapidly the possibility of a certain species being seen usually around, by which time either the bird would have flown or the inquirer's attention would have shifted elsewhere. Better still, blame it on the impish mimicry of the much maligned Racket-tailed Drongo.' Let their tribe increase! The Fantailed Flycatcher's call resembles the summer love song of the Magpie Robin. Well, almost. Once a fellow birdwatcher spent a better part of his morning's outing looking for what he presumed to be an agitated monkey calling in a lantana bush, which ultimately turned out to be a rather alarmed female Grey Junglefowl (alarmed female *Red* Junglefowl, for your information, cackles like its domestic cousin). Imagination plays tricks sometimes when one is out alone

birdwatching. The soft, throaty plaintive mewling of a lost kitten, oftner than not, turns out to be the male Malabar Trogon calling to his mate whose answer sounds like muted whirr of a quilt maker's bow.

A colleague from the distant Himalayas has a trick or two up his sleeve. Faced with occasional dull moments while out leading a birdwatching group, he toots out the cow-bell hoot of a distant Pygmy Owlet which promptly brings up an angry bevy of three species of tits, two species of nuthatches, four species of flycatchers, white-eyes, minivets and an assortment of babblers. If ever one hears the cacophony of the lower primary third graders while out birding in the sub-Himalayan wilderness one has to bear with the riotous revelry of the irrepressible Whitecapped Laughing Thrushes.

A recent addition to the birdwatcher's kit is the portable tape-recorder. This writer once in search of owls played a pre-recorded high-frequency caterwauling call of the Spotted Owlet while sipping tea on the lawns of a forest bungalow. In flew half a dozen intrigued Spotted Owlets, whizzing past our ears, while pandemonium reigned over the tea table.

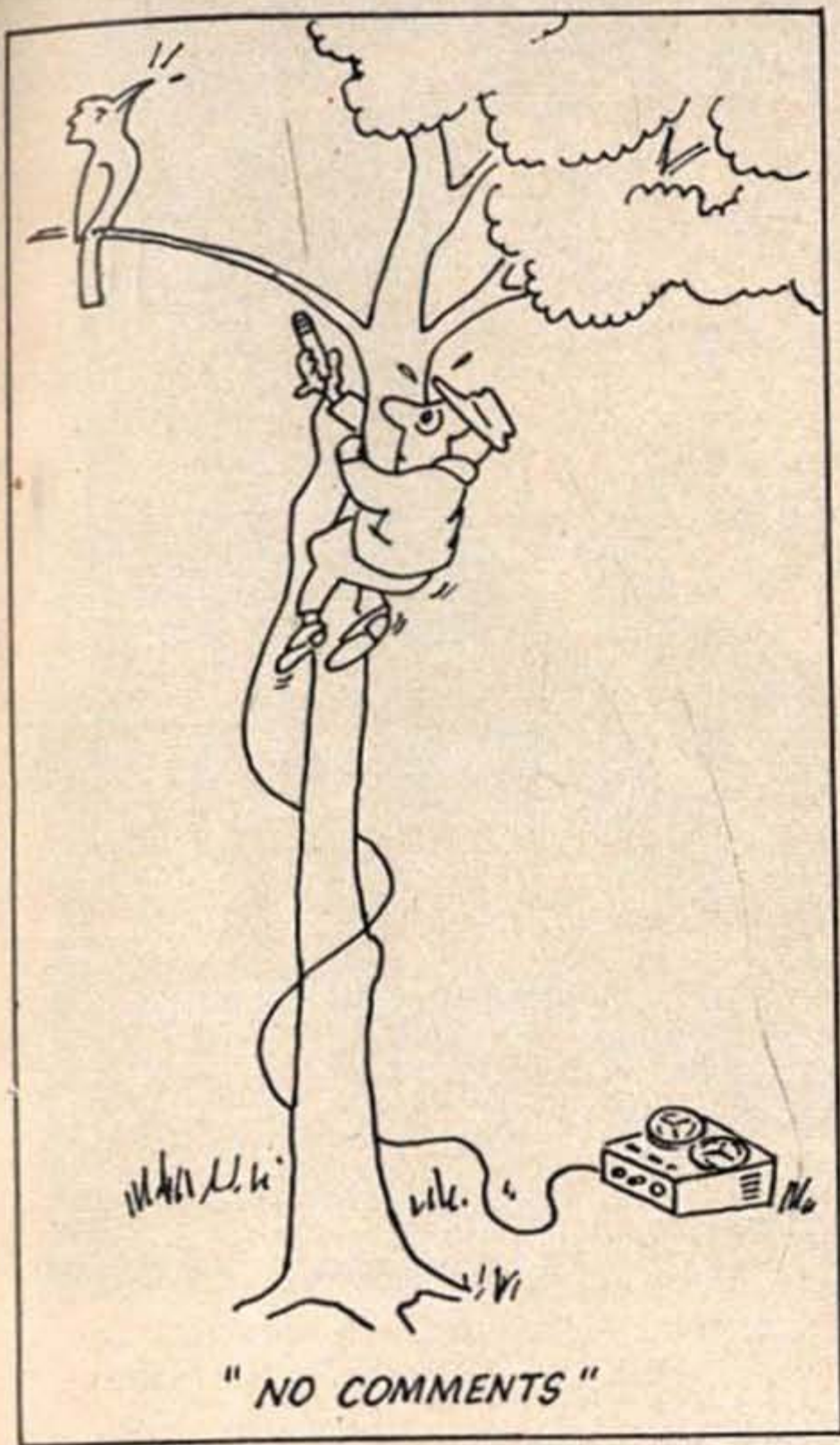
By far the most amusing thing happened recently to a colleague and a good friend. Huddled over a warm fire one cold evening at a remote Himalayan outpost, he whipped out his taperecorder to regale

Masked Booby

A waif which arrived at the Society's Offices in the latter half of 1975 was a Masked Booby or Gannet. The bird was spotted perching on a lonely rock on the eastern sea front of Elephanta Island, a tourist spot off Bombay Harbour. A common sea bird off the Mekran coast, the Booby breeds along the islands off Somali coast. The bird was later housed at Bombay's Zoo.

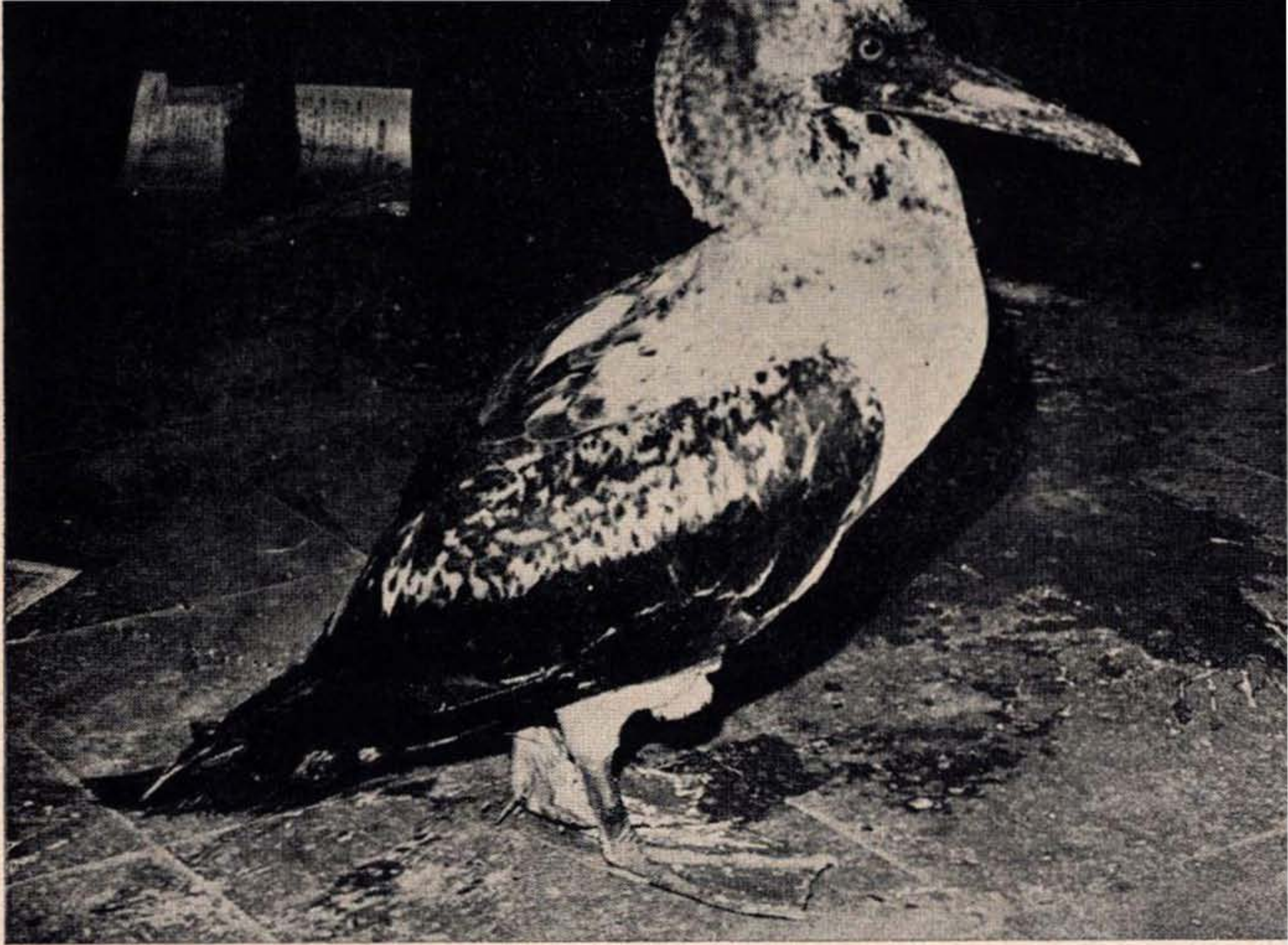
There are very few records of Masked Boobies along our western sea board. Caught in the fury of the monsoon gales, they occasionally get themselves blown off to odd places, where they normally would not be.

Keeping the onlookers at Hornbill House at a respectable distance with its beady stare the bird took to its strange new environs calmly. No one knows how it found itself at Elephanta Island as its flight feathers had been clipped. Did a passing liner jettison a stowaway from the mid ocean? Perhaps the bird had settled on a passing ship as all exhausted birds at sea do, and some one among the ship's personnel had captured and adopted it as a pet. Whatever may be the reason, this individual was perhaps more fortunate than its predecessor which visited the area ten years ago. We quote a note appearing in the *Journal* of the Society earlier: "Following up newspaper reports in July 1957 about a "radio active" bird having been obtained at Nasik, about 70 miles inland and north-



us with his recordings of various bird calls from deep south, all except one call, which he said, he had been unable to identify for quite some time. After a long and spirited discussion one among us meekly said that the call sounded rather like a thin stream of water falling over dry sand. Apparently, the worthy colleague in his zeal to record the distant call of an elusive Scops Owl, had rushed out from a remote forest rest house one late, dark night, only to find the owl unresponsive for a length of time, and oblivious of the active recording machine, had answered a rather urgent call of Nature!

'Nutcracker'



Masked Booby

east of Bombay, we have received from the Ferguson College, Poona, the head and legs of a Red Sea Masked Gannet (*Sula dactylatra*). Though we have been unable to obtain any further information regarding the "radio activity", the occurrence so far inland of this purely pelagic bird is worth noting."

Truant 'Schoolboy'

A bird whose movements are affected sometimes by the rains, though not necessarily by storms, is the Malabar Whistling Thrush. Confined to the cool, moist valleys around the perennial hill streams of the Western Ghats in the dry summer months, it descends down during the monsoons to the rapidly changing landscapes of the plains,

Photo: S. R. Nayak

regaling the environs with its sweet rambling whistling call that has earned it the nickname 'Whistling Schoolboy'.

A letter received at the Society in January last year, reported the recovery of a Malabar Whistling Thrush bearing the Society's ring, from a village in Coorg, Karnataka. This bird was ringed at the Society's Bird Migration Study Camp at Mahableshwar, Satara District, Maharashtra, on 13th June 1972. It was recovered at Sampage, North Coorg, on 18th January 1976, about 3½ years later, approximately 792 km from the spot where it was ringed. We still need more information on the movements of our 'resident' birds.

They saved the ancient banyan tree and now their daring knows no bounds

'Let it stand,' someone said of the banyan tree as the site was being cleared for the Hindustan Lever Research Centre, at Andheri.

So the tree still stands — and it stands for quite a lot. For one thing, the tree signifies that we can't easily get away from what is home-grown.

Appropriately, therefore, the Centre will tackle problems rooted in India — the kind that can only be solved here:

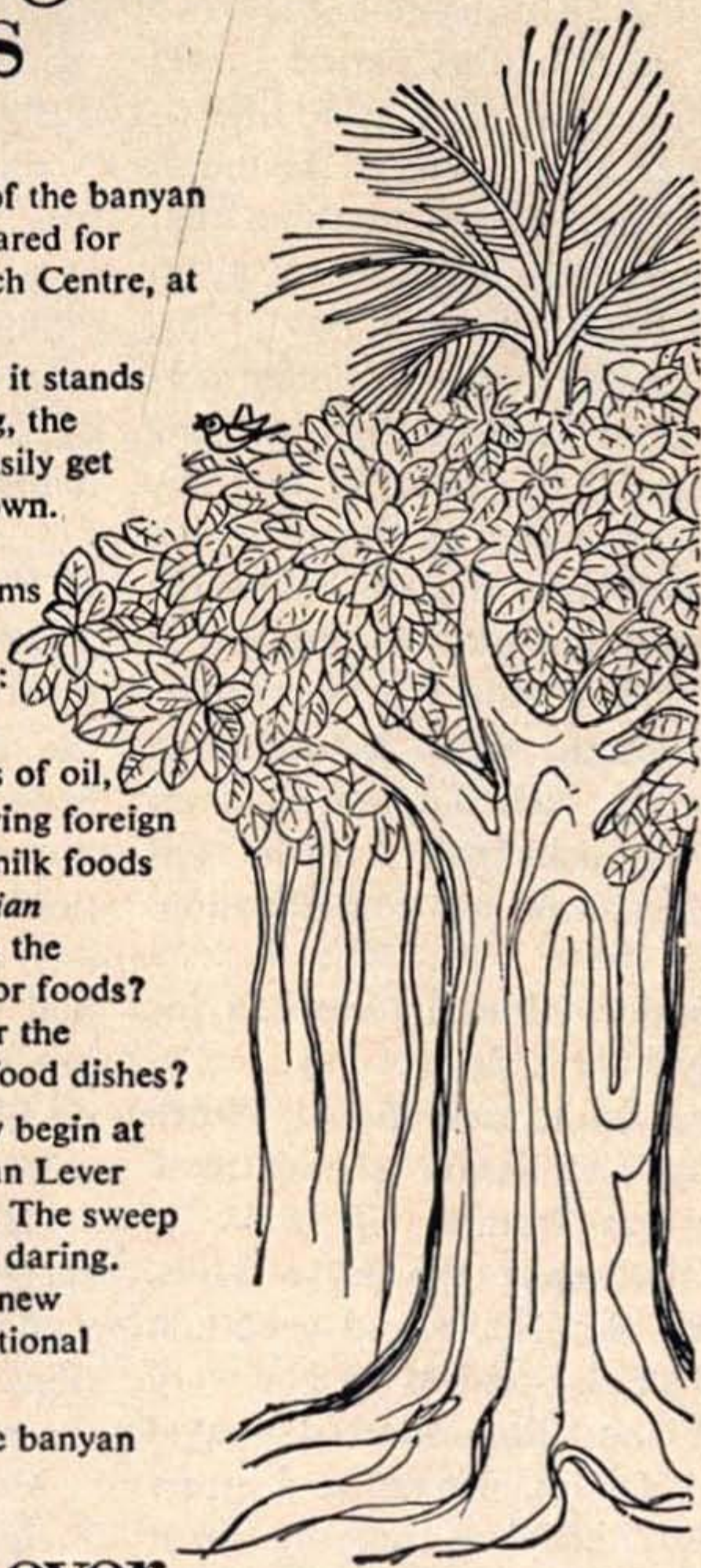
Can we discover and exploit hitherto unused *local* sources of oil, thus cutting imports and saving foreign exchange? Can we develop milk foods that are ideally suited to *Indian* needs? How can we improve the nutritive value of protein-poor foods? Can we develop processes for the preservation of Indian type food dishes?

Research on all this can only begin at home. It has, at the Hindustan Lever Research Centre in Andheri. The sweep and thrust of the studies are daring. The scientists are producing new devices for old, making traditional things happen in new ways.

They have, of course, left the banyan tree alone to grow by itself.

Hindustan Lever

Lintas-HLL. PR. 9A-77



The Gaur and the Gayal

(*Bos gaurus* and *Bos frontalis*)

During the last thirteen years I have been collecting a large mass of material, with a view to trying to prove either that the gaur and the gayal are one and the same or else that they are specifically distinct from one another. During the first two or three years of this period I held the opinion that they were identical. After this I veered round a good deal, and began to think that the reasons for considering them to be distinct might be right; this, because I quite failed to obtain certain necessary links between the two forms. The years 1897 to 1899, however, produced specimens which have shown every one of these same links, and I am now forced to the conclusion that there is no difference of specific value between the two animals, such differences as do exist being principally, if not entirely, the result of domestication.

The opportunities I have had for the study of this subject have, I believe, been quite exceptional. North Cachar, which is on the extreme north-eastern frontier of India, is situated between the Naga Hills, Manipur, Looshai and certain plains districts, and is in the very heart of the domesticated gayal country, Kukies, Nagas and other hill tribes keeping them in great numbers. The gaur, or wild form, is also extremely plentiful in suitable localities throughout this and the adjoining districts, and during the time I was stationed in North

Cachar I shot fifty-four bulls, four cows and one calf.

After leaving North Cachar I was transferred to Dibrugarh, the most Eastern District of Assam, where I have now been three years and where the observations I have made have confirmed those previously made in North Cachar.

The greater part of the time I was in North Cachar I lived within a couple of hundred yards of a village which kept a large herd of tame gayal, and I have taken every opportunity of examining other herds.

I should, I think, mention that once long ago I shot a bull which shewed all the most typical characteristics of the tame animal; this at the time I fully believed to have been a wild animal pure and simple, but afterwards I received information which led me to think that it was merely a very surly old tame bull which had belonged to a Kuki, but had left the herd and gone off on his own account some two years prior to my shooting him.

Of the other variations said to be specific between the tame and the wild forms the one most often mentioned, perhaps, is the presence or the absence of the dewlap.

Mr. W. B. Tegetmeier, in *The Field* of August 27th, 1898, refers to this at some length, and comes to the conclusion that there is, from what is recorded, no decided opinion on the subject, but that different observers of different individual



Gaur Bull

Photo: E. P. Gee

animals have given different opinions, thus showing that it is the individual and not the species which vary.

The various opinions I can collect seem to be the following:

Roxburgh says *re* the gayal: 'The dewlap is deep and pendent.'

Dr. Trail: 'The presence of a dewlap distinguishes it (the gayal) from the gaur.'

Jerdon says that the gaur has the skin of 'throat loose giving the appearance of a dewlap,' whilst the gayal has a 'small but distinct' dewlap.

Col. Pollock found no dewlap in the *two or three* he examined.

A. T. Martin, writing to Mr. Tegetmeier, described the dewlap of a full grown bull gaur as 'a large dewlap, covered with coarse black hair, hanging down to a little below the knees.'

Blanford gives the presence of a dewlap as a distinctive feature, but he quotes from others, and does not seem to give the distinction as one ascertained beyond all doubt.

Personally I feel sure that the absence or presence of a dewlap is individual, but that wild animals *as a rule* have it less developed than in the tame, and that both forms sometimes have none at all.

The typical colour of the animal, gaur or gayal, is a very deep purple brown, practically black; the old cow gets quite as dark as the old bull eventually, but retains the chestnut brown colour until nearly three years old, after which she gradually gets darker and darker.

Now, as regards the domestication of the gaur, a good deal has been said and written about it, which has its foundation on a story which was started by McRae, quo-



Tame Mithan or Gayal in Mishmi Hills

Photo: E. P. Gee

ted by Lambert and after him by many others. Blanford, in the volume of 'Mammalia', quotes me rather as if he considered I supported this statement, so I must go into some detail over it.

McRae's story was to the effect that the Kukis found out a place much frequented by some herd of gaur, where they scattered salt about. At first, the salt being scattered, the Kukis departed out of sight, but gradually they shewed themselves and by slow degrees made the gaur so tame that eventually they accepted salt from their hands, and following them home to their villages, became domesticated.

Now this wonderful story is, I am sure, like the historical romance, fiction founded on fact. I have lived amongst the Kukis thirteen years,

and speak their language thoroughly, talk, shoot and go about with them, yet never have I heard one word to lead me to believe that such domestication ever took place. I have inquired also about the Looshais and others, but with no more success, and anyone who knows the gaur well, the story can hardly seem within the range of possibility.

Probably the story arose from the following customs: The Kukis are a semi-migrant race, constantly shifting their villages from one site to another, and to each new site they have to induce their tame gayal to follow.

Now the gayal or methna seem to be an animal which attaches itself to places rather than to people, so that when the old village is burnt down, instead of meekly following their owners to the new village,



Cow Gaur suckling calf

Photo: E. R. C. Davidar

they constantly return to the site of the old one, where they stay the night. The Kukis come in the morning, and by giving them salt, of which they are passionately fond, gradually induce them to follow them home, and once they get used to their new surroundings they, as a rule, return each night to the village and sleep there. Sometimes, however, the methna wander off again to the site of the old village, although it may be overgrown with jungle, and then the same process of leading them back by the inducement of offerings of salt has again to be gone through.

Rarely—very rarely—a young feral gaur may be caught by the Kukis or Nagas and brought back to their villages, hand-reared and then turned out amongst their tame

animals. I have seen two or three such, but all of them were wild in the extreme, and bolted as soon as they saw me distinctly; whereas many of the village animals would allow themselves to be handled. The only differences they show, as far as I can make out, to those reared naturally in a wild state, is their comparatively very small size.

Several herds of methna are kept by the tribes in North Cachar, which contain no full grown bull, the young males being all killed off for sacrifices by festivities, etc., before they reach the age of three years. In these cases the tame herds are regularly visited by the wild bulls, and nineteen out of twenty of the calves born in them are the progeny of wild bulls and tame cows, the young in almost every



Piebald Mithan or Gayal

Photo: E. P. Gee

instance resembling the latter and not the former. It is, however, very noticeable that such herds as are much visited by the wild bulls contain animals of a bigger, robuster build than such as are habitually served by tame ones, often young and undersized animals. Strange to say the typical variations of the wild form seem seldom to be transmitted to their progeny, and it is the female parent which would, in this species, appear to stamp its form on the young. The variations, therefore, and connecting links between the two forms are found quite as often amongst these herds which have no connection with wild animals as amongst those which have much.

I have not dwelt upon the fact that the domestic form is so often

found with abnormal white patches; once, indeed, there was a pure white bull in the herd of the Kuki rajah mentioned above, because variation in colour and deviation from that of the original stock is admittedly the usual sign of domestication, still, as such abnormal colouring adds, if it has any weight either way to the argument that the tame is derived from the wild form, the fact that it does occur should not be passed over.

I can find no trace whatsoever of anything resembling a wild specimen of the tame form anywhere in Assam, Manipur, Chittagong, Tipperah, or Northern Burma, or again in the hills to the north-east of Assam and east of Thibet. All sportsmen, who have seen the wild animals of any of these parts, assure

me that it is the gaur pure and simple, though many of my informants point out that they have noticed variations of some slight degree in facial angle, colour and shape of horns, etc., which, however, when one has shot a good many, all prove to be individual and not specific.

To sum up the alleged differences they come to this:

The wild form known as *Bos gaurus*, the gaur of sportsmen, is: (1) a big animal ranging up to 21 hands; (2) has a large cylindrical crest; (3) the forehead deeply concave; (4) the nasals receding; (5) the horns incurved, and the greatest

divergence not at the tip; (6) no dewlap; and (7) constant colouration.

The tame form known as *Bos frontalis*, the gayal, is on the other hand: (1) much smaller, rarely if ever exceeding 17 hands; (2) has no cylindrical crest; (3) has a straight or actually convex forehead; (4) has the nasals, when taken in a line with the forehead, somewhat protruding; (5) the horns growing straight out from the sides of the head, not incurving, but widest apart at the extreme tips; (6) a dewlap and (7) variable colouration.

E. C. STUART BAKER

*This is a condensation of an article originally published in Vol. 15 of the Society's JOURNAL for the year 1903-4. The author was by profession a police officer and his interest was ornithology. He wrote the eight volumes of THE FAUNA OF BRITISH INDIA—Birds. The origin of the Mithan or Gayal is still obscure. However, current thinking agrees with Stuart Baker that the most likely possibility is that it is a domesticated form of the Gaur. In the book A CEREMONIAL OX OF INDIA the author F. J. Simoons, examines the three hypotheses about the origin of the Mithan: that it is a domesticated gaur, that it is of hybrid descent, from crossing of bull gaur and common cow (*Bos indicus*); and that it is an independent race descended from a wild Indian bovine which is now extinct. He concludes that 'The evidence presented so far favours the view that the mithan is a domesticated gaur, now mixed in some places*

with common cattle. The general appearance of the mithan—dark brown or black in colour, with white stockings, and dorsal ridge; its oily sweat, odor, and rutting call; its occurrence within the same altitudinal limits; and such information as we have of crossing and infertility all point to gaur aenecstry. The smaller size of the mithan, its gentle quality, and differences in skull and horns are explicable as results of domestication similar to those which have occurred in other domestic animals. Occurrence of piebald forms may also result from domestication, or may come from later crossing with common cattle.'

The fact that the domestic cattle as is generally known and the Mithan differ in behaviour and usage can be attributed to the fact that they have been domesticated by two entirely different human cultural groups.

— EDS.

Catleg Spider

While on a hike at Borivli National Park near Bombay, with friends I remembered a spider picture my father had shown me in my childhood. It was a large spider, clinging to a sparrow-like bird. The picture had a legend 'Bird-eating Spider'. Do the spiders really eat birds?

After a bit of browsing through literature I learnt that the Giant Hairy Spider, also known as Mygale, was not uncommon in southern India where in some areas they are known as Catlegs from the hairy nature of their legs. Local belief is that the hairs are irritant if they fall on a person. I got some more information from S. A. Hussain who had seen a large spider while on a bird population study programme at Borivli. But two long years of spider hunt only resulted in my collecting colour slides of many

other species of spiders.

On a rainy Sunday morning I was out looking for good clusters of *Karvi* flowers for photographing, and while returning along the road saw a hole in a *Butea (palas)* tree stump about 6 ft from the ground. The hole had white silk around the entrance. Using my note book page as a reflector, I threw some light into the hole and I had my first view of the hairy, brown giant spider.

I kept a watch on it for six weeks before I told others. Then one after the other I found four of them. The one found in a rock hole produced squeaking sounds when probed with a stick. This is one of the few spiders able to produce a warning noise. A ground hole had the largest of these spiders, which was blue-black in colour.

Catleg Spider

Photo: S. R. Nayak



The spiders used to come out of the holes at dusk. We made a few trips at dusk and found that they were alert and wary. The colour film on which I shot the black spider was unfortunately lost in transit from Kodak in London. I have now only a black-and-white photograph.

These spiders move slowly, but vigorously attack the stick with which we tried to winkle them out of their burrow. The usual defence posture is to stand high on the legs with the first two legs raised, exposing the black contrasting colour of the underside. A spider which lived in a tree hole with water, moved into the water when disturbed and remained submerged for a long time. A specimen collected for study refused insects offered for food. The spiders disappeared from their usual haunts at the end of the monsoon.

We hope to continue our studies of this spider in its natural habitat during the next rainy season.

S. R. NAYAK

Of Spiders and Wasps

On a Sunday nature ramble on 24 August 1975, Mr. Boby Kovoov, a member of the Society, and myself came upon a burrowing wasp, *Salius flavus* dragging into cover a large black spider. The spider was limp and motionless but was not dead. Its captor was holding the spider in its jaws and moving backwards. This was on top of an earth-bank.

A few inches below where the wasp with its victim was found

there was a hole running horizontally in the bank, lined thick with silk at the entrance, as also as far as one could see into it. It was evident that this was the victim's abode, and that the wasp had captured the spiders from this hole.

At one stage the wasp abandoned its victim and entered the spider's suspected abode. Coming out after a couple of minutes, the wasp made straight to its victim and continued dragging it into cover.

The method used by the wasp in capturing spiders is described at pp. 196-198 of *INSECT LIFE IN INDIA*, by H. Maxwell-Lefroy, thus:

"..... When, however, the *Salius* is fortunate and in its search comes across an inhabited spider hole, it comes out of it quickly and prepares itself for the affray. The preparation consists of a slight rest followed by the cleaning of the antennae with the front legs and of the abdomen with the hind limbs. It then carefully enters the hole and disturbs the tenant. Within a second out come both the wasp and the spider. The extreme care displayed by the wasp in dealing with its antagonist is worthy of remark. As soon as it comes out of the hole, it goes a little distance away from it and then turns round. The spider which is commonly a pretty big ground spider comes out of its home and stands at bay at the mouth of the hole. It does so with the ferocity of a wild beast, with its erect cephalothorax and jaws (with poison fangs) wide open. It never moves away from the hole until it is over-

powered, but simply turns round always facing the wasp. Its action is entirely defensive. There is seen a series of tactics and movements displayed by the wasp which appears afraid of the death-dealing jaws of the arachnid and so approaches with great caution. It turns round and round and occasionally tries to jump on the spider. The spider continues defending and for about 5 minutes the fight goes on. The fossorian, however, knowing the weak point of the spider, namely its inability to strike upwards, waits for an opportunity to jump on the spider. At last by a clever and agile jump it alights on the spider and takes it unawares. The moment it is on the spider, it never waits for a second, but applies the sting and inoculates the poison, first paralyzing the victim's poison weapon from below. Then again it stings, thrusting the lancet along the side of the cephalothoracic shield. The spider being thus paralysed the fight ends.... After making sure that the captive is helpless, it leaves it behind and goes searching for a convenient hole. In one case the *Salius* was clever enough to appropriate the hole of its victim itself. In this case it first enters the hole alone and remains alone for some time underground most probably inspecting the hole. It then comes back and making sure that the spider is paralysed, takes hold of one of its chelicere with its mandibles and walks back with its face towards the captive to the hole. When, on the other hand, it does not like the spider's hole, it leaves

the captive and goes away some distance and begins to search for a convenient nest.... While it is engaged thus, it often comes back to the spider to make sure that it is safe in the original spot. At this stage if the captive spider is taken some feet away from the original spot the *Salius* comes back and then after strolling all round, it finds the spider and in this case it stings it once again and then drags it some distance forwards and there leaving it, goes again in search of a hole."

The spider and the wasp were collected together and brought to the Society, where the spider was separated and kept in a glass jar in its torpid state. At the end of 5 days there emerged from the spider 15-20 larvae, but they could not be reared. The spider being dead was sent to Dr. B. K. Tikedar of the Zoological Survey of India for identification. Dr. Tikedar considers it a new species, a description of which awaits publication in the Society's *Journal*.

J. S. SERRAO

Both the spiders observed by Messrs S. K. Nayak and J. S. Serrao are, we understand, giant ground and semi-arboreal spiders of the family Theraphosidae which is widespread in temperate and tropical countries to the south of the 45th parallel of north latitude, but apparently absent from New Zealand. Little is known of these secretive creatures. Observations would be welcome.

— Eds.

ENCOUNTERS

Many interesting encounters happen during my field study on the Asiatic Wild Dog, started in August 1976, with the financial assistance of the World Wildlife Fund—Indian and International Appeals at the Bandipur Tiger Reserve, Karnataka State. So far I have had four sightings of the local tiger in my study area and many sightings of leopards. The first sighting of the tiger and one sighting of a leopard deserve mention.

The brief encounter with the tiger happened on the evening of 6th September 1976. The sky was overcast and thunder rumbled in the distance. I was sitting on a tamarind tree when, attracted by the repeated alarm calls of the common langur, chital and sambar, I got down and hurried to the scene—a lantana patch 500 metres away. This patch of the lantana lies close to a game path and from the path a game trail leads into the thicket. About 50 metres from the path, 10-12 langurs were sitting on the tops of some tall trees and looking down and calling. I could also hear a sambar calling and slowly moving away. To determine whether wild dogs were the cause for the commotion, I stood on the game trail, and mimicked the whistling call of the wild dog hoping to get some clue to the whereabouts of the predator. I had finished the first series of four whistles and was about to finish the second series of four when there was a growl inside the lantana patch, followed by the

sound of a heavy animal rushing towards the path, growling as it ran.

I also ran to the edge of the lantana and when I cautiously peeped out I saw an angry tiger standing amidst the tall grass about 50 metres away from me. It stood half crouched, with its ears laid back flat on its head. My sighting was only for two or three seconds and the tiger, without seeing me, silently retreated back into the lantana.

Though there are a few records of hostility between the tiger and the wild dog, fights are usually avoided. In this case also, it is quite likely, that the tiger which is said to have a very good hearing and so is capable of pin-pointing the exact location of sounds, perhaps first wanted to intimidate the 'wild dog' that was whistling. So instead of rushing directly towards the 'wild dog' it ran out of the bush in another direction but its growl, speed of passage, flattened ears and the crouched posture would have intimidated any adversary.

An incident to prove that a normal leopard is as good tempered as a normal tiger happened on a morning in November. I had smelt a kill inside a lantana patch and while looking for it my guide went as close as five metres to a tiger that was fast asleep. The tiger, even without a growl, leaped up and rushed away and my guide was thoroughly shaken.

The kill, two day old, was a full grown chital stag sporting 80 cm



A leopard looks out—Bandipur Sanctuary

Photo: A. J. T. Johnsingh

If you have any interesting **Encounter** why not write about it for the **Hornbill?** — EDS.

antlers in late stages of velvet. Since the tiger was lying close by, the kill was not covered with debris. The stag had no wound on the neck. The claw marks on the snout were skin deep but those on the left hind leg were very deep. A good quantity of meat had been eaten from the rump. The viscera had been removed and was lying 4-5 metres away.

I wanted to wait and see if the tiger would return and so climbed a nearby small tree with dense foliage. Climbing the tree through dead branches while encumbered with a haversack and a camera was not accomplished silently. By this time

my guide had gone to drag the kill close to my tree and while making a final check for the exact location of my tree, he saw a leopard on the higher branch of a nearby tree behind me. He called to draw my attention to it and when I turned the leopard was looking at me from a distance of 8-10 metres. Presumably to avoid the tiger the leopard had climbed the tree. There was no hostility in the look of the leopard and so I was not unduly perturbed. My only regret was that the leopard, even while getting down from the tree never gave me an opportunity to take a picture of its whole body.

A. J. T. JOHNSINGH



*Counterpart of Bombay's itinerant ear-cleaner!
Common langur at Kanha National Park
Photo: Cyrus Adenwalla*

CONSERVATION ACTION

Elephant Conservation

The status of the elephant, both African and Asian, in the context of the continuing inroads in their habitat and the exploitation of the animals themselves has become a cause for international concern. The Survival Service Commission of the International Union for Conservation of Nature has now constituted two specialist groups, one for the African elephant and one for the Asian elephant with Dr. Iain Dou-

glas-Hamilton in overall charge. Mr J. C. Daniel and Dr. Robert-Oliver are Co-Chairmen of the Asian Elephant Group. The basic objectives are "to assess the current status and future prospects of the African and Asian elephants, and to recommend an action programme to IUCN/WWF for improving the conservation of these species. The ultimate goal will be to encourage people and governments to value elephants both for their intrinsic value and for their economic poten-



Photo: E. P. Gee

What is the future? To live free or . . .

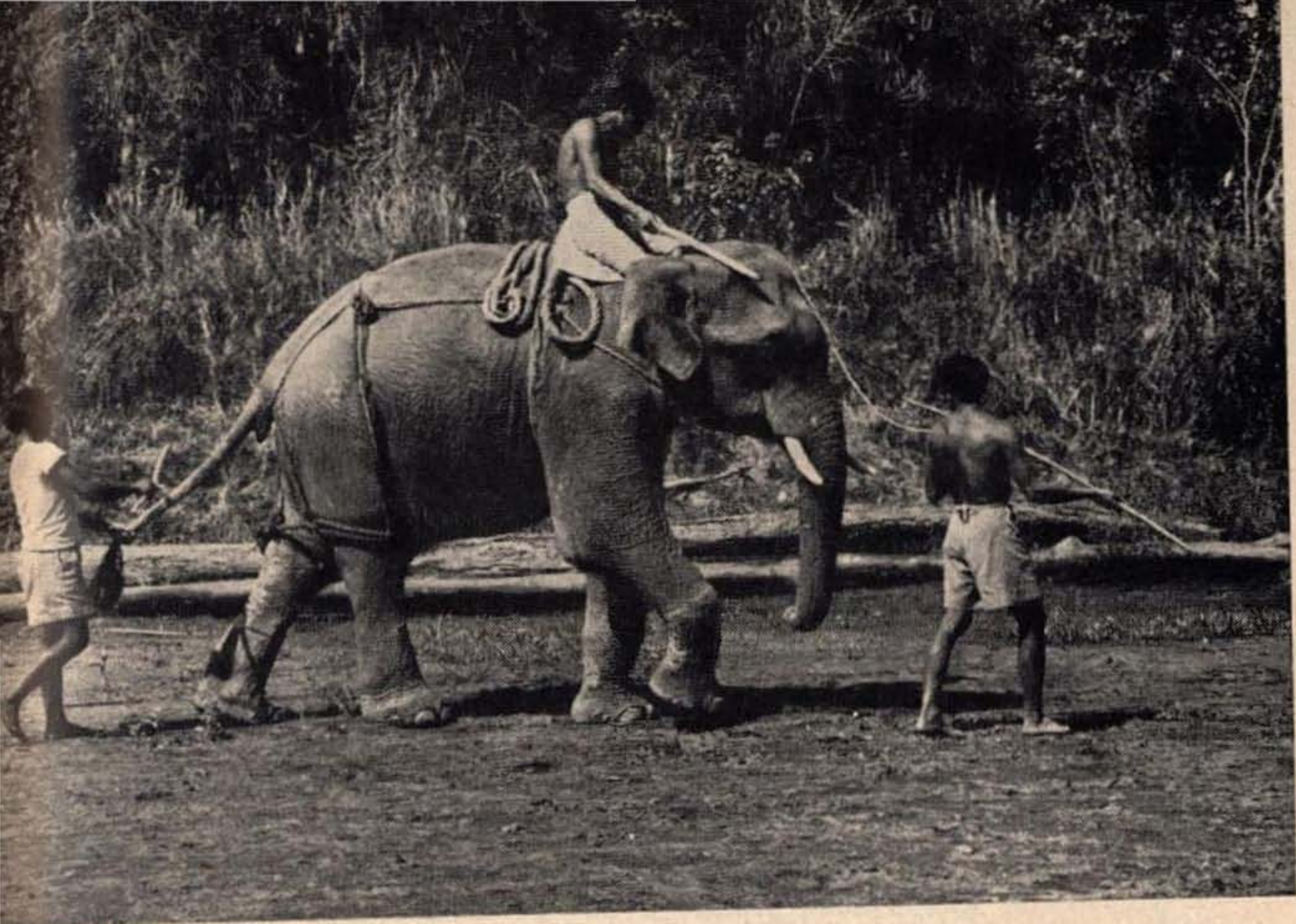


Photo: E. P. Gee

.... in fetters

tial as a self-sustaining natural resource.”

Wildlife Act in action

The protection of wildlife is largely a measure of the interest of Forest departments in the implementation of the Wildlife Act 1972. The Uttar Pradesh Forest department and especially its Wildlife Preservation Organisation led by Mr. V. B. Singh deserve praise. Their record is impressive. The number of poaching cases and the compensation realised during the last three years are:

1973-74	455	Rs. 96,405.00
1974-75	612	Rs. 1,99,862.00
1975-76	656	Rs. 2,15,605.00

The highest ‘compensation’ levied was Rs. 10,000 from a poaching party for the shooting of a doe chital or spotted deer in the Kheri forests in 1974.

Illegal trafficking

The actions of governments the world over to check indiscriminate trading in wildlife appear to meet with resistance from unscrupulous traders. Animal dealers are exploiting loopholes in government legislations to devise ways and means to circumvent prohibitory restrictions. We quote below an example.

‘Sixty-four of the 74 large falcons in transit to other countries and handled by the RSPCA hostel

were bound for West Germany from India. It was noticed that the most, if not all, of these birds were described as "Ravens" on the consignment documents. India prohibits the export of all the large falcons by means of her Exports (Control) Order, 1968, and the importer in West Germany, which implemented the Washington Convention in June 1976, would in any case now require an import licence for these birds. As several consignments of Lagger Falcons passed through to West Germany over a period of several months, it seems that this method of using blatantly inaccurate description remains undetected by either the Indian or West German authorities.'—T. P. Inskipp & G. J. Thomas in *Airborne Birds—A further study into the importation of birds into the United Kingdom* 1976, published by the Royal Society for the Protection of Birds.

Whitewinged Wood Duck in Assam

One of the birds that required great conservation efforts is the Whitewinged Wood Duck in northeastern India and Bangladesh. The Assam Valley Wildlife Society in collaboration with the State Forest Department under the guidance of Mr. M. A. Islam, Chief Conservator of Forests, has been actively engaged in gathering information about the bird's distribution and breeding in

the Assam Valley. Two personnel of the Assam Forest Department have been visiting the forest areas and surrounding villages in an attempt to estimate Whitewinged Wood Duck populations, and their breeding sites. The survey revealed the occurrence of a good number of birds around Dibru Reserved Forest, Doom Dooma Forest Division, Kokojan Reserved Forest and the Wamchick river and adjacent forest areas of Arunachal Pradesh.

Messrs A. H. Pirie, General Manager, Bordubi Tea Co., and A. H. Choudhury, DFO Doom Dooma Forest Division, reporting on the survey to the Assam Valley Wildlife Society, consider that the scheme has been successful in creating an awareness among the people of the area on the importance of conserving the Whitewinged Wood Duck. At the same time, in neighbouring Bangladesh, Dr. K. Z. Hussain of the Dacca University, has been conducting surveys in the eastern hill tracts to determine the status of the Whitewinged Wood Duck across the border. According to him 'On the basis of our present information about its status and distribution, it seems that Kassalong Reserve in the Chittagong Hills is the only area where a natural population of the White-winged wood duck still survives.'

HOBBIES

Indian Aquarium Fishes

WINGED DANIOS

The fishes popularly known as Winged Danios belong to the genera *Lubuca*, *Perilampus* and *Esomus*, of the family Cyprinidae. In winged danios the pectoral fins (fins on either side of the body) are elongated and flattened, and extend beyond the pelvic fin base, enabling the fish to leap out of water for long distances. The fins are not, however, sufficiently enlarged to permit gliding like that of the marine flying fishes.

Aquarium Notes

The winged danios live peacefully in a mixed aquarium usually remaining in the upper one-third area. *Lubuca* and *Perilampus* look best in shoals. They take any kind of food. These are great jumpers, hence the aquarium should always be well covered. They breed freely in moderately soft and neutral water and also look best in these water conditions.

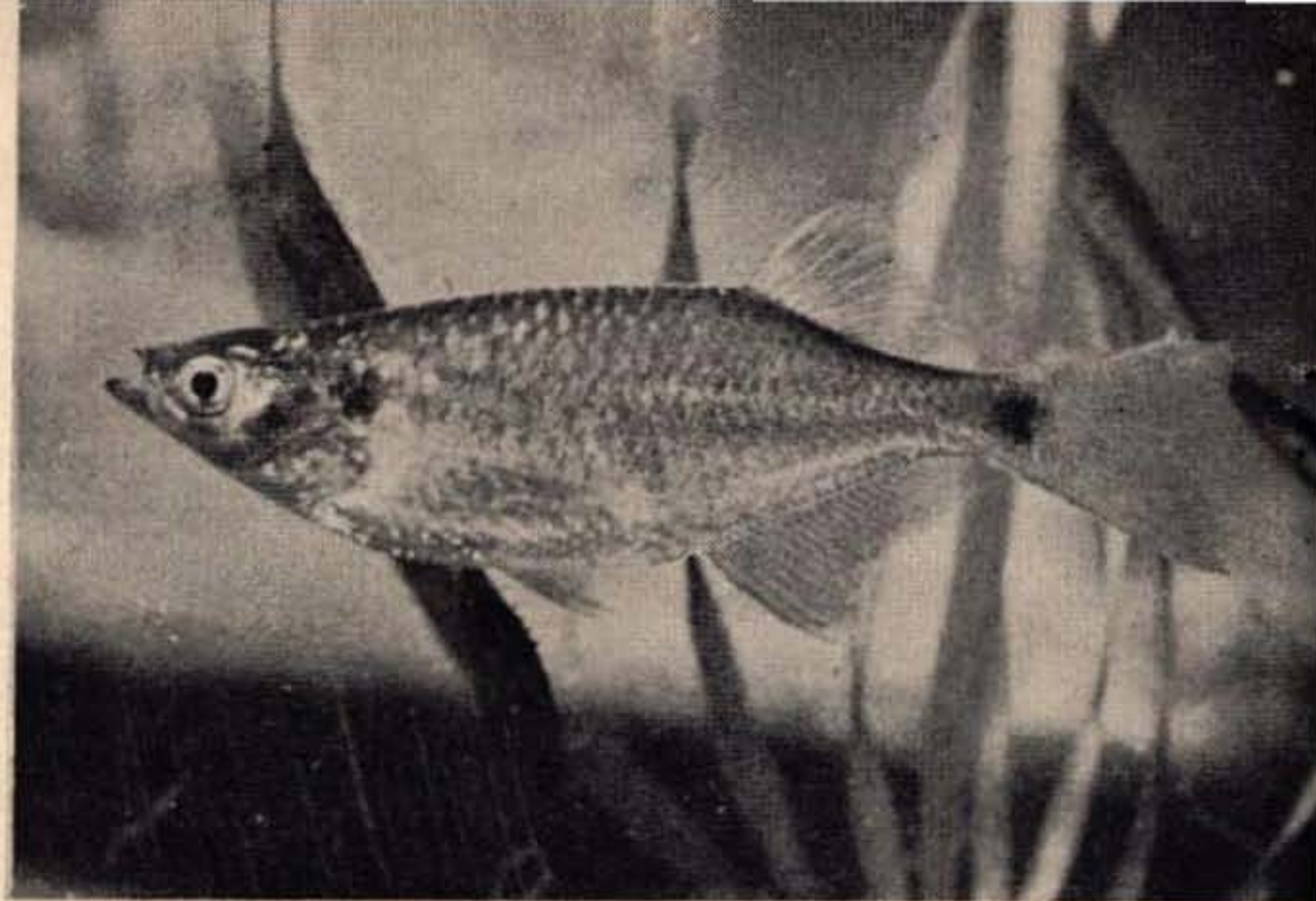
All *Lubuca* and *Perilampus* species that I have seen so far have semi-transparent bodies with rows or patches of opaque scales. They breed well, and some pairs spawn every morning for 4 to 5 days, laying a few eggs every day while others may finish egg-laying in a single morning. They spawn on

broad leaved as well as fine leaved plants, the broad leaved ones being preferred. *Esomus* spawns on fine leaved plants or nylon mops etc. and the spawning is finished at one laying, usually in the morning. The eggs are semi-adhesive, hatching in 24 hours at temperatures between 75 and 80°F. The fry becomes free swimming in 2 to 3 days. The fry of *Lubuca* and *Perilampus* is very small and transparent, and should be fed on fine infusoria for two to three days and then on egg infusion, rotifers, etc. The growth of the fry is fast, but the young are rather delicate till they grow to a decent size.

PYGMY WINGED DANIO—*Lubuca dadiburjori*

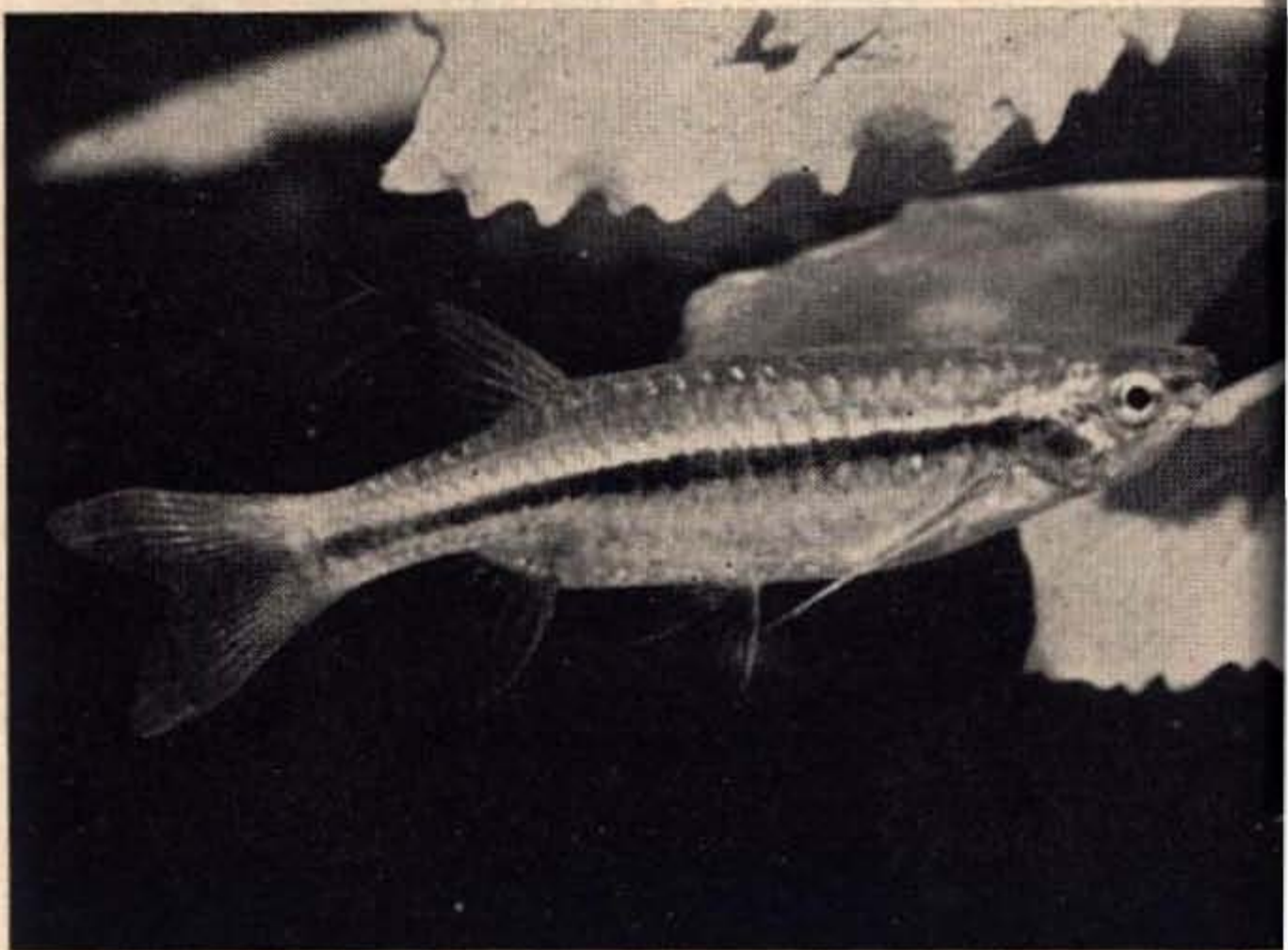
Description and Colour. This is the smallest and the most attractively coloured of the winged danios, hardly ever growing over one and a quarter inches. A thin long fish with a transparent body, with a bright steel blue line running from the snout to the caudal fin base. In most individuals there are usually three dots on this line, but the number of dots may vary from 3 up to 6. In some individuals there are no dots at all. Above this line there is an iridescent gold line. Males thinner than the females, and

Blue Winged Danio



Glass Winged Danio

Striped Winged Danio
or
Flying Barb
Photos: S. R. Sane



turn a deep transparent lemon colour as they come into breeding condition.

Location. I have collected specimens near Nagercoil, Quilon, Ernakulam, and from Goa.

The fish has been named after Mr. Sam Dadyburjore, a well-known aquarist of Bombay.

BLUE WINGED DANIO—*Lubuca lubuca*

Description and Colour. The Blue Winged Danio is a broad fish like the Giant Danio. The basic colour is silvery blue on a semi-transparent body. There is a deep steel blue spot behind the opercle and at the base of the tail. The opercular spot is followed by a shiny golden, smaller spot. Before the caudal blue spot there is another gold spot. A bluish line broken by golden dots and bars occurs along the lateral line. The fins are tinged yellow. The males are thinner while the females are deeper bodied. It is supposed to grow to 4 inches, but rarely exceeds $2\frac{1}{2}$ inches in aquariums.

Location. I have obtained specimens from Madras, Lucknow, and Delhi.

GLASS WINGED DANIO—*Perilampus atpar*

Description and Colour. This is less broad than the Blue Winged Danio but more transparent. There is a bluish silver line along the lateral line. The existence of small

bluish silver scales becomes noticeable as light is reflected from the sides of the fish. The peculiarity of this fish lies in its ventral fins which are long and feeler-like, and are erected like an inverted 'V' as the fish stops swimming momentarily. These ventral fin-feeders extend at least to the middle, and some times up to the end, of the anal fin. The fins are yellowish becoming deeper yellow as the fish comes into breeding condition. Males are slimmer than the females and have an overcast of yellow when in breeding condition. It rarely attains a length of 3 inches in aquariums, though it grows to 4 inches in the wild.

Location. I have obtained the fish from Lucknow, Delhi, Madras and Sangli.

STRIPED WINGED DANIO OR FLYING BARB—*Esomus danricus*

Description and Colour. The body is more or less tubular with a black line extending from the gills to the base of the tail. This is bordered above with a golden line. The colour above the black line is yellowish silver while below the line it is dull silver. A pair of small and a pair of long barbels are present. Tail yellowish. Males are slimmer than the females. They are supposed to grow to 5 inches, but rarely exceed 3 inches in aquariums.

Location. I have collected these off Nagercoil (Tamil Nadu) and Billimora (Gujarat), and have obtained specimens from Lucknow, Delhi, Agra and Calcutta.

BOOK NEWS

Backs to the Wall: Saga of Wildlife in Bihar—India, by S. P. Shahi, with a Foreword by Dr. Sálim Ali. pp. 160. New Delhi—Madras 1977. Affiliated East-West Press Ltd. Price Rs. 120.00.

Yet another book in the cause of India's dwindling wildlife comes from the pen of Mr. S. P. Shahi. **Backs to the Wall** is indeed an apt title, and stands fully justified when one takes a look at the comparative maps in the first chapter of the book, which diagrammatically depict status of wildlife in Bihar State at the beginning of the present Century as against what it has been reduced to today. Profusely illustrated with coloured and monochrome photographs made by the author himself, especially during the last five years of his service as the Chief

Conservator, the text is the essence of the author's personal experiences of wildlife while serving in Bihar State's Forest Service. As Dr. Sálim Ali mentions in the Foreword "Mr S. P. Shahi's dedicated interest in Bihar's wildlife, his concern for its conservation and his enthusiasm and skill in photographing it have been a source of encouragement and pleasure to nature lovers and conservationists."

Aimed "at imparting a certain basic knowledge about animals to our youth in schools and colleges, to enthuse personnel of the Forest Services in India, and help tourists to view wild animals with understanding", the book should prove popular both within and outside India.

J. S. SERRAO

Tiger at kill—Champaran, January 1974

Electronic flash photo: S. P. Shahi



With Compliments

of



**TATA ENGINEERING & LOCOMOTIVE
CO. LTD.**

JAMSHEDPUR - BOMBAY - POONA

**MANUFACTURERS OF COMMERCIAL VEHICLES
AND EXCAVATORS**

UNITED PHOSPHOROUS—India's first and major producer of Red Phosphorous since 1969—now offer assured supplies of the best quality Red Phosphorous which is used in many vital Industries.

Used directly for manufacturing Matches, Fireworks and Smoke Screens for Defence, Red Phosphorous is also used as a Catalyst in Organic Synthesis.

Vital pesticides like Zinc Phosphide and Aluminium Phosphide for control of rodents and grain insects are made from Red Phosphorous:

Phosphor Copper, also made from Red Phosphorous is used in Metallurgy and Phosphor Bronzing.

Besides saving foreign exchange by indigenous production, United Phosphorous earns valuable foreign exchange by the export of Red Phosphorous:

World Quality Red Phosphorous in any quantity for local use or export:

**United Phosphorous
Private Limited**

167 Dr Annie Besant Road
Worli Bombay 400 018



**OUR IMPRINTS
ON MANY
KEY INDUSTRIES**



Communica/UP/280