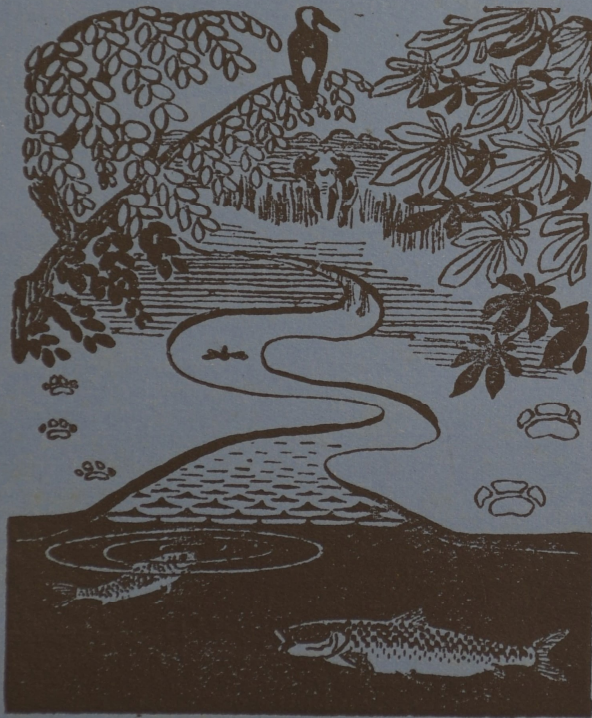


Charles McFarlane Inglis
Memorial Volume

VOL. XXVII AUGUST, 1954

NO. 1

JOURNAL OF THE
BENGAL NATURAL HISTORY
SOCIETY



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Estd. 1923

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The Society under the name Darjeeling Natural History Society was started about the end of 1923, the objects being to maintain the Museum in a proper condition, to promote the study of Natural History and to get together as complete as possible collections of Natural History specimens from a limited area, including "the Civil Districts of Jalpaiguri and Darjeeling and the State of Sikkim", as well as what could be procured from the neighbouring countries of Tibet, Bhutan and Nepal.

Government and Municipal grants not being sufficient for our purpose, it was proposed to enrol members so as to increase our funds, and a quarterly journal has been started. The journal is no longer confined to articles on the Natural History of the above-mentioned area, but includes those from anywhere. It is hoped that everybody will join the Society and co-operate to make the Museum and Journal a success.

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	Vol. XIX, Nos. 1 and 2

Dedicated to
Charles McFarlane Inglis
(1870—1954)

Vol. No. XXVII

No. 1

AUGUST, 1954

Table of Contents

	PAGE
1. Charles McFarlane Inglis—Dr. J. C. Saha ...	1
2. Charles McFarlane Inglis: A Tribute—(Mrs.) Jamal Ara	6
3. Birds of Duars—Charles M. Inglis—(<i>Continued from</i> p. 156, Vol. XXVI, No. 4, April 1954) ...	9
4. Preservation of Wild Life	12
5. Central Board for Wild Life—Dr. Sundar Lal Hora	20
6. Summer Flowers of Darjeeling—N. A. Watts ...	27
7. The Royal Bengal Tiger—Lt. Col. W. D. Ritchie ...	46
8. Comments and Communications: Butterfly-Collecting as a Hobby—D. G. Sevastopulo	49
9. Miscellaneous Notes:	
Wild Life in India—E. P. G. ...	51
Wild Life and Assam Floods—J. C. S. ...	53
10. Statement of the Receipts and Expenditure of the Society for the year 1953-54	54

JOURNAL
OF THE
BENGAL NATURAL HISTORY SOCIETY

VOL. XXVII AUGUST, 1954 No. 1

CHARLES McFARLANE INGLIS

(1870—1954)

Charles McFarlane Inglis died on the 13th February, 1954, at the age of eighty-four. Third son of Archibald William Inglis, an indigo planter in North Bihar, India, Charles was born at South College, Elgin, Scotland, on the 8th November, 1870. Curiously, this house forms the frontispiece to Charles St. John's "Natural History and Sport in Moray", published in 1882, where the author lived in the early 1850's.

Charles had a twin sister who died in infancy.

A few years after the birth of the youngest son Harold, the father got seriously ill and took the family to Funchal, in Madeira, and remained there several years until his death.

The mother and family moved then to Geneva, Switzerland, and remained there for some years. It was here that Charles and his brother Harold showed interest in natural history, collecting butterflies and filling the fountain in the garden with newts, tadpoles, etc. Later they settled at Clifton, near Bristol, Gloucestershire, and this was a happy hunting ground for the two boys, catching butterflies on the downs and in the woods on the other side of the river; they spent their pocket money in buying damaged specimens of the rarer butterflies at the naturalists' shop of Mr. Mann.

The mother returned to Geneva; the two boys went to school at Stanley House, Bridge-of-Allan, Stirlingshire, but spent the summer holidays in Switzerland, carrying on work with their natural history hobby at Geneva and various places along the

lake. French soon became more their mother tongue than English!

At the age of 17 Charles left school and went to Inverness, where he spent a year in the traffic office of the then Highland railway. He loved Inverness but hated the job on an office stool. At that time his two elder brothers were busy indigo planting in north Bihar, India; and he longed to go out to that country.

He was fortunate to get a job as an assistant in the Roopacherra Tea Estate, in the Hailakandi district of Cachar, Assam, through the kindness of one of his godfathers who was a director of an agency in Calcutta. Charles joined this appointment in January, 1889. In those days the journeys to Cachar was rather a long and tedious one, partly by boat and partly by steamer.

Roopacherra, in those days, was an ideal spot for anyone interested in natural history, as there was heavy forest around. Charles spent his leave days, Saturday afternoons and Sundays, in the forest, sleeping on a low *machan* beside some forest stream. The great ornithologist A. O. Hume had recently given up birds; and one of Hume's collectors, a Mussulman, was wandering about the country looking for a job. He came to Roopacherra and showed Charles a beautifully made specimen of an oriole. Although the later's monthly emoluments were only Rs. 125/-, he employed the man on Rs. 35/- a month. At that time Stuart Baker was working in the North Cachar Hills, and Charles soon got in touch with him and then began a friendship which lasted throughout the rest of Stuart Baker's life. Books on Indian birds were Charles' great difficulty as he could not afford them, but Baker readily gave him what were necessary. After five years at Roopacherra, Charles was transferred to the Larsingah tea garden in the Happy Valley, near Silchar, Assam, and stayed there for three years. He got seriously ill with malaria and was sent to Ootacamund on the Nilgiris for six months. He was very happy there as he boarded with a very kind Cachar doctor's widow. There birds visited the garden, many of them were new to him. On returning from sick leave, he again contacted malaria as soon as he landed in Calcutta, and so never returned to tea.

He joined his brothers in Bihar and got a job there at Jainagar on the Nepal frontier and in 1898 left for another one at Baghowni where he lived for the next 25 years, having bought the place in 1900. He made a huge collection of birds, butterflies, moths and dragonflies while in Bihar and had many outdoor aviaries where he bred Burmese peafowl and swamp partridges; and a pair of green wood-quail laid the first known eggs in captivity in one of his aviaries. Besides natural history, his other hobbies were gardening and painting.

In 1923 he accepted the curatorship of the Natural History Museum, Darjeeling, which was then in a state of inactivity. He had to reorganize it and start a Society and a Journal—all very interesting work to him. This work of his received praise from the museum experts from England who were surveying and reporting on Indian Museums in 1935-36, which was later published in the form of a book.

In September 1945 he married Sybil Dorothy Hunt and their life together was a very happy one. On account of old age, he resigned the curatorship of Natural History Museum, Darjeeling, after completing 25 years service. He, however, continued to keep close touch with the Society and helped its Journal with articles, some of which are still awaiting publication. The whole of his life, since he came out to India in January 1889, was spent in India except for nine months' study leave spent in Switzerland and England in 1929. He visited with many museums both here and in the continent of Europe.

On retirement he purchased a house and garden in Coonoor on the Nilgiris Hills, South India. As it had a nice sized garden, a bit of forest and a cottage, it was an ideal spot for a man of his tastes and temperament to retire to. The birds skins and eggs, which he brought with him from Darjeeling (only a part of his private collection), he housed in the cottage. There was quite a bit of forest near the cottage, and even Emerald Doves came, sometimes, into the garden. He, and his wife, lived there very happily.

While in Bihar and Darjeeling, he made many collecting trips to areas in the Duars, Darjeeling district, Sikkim, and

Assam. Ornithologically he thoroughly worked the Duars and Darbhanga district, and also the Lepidoptera (butterflies and moths) of the latter district. On one occasion he along with the late Dr. Shaw of Mangpu collected butterflies in the Chumbi Valley of Tibet, travelling as far as Phari Dzong. On these treks he always carried painting materials to do any interesting birds collected. Many of his bird paintings were reproduced in this Journal. He also filled two huge albums with the heads and breasts of over 650 birds, all painted life-size.

He collected four *type specimens* of dragonflies (*Odonata*) and two birds and one fish, the last two items being named after him. The dragonflies are:—

- (1) *Megalestes irma* Fraser, collected near the source of the Rani Khola, near Gangtok, Sikkim, on the 29th of May, 1924;
- (2) *Bayadera Longicauda* Fraser, collected at Gangtok, Sikkim, on the 29th of May, 1924;
- (3) *Davidius zallorensis delineatus* Fraser, collected at Gangtok, Sikkim, in May (probably 1924); and
- (4) *Anormogomphus heteropterus* Selys, *type* of only known female (upto 1934, at any rate) collected at Baghownie, Darbhanga district, Bihar, on 27th of June, 1922.

The following birds were collected by him and named after him:—

- (1) *Prinia socialis inglisi* Whistler, collected during various winters in the Duars; and
- (2) *Cryptoplectron manipurensis inglisi* Ogilvie Grant, collected along with the late A. M. Primrose on the Mornai Tea Estate, Goalpara, Assam.

The following fish was collected by him and named after him:—

- (1) *Nemachilus rupicola* var. *inglisi* Hora, collected near streams at foot of the Darjeeling Hills.

Charles McFarlane Inglis was associated as a member with several renowned societies devoted to the study of ornithological and zoological sciences in this country and in England. He joined the Bombay Natural History Society on the 10th of January, 1894, and was the second oldest living member at the time of his death (Lt. Col. R. W. Burtons being one year older).

He published many papers mainly in the *Journals of the Bombay and Darjeeling (later Bengal) Natural History Societies*.

He also was a joint author of "Birds of an Indian Garden", which originally appeared in the *Agricultural Journal of India* during the years 1919-24 (along with T. Bainbridge Fletcher, the late Imperial Entomologist). This was later published in a book form by Thacker Spink & Co., Ltd. of Calcutta but has been out of print for some years now after running for two editions.

The name of Charles McFarlane Inglis will always be honoured as that of a man who pursued his life-work with ceaseless devotion and singleness of purpose which earned for him acknowledged success; and his death is deeply mourned by his numerous friends in this country and elsewhere.

He leaves behind his wife, and to her we offer our most sincere sympathy in her irreparable loss.

J. C. SAHA

*Botany-cum-Biology Department
Darjeeling Government College
Darjeeling.*

CHARLES McFARLANE INGLIS : A TRIBUTE

The death of Mr. Charles M. Inglis removes from amongst us a veteran who had devoted over sixty years to the study of Indian birds, particularly those of Assam, Bengal, Bihar, Burma, Sikkim, and of South India.

My introduction to him was through a copy of *Birds of An Indian Garden* (Thacker Spink & Co., Ltd., Calcutta). I had bought the book casually attracted by its excellent coloured plates and had never thought that it would ultimately lead to a personal friendship. The plates had been done by Mr. Inglis himself and my copy was one of the second edition (1936) in which he had done some of the letter press too. There were references in the text to his having visited Pusa in north Bihar; and as Bihar is an area in which ornithologists are rare I wanted to know more of him. Years later I came upon his address in a scientific journal and wrote him.

Mr. Inglis was exceedingly courteous. He did not mind the least being disturbed in his retirement at Coonoor and made valuable suggestions in regard to my own work on the preparation of a check-list of the birds of Bihar. He, after eight years of planting tea in Cachar, Assam, had spent 26 years at Baghownie in Darbhanga district, Bihar, growing crops other than tea and keeping a sharp look-out for birds. Our friendship grew with each letter, and he placed at my disposal a record of over half a century's bird collecting in Darbhanga. That contribution of his became together with the records of Dr. Francis Buchanan-Hamilton (1807-14), S. R. Tickell (1833-40), Captain Beavan (1863-65) and V. Ball (1864-71), the frame-work of the Bihar check-list. His last paper largely supercedes his earlier articles in the *Journal of the Bombay Natural History Society*, Vol. XIII, 1901.

It is needless to say that Mr. Inglis's work was the most valuable for it alone extended over a long period. The quality of his work was high too, for he sent his skins for verification to authorities like Stuart Baker and Hugh Whistler. It

would not be out of place to mention that when Mr. Inglis shot a yellow-legged herring-gull he sent it to Whistler for matching it with specimens in the British Museum but as there were no such specimens in London and owing to political difficulties comparison with the specimens in the Leningrad Museum was not possible, he noted possibility of doubt against his record.

It was my hope that the Bihar check-list would be published during the lifetime of Mr. Inglis. Unfortunately modernisation of scientific names by recent research has held up the publication.

Mr. Inglis wrote encouraging and interesting letters and even during his retirement identified some birds for me. A few days before his death, his wife wrote me on his behalf and sent a picture of his taken with his Bihar bearer. That showed how strongly had he attached himself to his home state, and especially Baghownie.

I had always wished that he would write his memoirs for it would have been a remarkable document and would have served a great deal towards the rehabilitation of our countryside, for he had not come to this land as a temporary administrator or trader but to settle and had lived for years in an obscure village. His later years, however, were too heavily committed to summing up his long scientific career and the writing out of his field observations on the birds of Darbhanga and the Nilgiris kept him very busy.

Still he found time to cultivate orchids and I look with great satisfaction having sent him a parcel of orchids from the jungles of Singbhum. He also constructed a bird-bath at his Coonoor residence and the following quotations from two of his letters tell a great deal more about his love of nature than enumeration of his books and articles, his long editorship of this journal and curatorship of the Darjeeling Natural History Museum :

“We have just had a new concrete bird-bath made with a nice plinth but so far I have only noticed crows

at it and not to bathe. I hope in time other birds will frequent it. It is not deep, so birds as small as White-eyes can bathe in it" and four months later he wrote again:

"No, there is no difference in visitors to our bird-bath. I haven't even seen the crows drinking at it for sometime. We have tried putting it in various parts of the garden but there is no difference; the birds just seem to ignore it."

He expressed to me his feelings in regard to the Bengal Natural History Society and its journal in a letter dated 22nd July 1952 in the following words : —

"I am very pleased to know you have joined the Bengal Natural History Society. As I organised the Museum in Darjeeling and started the Journal, editing it for so many years until retirement, I feel that they are my children and I want to help them in every way I can."

Ranchi
Bihar.

(MRS.) JAMAL ARA

BIRDS OF THE DUARS

(Continued from p. 156, Vol. XXVI, No. 4, April 1954)

BY

C. M. INGLIS, F.Z.S., C.M.B.O.U.

Subfamily *Leiotrichinae*.

54. The Nepal Cutia.

Cutia nipalensis nipalensis Hedgson.

(Fauna Br. Ind., 2nd. Ed., No. 353).

Description.— Length 7 inches. *Male* : Crown deep slaty; sides of head and neck glossy black; upper plumage rufous-chestnut; tail black; wings black with a slaty patch at the base of the quills; lower plumage white with dark bars on the flanks; vent, and patch under the tail, pale buff.

Female:—Chocolate-brown replaces the black on the head; upper plumage reddish-brown, with large, black, oval spots; rest of plumage similar to that of the male.

Bill black, base of lower mandible plumbeous-blue; iris brown; legs waxy-yellow.

The feathers above the tail are very long extending nearly to its tip.

Distribution and habits.—The only place where I have found this handsome Babbler is above Baksa Duar. I consider it a rare bird. It haunts both high and low trees in forest land, where it goes about in small parties. Deignan records them, in Northern Thailand, as “found eating berries on low trees at the edge of the bungalow clearing, accompanied by bulbuls and other frugivores”. It also feeds on insects.

55. The Red-winged Shrike-Babbler.

Pteruthius erythropterus Vigors.

(Fauna Br. Ind., 2nd Ed., No. 354).

Description.—Length 7 to 8 inches. *Male*: Head black with a very broad white stripe behind the eye; upper plumage clear

bluish-grey; wings mostly black and chestnut; tail black; lower plumage white; lower parts of flanks pale rusty.

Female:—The black of the head is replaced by bluish-grey and the white eye streak is nearly absent; upper plumage olive-grey; wings mixed black, greenish-yellow and chestnut; lower plumage very pale buff.

Bill pale plumbeous, most of the upper mandible black, iris very variable, usually some shade of greyish-white or bluish-grey; legs fleshy white.

Very Shrike-like in its outward appearance.

Distribution and habits.—O'Donal came across this bird at 4,000 feet above Baksa Duar and collected a specimen at Rajabhatkhawa (300 ft.) in the plains, which is very low for this bird as it, usually, occurs between 2,500 and 9,000 feet. It is not a sky bird and goes about in pairs, or small parties, frequenting trees and bushes, often in the company of other small birds. Its food consists of insects, berries and seeds. It has a feeble and jerky flight.

56. The Himalayan Chestnut-throated Shrike-Babbler.

Pteruthius aenobarbus melanotis Hodgson.

(Fauna Br, Ind., 2nd Ed., No. 356).

Description.—Length 5 inches. *Male*: upper plumage greenish-yellow; central tail-feathers green, tipped with black, the others black-tipped with white, which colour increases outwardly, the outermost being pure white; a white ring round the eye and a broad, bluish-white eye brow; in front of the eye and all round the white ring, also a patch behind the ear-coverts, black; wings brown, feathers edged with grey; wing-coverts black, the greater ones broadly tipped with white and the lesser ones with grey; chin, to upper-breast, rich chestnut; rest of lower plumage bright yellow.

Female:—Differs in having salmon-pink tips to the wings instead of white, and the chestnut of the throat does not extend

to the breast and the black in front of the eyes, in the male, is brown.

Bill plumbeous; iris hazel; legs fleshy-white.

Distribution and habits.— I found this little Shrike-Babbler on the hills above Baksa Duar and it is not likely to be found lower down. It is a forest bird, going about in pairs or else joining up with some hunting party of small birds, frequenting trees and high bushes. It has a pleasant double note which is seldom uttered.

57. The Common Iora.

Aegithina tiphia tiphia Linnaeus.

(Fauna Br. Ind., 2nd Ed., No. 362).

Description.—Length 5 inches. *Male in breeding plumage:* Upper plumage black, mixed with green; rump green; wings black with two white bars across them; sides of head and all the lower plumage deep yellow, washed with green on the flanks. *In winter* there is no black on the upper plumage, except the tail.

Female at all seasons:—Upper plumage greenish-yellow; wings brown, instead of black, with greenish-white margins; lower plumage yellowish-green.

Bill slaty-blue, black along the upper mandible; iris yellowish white, legs slaty-blue.

Distribution and habits.— A very common, resident bird in the plains and as high as Baksa Duar. It, fearlessly, enters gardens or trees and bushes near villages and also frequents the outskirts of forests and scrub-jungle, diligently searching the leaves and twigs for insects. During the breeding season the male darts up into the air, with its feathers fluffed out, and then descends in spirals to its perch and, while there, spreads and flirts its tail.

I have no information as to when it breeds in the Duars but the usual breeding months are from April to July. The nest is cup-shaped and very neatly constructed of soft grasses, plastered outside with cobwebs and spiders' cocoons. It is

placed either on a horizontal twig, or in a fork, at various heights from the ground, even as low down as 2 feet or as high as 30 feet. In Bihar most of the many nests I found were on mango trees but they will also build in bushes, and Stuart Baker found one in a hedge in his garden. The eggs number 2 to 4, usually 3, and are of two types: one with a creamy-white and the other with a pink ground-colour, the former marked with longitudinal streaks of grey and neutral-tint, in the pink type these are reddish. They measure about 0.70 by 0.55 inches.

PRESERVATION OF WILD LIFE *

In recent years protection of Nature and preservation of wild-life, particularly various types of animals living within the sylvan surroundings, attracted world attention due to fast depleting wild-life in different parts of the globe. In 1935, the Government of India convened a conference of the representatives of all the Provinces and the States in India on the subject of the "Preservation of Wild Life", presided over by the late Mian Sir Fazl-i-Hussain. Later Dr. Bains Prashad, formerly Director, Zoological Survey of India, in his presidential address to the Eighth Annual Meeting of the National Institute of Sciences of India in 1943, discussed at length the subject of "Conservation of Wild Life in India". In 1948, UNESCO formed what is known as I.U.P.N. The International Union for the Protection of Nature advocated the principle of conservation "of the entire world biotic community, or man's natural environment, which includes the earth's renewable natural resources

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of which it is composed, and on which rests the foundation of human civilisation" (See, SCIENCE AND CULTURE 15, 431, 1950). Subsequently in Vol. VII, September, 1949 of the Proceedings of the UNESCO. Conference on the Conservation and Utilisation of Resources the protection, preservation and utilisation of the wild-life all over the globe were also discussed (See, SCIENCE AND CULTURE, 15, 207, 1949).

To the Indians protection of life in all its varied forms including the plant life as manifested before us in this universe is a sacred task enjoined in our holy books.

The urgent need for the protection and preservation of wild-life including plant life is thus admitted on all hands. It is, therefore, natural that India should follow a more or less uniform *modus operandi* with regard to framing of laws, rules, regulations etc., for taking effective steps towards the protection and preservation of Nature. It is true that some of the State Governments have already framed rules and regulations in order to prevent indiscriminate shooting. But poaching, hunting with flash light, netting, trapping, dynamiting and various other methods of destruction of wild-life with modern weapons and motor transport have of late become rampant, as a result of which some of the wild fauna are on the verge of extinction. This applies also to the plant life. Plant hunters of India and sometimes from countries overseas in their frequent botanical raids have rendered our country-side and forests almost denuded of Orchids, Primulas, Lilies, and many other horticulturally and medicinally valuable plants well-known for their beauty and healing properties. Some of the rare species of plants too are almost going to be extinct.

Destruction of forest trees was rampant under unavoidable circumstances during the last Global War which led to many a problem concerning the preservation of wild-life including plant cover particularly in forest areas, hill sides, duars, river banks and other important and strategic areas of the country. In the Inaugural Address delivered on November 25, 1952, His High-

ness Maharaja of Mysore on the occasion of the first session of the Central Board for Wild Life held at Mysore has dealt in a masterly way with the subject in all its aspects. He impressed upon the members of the Board the far-reaching scientific implication and influence of plant ecology on the animal and their inter-dependence and the final effect of syn-ecology on human life and ecology.

The Maharaja also stressed upon the diminution of natural resources which is particularly evident in India and other Eastern countries where the wants of a vastly increased population have been met by uncontrolled and unwise encroachment on natural resources. He said, "Take for example, the systematic annual firing of wooded slopes of hills for the sake of meagre agricultural gains that has resulted in great loss of soil and wild life. Erosion consequent on the destruction of undergrowth and the soil binding grasses, renders the earth unproductive. Instead of soaking into the soil the rainfall rushes down hill slopes, takes new courses, silts up the old channels and gets either unproductively dissipated or floods the fertile lands causing damage, as well as destroying the natural habitat of birds and animals. The removal of grass cover by excessive grazing and the destruction of the plant canopy by massive extraction of trees, expose the rich humus soil to the abrasive action of wind and water. The very soil on which all life ultimately depends is washed away. For the sake of present and transitory profits, man destroys irreparably. Lands once fertile are turned into deserts and the deserts march ruthlessly onwards assisted by every wind that blows, establishing their barren sovereignty over land's once green valleys. For as Mr. Munshi has said—'This imbalance is increasing at a terrific pace in India. As against the average minimum requirement of forest of $33\frac{1}{2}$ per cent, we have less than 18 per cent of it. Even this area is being reduced at a reckless pace. The banks of some of our great rivers, deprived of trees, have been cut into ravines. The rivers either dry up or are flooded. The Rajasthan desert, a major menace to Indian life, is marching onwards at the rate of 50 square miles a year, eating up the fertile soil of the Ganga Valley'.

“Unless we become more Nature protection-minded, India will not have a chance of survival. For as Mr. Munshi says—
‘Trees mean water, water means life..... If India becomes *Vanamahotsavaminded*, she will live; not otherwise.’

“In most countries people are under the twin delusion of a false philosophy of production which fails to take into consideration, the consequences of unplanned exploitation of natural resources and the delusion or myth of inexhaustibility which complacently assumes that natural resources will remain unaffected in quantity and quality, being hitherto largely untouched. It justifies itself by the facile plea that the natural process of recuperation will replenish what has been consumed. It is a plea based on incomplete knowledge. To quote Mr. Munshi again, ‘Life on the globe depends upon nature’s hydrographic cycle. There is a certain quantity of water on earth, part of it rises by the action of the sun to the sky and comes down in the form of rain. Rain moistens the soil, floods the rivers, fills tanks. On this supply and on the supply of sub-soil water depends life. Trees, plants and animals including man are mostly constituted of water.....Vegetation and trees were the first forms of life; they built up and enriched the fertile crust of earth. They prevent the force of rain and let it be absorbed in the fertile crust.’

“Forests played and still play a most important part in life. They attract rain. They store water, about eighty per cent of every tree being water. They shade the vegetation and plants and enable them to grow. Their falling leaves form the manure which provides food. Dying aeons ago, they have left us coal. Man is the tenderest parasite, though free moving of the tree.

“Man and his surroundings form an intergrated whole; he exists as a part of this soil and water and plants and trees of the country in which he lives. With marching civilisation however, we have destroyed forests and have upset Nature’s equilibrium. In our blindness, we think that earth will continue to give food even if we cut the trees on which life depends. In fact, this imbalance leads to erosion, the removal of the nutrient

element of the fertile top soil, the greatest danger to human existence." The conclusion to be drawn is that there is an extremely delicate balance in Nature which cannot lightly be disturbed, for it is ultimately on Nature and natural surroundings that wild life depends for its survival. There is a plant-animal link. It is a very vital one which does not receive the consideration that is its due.

"Explaining the significance of the terrestrial plant, Miss Newbiggin states in her book—*Animal and Plant Geography*—'All animal life has its basis ultimately on the chlorophyll-bearing forms of plant life. The terminal link of what are called food-chains, is in all cases the green plant, whatever, the intervening links in this chain, the carnivore and the herbivore, the ultimate life giver is the chlorophyll contained in plant life.

"The basis of all animal life is plant life..... In the general case, that is to say, there is a dual community, plant plus animal and the latter element cannot be considered without taking account of the former..... So far as land surfaces are concerned the presence of animals is generally linked so closely to that of conspicuous green plants that it is rarely feasible to consider the two separately. The biotic factors are interlinked ecologically in some measure to the study of the habitat of plant communities.

"Thus the link between plants and animals is more strong and intimate than is ordinarily imagined. Plant cover, we have seen, greatly influences the natural animal population.

"In their mutual conditions over a definite area plants have established a sort of equilibrium, certain kinds of plants, some large, others small, taking a permanent hold and living in what is described as a 'durable climax plant community' termed as Association. Different types and sizes of wild-life communities establish themselves in a climax plant association thus formed. The mutual and long continued association of plant and animal communities establishes a balance and equilibrium which would be upset if the one or the other is disturbed by the uncontrolled ravages of man,

“The total extinction of certain forms of plant and animal life may be traced to the disturbance of this equilibrium by human agency.

“As the results of the abuse of natural resources take a long time to reveal themselves and as natural, recuperative forces are likewise slow in their operation, any plan and programme for the protection of Nature and the conservation of natural resources will have necessarily to be based on a long range policy kept well above the whims and accidents of party politics. It has to be handled on a national rather than a local footing, for, the problems of Nature protection belong to biographic and not political units and divisions. Indeed, in its wider aspects, the problem has an international bearing for the distribution of wild-life, whether animate or inanimate has a geographic contiguity crossing political boundaries. Besides the close inter-dependence of the human races for their needs, and manufacture require the problem of protection of Nature to be handled on a Global scale. National parks, National reserves, and National conservation measures have helped the protection of Nature in the nation, but these have to be integrated into an international union and understanding.

“The need has been felt and met with varying degrees of efficiency in many parts of the world. In several countries, considerable progress has been made in this direction. The Kruger National Park, the parks and reserves in Kenya, Natal, Jamaica, British Guiana, Australia and America and the steps being taken in India and Ceylon testify to the growing awareness of the need for protection of Nature felt in many lands”.

The valuable suggestions contained in the learned address of the Maharaja of Mysore were generally accepted by the Board and the Board welcomed the proposal for the formation of *Abhayaranya* that is, the sanctuary where all kinds of wild flora and fauna can thrive undisturbed in their natural state of preservation.

The Board during seven days of their deliberations from November 25—December 1, 1952 made admirable progress in

piloting the scheme, solving all the difficulties associated with the problem and giving concrete shape to the proposal amidst divergent views on this complicated subject. The recommendations made by the Central Board for Wild Life are embodied in the various resolutions adopted by the Board and these are now under consideration of the Government of India.

We draw the attention of our readers and all those interested in the problem of Conservation of Wild Life to the following two resolutions dealing specifically on educating the public first on the value of wild life:

"A: Education in regard to Wild Life.

Whereas there is general lack of knowledge regarding conservation of nature and the value of wild life, and

Whereas it is essential to educate public opinion in matters of wild life,

THE CENTRAL BOARD FOR WILD LIFE RECOMMENDS

That special steps be taken to popularise wild life by introducing stories in school text-books, by producing attractive charts, by organising special lectures and through the establishment of zoos and zoological parks in the neighbourhood of large cities.

B: Publicity for Wild Life Protection.

Whereas insufficient use is being made at present of the existing facilities of publicity afforded by the Press, Screen and Radio, for wild life protection,

THE CENTRAL BOARD FOR WILD LIFE RECOMMENDS

(a) that adequate publicity material be issued from time to time by the respective Central and State Publicity Departments in close collaboration with Forest Departments and other Organisations,

(b) that enthusiasts be approached to give publicity to wild life,

(c) that documentary films dealing with various aspects of wild life be produced by Government in consultation with the Central or State Boards for Wild Life for exhibition in both urban and rural areas,

(d) that amateur cinema-photography of wild life be encouraged, and

(e) that the All-India Radio be requested to afford special facilities for wild life broadcasts."

A wise policy of wild life conservation should also provide for: (1) Adequate laws of protection, (2) adequate areas as permanent sanctuaries or refuges for species in their known habitat, and (3) adequate organization to enforce the former and administer the latter.

An active unofficial "All-India Organization" for the protection of games, fishes, fauna and flora of India on the models of similar organizations in all progressive countries can also render useful service in this direction. In 1936, the Uttar Pradesh, under the distinguished patronage of Sir Malcolm Hailey inaugurated an "Association for the Preservation of Games" in that province, and also started publishing a journal entitled *The Indian Wild Life*. Owing to the abnormal conditions resulting from the war, the activities of this society received a setback. The Uttar Pradesh is also the pioneer in India in passing the "National Parks Act, 1934" that resulted in the conversion of "Hailey Park" to "National Park" with an area of 100 sq. miles. Will other States lag behind?

It is gratifying indeed that some tangible and workable suggestions have at last been made available to Government in conformity with those of the other leading countries of the world. It is hoped that Government of India as well as all State Governments will give their very careful consideration to the recommendations made by the Board. The Board undoubtedly deserves congratulations for its contributions towards the protection and preservation of Nature and Wild Life and judicious utilization of the natural resources of the wild life—both animals and plants of this vast land of ours.

CENTRAL BOARD FOR WILD LIFE *

By Resolution No. 7-10/51-R dated the 4th April, 1952, the Government of India in the Ministry of Food and Agriculture (Agriculture) announced the Constitution of a Central Board for Wild Life. The need for constituting such a Board is thus explained in the Resolution:—

“India’s heritage of wild life is fast becoming a vanishing asset and some of our notable animals such as lion, rhinoceros, tragopan, cheetah, are on the verge of extinction. With a view to preserve the fauna of India and to prevent the extinction of any species and their protection in balance with natural and human environment, Government of India are pleased to constitute and appoint a Central Board for Wild Life”.

The functions assigned to the Board in the same Resolution are as follows:—

- (i) to devise ways and means of conservation and control of wild life through co-ordinated legislative and practical measures with particular reference to seasonal and regional closures and declaration of certain species of animals as protected animals and prevention of indiscriminate killing;
- (ii) to sponsor the setting up of national parks, sanctuaries and zoological gardens;
- (iii) to promote public interest in wild life and the need for its preservation in harmony with natural and human environment;
- (iv) to advise Government on policy in respect of export of living animals, trophies, skins, furs, feathers and other wild life products;
- (v) to prevent cruelty to birds and beasts caught alive with or without injury;
- (vi) to perform such other functions as are germane to the purpose for which the Board has been constituted.

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COMPOSITION OF THE BOARD

In pursuance with the above resolution the Central Government constituted the Board with the following as its foundation members:

Chairman: Major-General His Highness Maharaja Sir Sri Jaya Chamarajendra Wadiyar Bahadur, G.C.B., G.C.S.I., L.L.D., Maharaja of Mysore, Rajpramukh of Mysore.

Vice-Chairman: (i) Shri K. S. Dharma Kumar Sinhji of Bhavanagar; (ii) Inspector-General of Forests, India.

Members: A representative each of:—

The Geological Survey of India; The Zoological Survey of India; The Botanical Survey of India; Bombay Natural History Society; Bengal Natural History Society; National Institute of Sciences of India; Ministry of Natural Researches & Scientific Research; Ministry of Transport; State Forest Departments; Zoological Gardens; Fisheries Development Adviser; Representative of Sporting Circle; and any other member nominated by the Central Government.

Secretary: Under Secretary to the Government of India, Ministry of Food & Agriculture.

The Inaugural Meeting of the Board was held at Mysore (Lalitha Mahal Palace), on November 25, 1952, under the Chairman-ship of His Highness the Rajpramukh of Mysore.

In his Inaugural Address, His Highness showed a keen insight into various aspects of the management of wild life and treated the subject exhaustively. His Highness brought out the fact that in India the protection of wild life is an ancient cultural trait, for we find a fairly detailed and accurate description of

National Parks and Sanctuaries, in Kautilya-Arthasastra.* It is stated (First Ed. II, Chap. 26, Mysore, 1909) that

“In the capture and slaughter of and injury to deer, animals and birds, assured of security and residing in the *abhayavana* (protected forest or forest without fear of man) the usual punishment is *uttama danda*. If a *Kutumbi* is involved in such acts in the *abhayavana*, the punishment is *madhyama*”.

“In the capture and slaughter of, and injury to fish and birds not given to killing, (the Superintendent) should impose a fine of $26\frac{3}{4}$ *pans*. In case of deer and animals the fine is doubled.”

“Of the unprotected ferocious animals (if killed, captured or injured), one-sixth should be appropriated (for the State).”

“Of the living birds and *mrigas* (here used probably in the sense of animals in general), one-sixth should be released in the *abhayavana*.”

“If animals, deer, tigers, granted security, grow wicked, they should be killed or captured at a place other than protected one.”

In chapter 10 of part III of *Arthasastra*, it is stated:

“If *mrigas* (animals in general probably) or the *abhayavanam* are found at other places (where they might have strayed) for feeding, the keeper should be informed to prevent their being killed.”

According to *Arthasastra*, the following should be protected from injury and killing:

“The marine fishes of the shape of elephant, horse, man, bull, and ass; fishes that grow in tanks, rivers, ponds, khals; birds used for pleasure and sports, such as *krauncha* (curlew), *utkrosaka* (sea eagle), *datyuha* (*gallimule*), *hamsa* (duck), *chakravaka* (*Anas casarca*), *fivanjivaka* (a kind

* With regard to the date of the *Arthasastra* there is, as usual, a difference of opinion among scholars. One group thinks that Kautilya, the minister of Chandragupta Maurya (c.323 to 298 B. C.), composed this work, while the other is of opinion that the work was compiled at a later date (100 to 400 A. D.) by some followers of Kautilyan statecraft.

of pheasant), *bhringaraja* (a species of bird), *chakora* (parrot), and *madanasarika* (the female of the parrot); and other suspicious living beings, whether bird or animal”.

TECHNICAL COMMITTEE

Out of nearly 40 members of the Board, 24 who attended the Session, resolved themselves into four Technical Committees to discuss and report on the assignments entrusted to them. The following were the terms of reference, composition and main recommendations of each Committee:

Committee A.—National Parks and Sanctuaries: Zoological Parks and Gardens; Protected animals and any other cognate matters.*

The Committee recommended the setting up of National Parks and Sanctuaries and defined their working. To ensure the nursing up of wild life undisturbed by human activities, the Committee suggested setting apart sacrosanct areas to be declared as ‘*Abhayaranya*’, a sanctuary within a sanctuary. Emphasis was also laid by the Committee on the setting up of zoological parks for recreation, entertainment, study of animal life and for rescuing and multiplying any species on verge of extinction. Suggestions have also been made for improving the administration of zoological gardens.

The following 13 animal species have been listed as protected animals:

1. Indian Lion; 2. Snow Leopard; 3. Clouded Leopard;
4. Cheeta; 5. All species of Rhinoceros; 6. Indian Wild Ass;
7. Kashmir Stag; 8. Musk Deer; 9. Brow-antlered Deer; 10. Pigmy Hog; 11. Great Indian Bustard; 12. Pink-headed Duck and 13. White-winged Wood Duck.

*Members: 1. H. H. the Maharaja and Rajpramukh of Mysore, *Chairman*; 2. Shri K. S. Dharmakumar Sinbji; 3. Mr. E. P. Gee, *Secretary*; 4. Dr. Satya Churn Law, *Joint Secretary*; 5. Shri N. Pal; 6. Shri M. K. Unni Nair; 7. Dr. M. S. Krishnan; 8. Dr. B. V. Ramanjulu; 9. Shri M. D. Chaturvedi; 10. Raja of Sandur.

The Committee showed far-sightedness in recommending that the Indian Lion, which is now restricted to the Gir Forest, should be introduced into an additional suitable sanctuary.

Committee B.—Administrative Committee.

This Committee recommended:

1. the setting up of State Wild Life Boards;
2. the appointment of Honorary Regional Secretaries;
3. the appointment of Dr. Sunder Lal Hora as Honorary Secretary-General of the Board.

Committee C.—Wild Life Legislation, Centre and States; other (Non-statutory) measures for the protection of wild life, and publicity, education and Liaison†.

So far as legislation for the protection of wild life is concerned, the Committee found that the existing machinery needs strengthening and in this connection, attention was particularly drawn to "Bombay Wild Birds and Wild Animals Protection Act, No. XXIV of 1951" and the rules framed thereunder. A review of the close season and re-examination of the list of "Vermins" was also suggested. A certain control over guns issued for crop protection was recommended and the creation of a buffer belt between protected forests and adjoining agricultural lands was suggested. As a prophylactic measure, inoculation against cattle-borne diseases for domesticated cattle was recommended. Various measures for publicising the need for wild life protection and educating the public regarding the national importance of wild life are indicated by the Committee. Need has been stressed for co-ordinating the activities of such Departments as Forests, Agriculture, Scientific Research, Transportation, Information and Broadcasting in matters of publicity and education of the public concerning wild life.

†Members :—1. Shri Humayun Abdulali, *Chairman*; 2. Shri P. D. Stracey, *Secretary*; 3. Shri J. A. Singh; 4. Shri Daulat Rai; 5. Shri N. D. Sahni; 6. Shri J. N. Sinha; 7. Shri D. C. Kaith; 8. Dr. S. L. Hora; 9. Dr. K. P. Biswas; 10. Raja of Sandur.

Committee D.—Trading in trophies, skins, furs, feathers and other wild life products, and export and import of animals.

The Committee defined "Trophy" as the durable part of any animal or bird which has been preserved by any means but does not include any article manufactured from any such part of the animal or bird as stated above. The Committee has suggested certain restrictions on the exports of trophies and on trade within the limits of India. In order to discourage trading in trophies inside the country, the Committee suggests enforcing the provisions of Act VIII of the close season; sale of such birds and animals; the sale of venison and the sale of flesh and parts of other wild animals.

Total stoppage of netting of all wild animals and birds during "close seasons" is recommended and it is suggested that transport of living animals and birds caught in India should be prohibited from 1st April to 30th September, except for exchange of animals for zoos, movements of circuses, etc. Restrictions on the export of wild life are suggested, but zoos, scientific institutions, etc., are exempted from such restrictions. Rehabilitation and proper management of the Indian zoos and sanctuaries will form the subject of a Symposium.

SOME GENERAL RECOMMENDATIONS OF THE BOARD

The Board felt that for making international contacts, it was desirable to have an indication of the geographical limits of its activities and accordingly recommended to Government the name of the Board be changed to "Indian Board for Wild Life".

The Board also decided to recommend to the Government that the Parliament be requested to declare the Board by law to be an institution of national importance so that its continuance is assured as a statutory body.

As pointed out by the Technical Committees B, C, and D, the main problem in the protection of wild life is to enforce the provisions of the existing laws and to educate the public

in the value of wild life as a cultural heritage. It was felt that full time paid staff for this purpose was out of question on account of the cost involved. The Board, therefore, recommended that all members of the Board as well as Honorary Observers to be appointed by the Board should be vested with the powers of a Forest Officer so far as they relate to the management of wild life. Besides, the Board will also have Honorary Correspondents all over the country to report to the proper authorities any infringement of the rules concerning the protection of wild life in the country.

NATIONAL COMMITTEE FOR INDIA FOR BIRD
PRESERVATION

While the Central Board for Wild Life was in session at Mysore, the National Committee for India for Bird Preservation was holding its inaugural Meeting at Calcutta. Three members of the Board, Dr. S. C. Law, Mr. E. P. Gee and Dr. S. L. Hora, happened to be members of this Committee also. Fortunately, by arrangement through the Chairman of the Committee, Mr. Salim Ali, they were able to hold an informal meeting with him and 5 other members of the Committee before leaving Calcutta for Mysore. As was to be expected, the deliberations of the Committee covered in a diminutive form the wider aspects covered by the Board. This Committee appointed Sub-Committees for Sanctuaries; Protection of Individual species; Plumage and Wild Bird Export and Education and Publicity. The following Resolutions of the Committee are likely to come up for the consideration of the Board :

- “5. Resolved that the Ministry be requested to obtain representation of two members of the National Committee on the Central Wild Life Board.
6. For the Wild Life Board, whose meeting is being held simultaneously in Mysore, the following members be requested to express the views of the Committee :

Mr. E. P. Gee, Dr. S. L. Hora and Dr. S. C. Law.

7. The National Committee recommends that in order to have effective co-ordination of wild life preservation in India, the Central Wild Life Board and this Committee should be under the same Ministry."

It is obvious that some action will have to be taken to coordinate the activities of these two bodies so as to avoid duplication of effort, wastage of funds and talent.

SUNDAR LAL HORA

SUMMER FLOWERS OF DARJEELING

By

N. A. WATTS

The following plants do not comprise a complete list of Summer Flora of Darjeeling. It, however, draws attention to the common indigenous flowering plants including herbs seen in and around Darjeeling. Too often the enthusiastic plant collector is handicapped by the absence of a readily available hand book dealing with the local flora. This record is, therefore, meant to satisfy the needs not of the specialists but of the many naturalists who visit this beautiful hill resort in the summer months. This work is based on the author's own collections, made during his recent tour in these hills. Thanks are due to Dr. S. K. Mukerjee, Curator of the Herbarium, Indian Botanic Garden, Calcutta, for his kind permission to check the specimens at the Herbarium.

Ranunculaceae

Ranunculus diffusus D. C. Buttercup. —Banks of streams.

A plant with decumbent stems, growing up to 1 ft., producing runners from among the radical leaves, which are petioled, cordate, and deeply 3-lobed. The peduncled flowers are $\frac{3}{4}$ in. in diam., with a yellow colour.

Menispermaceae

Stephania glandulifera Miers. —On old walls.

A climbing shrub with broad, ovate leaves. The flowers are in axillary umbels, $\frac{1}{4}$ in. in diam. green-yellow.

Cruciferae

Capsella bursa-pastoris Medic. Shepherd's purse. —Roadsides.

A herb growing up to 1½ ft. The radical leaves are variable, usually pinnatifid. The upper leaves are lanceolate and stem-clasping. The flowers are in racemes and white. The fruit is like a shepherd's purse.

Cardamine circaeoides Hook. f & Thoms. —Woodland.

A plant with radical leaves, that are cauline, sinuate toothed and have their lower lobes rounded. The white flowers are in few-flowered racemes.

Cardamine hirsuta Linn. Bitter cress. —Roadsides.

A plant growing up to 1 ft. The leaflets are ovate, toothed and angled. The white flowers are in racemes.

Violaceae

Viola serpens Wall. Wood Violet. —Woodland.

A glabrous herb with scattered hairs. The stem is short and distinct. The cordate leaves are sharply toothed. The flowers are lilac.

Caryophyllaceae

Cerastium vulgatum Linn. Mouse-ear Chickweed.—Waste places.

A herb with spreading stems, having the lower leaves stalked and the upper sessile. The white flowers are in variable cymes.

Drymaria cordata Willd. —Woodland.

A diffuse herb growing up to 3 ft. The leaves are opposite, with small stipules. The flowers are in axillary or terminal cymes, $\frac{1}{4}$ in. in diam.

Sagina procumbens Linn. Common Pearlwort.
—Waste places and banks.

A perennial that forms a low tuft or mat by means of a number of trailing branches. The leaves are awl-shaped, in pairs and united at their base, ending in a fine hair like point. The minute white flowers are solitary on axillary stalks.

Stellaria longissima Wall. —Woodland and roadsides.

A decumbent herb growing up to $1\frac{1}{2}$ ft. The sessile leaves are lanceolate. The white flowers are in axillary or terminal few-flowered cymes.

Stellaria media Cyrill. Chickweed. —Garden weed.

A herb with pretty white star-like flowers. The oval leaves are opposite.

Stellaria sub-umbellata Edgew. —Roadsides.

A small herb with slightly ascending stems. The linear leaves are sessile. The flowers are white and solitary.

Hypericaceae

Hypericum japonicum Thumb. Marsh St. John's Wort.
—Roadsides.

A very delicate herb, in tufts, a few inches high, stems straight up to 8 in. The leaves are ovate, clasping the stem at

the base. The flowers are at the ends of the main stems in large loose cymes. The yellow flowers are $\frac{1}{4}$ in. in diam.

Ternstroemiaceae

Schima wallichii Chois. Choisy. —Woodland.

A tree growing up to 100 ft. The leaves are ovate. The flowers are white and fragrant.

Actinidia strigosa Hook. f & Thoms. —Woodland.

A large climber with the young leaves and stems densely covered with stiff hairs.

Tiliaceae

Triumfetta rhomboidea Jacq. —Woodland.

A densely pubescent plant growing up to 3 ft. The leaves are ovate and lobed. The yellow flowers are $\frac{1}{2}$ in. long.

Elaeocarpaceae

Elaeocarpus lanceaefolius Roxb. —Woodland.

A tree growing up to 100 ft. The leaves are simple and alternate. The flower spikes are pendent.

Geraniaceae

Geranium nepalense Sweet. Nepal Crane's bill. —Roadsides.

A delicate perennial herb, with weak stems. The leaf blades are deeply divided into five lobes which are again cut and lobed, the ultimate lobes are oblong-mucronate. The pink flowers are in pairs or solitary on axillary peduncles.

Oxalidaceae

Oxalis acetosella Linn. Sleeping Beauty. —Garden weed.

A plant with radical leaves. The leaflets are obovate and slightly notched. The pink flowers are on long radical stalks.

Oxalis corniculata Linn. Yellow Wood Sorrel. —Garden weed.

The stems of this plant are procumbent, rooting at the joints. Each leaf is divided into three obovate leaflets notched at the tip. The flowers are yellow in umbels.

Papilionaceae

Crotalaria albida Heyne. —Roadsides.

The branches are given off from a short woody stem. The leaves are sub-sessile and wedge-shaped. The yellow flowers are in long terminal racemes of eight to ten.

Trifolium repens Linn. Dutch Clover. —Roadsides.

A herb with procumbent stems, rooting at the joints. The three leaflets are obovate, toothed and have their tip notched. The white flowers are in globose heads $1\frac{1}{4}$ in. in diam.

Caesalpiniaceae

Cassia occidentalis Linn. Negro-Coffee. —Waste places.

A fetid smelling undershrub. The leaflets are 3 to 5 on short stalks. The flowers are yellow, in short few-flowered terminal and axillary racemes.

Rosaceae

Fragaria vesca Linn. Wild Strawberry. —Roadsides.

It has a perennial, woody rootstock clothed in silky hairs, from which arise three or four trefoil leaves, and a runner or two starting off to produce young plants. The white flowers are borne on the radical, erect flower stem.

Potentilla fragarioides Linn. —Woodland.

A perennial herb having stems about 1 ft. long. Its leaves are pinnately compound. There are 5 to 9 leaflets often only three in the upper leaves. The flowers are $\frac{1}{2}$ in. in diam. in open terminal corymbs.

Saxifragaceae

Dichroa febrifuga Lour. —Woodland.

A large handsome shrub up to 9 ft. in height. The leaves are obovate and serrated. The blue flowers are in panicles.

Melastomaceae

Melastoma normale Don. —Woodland.

A handsome shrub, with stalked lanceolate leaves. The flowers are purple.

Begoniaceae

Begonia laciniata Roxb. —Woodland.

A herb up to 2 ft. in height. The leaves are lobed about 2 in. long. The perianth is rose-red.

Umbelliferae

Hydrocotyle javanica Thunb. —Banks of streams.

A prostrate herb, with orbicular, crenate leaves. The yellow-green flowers are in globose umbels.

Oenanthe thomsoni C. B. Clarke. —Banks of streams.

A glabrous herb growing up to 2 ft. The leaves are finely 3 to 4 pinnate, and ovate.

Sanicula europaea Linn. Wood Sanicle. —Woodland.

An erect herb growing up to 3 ft. The three-foliolate, radical leaves are on long stalks. The leaflets are ovate-lanceolate, and serrated. The flower heads are in groups of about three, sessile at the forkings, and at intervals on the branches of a broadly spreading cymose panicle.

Rubiaceae

Anotis gracilis Hook f. —Woodland.

A diffuse herb with petioled, ovate leaves. The flowers are white $\frac{1}{4}$ in. in diam. They are in axillary and terminal cymes.

Lasianthus biermanni King. —Woodland.

An evil smelling shrub. The flowers are small, in axillary clusters. It has bright turquoise berries.

Ophiorrhiza harrisiana Heynè. —Woodland.

It is a very variable plant, with ovate leaves up to 1½ in. in length. The flowers are white in small cymes.

Rubia sikkimensis Kurz. —Banks of streams.

A stout, scandent, scabrid, climber. The elliptic leaves are sessile, four in a whorl. The flowers are yellow-green in large, paniced cymes.

Compositae

Ageratum conyzoides Linn. Floss Flower. —Waste places.

A rough hairy herb with opposite, ovate leaves. The heads are in dense, rounded corymbs. The flowers are purple or white.

Anaphalis contorta Hook.f —Waste places.

A herb growing up to 1½ ft., with decumbent branches, and crowded linear leaves. The flower heads are in dense terminal corymbs, and are pale purple.

Bidens pilosa Linn. Shepherd's needles. —Roadsides.

A herb with 1-pinnate leaves, having 3 to 5 leaflets, that are ovate and toothed. The flower heads on long stalks are white.

Blumea glomerata D. C. —Roadsides.

A herb with the lower leaves, obovate, serrate, and the upper, oblong and incised. The flower heads are ¼ in. in diam., purple and in sessile axillary clusters.

Blumea hieracifolia D. C. —Roadsides.

A variable herb. Its elliptic leaves are serrated, except the upper that are sessile and often entire. The flower heads are white or yellow in corymbose clusters.

Crepis japonica Benth. Japanese Hawksbeard. —Woodland.

The flowering stem grows up to 2 ft. The leaves are mostly from near the ground, lyrate, with minute spiny teeth. The flower heads are yellow in a loose panicle.

Dichrocephala latifolia D. C. Round-head. —Woodland.

A herb growing up to 1½ ft. The leaves are petioled and irregularly lobed. The flower heads are on slender stalks in panicles. The outer flowers are white and the inner yellow.

Emilia sonchifolia (Linn.) D. C. —Garden weed.

An erect glabrous herb, growing up to 2 ft. The radical leaves spread, and are pinnatifid. The flower heads are purple, and in long-stalked corymbs.

Gnaphalium luteo-album Linn. Jersey Cud-weed. —Roadsides.

A weed growing up to 10 in. The leaves are linear, whitish with adpressed hairs. The flower heads are yellow, in sessile terminal clusters.

Spilanthes acmella Linn. —Roadsides.

A herb with a weak stem. The leaves are triangular ovate; with shallow serrations, three-nerved at the base. The yellow flower heads are on peduncles that are 2 to 4 in. long.

Taraxacum officinale Linn. Common Dandelion.—Garden weed.

A herb with radical, pinnatisect leaves. The yellow flower heads are solitary on hollow scape of about 6 in.

Tridax procumbens Linn. Coatbuttons. —Waste places.

A procumbent, perennial, hairy herb. The leaves are mostly confined to the base of the plant. They are simple, opposite, and shortly stalked. The blade is elliptic with an irregularly toothed margin. The flower heads are solitary about ½ in. in diam. on terminal stalks which grow up to 10 in. or more. The outer florets are white and the inner yellow.

Vernonia cinerea (Linn.) Less. Ash-coloured Fleabané.
—Waste places.

A very variable plant growing from a height of a few inches to a few feet. The leaves are alternate, and usually bigger at the base and becoming smaller above. The purple flower heads are many, in a diffusely branched, terminal inflorescence.

Vitadenia australis A. Rich. Australian Daisy. —Roadsides.

An erect herb growing up to $1\frac{1}{2}$ ft. The leaves are linear with entire margins. The flower heads are solitary. The outer florets range in colour from pink, fading to white; the inner florets are yellow.

Campanulaceae

Pratia begonifolia Lindl. —Banks of streams.

A small creeping, rooting herb. The leaves are ovate up to $\frac{1}{2}$ in. long. The flowers are green with pink markings, on axillary, 1-flowered peduncles.

Primulaceae

Androsace saxifragaefolia Bunge. —Banks of streams.

A herb with cordate leaves having a serrated margin. The flowers are borne on scapes, that are twice as long as the leaves, on unequal pedicels.

Lysimachia alternifolia Wall. —Woodland and roadsides.

A herb growing up to 1 ft. with decumbent stems. The leaves are ovate, petioled, with the exception of the upper leaves. The flowers are yellow, solitary, borne on axillary stalks.

Myrsinaceae

Ardisia macrocarpa Wall. —Woodland.

A small low, single-stemmed shrub, up to 4 ft. The leaves are lanceolate and crenulate. The wax-like flowers are in sub-terminal umbels.

Maesa macrophylla Wall. —Woodland.

A small tree, growing up to 20 ft. The elliptic leaves are serrated. The flowers are small and yellow, borne on terminal or axillary peduncles 5 to 10 in. long.

Styracaceae

Styrax hookeri C. B. Clarke. —Woodland.

A small tree with simple, alternate leaves. The flowers are white.

Symplocos ramosissima Wall. —Woodland.

A tree growing up to 40 ft. The lanceolate leaves have small regular serrations. The flowers are yellow, in racemes.

Gentianaceae

Gentiana quadrifaria Blume. Ceylon Gentian. —Woodland.

A herb growing up to 5 in. The radical leaves are rosulate, and broadly ovate, while the upper are smaller. The flowers are blue, $\frac{1}{3}$ in. in diam., and in terminal cymes.

Swertia angustifolia Buch-Ham. —Woodland.

A herb growing up to 3 ft. The leaves are linear. The flowers are white with a naked, green, gland on each petal.

Solanaceae

Cestrum aurantiacum Lindl. —Woodland.

A bushy shrub with ovate-lanceolate, shortly acuminate leaves, narrowed to the base in a slender petiole. The orange flowers are in cymes, running into lateral, and terminal panicles.

Datura suaveolens Hook & Benth. Trumpet Flower. —Waste places.

A shrub 6 to 8 ft. high, with elliptic leaves. The flowers are white, sweet-scented, and pendulous, up to 10 in. long.

Scrophulariaceae

Calceolaria mexicana Benth. Ladies Slipper. —Roadsides.

A herb growing up to 2 ft. The leaves are compound. The flowers are lemon-yellow and bladdery.

Lindenbergia indica (Linn.) O. Kuntze. —On walls.

A very slender, glandular herb. The leaves are ovate, cuneate at the base, and closely serrated. The flowers are yellow, and in small clusters.

Lindernia ciliata (Colsm.) Pennel. —Woodland.

A herb growing up to 10 in. The leaves are oblong, and serrated. The flowers are white, spotted or tinged with pink, on axillary stalks forming terminal racemes.

Mazus japonicus (Thumb.) Kunze. —Garden weed.

A herb growing up to 4 in. The leaves are mostly radical, and oblong, coarsely toothed. The flowers are light blue, striped in a darker shade, in terminal racemes.

Mazus surculosus Don. —Banks of streams.

A plant growing up to 1 ft., having several runners, rooting at the joints. The radical leaves are broadly obovate, and irregularly toothed. The flowers may be pale blue or white, in terminal racemes.

Mimulus nepalensis Wall. —Banks of streams.

A plant growing up to 6 in. The stems are decumbent. The leaves are variable, but on the whole ovate. The flowers are yellow.

Torenia peduncularis Benth. —Roadsides.

The plant grows up to 6 in. and is much branched. The leaves are ovate, and serrated. The pretty blue flowers are on pedicels that are axillary and sub-umbellate.

Gesneraceae

Aeschyanthes hookeri C. B. Clarke. —Epiphytic.

An epiphytic plant, with opposite, succulent leaves. The flowers are orange in colour, in small stalked bunches at the ends of the branches.

Acanthaceae

Dicliptera roxburghiana Nees. —Roadsides.

A small herb with ovate leaves. The flowers are pink, spotted in a darker shade, and crowded in axillary cymes, at the ends of branches.

Lepidagathis incurva Don. —Roadsides.

A herb growing up to 2 ft. The glandular-pubescent leaves are ovate. The white flowers are spotted with brown, and are crowded in terminal or axillary spikes.

Verbenaceae

Clerodendron infortunatum Gaertn. —Woodland.

A shrub growing up to 12 ft. The opposite leaves are broad-ovate, acuminate, or slightly cordate. The flowers are in panicles, and are white and tinged with red.

Clerodendron squamatum Vahl. —Woodland.

A very handsome shrub growing up to 5 ft. The leaves are cordate. The scarlet flowers are in panicles.

Lantana aculeata Linn. Wild Sage. —Roadsides.

A very aromatic shrub with prickly stems. The ovate leaves are toothed. The flowers occur in various shades of colour, and are arranged in short sub-capitate spikes on thickened axes.

Verbena venosa Linn. —Roadsides.

The stem of this plant is up to 3 ft. The sessile leaves clasp the stem. They are lanceolate and serrated. There are usually 3 spikes, with pink flowers.

Labiatae

Ajuga macrosperma Wall. —Roadsides.

A herb growing up to 1 ft. The leaves are ovate and toothed. The flowers are crowded in axillary whorls and are light purple.

Elsholtzia blanda Benth. —Roadsides.

A small bush up to 5 ft. The leaves are elliptic-lanceolate. The flowers are $\frac{1}{4}$ in. in diam., white and in one-sided panicles.

Leucas mollissima Wall. —Roadsides.

The plant grows up to 4 ft. The leaves are sessile and ovate-lanceolate. The flowers are white in axillary whorls.

Plantaginaceae

Plantago major Linn. Great Plantain. —Garden weed.

The plant has all radical leaves, stalked and very variable in size. The flower spikes are up to 8 in. The flowers are scattered or crowded. The flowers are white.

Nyctaginaceae

Boerhavia diffusa Linn. Spreading Hog-weed. —Garden weed.

The plant is a diffusely branching perennial. It is a very variable plant. The leaves are distantly arranged at the nodes, opposite, shortly petioled and in unequal pairs. The lamina is broadly ovate, and the base is somewhat cordate. The flowers are very small, red, sub-sessile and arranged in loose axillary or terminal panicles of sub-capitate umbels.

Amarantaceae

Achyranthes aspera Linn. Prickly-chaff Flower. —Waste places.

The plant grows to a height of 3 ft. The leaves are elliptic, shortly stalked with a wavy margin. The inflorescence is an elongate terminal spike attaining a length of even 2 ft. The flowers are green and purple.

Alternanthera sessilis (Linn.) R. Br. Khaki Weed.
—Garden weed.

It is a diffusely branching herb, attaining a length of sometimes 2 ft. The leaves are ovate-orbicular and the base abruptly tapers into the petiole. The flowers are arranged in dense, axillary, spike-like clusters and are chaffy.

Amarantus viridis Linn. Green Amaranth. —Garden weed.

The plant seldom attains a height over 1 ft. The leaves are ovate with a notched tip, and has long petioles. The green, minute flowers are in terminal or axillary elongate panicles.

Amarantus spinosus Linn. Thorny Amaranth. —Garden weed.

A somewhat bushy herb growing up to a height of 2 ft. The leaves are ovate, with long petioles. There are thorns in the leaf axils. The minute green flowers are in axillary clusters or in continuous or interrupted axillary and terminal panicles.

Polygonaceae

Fagopyrum cymosum Meissn. Indian Buckwheat. —Woodland.

A branching herb growing up to 3 ft. The leaves are long-stalked, and broadly triangular. The uppermost leaves are narrow and stem-clasping. The flowers are white, in racemes, forming long-stalked panicles.

Fagopyrum esculentum Moench. Common Buckwheat.
—Woodland.

The plant has a stem growing up to 2 ft. The leaves are broadly triangular-cordate, on leaf-stalks that are $1\frac{1}{2}$ in. long.

The pink or white flowers are nearly sessile, along the branches of terminal cymose corymbs.

Polygonum capitatum Buch-Ham. —Woodland.

The stems are many and leafy trailing up to 10 in., and then rooting. The leaves in two rows are broadly ovate, with fringed margins. The pink flowers are in dense heads up to $\frac{1}{2}$ in. in diam.

Polygonum hydropiper Linn. Water-pepper. —Banks of streams.

The stems of this plant grow to a height of $1\frac{1}{2}$ ft. The leaves are sub-sessile and lanceolate. The flowers are pink in slender, interrupted racemes with their tips drooping.

Polygonum molle Don. —Woodland.

A large trailing shrub, sending its branches over the big trees. The leaves are elliptic-acuminate. The flowers are minute in large compound panicles.

Polygonum runcinatum Ham. —Woodland.

The stem of this plant grows up to $1\frac{1}{2}$ ft. It ascends from a creeping base. The leaves are pinnatifid, cordate and amplexicaul, the terminal lobe being triangular. The flower heads are white or pink, $\frac{3}{4}$ in. in diam.

Rumex nepalensis Spreng. Dock. —Garden weed.

The stem is erect from 3 to 4 ft., and repeatedly forked. The leaves are ovate oblong, acute with an abrupt base, finely toothed. The green flower-clusters are in the axils of the leaves.

Piperaceae

Houttuynia cordata Thunb. —Garden weed.

The stem grows up to 3 ft. The leaves are cordate. The spikes are terminal and leaf-opposed. The white involucre of 4 to 6 petaloid bracts enclose minute flowers.

Euphorbiaceae

Croton caudatus Geisl. —Woodland.

A scandent shrub with variable leaves, having a denticulate margin. The flowers are green in terminal, solitary racemes.

Euphorbia hirta Linn. —Garden weed.

A deeply rooted herb with ascending branches. The leaves are oblong-lanceolate, and shortly stalked. The unisexual flowers are both found in the same involucre. These involucres are collected in dense axillary or terminal congested cymes.

Euphorbia prostrata Ait. Canal weed. —Garden weed.

It is a prostrate herb bluish green in colour, with spreading branches radiating from the main root. The minute unisexual flowers are in involucres as in *E. hirta*.

Ostodes paniculata Blume. —Woodland.

A tree growing up to 60 ft. The coriaceous leaves are 2-glandular at the base. The petioles are from 2 to 10 in. The flowers are yellow, $\frac{1}{2}$ in. in diam. in panicles.

Urticaceae

Chamabaina cuspidata Wt. —Roadsides.

A slender diffuse herb. The leaves are opposite, orbicular and scarios, enclosing young flower clusters. The male flowers are pedicelled, and the female flowers are in dense clusters.

Pilea umbrosa Wedd. —Woodland.

A hairy herb up to 4 ft. The leaves are ovate, with large coarse teeth. The minute, green flowers are unisexual. They are in clusters on the slender branches of stalked, spreading, axillary panicles.

Pouzolzia hirta Hassk. —Roadsides.

A decumbent herb, with branches up to 3 ft. The leaves are ovate to lanceolate. The flowers are in small, rounded, dense clusters.

Orchidaceae

Arundina bambusifolia Lindl. Bamboo Orchid. —Woodland.

A ground orchid, sometimes found growing in gardens. The stem is reed like, nearly $\frac{1}{2}$ in. thick. $1\frac{1}{2}$ ft. high, unbranched and clothed with the papery bases of leaves. The leaves are linear, up to 10 in. long. The crimson flowers are borne in racemes.

Coelogyne flaccida Lindl. —Woodland.

An epiphytic orchid. The pseudo-bulbs, of the plant are elongate up to 6 in. The leaves are lanceolate and long-petioled. The scape has basal sheaths, and the flowers are white or brown $\frac{3}{4}$ in. in diam., in a pendulous raceme.

Dendrobium pierardii Roxb. —Woodland.

An epiphytic orchid. The stems are slender and pendulous, with sessile leaves that are lanceolate. There are 2 or 3 flowers on short peduncles. The flowers are flush white, with a yellowish lip veined with purple.

Goodyera procera Hook. —Woodland.

A ground orchid with a stem growing up to $2\frac{1}{2}$ ft. The plant has lanceolate leaves. The white fragrant flowers are $\frac{1}{3}$ in. in diam., in dense flowered spikes growing up to 8 in.

Microstylis wallichii Lindl. —Woodland.

A ground orchid, with a flowering stem growing up to $1\frac{1}{2}$ ft. The leaves are ovate-lanceolate, with a sheathing base. The flowers are purple in a terminal spike.

Scitamineae

Cautleya lutea Royle. —Woodland.

The stem of this plant grows up to $1\frac{1}{2}$ ft. The leaves are lanceolate with a sheathing base. The spike of yellow flowers are in a drooping spike growing up to 8 in.

Kaempferia rotunda Linn. —Woodland.

A small herb with the leaves and flowers appearing at different times. The leaves are oblong and petioled. The lilac flowers are in a spike.

Haemodoraceae

Ophiopogon intermedius Don. Lily of the Wood. —Woodland.

A herb with radical leaves and a leafless flower stem. The leaves are narrow and grass like. The flowers are white, tinged with green or lilac, pendulous in a loose raceme growing up to 15 in.

Araceae

Arisaema concinnum Schott. —Woodland.

The leaf is solitary on a petiole, that is up to 2 ft. The leaflets number between 8 to 12, and are sub-sessile, narrowly lanceolate. The flower spathe is green or purple, striped with white. The tube is 2 to 3 in. long, elongate and cylindrical.

Arisaema tortuosum Schott. Ratstail Cobra-flower.—Woodland.

The stem is salmon coloured, or green, mottled with purple. The leaf sheath is very long. The plant grows up to a height of 3 ft. The leaves are 2, pedately compound. The leaflets are from 7 to 13 and elliptic. The spathe is $\frac{1}{2}$ in. wide at the base, with overlapping margins. The hood is 2 in. wide, finely striate, arching well over the mouth.

Cyperaceae

Cyperus iria Linn. —Roadsides.

A herb with tufted stems up to 2 ft. in height. The leaves are linear with a sheathing base. The umbel is simple or compound, and the primary rays are 3 to 5 up to 12 in. long. The spikelets are yellow-brown in loosely arranged spikes.

Gramineae

Andropogon aciculatus Retz. —Roadsides.

A grass with a creeping stem, growing up into an erect position up to 2 ft. The leaves are short, densely tufted. The panicle is very narrow and the flower spikes solitary.

Avena sub-spicata Clairv. —Roadsides.

A grass with tufted stems growing up to 2 ft. The leaves are hairy, and the lower sheaths loose. The panicle of densely imbricating spikelets is up to 4 in.

Eragrostis nigra Nees ex Steud. —Roadsides.

The stem grows up to $1\frac{1}{2}$ ft., and is very leafy at the base. The leaves are up to 8 in., bearded at the top of the sheath. The panicle of spikelets are up to $1\frac{1}{2}$ ft.

Imperata cylindrica (Linn.) Beauv. Thatch Grass. —Roadsides.

A variable grass, easily recognised by its white fruiting panicles. The stem arises up to 8 ft. The leaves are glabrous, densely bearded by white hairs. The inflorescence is silvery white, dense, in a plume-like panicle.

Paspalum sanguinale Lamk. Crab Grass. —Roadsides.

A grass with a creeping or ascending stem. The spikelets are sessile on the triangular stalks of 1 to 3 or more spreading stalks.

Paspalum scrobiculatum Linn. —Roadsides.

A decumbent grass growing up to 6 ft. The leaves are acuminate, with a short membraneous ligule. The spikes are up to 8 in., on a slender peduncle. The spikelets are in two rows.

Poa annua Linn. Meadow Grass. —Roadsides.

A grass growing up to 1 ft. shortly creeping and rooting at the lower nodes. The internodes gradually lengthen upwards. The panicle is up to 3 in.

Pogonatherum crinitum Trin. —Roadsides.

A plant with tufted stems growing up to $1\frac{1}{2}$ ft. The leaves are narrow and grow up to 2 in. The spikelets are awned, in a solitary terminal spike.

Setaria glauca Beauv. Foxtail Grass. —Garden weed.

An erect grass, growing up to 3 ft. The yellow panicles are cylindrical up to 6 in. long.

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THE ROYAL BENGAL TIGER

By

LT. COL. W. D. RITECHIE, I.M.S. (RETD.)

Every season one reads that some one has shot a Royal Bengal tiger, but few can tell what this exactly means and the following notes summarise the results of my own inquiries on the subject.

The heading is not a scientific expression but a colloquial one and is not found in a classical description of the tiger such as that of Dunbar Brander. My own acquaintance with tiger began in 1902 while serving with the Central India Horse at Goona, but in that sporting regiment a tiger was just a "bagh". It was not till I came to Assam that I had my next opportunity of a shoot in the cold weather of 1905-1906. The Gauhati extension of East Bengal Railway was being built and at Holtugaon Forest depot, a few miles north of the present Kokrajhar Railway Station I met an Assistant Forest Officer and a Junior Railway Engineer with such elephants as we could collect. The first day we got a tiger and on taking it to the bungalow, the Forest Ranger was heard to say, "is it a Royal"? None of us had heard this remark before and when we asked our superiors, with much shooting experience in Assam and Burma, we got no forrarder. They did not know what it meant. Incidentally I found no difference between tigers in Central India and Assam. To get a definition of the tiger under discussion I had to search the literature of shikar. Fryer (1673) in "New Account of East Indies" writes :—

"a youth killed a Tiger-Royal, it was a Tiger of the biggest and noblest kind, five feet in length besides the tail, three and a half in height, it was of a light yellow streaked with black, like a Tabbey Cat."

A hundred years later, Forbes, in "Oriental Memories" notes, "a gentleman lately engaged on a shooting party in the wilds of Plassey, gave us an account of their success in one month from the 15th August to the 14th September (1785) in which space they killed one royal tiger," and many other animals, but no further details are given of the tiger. Again, in Buckland's "Curiosities of Natural History" we find, "a male Royal Bengal shot by the late gallant Major General Sir W. R. Gilbert in the year 1825 when that Officer was resident at Balasore. This tiger was a confirmed "man-eater" and was killed in the district of Midnapore. He measured 12 ft. 2½ inches in length."

There is nothing in these quotations to show that size, weight or man-eating help one to identify a Royal tiger. The following are more to the point :—

“The patterns on the tiger’s face are disposed generally somewhat in the form of a “W”; and if there be a well shaped “W” over the eyes, the more beautiful is the skin in the opinion of tiger hunters and naturalists.”

From Buckland’s “Curiosities of Natural History” Mr. Blyth writes thus in “Land and Water” (about 1863) :—

“Recently when in the shop of Mr. Ward, junction of Wigmore Street and Cavendish Square, I was shown a most remarkable skin from Central India.

“This skin had just double the number of stripes of any other that I have seen and a considerable extension of black along the middle of the back.”

The last reference is the most illuminating of all, and, I think, is conclusive.

It is by the late popular columnist, “Kim”, in “Statesman” of the 24th April, 1928 :—

“At a time when a sort of controversy raised on the difference between a Royal Bengal tiger and any other tiger, some people said that the Royal Bengal was not necessarily a heavier tiger but he was more finely marked particularly about the head. What was meant by “finely marked” was never explained, but I presume of finely marked tiger is one in which the stripes are very strongly defined. Later on, the naturalists got to work and proved that even in the case of markings, Bengal tigers differed in no ways from tigers in other parts of India. I am led to think of this forgotten controversy by a letter about a tiger killed recently in Eastern Bengal. The writer says it had “a very finely marked head”, the last half inch of its ears being a pure white. Is not this half inch of white at the end of the ear rather unusual?” The inquiries thus show that it is the markings on the animal that count and

though there is no definite yardstick it should be a skin out of the ordinary to qualify as a Royal tiger. Amongst the many animals I have seen in the field and in Zoos as well as skins in museums and private collections I remember only one outstanding case."

It was in a cinema film of Mysore City and in the Zoo were a couple of the prettiest tigers I have ever seen. From the head to the hindquarters and tail the markings on a beautiful tawny background were superb. If the animals were caught in the local jungles or bred from such, then, as "Kim" remarks, Bengal has no monopoly of Royal tigers.

BUTTERFLY-COLLECTING AS A HOBBY

There are a number of points in Mr. S. Thomas Satyamurti's article under the above heading (published at pages 116—121 of the Journal Bengal Natural History Society, Vol. XXVI, 1953) with which I cannot agree.

In the first place, the net illustrated comes to too much of a point and the bag is not long enough. The end of the net-bag should be rounded, as otherwise the butterfly gets itself into the point or corner and rubs itself badly. The net should be long enough to make at least one turn round the frame.

Next, the paper-stuffed killing bottle is not suitable for collecting in the field. However tightly the paper and cyanide is wedged to begin with, there is always the possibility of its becoming loosened and the specimens in the bottle thereby ruined. A far better type of killing bottle is one in which the cyanide is covered with a layer of plaster-of-paris.

Rather than use the triangular type of storage envelope in the field, I would advocate the use of the transparent type of envelope used by stamp collectors as these are far quicker to handle. The captures may be transferred to the permanent storage envelopes at leisure after the collector has returned home. The butterfly should be placed in the envelopes with the costal edge of the forewing along the long fold, and not, as shewn in the illustration, with the body in that position. Envelopes filled as figured can never be packed neatly as the thickness of the abdomina makes for uneven pressure. If filled as I suggested above, and the envelopes packed with the abdomina alternately to right and left, they can be packed nearly without any risk of breakage from pressure.

As regards setting, it is essential that the pin through the thorax penetrates absolutely straight, inclining neither to right nor left, neither backwards nor forwards. The time given for keeping butterflies on the setting boards is far too short, and I am afraid that if this advice is followed the collector will be disappointed to see the specimens "springing"; and the wings, instead of remaining horizontal, will be found to have gone into a sloping position. In a humid climate, such as that of Bengal, at least three weeks are required even for small butterflies, and proportionately longer time for larger ones. The illustration of an insect on the setting board shows the hindwing insufficiently forward; the position to aim at is that in which butterflies are depicted in most books on their classification.

Finally, I do agree that the naming of butterflies is a difficult task, and I very strongly disapprove of the use of a collection of butterflies as a mural decoration.

D. G. Sevastopulo

Kampala
Uganda
Br. East Africa

28. XII. 1953.

WILD LIFE IN INDIA

The Executive Committee of the Indian Board for Wild Life held its first meeting at Kanha Sanctuary in Madhya Pradesh from October 29th to November 2nd, 1953. The members present were: Dr. S. L. Hora (Honorary Secretary-General of the Board). Maharaja K. S. Dharmakumarsinhji (Honorary Regional Secretary, Western Region), Mr. E. P. Gee (Honorary Regional Secretary, Eastern Region) and Mr. S. D. Udhrain (Secretary of the Board). Persons co-opted were: Dr. P. R. Deshmukh (Union Minister of Agriculture). Mr. D. K. Mehta (Minister of Forests and Industries, Madhya Pradesh). Mr. M. D. Chaturvedi (Inspector-General of Forests). Mr. Lakhpat Rai (Chief Conservator of Forests, Madhya Pradesh), Mr. Tara Singh, (Conservator of Forests, Eastern Circle, Madhya Pradesh) and Mr. Horace Alexander. The Union Minister of Agriculture presided over the meeting.

Included in the agenda was the constitution of State Wild Life Boards. It was noted with satisfaction that State Wild Life Boards had been set up in the States of Mysore, Assam, Bombay, Saurashtra and Manipur; and recommendations are being sent to the other States as to the lines on which Wild Life Boards may be created and as to the functions of these Boards.

The most important matter discussed at the meeting was that of national parks, sanctuaries, zoological parks and zoological gardens. It was recommended that eighteen national parks in fifteen States be constituted, comprising all the most important centres of wild life. In particular the following proposed national parks are to be given top priority:—

Assam	...	...	Manas Sanctuary Kaziranga Sanctuary
Madhya Pradesh	...	...	Kanha Sanctuary Tarora Sanctuary
Madras	...	...	Mudumalai Sanctuary
Mysore	...	...	Bandipur Sanctuary
Rajasthan	...	...	Siraska area in Alwar District.

Saurashtra	Gir Forest
Travancore-Cochin ...	Periyar Sanctuary
Uttar Pradesh	Rajaji Sanctuary
Vindhya Pradesh	White Tiger area

A Rs. 40 lakh scheme, in which both the Centre and the States will take part, was recommended, so that these more important places could be constituted as national parks before the end of the Five Year Plan period.

With regard to sanctuaries, it was recommended that nine sanctuaries and reserves in Five States receive special attention from State Governments so that they may function as effective havens for wild life.

It was noted with satisfaction that a zoological park is proposed to be created near Delhi, and a recommendation was made that Elephanta Island near Bombay be converted into a zoological park

A symposium is proposed to be held in Calcutta sometime in 1954 on the management of zoological gardens, zoological parks, national parks and sanctuaries.

Matters concerning wild life legislation in the various States were discussed, and certain recommendations were made.

The importance of education and publicity in all their aspects as far as Wild Life preservation was concerned was fully considered, and concrete steps have already been, and are being, taken in this most important field.

The National Committee in India for Bird Preservation was integrated with the Indian Board for Wild Life, and will now function as a wing of the Board under the same Ministry.

A deep-felt vote of thanks was extended to the Madhya Pradesh Government, and particularly to the Forest Department, which had so efficiently made all arrangements for the meeting, which was held in the beautiful Kanha Sanctuary—more widely known as the Banjar Valley Reserve.

E. P. G.

Wild Life and Assam Floods

Contrary to what appeared in the Press sometime ago regarding loss of wild life in the Kaziranga Game Sanctuary (Assam), the forest home of one-horned rhinoceros, we are glad to be able to assure our readers that except for a few deer no other animals have suffered greatly as a result of the recent floods. There are sufficient high lands inside the Sanctuary for the animals to stay on. Some animals like rhino, deer, pigs, etc., which were living in some lowland areas, have gone to an adjacent hill called "Mikir Hill" for the present and will be coming back in a month or so, when there will be no water available in the grazing areas.

J. C. S.

**STATEMENT SHOWING RECEIPTS AND EXPENDITURE OF THE BENGAL NATURAL HISTORY
SOCIETY AND NATURAL HISTORY MUSEUM, DARJEELING, FOR THE YEAR ENDING
MARCH 31, 1954.**

	Rs.	A. P.	Rs.	A. P.
Receipts				
1. Government grant to Museum	...	4,500	0	0
2. Darjeeling Improvement Fund grant	...	3,000	0	0
3. Municipal Grant	...	1,524	0	0
4. Subscription from members	...	1,233	4	0
5. Donation	...	361	13	3
6. Miscellaneous Sale Proceeds	...	225	13	0
7. Refund of Provident Fund	...	292	4	0
Total	...	11,137	2	3
Opening balance	...	6,309	15	3
Grand Total	...	17,447	1	6
Expenditures				
1. Pay of Superior Staff including fixed T.A. of Curator	...	5,740	7	0
2. Pay of Inferior Staff	...	1,397	0	0
3. Printing charges of Journals	...	2,377	7	6
4. Purchase of specimens	...	371	6	0
5. Office & miscellaneous expenses	...	1,801	9	6
6. Furniture	...	39	8	0
7. Subscriptions to other Societies	...	31	11	0
8. Provident Fund contribution	...	122	8	0
Total	...	12,081	9	0
Closing balance	...	5,365	8	6
Grand Total	...	17,447	1	6

Sd/- J. C. SAHA
Honorary Curator

NATURAL HISTORY MUSEUM
Darjeeling

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4

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