LORIS

A JOURNAL OF CEYLON WILD LIFE Vol. VII No. 5

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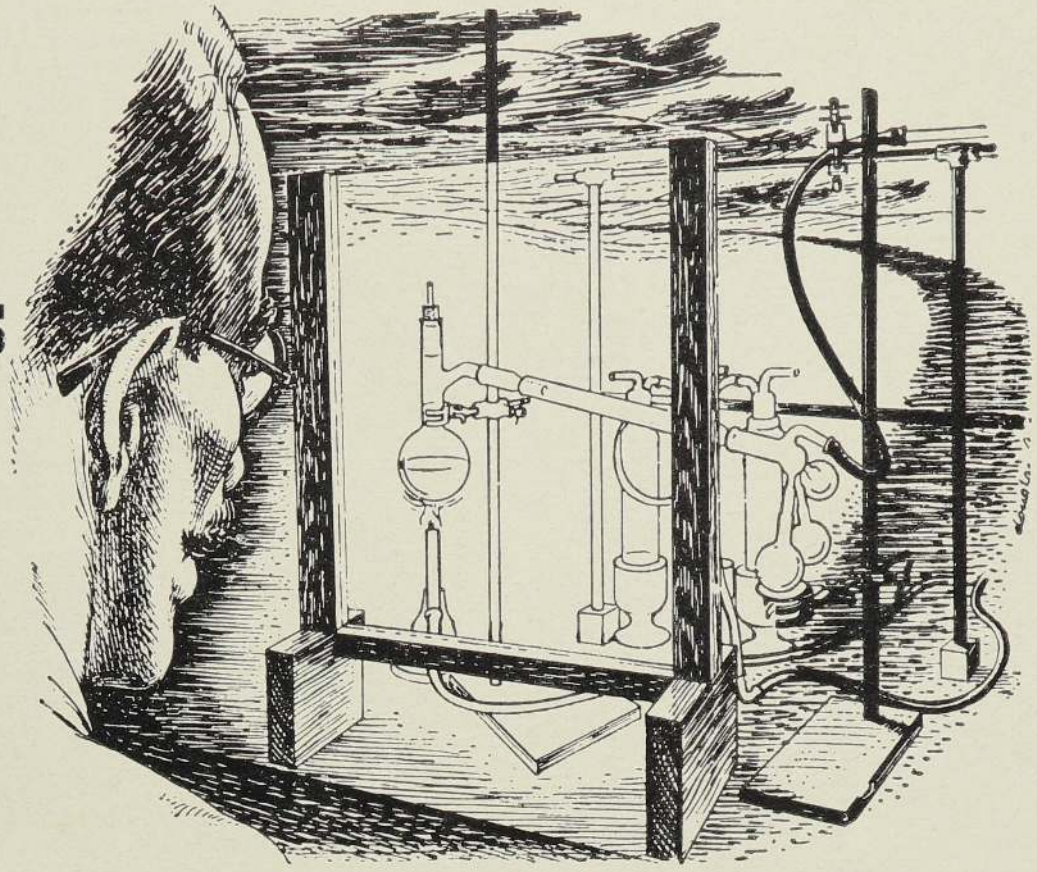

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"To prevent the elimination of game in Ceylon by destruction of animals for trading purposes, to further the interests of legitimate sport, and to conserve one of the food supplies of the inhabitants."

At the Annual General Meeting held on 30th November, 1945, the Rules were revised, and the objects of the Society now are—

(1) To prevent the progressive destruction of species of wild animals and wherever possible to preserve wild life intact in natural conditions in Ceylon.

(2) To continue the tradition of the Society in furthering the interests of legitimate Sport.

(3) To promote an interest in the life histories of all forms of animal life and to co-operate with other Societies and Institutions which have similar aims and objects.

The Subscription to the Society is Rs. 10 annually, payable on the 1st October.

All members, whose subscriptions are not in arrears, receive a copy of each number of the Society's Magazine, "LORIS," which is issued bi-annually in June and December. Further copies may be had at Rs. 4-50 each, at which price copies are also available to the general public.

Persons wishing to join the Society, or desirous of obtaining further particulars, should apply to the Hony. Secretary, Mr. C. E. Norris, Pingarawa Estate, Namunukula.

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LORIS

A JOURNAL OF CEYLON WILD LIFE

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Some Animals of the Paddy-field

By A. C. J. WEEREKOON

(A modified version of the Presidential Address delivered before the Ceylon Natural History Society in 1954)—Illustrations by the Author.

BESIDES the larger animals like birds, fish, reptiles and mammals that are at various times to be found in paddy-fields there are also many very small ones which do not generally attract our notice. Many of these have pains-takingly to be looked for in the soil before they can be found ; yet they are as interesting to the naturalist as are the large animals, perhaps more interesting in view of our marked ignorance of their habits. Furthermore, they constitute that soil fauna which, it is generally supposed, plays an important part in maintaining the fertility of the soil. As if to make up for their small size—few ever exceed a third of an inch in length—they occur in immense numbers. There are anything between 900 and 9,000 of them, depending on the season, in a square yard of the fields in Meegoda which we* studied. These numbers represent a population of 3.5 to 35 million individuals per acre, a population so dense that each footstep taken in crossing these fields will have disturbed between 25 and 250 of the animals—particularly so since most of them, nearly 80 per cent., live within the uppermost two and a half inch layer of the soil.

Of this teeming population the vast majority, about 70 per cent. were insects ; about 25 per cent. were worms ; the remainder included two different species of thread-worm, three snails, one leech (a variety that does not attack man), two water-fleas and one water-mite. Of this last lot the mites, water-fleas and leeches were present in the field when it was covered with water, that is during its wet phase, and are truly aquatic animals. As the field dried during the ripening of the grain they disappeared. It was the fate of one of the water-fleas that first turned my attention to the ecology of paddy-fields. This animal, *Cyclestheria* (Fig. 1), is a beautiful pale-yellow or pale-cream in colour, and it seems to glide through the water like some minute oyster mysteriously endowed with movement. Most of the time, however, it lies on its side in the detritus at the bottom of the water and its flat leaf-like legs, which had by their rhythmic beating produced the smooth gliding movement of the animal through

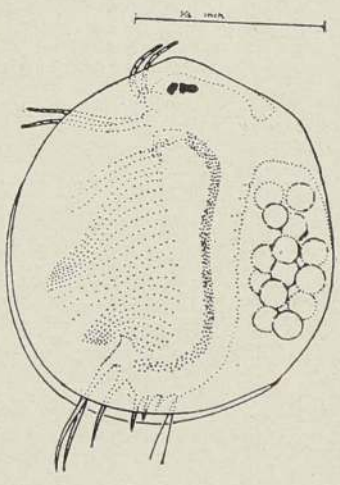


Fig. 1.

*Mr. E. L. Samarasinghe (now Asst. Librarian, Ceylon University) and the author.

the water, now drive a current of water into the shell at one end and out at the other. On its way past the two sets of legs this current is strained through the hairs that fringe them, and tiny particles of organic matter (detritus, algae, bacteria and the like) borne in it are thus gathered by the animal and ultimately conveyed to its mouth. The leaf-like legs are also for breathing, exchange of dissolved gases between the water outside and the body-fluids within the animal taking place between their greatly expanded surfaces. It is obvious that for such an animal continuous immersion in water is a vital necessity ; yet in the course of casual collections before this investigation was begun I had found it in several paddy-fields, a habitat which I knew was periodically drained of its water-cover. How, I wondered, did this delicate creature tide over the dry phase of the field ? and that began an inquiry which has given me the material for this article. As for the Cyclestherias it seems that as the fields dry some of them make their way into the adjoining drainage channels, in the more stagnant pockets of which, here and there, they may survive ; most, however, are trapped in puddles in the drying fields and ultimately die when these puddles too disappear. I have been able to recover the empty shells of dead Cyclestherias from the mud. But how the fields are repopulated is still uncertain. The animals might swim back into them from the little " colonies " in the drainage channels ; or their eggs may have remained alive in the drying mud of the fields and hatched when the fields were once more flooded. Fig 1 shows a number of eggs in this animal's brood-pouch. They normally develop within it till they are little replicas of the parent and are able to fend for themselves ; they then swim out of the pouch by way of its posteriorly placed opening.

So much for the smallest group of this fauna ; something now about the largest group, the insects. Most of these insects are larval stages of various two-winged or *Dipteran* flies and thus belong to the same group as the house-flies and the mosquitoes. Besides the Dipterans which constitute 94 per cent. of the insect-fauna of paddy-soil, nine other orders of insects are represented in the remaining 6 per cent. ; and amongst them are many interesting types. There are two species of dragon-fly larvae, for example, *Orthetrum sabina* and *Neurothemis tullia* (Fig. 2), not in the least handsome but full of interest. These larvae feed on other small aquatic animals which they capture with a curious structure called the " mask." This is the very much elongated and altered lower lip of the larva, which it carries folded in three beneath its face. As will be seen from Figs. 3 and 4 most of the animal's face is covered by this structure ; hence its name. The larva lies very still on the surface of the mud, or just beneath it, waiting for some unwary animal to approach. When one does come within striking distance the mask is shot forward suddenly and the two-clawed lobes at its tip close over the victim which is then brought to the larval jaws by a return of the mask to its original position. Strange as it is this method of food-capture is not the most curious thing about the dragon-fly larva. There are much more curious things it does ; it breathes with its rectum, for example. This last portion of its gut is a large chamber dilatable by special muscles attached to its outer wall. By this means water is drawn into the rectum and sent

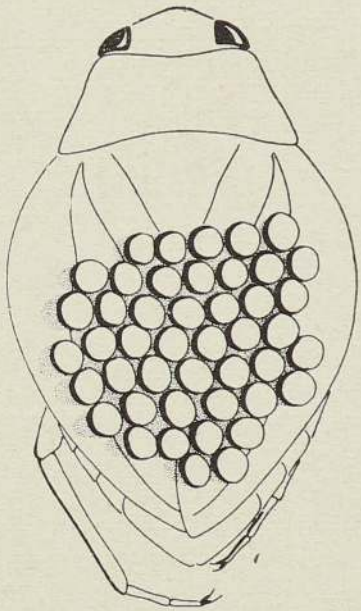


Fig. 2.

Fig. 3.

out again after remaining there for a while. The whole process is constantly repeated and respiratory exchange occurs between this water and the air within the mesh-work of fine tubes or *tracheae* with which the wall of the rectum has been richly provided. This is not the only

Fig. 4.

unusual function of the dragon-fly rectum ; it is also used for rapid movement through the water. The larva has the full insect complement of six legs, but these carry it about relatively slowly and rather clumsily. When speed is required or long distances have to be travelled the water in the rectum is forcibly squirted out through a narrowed anus, and as a result the larva itself moves by recoil in the opposite direction, that is it moves forwards. A repetition of this process carries the animal with speed over long distances, and affords us an example of jet-propulsion in nature.

Another of the less common orders of insects is the order *Hemiptera*, which includes water-bugs of various sorts. The first of these that I wish to mention are the tiny water-striders, *Mesovelia* and *Microvelia*. They are very much alike in general appearance and I have, therefore, illustrated only one of them, *Mesovelia*. This rather sluggish little insect (Fig. 5) walks about on the surface of the water in

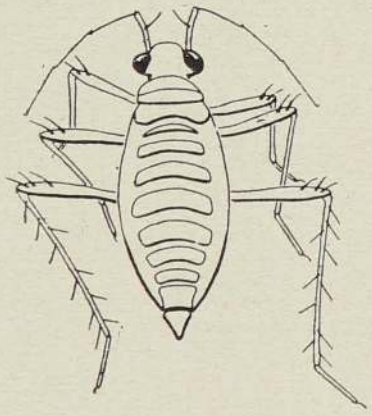


Fig. 5.

search of its food. It can do this without sinking into and drowning in the water because its legs are covered with hydrofuge, that is to say, water-repelling, hairs which prevent them from being wetted. The animal is, of course, surrounded by air and hence has no difficulty in replenishing supplies in the system of air-tubes (tracheae) within its body for breathing purposes.

The next hemipteran on the list, *Ranatra* or the water stick-insect, is also air-breathing but it lives within the water (Fig. 6). It spends

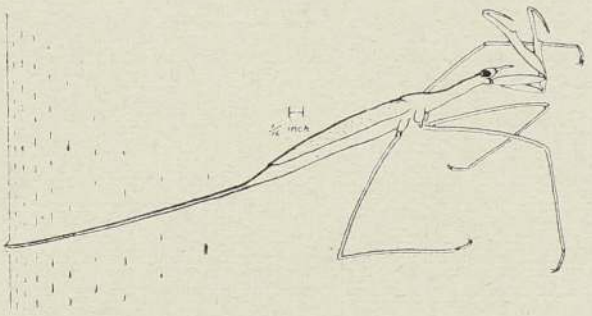


Fig. 6.

most of its time suspended from the surface of the water by a long tubular prolongation of the hind end of its abdomen. Through the open end of this tube (the *siphon*) communication is maintained between the atmosphere and the tracheal system of the insect, which thus breathes as through a "schnozzle." With its supply of air thus assured *Ranatra* hangs quietly from the water-surface, its long scraggy buff-coloured legs lending it the appearance of a cluster of small twigs or roots and helping to deceive its prey (other insects and even small fish) into approaching within striking distance of its raptorial fore-legs. These, as can be seen in the figure, closely resemble the fore-legs of the more familiar praying-mantis and function in much the same way.

Unlike the first three hemipterans referred to the next one, *Micronecta* popularly called a water-boatman, is completely emancipated from the surface-film of the water though it still breathes air. It manages to do this by carrying around it its own store of air in the form

of a little bubble held in the space between its abdomen and its wings. When the oxygen in this store is used up the insect replenishes it by swimming to the water-surface and thrusting the tip of its abdomen through. *Micronecta* is a powerful swimmer, its third pair of legs being flattened and provided with rows of very stiff bristles along their edges (Fig. 7) so that they function as an efficient pair of oars. Its first pair of legs is also noteworthy. These legs are small and are not generally to be seen when the insect is looked at from above as it is in the figure. They are used, when the animal is not swimming, to hold on to submerged objects and prevent its floating to the surface of the water with the buoyancy of its store of air ; they are also used to hold on to its prey. But more interesting than either of these uses is the fact that these legs are rubbed against the insect's proboscis (a sheath protecting its delicate mouth parts) to produce a high-pitched and very clear sound. A dozen little Micronectas in an aquarium can produce a very noticeable volume of sound. The stridulation seems to occur only at night.

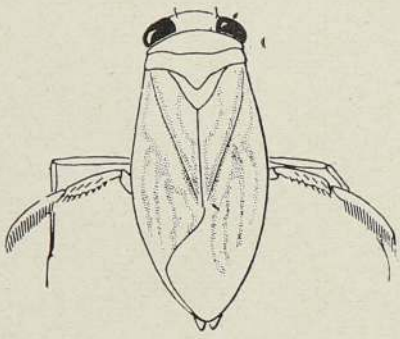


Fig. 7.

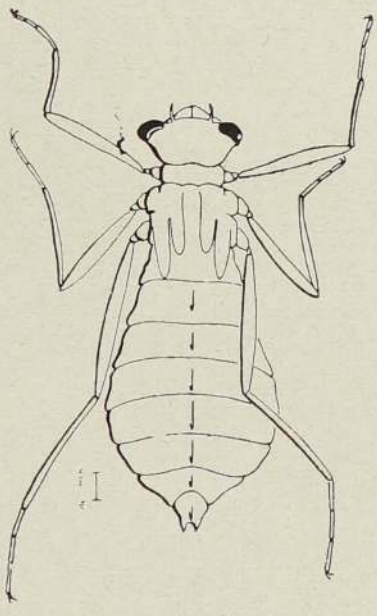


Fig. 8.

The fifth hemipteran illustrated (Fig. 8) is *Sphaerodema rusticum*. This is equally emancipated from the surface film though it is not as agile a swimmer as is *Micronecta*. Its method of breathing is also essentially similar, and I mention the animal in this account because of its curious breeding habits. The female lays her eggs in neat rows cemented to the back of the male who then acts as nurse-maid, carrying the eggs around with him till they hatch. It is only after that that the now empty-egg-case becomes detached from his back, freeing his wings and allowing him to fly again. Till then he must remain a prisoner in his own particular paddy-field. About all the water-bugs referred to it is necessary to remember that they can fly in their adult stages and frequently do so. A drying paddy-field can, therefore, be escaped from by flight to some other body of water, and does not face these insects with the necessity of having to exist in an essentially different environment, as it does *Cyclestheria*.

Another of the rarer insects of the paddy-field is the Springtail shown in Fig. 9. It

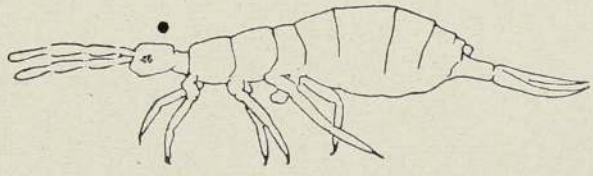


Fig. 9.

belongs to an order of insects, the *Collembola*, which zoologists find especially interesting because they possess many features not found in other orders of living insects but which it is supposed the ancestral insects living many millions of years ago did possess. To give just one example : the springtails are wingless ; and that not because they have lost in the course of their evolution, wings which they once had, but because they never had wings at any time in their history. In short they are primitively wingless, unlike the bed-bugs and the fleas or the wingless castes of the ants and the termites. Besides features of this sort which serve to make these springtails a sort of "living fossils" there are others of interest in themselves. Their legs are very feeble and carry

them about extremely slowly. But if one watches carefully one notices that from time to time an individual leaps off the ground in a kind of standing long-jump that carries it over distances as much as one hundred times its own length. These leaps are made with the assistance of the *furcula*, a forked lever found at the end of the abdomen (Fig. 9). This furcula is normally bent forwards beneath the abdomen where it is held in place by a peg-like downgrowth of the abdominal wall. When the furcula is suddenly released and straightened it levers the insect off the ground in one of the astonishing leaps referred to earlier. Springtails are detritus feeders ; and are very abundant in drier soils than those of paddy-fields. In dry-arable soils they have been found to occur in tens of millions per acre. In the paddy soils we studied populations were seldom larger than ten thousand per acre ; and that too only after the fields had lost their cover of water. The mud of the flooded fields contained no springtails.

Of the eleven different beetles in this fauna I shall mention just two : *Berosus* because its larva has the bizzare shape of some Mesozoic Dinosaurian reptile (Fig. 10). The outgrowths

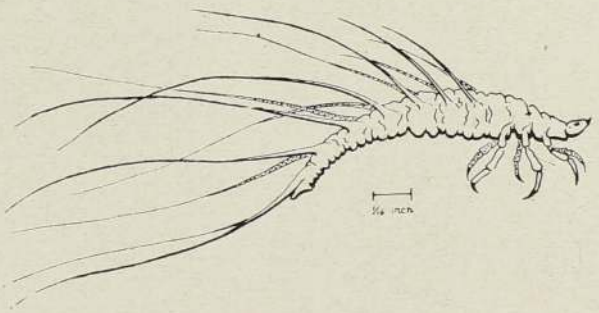


Fig. 10

on its body, however, are not protective or poisonous spines ; they are delicate gills with the help of which the animal breathes. And *Paederus* because its adult stage (Fig. 11) is claimed by many people in this country to be capable of raising blisters on the human skin by contact. It is a conspicuously coloured red-and-black animal. It is not aquatic but is nevertheless present even when the fields

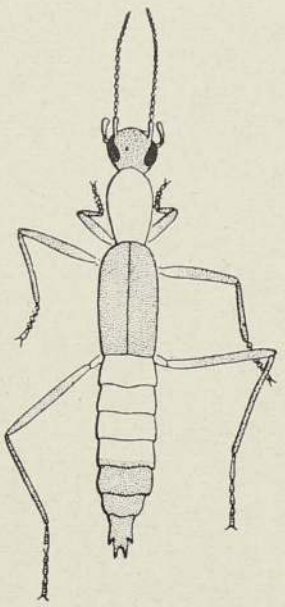


Fig. 11.

are flooded, running over the water-surface in search of its food and looking very like an ant. As for its blistering abilities, though we spent much time in the fields during our studies our skins were never in any way affected by them.

The mayflies or *Ephemeroptera* are represented in this fauna by one of their most delicate species —*Ceanis*. Its larva is very well adapted for life in an environment like the paddy-field where the surface on which the larva moves contains a large amount of a very fine sediment which could soon clog its gills. These are a double row of flat plates with frayed edges, attached to the upper surface of its abdomen. The front pair is enlarged and thickened into a pair of shields which cover the others and protect them from the sediment (Fig. 12).

Moths and Butterflies belong to an order of insects (*Lepidoptera*) which has very few members adapted for an existence in water. One of these few is often to be met with in the water of paddy-fields. Nevertheless I hesitate to count this a fortunate occurrence since the animal concerned, a species of *Nymphula*, happens to be a pest of the paddy plant. Its larva lives in the water in a case which it cuts and makes for itself out of the leaf of this plant.

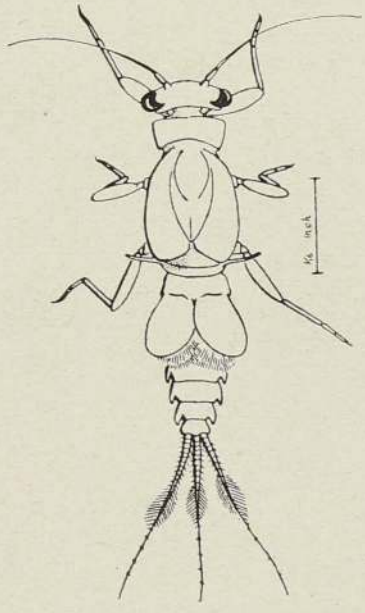


Fig. 12.

It breathes with the aid of the numerous branched gills which protrude from the surface of its body (Fig. 13).

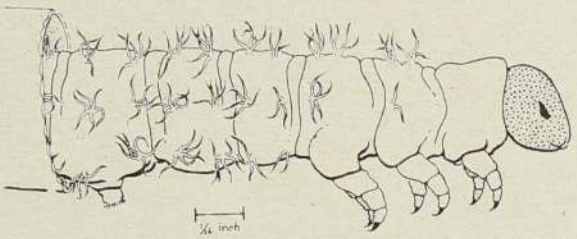


Fig. 13.

With *Chaoborus* we come to the order of insects which is commonest in this fauna. *Chaoborus* itself, however, is relatively rare. In its adult stage it is very like a mosquito in appearance and could easily be mistaken for one ; but its larva (Fig. 14) is quite distinctive.

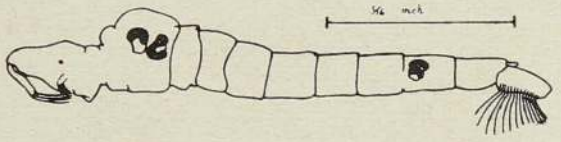


Fig. 14.

It is colourless and perfectly transparent save for two tiny black eyes and for the horse-shoe shaped air-sacs, two in front and two behind, which it possesses. On its head the limbs which in other insects serve as " feelers," the *antennae*, have been modified into a pair of powerful grasping organs for seizing its prey. At its hind end are a row of bristles which form a sort of fin with the help of which the larva is able to scull its way very rapidly through water. Nevertheless it spends most of its time quite motionless in the water. floating effortlessly with the buoyancy of its air-sacs. Other little animals in the water are unable to detect it as it floats thus, quiet and invisible, and when near enough are seized by its raptorial antennae. The prey is swallowed whole, digested in the stomach of the larva, and the undigested remains thrown out through the mouth—a feeding habit reminiscent of that of the owl. There are other strange things about this *Chaoborus* larva. I have already mentioned that it floats with the buoyancy of its air-sacs. This it is able to do at any level in the water, even when it happens to be living in a deep lake. It must, therefore, be able to alter, in some still not understood manner, the quantity of air in these sacs. Next there is its transparency and lack of colour, which have earned for it the name " phantom larva." Most planktonic animals—those, that is, that spend their lives floating in the water, and carried about hither and thither by the currents in it unlike the fishes which are not thus completely at the mercy of these currents—tend to be transparent and colourless or a pale blue, and zoologists were quick to assume that these features were adaptations to a planktonic existence. This " phantom larva " has often been cited as one of the most outstanding examples of an animal displaying such adaptations. It came, therefore, as rather a surprise when it was shown about the year 1938 that the *Chaoborus* larvae of certain Danish lakes spent the day buried in the mud of the lake-bed and only entered the water at night, when the water being dark it made no difference whether the larvae were colourless and transparent or not. And now in Ceylon we have found these larvae in an almost equally unexpected situation—the drying mud of a paddy-field that had been drained of its water-cover. They must have been trapped there, of course, by the draining of the field. But would they have continued to live there till the field was flooded once more ? or would they have at last died of starvation and desiccation ?

Some of the commonest dipteran larvae in this fauna are those of the crane-fly *Erioptera*. This larva is a tiny whitish maggot-like creature which attains a maximum length of about a quarter inch. It bears near its hind end a small cluster of tubular gills and also a pair of *spiracles* or openings into the system of branching air-tubes (tracheae) within its body (Fig. 15). Round these spiracles are five hairy projections called *lappets* which can fold over the spiracles and serve to prevent water entering them. In

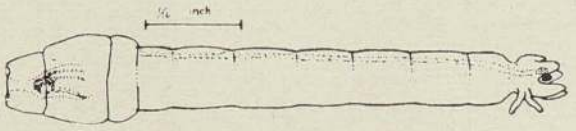


Fig. 15.

a dish of water in the laboratory these lappets open outwards and suspend the larva from the surface-film in much the same way that the *Culex* mosquito larva is suspended from this film by the lappets at the tip of its respiratory siphon. But unlike the mosquito larva which can free itself and swim down from the surface whenever it wants to, this *Erioptera* larva seems quite unable to do so and wriggles helplessly about, hanging from the surface of the water. If this larva depends mainly upon atmospheric oxygen for its breathing—and it is difficult to see why it should have open spiracles and an elaborate mechanism to keep water out of them if its needs could be satisfied mainly by dissolved oxygen taken in through its gills—then this inability to release itself from the surface-film suggests that the larva will be found when the soil is covered, at most, by a very thin layer only of water. It is very interesting therefore that we found *Erioptera* larvae most abundant in samples collected when the fields were drying, and absent or extremely scarce in those collected when the fields were covered with water. This might, of course, be the result of larvae being killed by suffocation when the fields were flooded. But certain other facts suggest instead that the life-cycle of this animal is so adjusted to its environment that egg-laying occurs as the fields are beginning to dry, when perhaps there is still some little water on them ; that by the time these eggs hatch the soil though still thoroughly sodden is expected to the air ; and that the newly-hatched larvae grow through the dry phase ; and pupate and emerge as the winged adult flies at the end of that phase.

The next animal I shall refer to is also a dipteran insect, *Tanytarsus*. This "dancing midge" is very closely related to the familiar Lake-fly of the Beira Lake in Colombo ; and though its larva (Fig. 16) is not red in colour

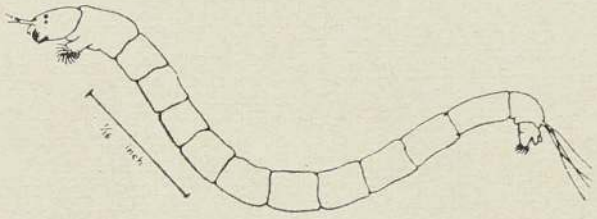


Fig. 16.

like that of the Colombo lake-fly, the two larvae resemble each other in many fundamental ways. One of which is that both are devoid of spiracles so that their tracheal systems are shut off from direct communication with the atmosphere. Breathing is therefore through the general surface of the body, oxygen being absorbed from solution in the water with which the animal is surrounded. About the *Tanytarsus* larvae of these paddy-fields the most interesting fact that emerged from our study was that they were most frequent in samples collected during the wet phase of the fields, from October to January ; and least frequent, even absent, during the dry phases before and after the wet. This cycle is directly the opposite of that of *Erioptera* and seems to be correlated with the fact that *Tanytarsus* larvae depend on water for their supply of oxygen. Egg-laying apparently occurs at or just before the Yala rains ; larvae hatch soon thereafter, grow through the wet phase of the fields ; pupate and emerge as the fields begin to dry again. Here then, in the life-cycles of these two insects, *Erioptera* and *Tanytarsus*, one an air breather, the other obtaining its oxygen from the water, we get some idea of how the difficulties presented by the paddy-field as a place to live in are avoided ; difficulties springing from its regular and marked fluctuations between wet and dry phases. Nevertheless this is only a very partial insight into the problem ; for though many members of the fauna behave like one other of these two insects, many others do not ; *Naidium breviseta*, for instance.

This animal is a delicate little worm, about a quarter to a third of an inch when full grown, and white in colour. It is not only the commonest of the ten different kinds of worms that we found in paddy-fields, it is also the most abundant animal in the entire fauna. There were a little over 2,500 of them within each square yard of soil in December ; and about 1,000 per sq. yd. on an average through the eight months of the survey (average total fauna for the same period being about 5,000 per sq. yd.). *Naidium breviseta* cannot leave the fields during an unfavourable phase by flying away as we have seen some of the insects do ; yet it survives and seems to flourish. What is more its numbers fluctuate in much the same way as those of *Tanytarsus*. With such evidence as we have it is difficult to say with any certainty what accounts for this similarity. Like many other aquatic worms *Naidium* does not reproduce itself by a sexual process. Instead when the worm reaches maturity a part of the hind end of its body develops into a special region or *bud*, which gradually increases in size and forms within itself all the organs of another individual. The bud ultimately breaks off from its parent and leads an independent existence.

The last inhabitant of paddy-soil I shall mention is *Palpomyia*, another dipteran larva. This is the most abundant insect in the fauna, there being on an average about 800 of them per sq. yd. It is a tiny slender thread-like animal seldom exceeding a third of an inch in length. Its whitish body is cylindrical, devoid of limbs and almost devoid of bristles ; its head is a hard brown truncated cone (Fig. 17).

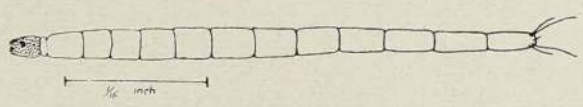


Fig. 17.

It is equally at ease in water and in soil, moving through both with the same rapid side to side flexing of its body. In water this movement makes the animal look at times like a vibrating wire ; in soil it enables the animal to bore its way through, producing a narrow wavy tunnel. *Palpomyia* larvae are very active creatures and the combined effect of many hundreds of them continually burrowing their way about beneath each square yard of paddy-soil must be quite considerable and awaits investigation. You will recall that at the beginning of this article I referred to our ignorance regarding the part played by soil-fauna in maintaining soil-fertility ; here in the case of *Palpomyia* we have an example of that ignorance. One thing more : *Palpomyia* belongs to a group of dipterans called the "biting midges" (*Ceratopogonidae*). Adult females amongst them have their mouth-parts adapted for piercing their prey and for sucking its juices. This prey is generally itself some type of insect, but many biting-midges feed on the blood of mammals, including man. In Ceylon the only species of biting-midge that has been found to attack man is one known as *Lasiohelea stimulans*, the "biting eye-fly," which is something of a nuisance to people in the mid-country areas of the Island. Its larva has not yet been discovered, nor do we know where it lives. It is just possible that some of the biting-midge larvae we collected from these paddy-fields might have been *Lasiohelea stimulans* larvae. I consider that possibility very slight since at no time during the field-work of this survey was either of us bitten by a midge.

The paddy-field is a strange place, full of wonders ; and I hope this brief introduction to a few of its inhabitants will lead more people into taking an interest in this much-neglected section of our fauna.

The Armoured Knight of the Ceylon Jungle

Manis pentadactyla ; Pangolin ; Kaballewa

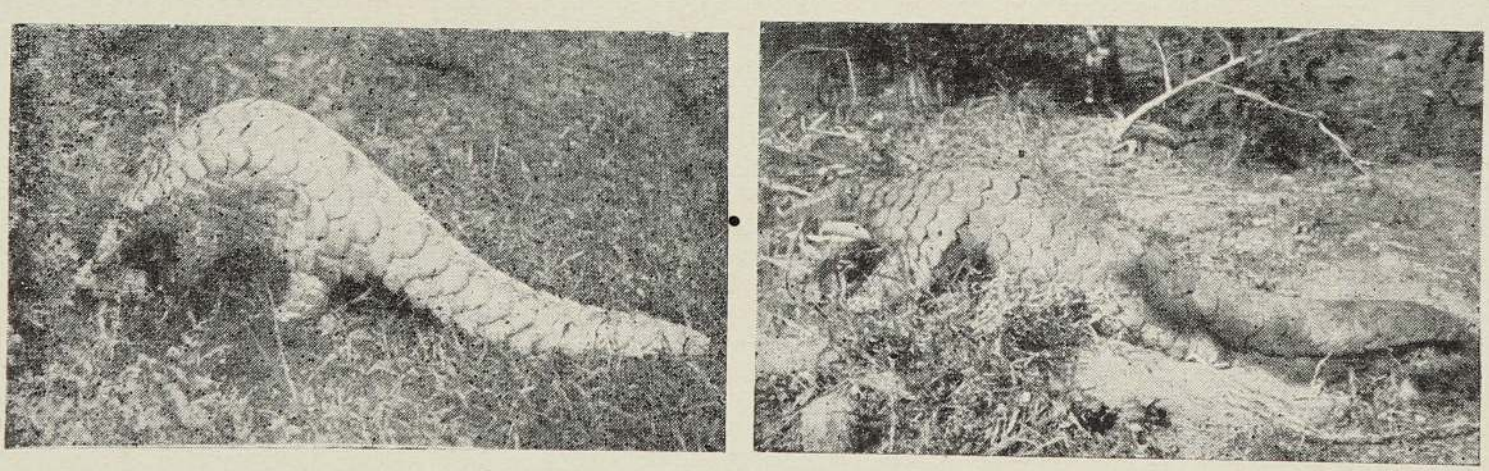
By R. W. SZECHOWYCZ, M.Sc. (Eng.), Dr. Sc. (Eng.), Hanover

THE writing of stories is not an easy task, especially when the ability to do this is lacking. Unfortunately for me and probably fortunately for the readers I have not such ability. From time to time, however, enthusiasm gets the better of my judgment and I try to knit something together. The excuse, of course, is a genuine hope that however poor the effort, the story will be of interest to some and the satisfaction that something that may interest at least few has been placed on record.

My story is not one that starts with the inevitable, " Once upon a time ; but it is the story of a medieval knight—dressed in a bullet-proof armour—still living in Ceylon as the reminiscence of good old times. This knight, of whom this tale is told, belongs to an old and well respected family of toothless mammals —*Pholidota* and his name is *Manis pentadactyla*— because on each of his feet (or hands if you like it so) he has five toes similar in number to his much younger cousin, man. His "Ge" name in English is *Pangolin* and in Ceylon he is known as *Kaballewa*.

The *Manis pentadactyla* is the only representative of his family in Ceylon although he has four close relatives. Two of these live in Africa and perhaps revel in the racial segregation which exists in certain parts of this Continent, one in China who probably has now a hard time with the Communists who have an intense distaste for the aristocracy, and another is confined to Malaya.

The pedigree of this noble family (if a pedigree counts in the present spoiled world at all) is extremely long and is really very, very ancient. Long, long ago his forefathers, "The Ground-Sloths" were giants and according to fossil remains have reached up to 18 feet in length and weighed several tons. Reconstructed by scientists the models show that those extinct animals sat erect and used their tails as support, in similar fashion to kangaroos. There is a theory that all aristocratic families slowly degenerate and the Ceylon knight is not an exception. He is comparatively a dwarf and grows only to a length of five and half feet (the largest one recorded was supposed to be



The armoured knight, Pangolin—Kaballewa (S).

(Photograph on left from the book " The Jungle in Sunlight and Shadow " by F. W. Champion

five feet eight and half inches in length). The Ceylon species is terrestrial while those found in other countries are smaller and some of them are arboreal.

As many a well-born nobleman is averse to mixing with commoners—so is this armoured knight. He keeps to himself and is seldom seen out-of-doors. He prefers the darkness of the night to the daylight. In spite of this preference he is certainly not a clubman as he is seldom seen in company. Observation of his habits is difficult and not much is known of the disposition of this gentleman, who never takes off his armour. His sight and hearing are not very keen while his smell and taste are highly developed. The only sound he makes is a hissing sound, similar to the hissing of a cat. His feet and toes are very strong and digging deep down into termite nests for food or building his underground castle—often as much as ten feet below ground-level—offers him no problem whatsoever. Once in his home he blocks the entrance with earth leaving it only at night. He is a good swimmer and can move ashore as fast as a fast walking man, and when wandering he keeps his tail off the ground. His digging power is fantastic and he can dig himself into the earth in matter of seconds; once he gets in, even partly, it is no easy task to get him out. He is extremely strong and the scales which are fixed to the body, at an angle of approximately 45 deg. to it, create an obstacle. When the animal moves, the scales on his body slightly rustle and when he walks, it looks as if he is walking on his knuckles. The soles of his feet are turned outwards.

His diet consists entirely of ants and hence he is often referred to as the "Scaly ant-eater." In keeping with his dietary habit Nature has endowed him with a very long tongue (so long that it can be the envy of any woman) which exudes a sticky saliva. Nature, however, refused to give him any teeth. This gentleman when captured has been observed to refuse food. This, however, is not, as commonly believed, the demonstration of a strong character, nor is it the threat, popular in Ceylon "to starve to death" as a protest against the violation of his freedom. It is only that he will have no food other than ants. (How easy it is sometimes to go down as hero. The "Quetzal," a native bird of Latin America has become a national symbol in Guatemala, a "Symbol of liberty," and coins, etc., are printed in its honour. All this fuss is only due to the fact that it "fasts unto death" being unable to take any food when captured. Is the pangolin in Ceylon not overlooked?)

The armour of the pangolin is extremely strong and consists of overlapping horny scales. These fish-like scales have given him the name "Jungle-carp" (Ban-rohu) in certain parts of India. His distant cousin from Latin America —the Armadillo—has his plates fixed firmly to the body touching each other at the edges.

The under surface of the Ceylon pangolin is not armoured. The defence this warrior has is in rolling himself together into a ball and so protecting the soft parts of his belly. There is belief among the villagers that he often uses his extremely strong tail as a weapon of defence, but in spite of provoking some animals to anger the writer was not able to verify the truth of this. F. W. Champion in his excellent book "The Jungle in Sunlight and Shadow" describes another method of its defence. He writes:

"Pangolins are provided with a special duct which permits them to emit an evil odour for protective purposes, but the ones I have handled have had only a slight odour—although Captain Pitman says that some African pangolins are very foul-smelling."

What ungentlemanly methods of defence!—which I have, however, not observed in Ceylon species. But it proves that *Nihil novum sub sole* and that the "Gas-war" is not an invention of the twentieth century.

His pointed scales are very strong even to the extent of being able to resist bullets. In certain parts of India there is a belief that rings made of the pangolin scales bring luck in love.

Fortunately for this animal this belief is not prevalent in Ceylon. Girls and boys would be starving for such help in their heart troubles and by now this knight too, might have joined his forebears in a "better world" and become extinct in the Island. The flesh of the pangolin is believed to be aphrodisiac and also able to stimulate the milking glands of nursing mothers. It is, however, not known how much of the increase of population in the villages (I have seen families of eighteen and more) can be attributed to the eating of the stimulating pangolin flesh.

When the pangolin catches something between his belly and tail in the process of rolling up it makes a "saw-like" movement that can cut even a fairly thick rope. In handling these animals care should be taken to see that one's hand is not caught in this trap. The scales can inflict painful wounds. A strange story was told me by Dr. R. L. Spittel, who had got it from some Veddah during his wanderings through the Veddah country which now forms part of the much talked-of Gal-Board Area of Authority. It would appear that a Veddah had once captured a pangolin which he carried home on his shoulder. The animal's tail was dangling down his back and when on the way the Veddah changed the position of the animal on his shoulder the animal suddenly rolled himself up. His captor's neck accidentally got in its way and the man was strangled to death.

Knowing my interest in this animal, one of my game watchers, Emis Appuhamy, brought me a live specimen which he had dug out of a termite hill. I watched the animal in my garden and house for some time. It was not at all scared and unrolled itself almost immediately it was put on the floor revealing a length of about five feet which meant that it was a full-grown animal. As it was getting dark I locked it up in a room for the night and although the room was "thief proof" with cement floor, etc., in order to make assurance doubly sure, I covered the animal up with a large basin on top of which I placed three heavy bags of paddy; to my utter surprise and disappointment next morning the pangolin had disappeared. This athlete had turned the basin and bags of paddy over and climbed the window sill and made its escape by pressing open a steel window which was latched. It probably did not realise that it was missing the only chance of playing the role of a film star as it was my intention to take a few photographs before setting it free. My disappointment was great and I promised myself that if I ever got a live pangolin again the only place for it would be the iron safe in my office.

A post-mortem examination carried out on a male pangolin three feet and four inches long and weighing 45 lbs. which was shot for this purpose revealed the following :—

(*a*) S. G. pellets had pierced the scales on the neck but due to their toughness the pellets had not penetrated to a depth of more than an eighth of an inch into the flesh. The shot that killed the animal had been one that entered the upper part of the head which is not protected by scales. A few pellets which came in contact with the scales on the back had been deflected. The shots had been fired from a position in front of the animal.

(*b*) The usual method adopted by villagers

Post-mortem

Game Ranger Mr. Claessen is watching a post-mortem ceremony. Next to him author's son "Punchi (small) Chief Forest Officer," Andry.

for removing the scales is immersion of the animal in boiling water or holding it over a fire. The skin is not removed. In this case, however, although there was a general conviction that skinning would be quite difficult, the animal was skinned. Due to the rigidity caused by the presence of scales the skin could not be turned inside out or stretched in the process of skinning. A fair portion of the flesh came off with the skin and was removed after the skinning. Divested of its outer covering the animal appeared half its size. The bones are soft and the ribs flexible. Between the scales the skin was infested with ticks.

(*c*) The flesh which was a dark red, similar to that of the buffalo, is said to be tasty and nourishing. The body is very muscular and most of the flesh comes from the tail. The liver of the pangolin consists of several layers and each layer, according to local belief, represents one year of the animal's life. This animal had five such layers. One of the animals killed in the Valley previously had as many as twelve layers in his liver; and if this belief is correct, counted twelve years as his age.

(*d*) The muscular stomach which was quite full was examined. It contained thousands of ants of various description, a few bees, a few Wira seeds, grains of paddy and a considerable quantity of sand and small pebbles. It is, however, doubtful if the stones in its stomach were to help digestive processes. Another feature of the stomach was the existence of a large number of live worms three-quarters to an inch in length, white in colour and about the thickness of a thread. These worms were obviously not a part of the animal's food but had bred inside.

Not many pangolins have been killed in the Gal Oya Valley in the process of jungle clearing. All jungle felling is done by day when our armoured friend is safe in his underground hide-out and his life is not endangered by falling trees. In this manner he has successfully survived the ordeal. In the Sellaka Oya Sanctuary (Baduluwella area) he is quite common.

Now my story has come to an end and I am happy if it has been of interest even to a very few. I would, however, be still happier if readers who have some facts about this extremely interesting animal—the knight of the past, when knights were knights and all else was "next to nothing," would make their observations available to me.

Some Birds of the Galle Face, Colombo

By W. W. A. PHILLIPS

DURING a short residence at the Colombo Club, in October and November, 1956, I took the opportunity to observe the bird-life of the Galle Face, *i.e.*, the tract lying between the State Council Buildings and the Galle Face Hotel and, inland, as far as the Wellawatte Canal.

As well as the Colombo Club and other scattered buildings, the area contains the wide, open grasslands of the Galle Face itself, the playing fields, to the north of the Battery and to the south of the Colombo Club, and the rough broken mounds clothed with rank grass and coarse vegetation that surround the battery itself. As there is but little scrub and few trees, except those in the Club gardens and in a small orchard between the Canal and the Inner Galle Face road, the birds to be found in the vicinity are, mainly, birds of the open grasslands; some migrants, however, occasionally spend a few hours in the Club gardens, after making their landfalls, on their arrival from the Indian Continent at the beginning of the North East Monsoon. The most interesting birds, seen during the short time that I was able to observe, were, I think, the Java Sparrows

(*Munia oryzivora*) which visited the Club gardens on several days, to feed on the grass-seeds of one of the lawns. I had not seen this species since the days of the Second World War (1944) when a small flock, on several occasions, visited the rough grass by the State Council buildings.

In order to give a more complete picture of the bird-life of this coastal district of Colombo, I give hereunder notes on all the species that I saw in the area during the time of my visit.

House-Crow or Ceylon Grey-necked Crow (*Corvus splendens protegatus*).—This pest is present in phenomenal numbers. In the early mornings the Galle Face is covered with crows searching the grass for scraps, insects and anything edible that they can find. They dig into the roots of the grass, pulling up small tufts, apparently in order to obtain "leather-jackets" or other larvae. They sit about the lawns and buildings, incessantly cawing, and take wing only when very closely approached. Any unfortunate lizard or nestling that appears in the oepn is at once pounced upon and dismembered; it is a matter for wonder that any survive to maturity, so abundant are the crows and so voracious are their habits. These "Blackguard Crows," as G. M. Henry so aptly names them, are not only a major pest in Colombo but a real menace to the health of the towns-people; it is therefore curious that the "City Fathers" take no steps to control their numbers. A small reward for each egg, paid during the breeding season from March to November, would very soon reduce their numbers to a negligible quantity and free the city and its environments from the plague; moreover, the numbers of the Koels, that lay their eggs in the crows' nests, would also be reduced. As it is, the crows foul the streets and buildings with their droppings as they rest in any suitable shade-tree that they can find. There is even an old nest in the branches of a large Temple-tree, growing close to the Club.

Ceylon Common Myna. (*Acridotheres tristis melanosternus*).—Mynas are abundant; they frequent the lawns of the Club and work the rough grass and ipomaea-creeper patches of the Battery enclosure for insects. Undoubtedly, they nest in the immediate vicinity as family parties, as well as pairs, are commonly to be seen striding over the grasslands. On 30th October, I was informed that an unusual bird, possibly a young Rosy Pastor, had been seen with a party of mynas on the lawn between the Club buildings. On the 31st, a wet morning, the bird was in the garden again at 6.45 a.m. sheltering beneath a shrub and walking on the lawn, picking up small insects, when the rain eased a little. It was more like a Bank Myna (a bird not normally found in Ceylon) than any other species, but visibility was poor and I was unable to see it well. Later in the day, however, when the weather had cleared, it appeared again with a party of Common Mynas and I was able to observe it more closely. It was the size and build of a Brahminy Myna (*Sturnus pagodarum*) with yellow beak and legs, a blackish cap and dark wings while both on the back and underparts the colour was dull, darkish grey; I am still uncertain as to its identity as it was like no other bird that I have seen, alive, in Ceylon. It eventually flew, with the Common Mynas, into a nearby Temple-tree and then away to roost beyond the church.

A few evenings later, while I was walking along the Inner Galle Face road near the Boy Scout Headquarters, I saw in the grass beneath a group of trees, a bird that appeared to be a young Brahminy Myna. This bird was considerably lighter than the one seen on the 31st; it was also associating with a family party of Common Mynas. The group of trees, in and beneath which it was observed, was only some few hundreds of yards from the place where the first strange bird was seen. It is a curious coincidence that two birds, of the same general type but of different colour, should be associating with Common Mynas in the same area at the same time and one wonders whether they

could be the offspring of a natural cross between a Common Myna and a Brahminy Myna !—a most unlikely occurrence but the only hypothesis that appears to fit the case.

Common Ceylon House-Sparrow. (*Passer domesticus soror*).—Sparrows are as common in and around the Club as elsewhere in Colombo. They were nesting under the eaves and in boxes. During the day, they form small flocks that feed on the lawns, together with Java Sparrows and Pipits at times.

Jawa Sparrow. (*Munia oryzivora*).—The history of this species, as a wild bird in Ceylon, is interesting ; it appears to have been liberated, or to have escaped from captivity, during the time that Legge was resident in Ceylon, that is about 1860-70, and to have more or less established itself, in fluctuating numbers, in and around Colombo. Although it is a native of Malaysia, where conditions are not greatly different to those in Ceylon, it does not appear to have been able to multiply to any great extent but, on the other hand, the species has survived in a wild state, for nearly a hundred years and must now be considered a Ceylon resident. Since seeing the small flocks in 1944, I had not met with it ; it was therefore with great interest that I observed three of these attractive little birds feeding, with a small flock of House-Sparrows, amongst the grass on an uncut lawn at the back of the main building of the Club, on the morning of the 19th October. The next morning there were five in the same place and between 2 and 2.15 p.m. on the 22nd there were no less than eight—evidently four pairs as they kept loosely in pair formation. Sometimes they were with a small flock of House-Sparrows, at other times by themselves, hopping about the flower-beds or amongst the grass and feeding on the seeds that they plucked from the seed-heads. With their large, rose-pink, beaks white cheeks, black heads and tails and their bluish-grey bodies, they are attractive, spritely birds that make pleasing, low twittering calls as they fly away. After the grass was cut, they failed to appear again and I could not locate them elsewhere in the neighbourhood.

Spotted Munia. (*Lonchura punctulata lineoventer*).—Spotted Munias can always be found somewhere in the vicinity, either in the Club grounds, sitting in the bushes or feeding on seeds on the lawns, on the playing-fields or in the rough grasslands around the Battery. They are generally in small family parties of six or more, the young in their first plumage being plain brown and unspotted, but on the 31st evening there was a flock of 30-40 in the Club garden.

Tickell's Ceylon Flower-pecker. (*Dicaeum erythrorhynchos ceylonensis*).—At 9 a.m., on the 2nd November, a single Flower-pecker settled on a bare branch at the top of a Temple-tree beside the Club and continued twittering for some minutes before it flew away. I have not yet seen a Sunbird in the garden but I expect that they occasionally visit it.

Paradise Flycatcher. (*Tchitrea paradisi*).—While watching the Java Sparrows, between 2 and 2.15 p.m., on the 22nd October, a Paradise Flycatcher suddenly appeared, calling attention to itself, as usual, by its harsh, unmusical cries. It was hawking for small insects amongst the branches of a large Temple-tree growing close to the Club wall. With its cinnamon plumage and short tail, it was evidently a hen or young cock and, from its sudden appearance in the Club garden, it is most probable that it had just arrived from India, on migration, having made its landfall on the Galle Face.

Ceylon Tailor-bird. (*Orthotomus sutorius sutorius*).—A pair of Tailor-birds were often seen (and heard) in the hedges bounding the Club gardens and also in the large Temple-trees ; they appeared to have regular rounds, visiting most of the trees and shrubs almost everyday.

Fantail Warbler. (*Cisticola juncidis*).—These Grass-Warblers were plentiful amongst the long-grass and rank vegetation of the Battery

enclosure. Usually several were to be seen in the early mornings, sunning themselves on the topmost twig of a low bush or at the end of a long grass-stem or frequently taking short flicking flights into the air, to disappear suddenly into a grass-tuft. There would appear to be a colony of upwards of 12 pairs in the area, but it is rarely that more than one or two are seen at a time, creeping or flitting amongst the low vegetation.

Common Ceylon Wren-Warbler. (*Prinia inornata insularis*).—A pair were located on 24th November amongst the long grass and low scrub clothing the sides of an old gravel pit in the Battery area. One of the pair was engaged in building its nest in the top of a clump of tall grass (Guinea-grass, by the look of it). From a distance, observed through field-glasses, the nest appeared to have been commenced only within the last day or two. As usual, it was being woven with long lengths of narrow ribbon-grass, torn from the blades of a neighbouring grass-clump. While one of the pair wove the grass-lengths, the mate brought further supplies of material.

Ceylon Ashy Wren-Warbler. (*Prinia socialis brevicauda*).—Occasionally an Ashy Wren-Warbler was glimpsed in the Battery enclosure, from time tio time, but on the early morning of the 25th November, I saw two. One was singing on a stay-wire of a wireless mast, the other in a hedge some 800 yards further north ; there would appear, therefore, to be at least two pairs resident in the area.

Common Ceylon Babbler. (*Turdoides striatus striatus*).—A party of "Seven Sisters" occasionally includes the Club garden in its rounds ; I saw five or six, on several occasions, but they are not usually resident in the garden.

Southern Magpie-robin. (*Copsychus saularis ceylonensis*).—A pair (possibly two pairs) is resident in the garden ; the nest is in a box placed amongst the branches of a tall Temple-tree, near the Club building.

Ceylon Black-backed Robin. (*Saxicoloides fulcata leucoptera*).—A pair of Black Robins also lives in the Club garden ; either the cock or the hen or both can always be seen on one of the lawns between the two buildings.

Red-vented Bulbul. (*Pycnonotus cafer cafer*). —Several pairs of Common Bulbuls frequent the Club gardens ; one or two are always about.

Brown Shrike. (*Lanius cristatus cristatus*).— One (possibly two) was seen in the Club grounds on the morning of the 21st October, apparently newly arrived. Each day, afterwards, it was either seen or heard in or near the garden. It was very wild at first but appeared to be getting tamer now it had gone into residence in the vicinity of the Club.

Indian Pipit. (*Anthus richardi malayensis*).— Pipits are very plentiful in the area, on the lawns, the playing-fields and on the Galle Face Green ; they may commonly be seen running over the short grass or creeping amongst the ranker grass of the Battery enclosure, where they most probably nest.

Richard's Pipit. (*Anthus richardi richardi*).— On the morning of 19th October, small numbers of the large, upstanding Richard's Pipit were scattered over the Galle Face Green, running over the short grass, catching insects. They remained, in fluctuating numbers and, in the early morning of 25th November, I counted 20-30 scattered over the grass and adjoining playing fields. In the evenings, when the Galle Face becomes crowded, they fly inland to quieter areas.

Eastern Swallow. (*Hirundo rustica gutturalis*). —Small numbers were present throughout everyday, hawking flies and small insects over the Galle Face and around the Club buildings.

Indian Pitta or "Painted Thrush." (*Pitta brachyura*).—About mid-day, on the 16th October, a Pitta flew into the upstairs lounge of the Club ; after fluttering round for a few minutes and settling on a fan-blade, it flew

out again. There is little doubt that it was a newly arrived migrant, from the Indian Continent, that had made its landfall on the Galle Face.

Blue-tailed Bee-eater. (*Merops philippinus phillippinus*).—Two Bee-eaters were hawking for insects from the branches of one of the Temple-trees in the Club grounds about 5 p.m. on the afternoon of the 24th October ; they appeared to be new arrivals from overseas. Others were heard, passing over, on several occasions later in the week and on 25th November, two were again in the Temple-trees in the garden.

Indian Roller. (*Coracias benghalensis indica*).—On the early morning of 15th November, I was awakened by the raucous calling of an Indian Roller (Blue Jay) immediately outside my window. Looking out, I found it sitting on the topmost, bare branch of a small Tulip-tree in the hedge between the Club garden and the playing-field to the south. It then flew to the goal posts and back. It remained in the immediate vicinity until we went into breakfast at about 7.45 a.m. but had disappeared when we returned. The question arises—where did this Roller come from ? Was it one of the small colony that lives in and around the Race-course or had it arrived from overseas ? As it was mobbed by House Crows, but took little notice of them, and another was on the northern playing-field on the afternoon of the 25th November, it seems likely that they are local birds that visit the Galle Face at intervals.

White-breasted Kingfisher. (*Halcyon smyrnensis fusca*).—One pair inhabited the Club grounds, together with part of the Battery enclosure over the hedge to the north ; another pair lived around the playing-field to the south of the Club. Mrs. H. Wratten tells me that the first pair nest in a hole in the brick-work of one of the Battery buildings ; the second pair were still in occupation of a hole in a bank beside the Bowling Green, near the Fisheries Research Building. They are reputed to be old residents of the vicinity.

Common Coucal or "Jungle-Crow." (*Centropus sinensis parroti*).—A pair frequently combed the hedges of the Club gardens for anything edible that they could find. In the early mornings, the familiar " Hoop-oop-oop-oop " call of this bird was heard.

Koel. (*Eudynamis scolopacea scolopacea*).—There were generally one or two Koels in the Club grounds, usually in the large Temple-trees or in the hedge between the garden and the Battery. On one occasion, I saw two black males and one speckled-brown female, together, as noisy as usual.

Pigeons. (*Columba livia*).—The pigeons are a feature of the Galle Face. In the early mornings large flocks of semi-wild birds congregate to feed on the seeds on the Galle Face Green. Later in the day, they return to the nearby buildings. Many of them breed beneath the eaves and in sheltered crevices of the Club. One old cock was picking up nesting material and displaying to his hen on the morning of the 25th October. Although many of these pigeons still have the white, pied or checkered dress of the domestic pigeon, the majority are rapidly reverting to the blue-grey and black-barred plumage of the wild " Blue-rock " stock.

Brown-headed Gull. (*Larus brunneicephalus*).—Occasionally Brown-headed Gulls, distinguishable from the Terns by their larger size and heavier build, could be seen from the Galle Face ; they were generally far out to sea, often following ships.

Indian Whiskered Tern. (*Childonias hybrida indica*).—These small migratory Terns were frequently seen, out to sea off the Galle Face. Small numbers move northwards to the harbour in the early mornings and southwards in the evenings. They generally keep rather far out but sometimes visit the spill and canal.

Large-crested Tern. (*Sterna bergii velox*).—Small numbers of these large Sea-Terns were also seen daily, usually rather far out off the

Galle Face. Frequently they were seen to dive into the water after small fish.

Kentish Plover. (*Charadrius alexandrinus*).—On the afternoon of 25th November, one came flying up from the south, along the tide line and passed over my head. Probably waders of many species fly along the tide-line off the Galle Face, from time to time during the period of the North-East Monsoon when so many visit Ceylon.

Common Sandpiper. (*Tringa hypoleucos*).—A single Common Sandpiper was seen on the rocks near the spill, in front of the State Council buildings, on the 26th October. It is a common bird, both along the seashore and beside lagoons, canals and rivers, so it probably frequently appears on the Galle Face shore and also beside the canal.

Kestrel. (*Falco tinnunculus*).—Kestrels were seen twice on the Galle Face and once sitting on the Club roof. Probably they were new arrivals from overseas; they retired inland when the crowds began to gather on the Galle Face.

Brahminy Kite. (*Haliastur indus indus*).—These large Kites were seen, out to sea, on several occasions gliding or flapping along off the Galle Face, passing from the harbour areas southwards. They haunt the harbour daily.

Pale Harrier. (*Circus macrourus*).—On 25th November, a Pale Harrier in immature plumage, spent most of the day gliding low over the Battery enclosure and the Galle Face Green; it circled round, skimming the heads of people on the Green and settled several times in the low vegetation of the Battery enclosure. It was remarkably confiding, taking little notice of passersby. The plumage was that of a young bird and the tail was in moult.

Pond Heron. (*Ardeola grayii*).—On the same day a "Paddy Bird" was seen to fly along the canal. Formerly these birds were very plentiful round the Colombo Lake and along the canals but they have become much scarcer in recent years.

Migrants.—In spite of the heavy motor traffic along the Galle Face Centre road, almost throughout the day, the large crowds that assemble on the Green on fine evenings to enjoy the sea breezes, the multitudes of House-Crows and the abundance of half-wild cats, which must account for a very high percentage of the young birds when they leave the shelter of the nests, small numbers of resident birds maintain their existence in this area. During the north-east monsoon period their numbers are augmented by a considerable influx of migrants from overseas. These migrants come down the West Coast of India, during September, October and early November, pass over the Gulf of Mannar, leaving Cape Comorin behind them, and make their landfalls on the West Coast of Ceylon between Kalutara and Chilaw. Some of them land on the Galle Face. In addition to those mentioned in this paper, I saw, one morning, a bird that I think was a Drongo but I had not my glasses with me; it came in from the sea. Another evening a bird that appeared to be a female Ward's Pied Thrush (*Zoothera wardii*) was in the Club garden. Furthermore, Sir Sydney Shelley, a resident at the Club for many years, has told me of flocks of Rosy Pastors (*Sturnus roseus*) and several Small Cuckoos (*Cuculus poliocephalus*) visiting the grounds; so, in spite of the traffic and the crowds thronging the Galle Face Green, interesting birds do still turn up there from time to time.

FAREWELL TO A NATURALIST

By a Staff Writer in the "Daily News."

MAJOR W. W. A. Phillips, F.L.S., M.B.O.U., F.Z.S., and Mrs. Phillips will leave Ceylon by the end of March, possibly for the last time. When they do, Ceylon will have lost one of the most distinguished naturalists to have made his home in this country.

Much of the collections and records of birds and mammals representing the Indian sub-continent in the Museum of Natural History at South Kensington, London, is Major Phillips' work. Amongst naturalists all over the world Major Phillips is a recognised authority. And he has performed for Ceylon a unique service in preparing and publishing (1935) the first systematic survey of *The Mammals of Ceylon* to be undertaken since Dr. Blanford included an account of the Ceylon *mammalia* then known in the *Fauna of British India* series in 1891. Major Phillips' book, now out of print, is still the standard work upon the subject.

The Ceylon Game and Fauna Protection Society will long remember him as one of their most energetic Secretaries and wisest of Presidents; for he held each office for many years. But the general public will probably know him best as the author of a charming series of pocket-sized handbooks on the Birds of Ceylon (published by Lake House), of which three have already appeared and two further volumes are to follow.

Major Phillips is one of those men whose real vocation is his avocation. A planter by profession, and one of high standing amongst his colleagues, his first interest (as distinct from his duty) has been the wild life of this country. For forty-five years he has consistently sought not only to study and describe it scientifically but to engage the interest of the layman in the subject and to save the too-great part of it that is in danger of extinction for posterity. His interest has gradually shifted from mammals to birds; but in both fields the intensity of that interest has been steadily maintained, although he has never allowed his enthusiasm (or his imagination) to compromise his integrity as a scientist—a claim one might hesitate to make of local scientists indiscriminately!

This is not to say that Major Phillips works solely on established observations and rejects hypotheses. No scientist could do that. He has, for instance, waged a long (though friendly) war with Mr. R. L. Spittel on the question of the identity of the Devil Bird—or more particularly, on that of the author of the "hoo" cry which is part of that cacophonous creature's *repertoire*. Even at the farewell recently accorded Major Phillips by the Wild Life Protection Society, friends of both antagonists were delighted to see the ancient battle joined with unabated pertinacity!

Major Phillips' last local excursion into field research is an example of the trouble to which he is willing to go in order to check a dubious point or discover a new one. He has just returned from a voyage to the Maldives, of which the purpose was to make an avi-faunal survey of the islands and (especially) to look for confirmation of a report made (at the end of the last century and unconfirmed ever since) that there existed in the Maldives an indigenous and resident species of a sea-bird known as the Shearwater.

The Shearwater, named for its habit of closely skimming the surface of the water as though it were ripping a slit in it with its beak, is an oceanic bird that spends its life at sea, returning to land only to nest and breed. One or two species can be met with off the coasts of Ceylon; but they are migrants wintering here; their home, when they seek one ashore, is the Antarctic. About sixty years ago, however, a visiting naturalist reported that he had seen a new species amongst the Maldivian Islands and that they were said to be actually resident there. He had not, however, been able to secure a specimen; and so far as science knew, there was no proof of his statement that they existed.

Major Phillips had long hoped to rediscover this all-but-unknown species. As the time approached for him to leave these regions in retirement he decided that now or never must

the attempt be made. Accordingly, he and his wife sailed for the Maldives last November in the *Max Arlt*.

The trip was not without its thrills from the very beginning. The Maldives are groups of coral atolls forming an archipelago. Atolls are ring-shaped islands, or groups of islands, sometimes a score or more of miles across. As they approached Male Atoll, the chief of the chain in which the capital island, Male, is situated, the "Max Arlt" ran aground on the northern fringes of the reef. Since the Maldivian Prime Minister was also aboard this was no small matter! Indeed, the little ship was quite badly stuck. Thirty-six hours after, the H.M.S. "Cheviot," bound for Mombasa, answered her S.O.S. and took the passengers off and deposited them at Male; but the "Max Arlt" herself had to wait three days before an ocean-going tug, the "Tradesman," fortunately on her way back from pulling a luckless tanker off the reef at Minicoy, turned up and got her off.

The Phillipses spent a profitable time on Male. They discovered that only five species of land birds seem to inhabit the island—all Ceylon types. The crow is raucously there and is rather charmingly called Ka-lu. The koel is there (simply as *koel* and under no alias at all). So is the grey heron, a rare pipit, and the green bittern. The latter is consistently paler coloured than his Ceylon counterpart and may, Major Phillips thinks, prove to be a separate sub-species. Many of the smaller Ceylon animals are there too—the house rat, the house mouse and the musk shrew (fifty per cent. of whom, strangely enough in the Maldives prove to be albinoes), two species of gecko, a skink, multitudes of "bloodsuckers" and the wolf snake. Altogether the Phillipses identified specimens of 54 different species of animal life. But no Maldivian Shearwater.

It was rumoured, however, that these did exist in some of the northern atolls. So the Phillipses decided to press on thither in search of them. The only means was by buggalow; so they chartered one of these and set up their camp cots aboard.

At night the buggalow would anchor up in the lee of an island; but the low land—no part of the Maldives is over six feet above sea-level—offered so little shelter that they were rocked like mad in the cradle of the deep! After two days of hard sailing they were still clearly in sight of Male. They were sailing, of course, into the teeth of the North-east Monsoon. The captain, pressed as to how long the voyage was likely to take, answered fatalistically: "Who knows? 20, 30 days"! The Phillipses' time was already running out; obviously this voyage must be given up and with it the main purpose of the expedition. With very heavy hearts they returned to Male. The return trip took three hours!

A few days later a Maldivian fisherman turned up with a small black-and-white bird in his hand. "Would the gentleman be interested in this?"

Would the gentleman be interested! The gentleman had seldom been as interested in anything in his life. It was a Maldivian Shearwater—exactly as it had been described 60 years ago!

It appeared that the birds nested quite numerously in a small island called Lankamfuri barely twelve miles away! The Phillipses themselves were soon to see them there and bring back several specimens—most of which have already been despatched to the British Museum of Natural History—and photographs of their nests and habitat while on shore. The Maldivian Shearwater nests in a burrow under the sand beneath the roots of a bush.

The expedition had been crowned with success. A new species had been positively added to the still slowly growing list of nature's diverse animal forms. It was a good way for a man to end a chapter of his life.

Major Phillips has come a long way from the day when, as a Turkish prisoner-of-war in World War I, he taught himself biology from a text-book written by H. G. Wells. For H. G.

Wells was a teacher of biology before he became the world-famed writer. Yes, indeed, it was a long way—more than forty years. But a good straight way for a man to look back upon.

The Joys of Bird Watching

Radio Talk by E. B. WIKRAMANAYAKE

EVERY man and woman should at some time try and cultivate a hobby, and I can think of no more fascinating one than the study of birds. It gives you a great many opportunities for outdoor exercise for you cannot watch birds indoors. It satisfies your aesthetic sense. A thing of beauty is a joy for ever and you can find joy for a lifetime in our birds. It enlarges your powers of observation for you must keep both ears and eyes open. Birds are shy and unobtrusive and will not meet you even halfway. It is an intellectual stimulant for there are many problems pertaining to the life and ways of birds which are still awaiting solution and the careful and systematic observations of amateurs will be of great assistance in the solution of these problems. There is, for example, the problem of migration. With the north-east monsoon a large number of migrants come to Ceylon from the continent. From where do they come and what route do they take? Towards the end of the year you will find in the parks and open spaces of Colombo quite a number of birds which you have not previously noticed. Among the commoner of these are the Blue-tailed Bee-eater, the Gray Wagtail, the Long-clawed Pipit and the Eastern Swallow. I have noticed in recent years a large flock of Golden Plover on the Sinhalese Sports Club grounds. There are a large number of others which are more or less unnoticed. For four years a Brown Shrike used to visit my garden in Bambalapitiya. It used to come towards the end of October and leave by the end of April. I like to think that it was the same Shrike although in the absence of facilities for bird banding it is impossible to tell. Residents in Colombo often find in their garden or verandah some migrant exhausted by its flight across the ocean. One of the commonest of these is the Indian Pitta. It rests in Colombo till it recovers its strength before it passes on to the hill-country where it spends its short sojourn in Ceylon. Occasionally one may find a Malay Bittern or a Banded Crake. There may be others whose visit has passed unnoticed and bird watchers should keep their eyes open for any stray visitor to the Island.

Migration, of course, is only one of the problems that might interest the bird watcher. There are many others. Do birds, for example, pair for life and, if so, which of them. There is a very interesting book on the life of the English Robin by David Lack. It is published in the Penguin series and gives a good idea of the pleasure that one can get from watching birds. Of course, David Lack was a professional who had more time and opportunity and better facilities for the study of birds but even so it is possible for the amateur to experience some of the joys of it and I have found with very great satisfaction that the enthusiasm for, and the interest in, birds has been steadily on the increase in this country.

Bird watching is also a very inexpensive hobby. All that you require is plenty of enthusiasm, a good pair of binoculars and a note book and pencil. Make an immediate note of everything you see, and remember that accuracy is all important. The pleasure of bird watching is also greatly increased if you can familiarize yourself with the song of the birds. This is not as difficult as it sounds. It is merely a matter of time and patience. It has been said that Ceylon is not rich in songbirds.

That is, to some extent, true but there are birds in Ceylon which can compete on equal terms with any songster in the world. The Magpie Robin, for example, which you can listen to any morning in your garden can challenge comparison with any bird in the world. And there are others whose song is a balm to tired minds, who can make you forget the cares of the day and feel that "God's in Heaven and all's right with the world."

It is a mistake to suppose that, in order to watch birds, it is necessary to make long trips into the jungle. You can get quite a lot of enjoyment out of it in Colombo if you have the enthusiasm. A bird bath and a couple of jam fruit trees in your garden will attract all the birds you need for a start. In my garden in Bambalapitiya I have seen at one time or another over thirty different varieties of birds. Some of them used to visit me all the year round. Others like the Brown Shrike were migrants. Among the more unusual birds were a Rosy Pastor which spent a few hours in the garden, a Drongo Cuckoo which visited me for a few days and a Paradise Flycatcher. The Common Babbler has built its nest in the Bougainvillea ; the Coucal in the thick hibiscus hedge ; Black-backed Robins have reared their broods in the ledge between a pillar and the roof and Bulbuls have built everywhere. One pair even built a nest in a bunch of plantains hanging on the tree. Sunbirds and Tailorbirds have given me a glimpse of the wonderful technique of their nest building.

I think I have said enough to indicate some of the joys that can derive from bird watching. Let me conclude with a quotation from Lord Grey who took to bird watching when he was over thirty and wrote a charming book about it. "The capacity of finding pleasure in outdoor nature is a capacity for taking pleasure in common things and is a capacity in which anyone can share."

This is the Sanctuary of Peace and Cotton Teal. Here, beneath these very boughs standing cool against uncertain skies, have they sat looking at nothing everywhere ; and,— unless some hunter interferes, they have gone quietly away, as they had come, and you did not know it ; and left no trace but tranquil waters, friendly sedges, soliloquising lotuses, and reflections.

Sydney Nathanielsz.

THE SECRET OF OBSERVING BIRDS

"THIS is the secret of observation : stillness, silence and apparent indifference. In some instinctive way these wild creatures learn to distinguish when one is or is not intent upon them in a spirit of enmity; and if very near, it is always the eye they watch. So long as you observe them, as it were, from the corner of the eyeball, sideways, or look over their heads at something beyond, it is well. Turn your glance full upon them to get a better view, and they are gone . . .

"Walk across a meadow swinging a stick, even humming, and the rooks calmly continue their search for grubs within thirty yards ; stop to look at them, and they rise on the wing directly. So, too, the finches in the trees by the roadside. Let the wayfarer pass beneath the bough on which they are singing, and they will sing on, if he moves without apparent interest ; should he pause to listen, their wings glisten in the sun as they fly . . ."—RICHARD JEFFERIES in *The Gamekeeper at Home*.

The Woodpeckers of an Uva Tea Estate

By D. L. EBBELS

NEVER have I known woodpeckers to be more numerous than on this estate. They are engaging birds, and have for long interested and fascinated me. My time here is now drawing to a close, and I feel that it is an appropriate moment to set down in a condensed form, my observations on them during the past seven months. These observations are of a very much more scanty nature than I would have wished, jotted down as they were at odd moments, yet it is my hope that they will prove to be of interest and even of some little value.

This tea estate lies between 3,200 ft. and 5,700 ft. on an escarpment overlooking the low-country areas of Hambegamuwa and Hambantota. By a narrow margin, it escapes the South-west Monsoon, and in general, experiences the conditions that go with the Uva Dry Zone, though blow-over from the Horton Plains is not uncommon during June.

Some years ago a large number of shade trees (*Grevillea robusta*) were ringbarked, and though a considerable proportion of these have now been felled, many remain, and are now completely dry and devoid of all but their largest branches. On the division of 443 acres where my observations were made, I estimate that at their commencement, somewhere in the region of 5,000 still remained, and in my opinion this large number of dead trees has initially had a great deal to do with attracting the exceptionally high population of woodpeckers.

Five species of the woodpecker family inhabit the estate. These are the Small Scaly-bellied Green Woodpecker, (*Picus xanthopygaeus*) ; the Pigmy Woodpecker, (*Dryobates hardwickii gymnophthalmos*) ; the Yellow-fronted Pied Woodpecker, (*Dryobates mahrattensis mahrattensis*) ; the Ceylon Red-backed Woodpecker, (*Brachypternus benghalensis erithronotus*) ; and the Ceylon Yellow-naped Woodpecker, (*Picus chlorolophus wellsi*).

A combination of factors enable one to identify each of the five species with ease and certainty, even though the bird may not be visible. Generally the first indication one gets as to the presence of a woodpecker in the vicinity is either the sound of drumming or tapping or a cry. All of these are a great aid to identification—especially the last.

By the loudness of the drumming or the strength of the tapping one may generally determine whether the woodpecker in question

belongs to one of the three larger species or to one of the two smaller ones—the Pigmy Woodpecker and the Yellow-fronted Pied Woodpecker. In the case of the larger three the tapping or drumming will, of course, usually be stronger and louder than in the case of the latter two, and *vice versa*.

The cries of all species are most distinctive and once they are known there is no difficulty at all in distinguishing one species from another if its characteristic call should be heard. In the breeding season, however, I have heard all species except the Small Scaly-bellied Green Woodpecker make a curious "chittering" sound when courting.

The Red-backed Woodpecker has the greatest diversity of notes—if such harsh utterances may be so described. One of the calls that is most frequently heard is not unlike that of the White-breasted Kingfisher: a loud, harsh "Creee, Creee," but uttered more regularly than that of the Kingfisher. A large collection of snorts, trills, and chuckles make up the remainder of its vocabulary.

In contrast to this large variety, the Small Scaly-bellied Green Woodpecker has only two cries, that generally heard being a loud, staccato squeak: "Chick." I have, however, very occasionally, heard and seen it utter a musical, resonant, and high-pitched "Qweee," or "Wreee."

The Pigmy Woodpecker and the Yellow-fronted Pied Woodpecker each have various calls, though they each have one characteristic note which is the one usually heard. That of the former is a high-pitched, shrill trill—somewhat similar to that made by a bicycle bell, rung when covered with one's hand. The latter species, though certainly not a noisy bird, nevertheless appears to me to be much freer with its calls than seems to be generally supposed. The usual call is a sharp "Chit'ock"—a double rattling note. It also occasionally utters rather feeble squeaks, as does the Pigmy Woodpecker, which also occasionally makes the curious "chittering" sound referred to above, out of the breeding season.

I have only heard the Yellow-naped Woodpecker give one call, which is aptly described by Mr. G. M. Henry as being rather reminiscent of that of the Indian Pitta. It is a rather mournful "Creeew," or "Peeew," tailing off sharply at the end.

Very often I find that the woodpecker, once located, is viewed against the light or against the bright sky (the case, for example, if it is high up in a tree). In this situation the woodpecker will be more or less silhouetted, and the bird's colours extremely difficult if not impossible to see. One therefore has to identify the species principally by their sizes and shapes.

By this method, the Pigmy Woodpecker is, of course, very easy to identify, since it is so small as to be impossible to confuse with any other species. Likewise, the Yellow-fronted Pied Woodpecker is of a distinctive size, being much larger than the previous species and too small to be mistaken for any other woodpecker. With the remaining three species, however, their differing shapes have to be taken into account since they differ but little in size. (It is true that the Yellow-naped Woodpecker is markedly smaller than either the Red-backed Woodpecker or the Small Scaly-bellied Green Woodpecker, but to observe this difference in the field requires, I find, a little practice and nice judgment). The Small Scaly-bellied Green Woodpecker has in general a more stream-lined appearance than its relations. The head is flatter, and the body is less dumpy. On the other hand, the Red-backed Woodpecker is a more heavily built bird with a stouter and more dumpy body, and also has a conspicuous crest. The Yellow-naped Woodpecker is distinguished by its distinctively rounded appearance, wedge-shaped head and beak, and its slightly smaller size.

The above specific characteristics and idiosyncrasies are, except, of course, for the obvious factor of colour, those by which the members of the estate's Picidae may be distinguished from each other. However, certain habits that are peculiar to the species or family may be a great aid to identification.

As a family, the Woodpeckers are almost purely arboreal, and this being so, it is interesting to note that one or two species may differ from the general rule and seek their food on the ground. This habit is particularly marked in the case of the Small Scaly-bellied Green Woodpecker, which appears to be almost equally as terrestial as arboreal. I have frequently flushed a bird of this species from amongst the tea and have seen it "work" the perpendicular bank of a drain in the same manner as it would a tree trunk. However, though it may be seen as frequently upon the ground as upon a tree trunk (it avoids the smaller branches), when danger threatens it loses no time in making for an arboreal retreat. In my experience I have known only one other species, the Red-backed Woodpecker, to alight on the ground, though I have a reliable report of a Yellow-fronted Pied Woodpecker, which was seen for a short time to forage amongst some grass and fallen dead leaves. The Red-backed Woodpecker which, on a single occasion, I observed perched upon a small boulder, so far as I was able to ascertain was not foraging.

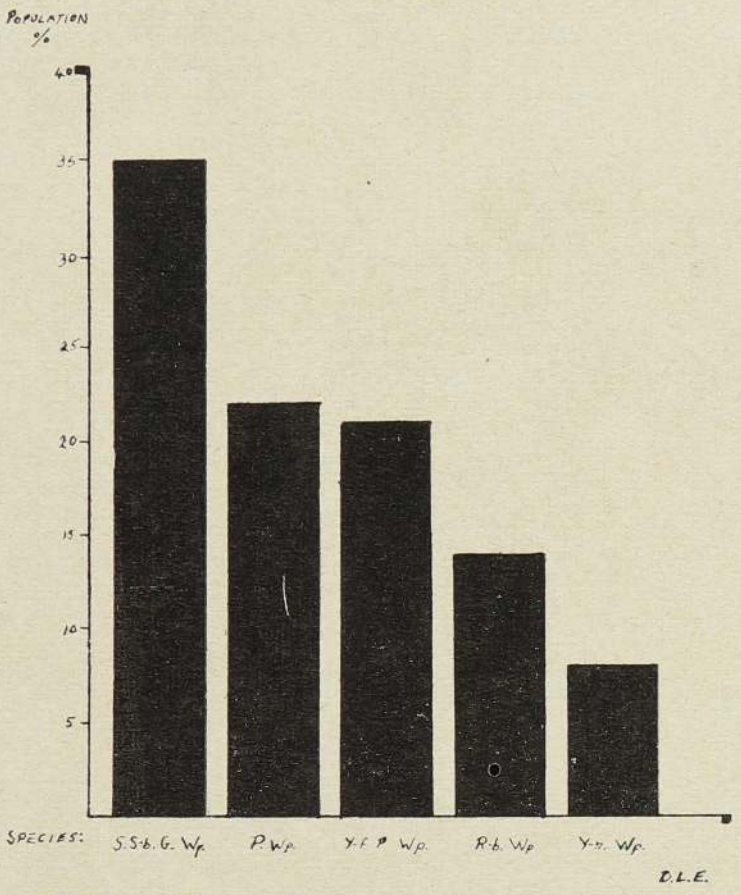
The flight of all woodpeckers is undulating and direct. The birds move, as it were, in a series of bounds, the wings being alternatively beaten and closed. The wingbeats are fast and occur at the lower points of the bounding movements. It is perhaps to the peculiar flight that the curious, muffled, vibrating noise made by an airborne woodpecker, owes its origin. This sound is most distinctive, and I suggest that it is caused by the high pressure of air under the wings in the dips of the bird's flight which, on the down beat, passes swiftly past the tips of the primaries, causing them to vibrate.

Practically all species of woodpeckers are much addicted to drumming upon the branches and trunks of the trees upon which they are ensconced. This is quite distinctive from tapping, for when drumming the bird's head moves so rapidly that it becomes a blur, and the beats follow so closely one upon the other that they are almost perfectly blended into one roll. It is reasonable to suppose that the physical exertion must be considerable, and perhaps for this reason the rolls are never of long duration. The exact reason for the drumming is still somewhat obscure and has for long been the subject of controversy among ornithologists. The two explanations that appear to me to be most probable are that the drumming is used as a means of communication, or that it simply serves to drive woodborers and similar insects from their holes and crevices in the wood and bark. My own observations seem to me to indicate that the latter explanation is the nearest to the truth. It will be observed that on such occasion at the cessation of the drumming, the bird twists its head sideways, very often with the beak open, as if resting after its exertions. However, this action brings the ear coverts close to, if not into contact with, the bark or wood, and I suggest that, in reality, the bird is simply listening for the movements of the insects and larvae within the wood in the same manner as other birds listen for worms to betray their whereabouts in the ground. The drumming in this case would merely be a means of making the insects and larvae move, that they might be heard to reveal their whereabouts, and so be captured.

I found it impossible to arrive at any reasonably accurate figure or the population of all or any species, particularly as my time was limited, but I discovered that the month to month and week to week populations fluctuated to a considerable extent. This was especially noticeable in the case of the Red-backed Woodpecker. For this species the population rose sharply at the end of the two breeding periods (August to September, and March to June) and was at its lowest in the months immediately preceding them, that is in February and July. The difference was not so marked in July, but in the former month one might not see a woodpecker of this species for a week or possibly even longer.

No. 1

COMPARATIVE POPULATIONS OF WOODPECKERS



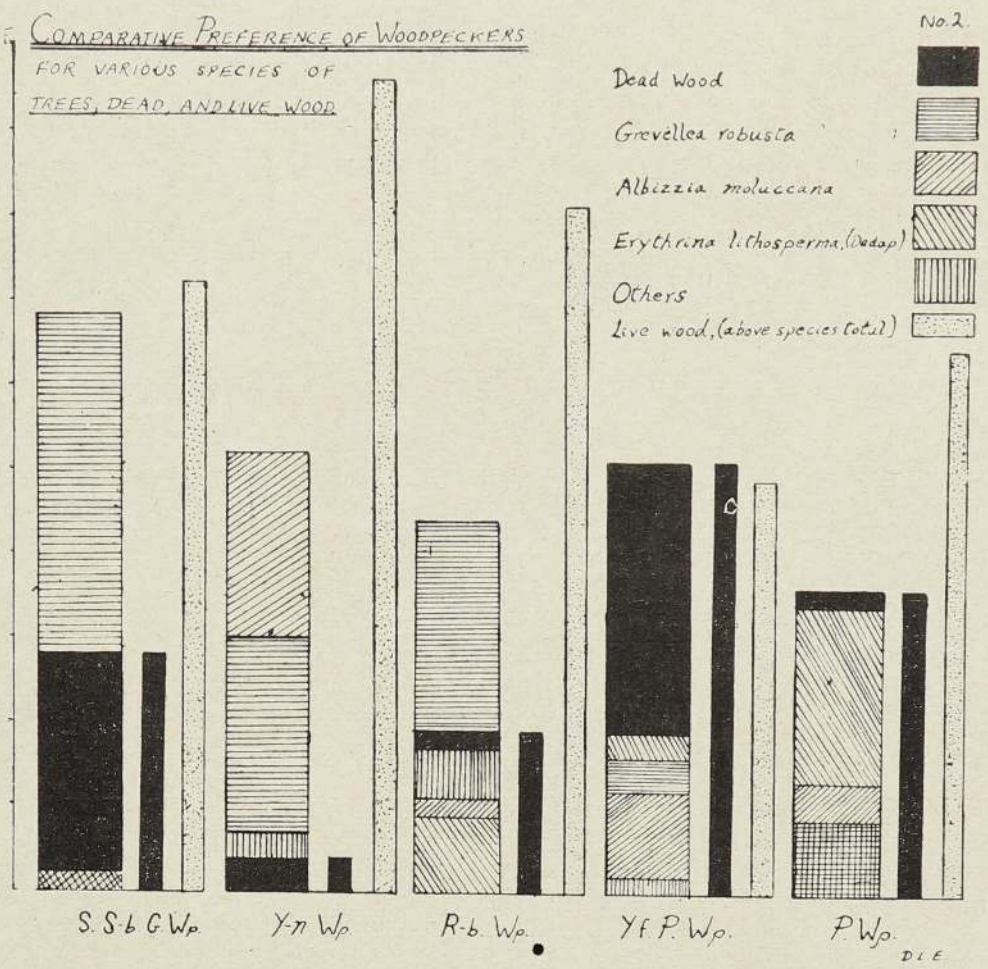
By recording every woodpecker that I saw in the course of the day, I was able to get some idea of *comparative* populations of the various species, even though some individuals may have been recorded more than once. These populations I have shown in visual form as percentages of the average frequency of occurrence for all woodpeckers, in the accompanying histogram, No. 1. In effect this means that out of every hundred woodpeckers seen, roughly thirty-five would be Small Scaly-bellied Green Woodpeckers, and so on. As may be seen, a somewhat unexpected result was obtained in that the Small Scaly-bellied Green Woodpecker was the most numerous, and the Red-backed Woodpecker comparatively uncommon. It must be remembered, however, that the histogram is based on the average frequency of the occurrence of the species over a considerable length of time, and that during some periods an uncommon species might be more numerous than a species of comparatively frequent average occurrence.

The abundance of the Small Scaly-bellied Green Woodpecker acquires a new interest when it is remembered that it is described by most authors as a rather rare bird. This is the opinion of Mr. W. E. Wait and he is corroborated by Mr. G. M. Henry. The Yellow-fronted Pied Woodpecker is also unusually common, and it also appears to rise to much greater heights here than it normally does. To quote Mr. G. M. Henry: it "ascends the hills, on the eastern aspect to about 3,000 ft.", yet on this estate I have observed a family party as high as 4,500 ft. The reason for this may be that the main mountain massif rises so sharply from the low-country and the foothills, that most of the birds which I have so often observed in the lower half of the estate (which is above the 3,000 ft. contour) are merely wanderers from the lower elevations. I have, however, found this species breeding at 4,000 ft. in July. The nesting hole was situated about thirty feet up in a dead grevillea. Yet another incongruity is that the Red-backed Woodpecker, though common, is not the most frequently met with, though most authors agree that in general this woodpecker is Ceylon's most abundant species.

During the month of June I endeavoured to determine whether woodpeckers of the various occurring species held any preference for any particular species of tree, and whether they preferred dead to live wood. Therefore, on each occasion that I observed a woodpecker, I noted the species and condition of the tree upon which it was perched. The results proved to be of interest, and I have shown them in histogram No. 2.

A word of explanation as to the composition of the histogram may be advisable. Each of the broad columns is really a histogram in itself, but it must be imagined that the various columns have been superimposed, one upon

the other, so that only the shortest column is shown in full and the others show only the difference between them and the next shortest column. The thin columns show for each species its comparative preference for dead and live wood, one column being the aggregate total of the preference for live woods, and the other representing the preference for dead wood—which in nearly every case was Grevillea robusta. Where two kinds of shading have been superimposed, the preference for either species of tree was equal.



As may be seen, in nearly every case, live wood was preferred to dead wood, the only exception being the Yellow-fronted Pied Woodpecker. The two largest woodpeckers showed a preference for Grevillea robusta, but it must not be forgotten that the Small Scaly-bellied Green Woodpecker was almost as frequently seen on the ground. It is also probable that these larger species prefer the larger trees, in which case they would have no option, but to frequent the grevilleas, since in general no other large trees are to be found on the estate.

The Pigmy Woodpecker showed a greater preference for dead wood than for any particular species of live tree, but in general preferred live to dead wood.

In the case of the Yellow-naped Woodpecker a curious phenomenon showed itself in its very marked preference for Albizzia moluccana. This particular woodpecker was never found in any part of the estate in which this tree was not growing. Several fields of the estate were planted extensively with Albizzia moluccana and one could generally be fairly certain of a view of this species of woodpecker when passing through one of them. Though the birds did not entirely confine their activities to Albizzias, the trees were always close at hand. Except that the Albizzias may possibly have sheltered some species of insect that the Yellow-naped Woodpecker found palatable, I am unable to offer any explanation as to this curious habit and would be extremely interested to hear another's opinion on the subject.

Though the dead trees were not so popular as live ones for feeding purposes, they made ideal nesting sites, and there was hardly a tree but had one nesting hole or more. Very often there would be as many as three or four old nesting holes in the one tree. It is possible that the woodpeckers were first attracted to the estate for the ideal nesting conditions that the abundance of dead wood afforded, and that once they had been attracted, a large number

stayed in the vicinity and so swelled the population.

I did not have the opportunity of observing the nesting habits of any species very closely, but from what I saw it seems probable that the female bird does the bulk of the excavation of the nesting cavity.

I must emphasize that the above notes are the results of intermittent observations, made chiefly in the first half of 1956, and are limited to this estate only. To my mind the Woodpeckers are a fascinating group of birds, and the Picidae would make an interesting subject for careful study. I shall conclude with the apt and famous words of the Rev. Gilbert White : " My remarks are, I trust, true in the whole, though I do not pretend to say that they are perfectly void of mistake, or that a more nice observer might not make additions, since subjects of this kind are inexhaustible."

Tea Estate Bird—Tally

By CAPT. A. ST. G. ORPEN, R.N. (Retd.)

INSPIRED by Colonel Robertson's article in a recent issue, I thought it might be of interest to record the birds identified by me on a single Tea Estate during intermittent stays over a period of three months—December to March.

The estate in question, situated in the Uva highlands at about 4,000 feet, is blessed with a variety of terrain—rolling patana, boggy shrubberies and jungly dells—as well as the all-pervading carpet of tea. It was doubly blessed, of course, at that time of year with a host of welcome visitors from the northern winter.

Although I have always been a bird-lover, I have not before seriously undertaken any bird "watching." This, I hope, will not detract from the reliability of my list which includes only those birds positively identified through binoculars at close range. My inexperience will, in fact, probably have exerted an opposite trend, for my list might well have included more than one bird that an expert would have readily identified but which to me was just a bunch of feathers diving into the shrubbery.

Without a guiding hand a stranger to bird-life in any country is inevitably bewildered by its abundance and variety. My constant companion has been G. M. Henry's superb book—" A Guide to the Birds of Ceylon." In it I found " portraits " so characteristic and descriptions so apt that I was frequently able to name a bird from " memory " the first time I saw it. Thus, when early one morning I came upon a strange buff bird sitting uncomfortably on top of the " brambles " by a stream, I was able to exclaim at once—" Chestnut Bittern." Prolonged study through binoculars only confirmed my spontaneous identification.

In my list a figure in brackets indicates the number of occasions upon which the bird in question was seen. The absence of a figure means that the bird was seen on six occasions or more.

Birds marked with an asterisk are those seen feeding or nesting in or over the early morning or afternoon tea. I have done this to satisfy myself that not all birds are allergic to tea ; not that one would blame them if they were ; and that many do find their food amongst it or in the shade trees above. But the real holding-ground for birds on any estate is undoubtedly the jungle copses and the stream reserves. I saw numerous signs however that illicit felling is gradually destroying these sanctuaries and that,

unless a halt is called, many estates will soon have sold their birthright for a mess of pottage.

The only unexpected bird in the list is probably the whimbrel which flashed past me hat-high one evening on a record-breaking flight down the N.E. Monsoon from Batticaloa to Galle. Its mental photograph was first labelled "Pintail Snipe" but a second look at the mind picture accentuated the down-curved bill and the label was amended accordingly.

"Expected" birds which are missing from the list were the Junglefowl and the Pitta which were seen by others on this or adjoining estates but, to my great disappointment, were not observed by me.

THE LIST

Crows	Black Crow	1
Tits	*Grey Tit	1
Babblers	*Common, *Rufous, *Scimitar, *White-throated, Yellow-eyed (5), *Brown-capped(1), Black-fronted(2)	7
Bulbuls	Iora, Jerdon's Chloropsis(1), *Red-vented, Yellow-browed(1), White-browed	5
Robins	*Bush Chat(1), *Black Robin, *Magpie Robin	3
Flycatchers	*Kashmir Red-breast(5), Orange-breasted Blue Dusky-Blue(4), Azure(3), Brown(3), *White-browed Fantail	6
Warblers, Prinias	Blyth's Reed, Ceylon(1), Fantail, *Montane Tailor Bird(3), *Ashy, *Large, White-browed(2)	7
Shrikes	Brown, Philippine(2), Pied	3
Minivets	*Orange, *Little, Black-headed Cuckoo Shrike(4)	3
Drongos	*Common	1
Orioles	Black-headed	1
Mynahs	Common	1
Munias	Black-headed, Hill, White-backed, Spotted, House Sparrow	5
Larks, Pipits, Wagtails	Skylarks, Indian Pipit, Grey Wagtail	3
Swallows	East Asian, Hill	2
White-eyes	*Small, *Hill	2
Sun-Birds	Ioten's, *Purple-rumped, Purple	3
Flower-peckers	Small(3), Thick-billed(2)	2
Woodpeckers	*Green, *Pygmy(3), *Pied, Crimson-backed(1)	4
Barbets	Yellow, Crimson, Little	3
Bee-eaters	*Chestnut-headed	1
Kingfishers	*White-bibbed	1
Hoopoes	Ceylon	1
Swifts	Edible-nest, Tree	2
Coucals	Common	1
Parakeets	Emerald-collared, Lorikeet	2
Eagles, etc.	Serpent, Black-winged Kite(1), Pale Harrier(1), Shikra	4
Doves	*Spotted, Wood Pigeon(1)	2
Quails	*Bustard(2)	1
Snipes	Whimbrel(1)	1
Rails	Blue-breasted Banded, White-breasted Waterhen	2
Bitterns	Chestnut(1), Pond Heron	2
		83

Asterisks—28.

Bird Migration

By P. K. GOPALRASAN, B.A.

(Translated from the Tamil by T. A. Mudiappa)

FROM the days of Aristotle up to the time of Gilbert White the eminent savant, it was believed that mammals, birds and reptiles when confronted with abnormal climatic conditions such as extremes of heat and cold to which they were unable to adjust themselves, sought refuge by ensconcing themselves in protective places. However, the ornithologist, Landsborough Thompson, recognised that migration was an indispensable feature in the life of birds. It is not only among birds that migration occurs. Migration is also in evidence among fishes and insects of which salmon and locusts respectively furnish examples.

During winter birds leave their usual abodes and fly across great extents of land and large expanses of water to sunny climes where they sojourn before returning to their native haunts at the commencement of spring. When birds get together in this manner during a certain season, and fly to certain specified regions from which they return afterwards to their native haunts when climatic conditions have reverted to normal, this action is known as bird migration. Migration of birds occurs as a result of certain internal changes in birds and climatic changes. There are three chief reasons for the migration of birds. They are as follows :—

(1) For the purpose of obtaining food.
(2) In order to seek suitable climatic conditions.
(3) For the propagation of the species.

Apart from these reasons, during winter the days are usually short. Owing to the excessive cold the rivers, streams and ponds are frozen and the earth everywhere is covered with snow. Consequently food is difficult to be obtained. Migration has therefore to be resorted to and the birds set out to lands where there is plenty of greenery where they can build their nests without let or hindrance and associate with one another the livelong day. However, they are very patriotic and they love their native abodes. As soon as climatic conditions are normal, they return with their consorts to their homes where they had lived happily. Birds have a nostalgic attachment for the places where they layed their eggs, hatched their young and looked after them. Thompson observes that this characteristic is deeply ingrained in their nerve-centres and that it is very evident in their families. Rovan and Morgan who have done much research in connection with bird-life have propounded the Photoperiodism theory. According to this theory, they maintain that the ultra-violet rays found in the sun are necessary to increase hormones in certain organs of birds which develop the species.

Bird migration may be classificd into three types as follows :—

(1) Birds which migrate during winter (Winter migrants).
(2) Birds which migrate during summer (Summer migrants).
(3) Birds which migrate during the rainy season (Rain migrants).

Just as birds come to our country (India) from other lands and in the same way as they go from our country to other lands, so also does migration take place in India from area to area. Birds in the last category are known as " local migrants." For example, birds living in the Himalayan mountains migrate to the valleys below. However, all the birds in the Himalayan ranges do not migrate to the valleys. Only some of them migrate thus. These birds are known as " partial migrants." The parent birds of these partial migrants remain in the mountains. Examples of such birds are crows and sparrows. As the regions at the foot of the Himalayas are close to the equator, climatic changes are of frequent occurrence in these parts. Consequently, we see birds like the paradise fly-catcher and the golden oriole migrating to areas in the centre of India. Some birds are compelled to migrate when they least except to do so. The reason for this sudden journey is because their nests are choked by the luxuriant growth of thorny creepers and such-like plants.

Many different kinds of birds come to our country from neighbouring lands. Every year these birds come unfailingly along the same beaten tracks. Scientists account for their exactness by stating that these birds have some peculiar optical sense which enables them to recognise landmarks and an ability to locate fertile lands. The parent birds come flying swiftly at first. They are followed by their young which come at a leisurely pace. During the season when the trees are shedding their leaves some birds fly away from India to Ceylon. During the winter the painted snipe leaves Japan to hibernate in Eastern Australia. A white

stork which was released from Germany has come to India. Blackbirds inhabiting mountainous districts in England and swallows set out for Africa during winter. Similarly, skylarks fly away from Siberia. From the Arctic circle at the North Pole, Arctic terns in large flocks make a beeline for southern climes at the approach of cold weather. No sooner has summer set in than they return to the Arctic regions. This pilgrimage is of invariable occurrence every year. Accordingly, the Arctic tern flies 22,000 miles every year.

Natural scientists travelling in aeroplanes, have found out with the aid of speed indicators, altimeters and other instruments, the distances covered by migrating birds, the height at which they fly and the speed at which they travel. Birds like ducks and geese in India have been found to travel at the rate of 50 miles per hour. The golden plover of England has been found to cover 550 miles at one stretch in the course of 11 hours. English swallows and swifts fly at the rate of 100 miles per hour. Of the above birds the Arctic tern is the only bird in the world which flies 22,000 miles in a year.

Some birds fly at very great heights in order to cross mountains. Thus, the golden plover flies at a height of 6,500 feet. In the month of September, scientists have watched the painted snipe flying at a height of 17,000 feet in the vicnity of Mount Everest. Donald has seen cranes and mountain crows soaring at a height of 20,000 feet. Scientists have taken photographs from aeroplanes of griffon vultures circling at a height of 29,000 feet in the Everest mountain region. Atmospheric pressure at very great heights is low. Therefore, birds flying at such heights do not encounter obstacles caused by the wind. The heat in the bodies of these birds is also suitably regulated. Their respiratory organs are helpful to them and their wings are firm. When rainstorms occur birds like the skylark migrate without fail.

Accordingly, to obtain further knowledge about the migration of birds, bird ringing or banding has been resorted to in America and Europe. For this purpose a small aluminium band is tied around the leg of a migrating bird. On that band is inscribed particulars of the number, age, country from which the bird is released, date on which it sets off, etc. Similar information is kept on record at the research centres in the area from which the bird is released. If such birds are caught or shot down in other countries the bands on their legs together with information as to the date on which they were caught, place, height at which they were flying, etc., are sent to the bird-research centres in those countries. In this way banded birds like the paradise flycatcher and golden oriole which were released from Germany and Russia were found during summer at Bhopal. A green sandpiper which was released from Russia was seen at Kottayam in the Malabar district. A wild swan which was released at Norway was caught in Iceland.

In Western countries, especially in Germany, natural scientists have done much research in connection with bird migration and have written excellent books on the subject. When compared with our country these countries have greatly outstripped us in this field. In India we have facilities to do much research. With this end in view if ornithologists of repute and natural scientists work in unison we shall be able to do research satisfactorily in this field. At the present time Mr. Salim Ali is engaged in such research.

The Doomed Lagoons

By C. E. NORRIS
in the Morning Times.

THE unique lagoons between Hambantota and Bundala, in the Southern Province, are some of the finest places in Ceylon in which bird life can be studied. During the North-East Monsoon, these lagoons are vast sheets of clear water edged with a verdant carpet from the fascinating thorny scrub-jungle.

Elephants leave their reminders in the form of droppings dotted about on the short grass ; tiny finch-larks explode from under one's feet, yellow and red-wattled lapwings nest amongst the odd cow-pats, and bee-eaters sally forth from the bare branches of stunted wait-a-bit thorn bushes.

The water's edge is a moving mass of small waders, those little birds which are so difficult to identify as the different species are so alike. Tiny stints are forever running hither and thither, collecting minute crustacae from the very edge of the water.

One may perhaps be lucky in seeing a broad-billed sandpiper or a Temminick's stint. Whilst in the deeper water black-winged stilts, red-shanks, greenshanks, marsh sandpipers and, if one is lucky, some godwits, will be seen busily collecting their food. Terns of many varied species are continually quartering the area of the water, dropping down on some unsuspecting little fish. At times when there is sufficient weed growing in the water migrant garganey and pintail ducks can be seen in their thousands. I have, on more than one occasion, seen a long line of flamingoes flying over, not unlike a gaggle of geese in flight. These large, fascinating birds feed in these lagoons, probing the mud with their thin strange beaks. Pelicans may be seen sedately swimming around a flock of fishing cormorants, picking up the fish missed by the cormorants. Egrets and herons wade on stiff legs through the water jabbing their sharp pointed beaks at small fish and frogs.

Amongst this galaxy of bird life it is strange to see a fisherman, standing up to his knees in the water, far out from the shore, throwing his round-net for prawns and small, edible fish.

Flights of waders wheel and turn, flashing the white of their undersides as they career around probably having been disturbed by a peregrine falcon.

That rare fishing-eagle, the osprey, may be seen slowly flying over the water on the look-out for a fish basking on the surface. Not so very many years ago crocodiles could be seen at certain places around these lagoons—nowadays to see one is a rare occurrence as they have been ruthlessly hunted for their valuable skins.

All this loveliness is planned to go, under the Government's proposed salt scheme and factory for the manufacture of gypsum. When these schemes take shape the lagoons will be filled with salt water pumped in from the sea, this water will be stored until it reaches the required density and will then be pumped from one lagoon to another until finally it reaches the crystallisation and collecting area. The water will be so salt that it will not harbour food for the birds. These lovely lagoons will then become dead areas devoid of life. Even the scrub jungle will be torn out to make way for workers' houses and stores. The livelihood of the local prawn and crab fishermen will cease.

Such is the price that we must pay for modern economies.

Major Rogers

By T. A. MUDIAPPA

I AM prompted to write these lines on reading the excellent article on Major Rogers by Messrs. Clive Jayatilaka and Roy Abeysekera, which appeared in the December, 1956, issue of *Loris*. Barring students of history, Major Rogers to most people probably suggests the famous hunter, who was the nemesis of the elephant family in this Island. The writers of the article referred to above have consequently done well in elaborating on the other little-known aspects of this remarkable man's character, thereby showing him up in the perspective in which he ought to be viewed by posterity.

As has been pointed out, Major Rogers was responsible for the destruction of 1,400 to 1,600 elephants during his stay in Uva. At the present time when frantic efforts are being made to save the elephant from extinction, it may not be easy to understand the conduct of Major Rogers. But before passing judgment one should consider carefully the circumstances in which such carnage was resorted to.

The early part of the 19th century was the period in which Major Rogers lived in Ceylon. The country at that time had not been extensively opened up. In 1825 experiments had just begun with the coffee plant with a view to making it a plantation crop in the hill districts. By the time the coffee mania was at its climax in 1845 Major Rogers' sand had run out. But even at this latter date a good portion of the rest of the Island was still a sportsman's paradise. I have not come across any statistics of the elephant population which inhabited this country during the 19th century. I doubt whether a census of elephants was taken at any time. The late Mr. Tutein-Nolthenius writing to the *Daily News* of 7th September, 1951, regretted the fact that such a census was never taken and gave it as his opinion that our then elephant population was very much below one thousand. Nevertheless, there can be no doubt that there was a multitude of elephants and other wild animals in existence during the 19th century, so much so, that they constituted a menace to the peasantry and the pioneers in the planting industry by ravaging the crops in the fields of the former and by laying waste the plantations of the latter.

As regards the numbers of elephants which roamed the Island in former times, there is reproduced in Tennent's account of the Island a letter received by the author from Major Skinner, Ceylon's great road-maker, in which the latter describes how he once saw a herd of about 80-100 elephants while out in the jungles of Neuera-Kalawa, the present North-Central Province. *Miss C. F. Gordon Cumming* whose brother was a coconut planter stationed at Batticaloa, writes on this subject as follows in her book, " Two Happy Years in Ceylon " :—

" My brother's letters used to tell of the great herds which ranged through the eastern forests, and how he used to watch them at night coming to bathe in the great neglected tanks (like swampy lakes), and in the daytime browsing peacefully or sleeping, some fanning themselves with green branches—the young ones, so innocently playful miniatures of their parents, but having a good deal of shaggy hair, which wears off by friction as they rub against one another, or force their way through the jungle."

Elsewhere in her book, she writes thus :—

" In these days (1893) when sportsmen have to pay ten rupees—equal to about 15*s*.—for a special licence for each separate elephant they shoot, those who cannot realise the totally changed conditions of these forest districts in the last fifty years are very apt to talk about 'wholesale massacre' and 'useless cruelty.' If those who blame the pioneers so readily could have spent a few years with my brother at Batticaloa, and seen something of the ever-recurring heart-breaking devastation of his coconut plantations by the elephant legions, they might understand why it was that in those days Government offered a reward of 10*s*.

for the destruction of each of the great hungry creatures, whose carcasses helped to manure the crops they sought to devour."

Not only were elephants a source of danger to property. A journey during those times through forested regions was attended with great hazards and an encounter with an elephant could have meant danger to life as well. An experience of *Sir G. W. R. Campbell*, Inspector-General of Police, who served in the Island from 1866-1891, is a typical illustration of what such dangers were. Having gone on a night journey in the course of his official duties, in the south of the Island, he wrote an account of it to Miss C. F. Gordon Cumming and this is what he said :—

" After inspecting the gaol, I left Hambantota for Koslanda, in Haputale. I was to travel the first twenty-eight miles during the night in a bullock-cart, and next morning drive my own horses to the foot of the mountains. The road lay almost all the way through dense forest scrub infested with elephants and other wild animals. I was informed that the elephants, not content with pulling up the milestones, sometimes attacked carts, so I deemed it prudent to desire that an armed constable should escort my cart, which was a high heavy covered spring-cart on two wheels. It was about 7 feet 3 inches in length, and when my cushions were laid along it, made a fair bed. It was drawn by a pair of bullocks, and three other pairs were stationed along the road in advance.

"About midnight, I fell asleep, and being thoroughly tired, I was quite unconscious when we halted to change the bullocks and escort.

"Between two and three in the morning the cart was running merrily along the white road in the bright moonlight, the constable following, when a large elephant rushed out from the jungle to the right, and with his trunk struck the cart a heavy blow on the top, trumpeting furiously.

"On his approach the terrified constable took to his heels and fled back along the road by which we had come, but the driver, uttering loud cries, partly of fear and partly in the hope of driving the beast off, ran by the pole, urging his bullocks to their best speed, the elephant following.

"Just then I awoke, and for a moment imagined that the darkness and the screaming and swaying of the cart were caused by the bullocks having gone off the road and down some embankment into the jungle, but in another moment I saw that the darkness was caused by the head of an elephant blocking up the back of the cart, and that he was bumping the hood upwards with his forehead.

"Fearing that the whole thing would go over, or that he would seize me, I instantly twisted myself round, and got out beside the driver, intending to run as he was doing by the side of the pole ; but I missed my footing, and came to the ground so awkwardly that the cart, which was going very fast, knocked me down, and the off-wheel immediately passed over me.

" Instantly, fearing lest the elephant should also pass over and crush me, I scrambled into the grass, though with difficulty, owing to pain in my legs. The cart had disappeared, and there, about fifteen paces off, facing me, stood the elephant in the moonlight, in the middle of the white road, with a halo of dust round him.

"I stood quite still in the shade of the tall thorny scrub, which formed a high and almost impenetrable wall on either side of the road. I do not know whether he saw me or not, but in less than half a minute he turned, and standing across the road, put up his trunk as high as he could and repeated the horrible screaming which is called trumpeting. Then turning round quickly, he marched back along the road by which we had come.

"I at once went off at a run in the other direction, feeling very stiff and sore, and about 200 yards farther on overtook the cart, which the driver, rather bravely, I think, had managed to pull up within that distance. He hurried me into the cart, and we pushed along as

quickly as we could, he shouting every half minute at the top of his voice to scare other wild animals.

"Soon afterwards we came upon a herd of seven or eight huge wild buffaloes, which would scarcely let us pass, and about a mile farther passed another herd, which absolutely blocked the road. I tried to frighten them by lighting matches and throwing them at them ; one lighted match actually fell on a buffalo's back.

"About the twenty-second mile-post we found our next bullocks, and two men with guns, who told us they had been visited by a bear while waiting for us.

"When, just at daybreak, we reached my carriage, my knees were so bruised and swollen that I could not walk, nor even stand for a moment without great pain. Nevertheless I had to drive myself twenty-three miles farther to Wellawaya before I could rest. Arrived there, a touch of jungle-fever came on, so that night's sleep was not much better than the previous one ; but at daybreak I started to drive myself the remaining twenty-six miles to Haldummulla, halting for some hours at Koslanda for an inspection, though in such pain that I was unable to stand for more than a few seconds at a time."

In these circumstances the action of the Government in offering a reward (referred to above) for the destruction of every elephant, does not take one by surprise. From "A History of the Ceylon Police," I have been able to gather that this reward was paid on production at the Kachcheri of the elephant's tail as proof that the animal had been destroyed. This bounty was subsequently withdrawn. However, the diminution of elephants had nothing to do with the withdrawal. The withdrawal was occasioned by the exploits of a highway robber named *Thimilan Kanapathy* who haunted the northern part of the Island round-about the year 1865 and became notorious for waylaying travellers between Vavuniya and Anuradhapura.

On one of his circuits in the Wanni, Twynam, the Government Agent, Northern Province, was amazed to see several elephants without tails. On making inquiries he learnt that this was the work of Thimilan Kanapathy, who in order to obtain the reward offered by Government, had been cutting off the tails of elephants without troubling to kill them. It was said that his *modus operandi* was to cling to the tail till the elephant went near a tree, when he cut off the tail and swarmed up the tree before the unfortunate animal could retaliate.

It is against the background outlined above that Major Rogers' actions have to be judged. Seen against that background there is no gainsaying the fact that the sportsman who could best thin the ranks of the crop-devouring and all-destroying herds of wild elephants and other wild animals, was the truest benefactor of mankind. Perhaps, such considerations never enter into the thoughts of most people, who think of Major Rogers. To such people Major Rogers' name can have only a single connotation namely, the ruthless destroyer of elephants. To the memory of Major Rogers the following words of Shakespeare can fittingly be applied :—

The evil that men do lives after them ;
The good is oft interred with their bones.

THE ELEPHANTS

Letter from Major Skinner to Sir James Emerson Tennent

Contributed by T. A. Mudiappa

"IN the height of the dry season in Neuera-Kalawa, you know the streams are all dried up, and the tanks nearly so. All animals are then sorely pressed for water, and they congregate in the vicinity of those tanks in which there may remain ever so little of the precious element.

During one of those seasons I was encamped

on the bund or embankment of a very small tank, the water in which was so dried that its surface could not have exceeded an area of 500 square yards. It was the only pond within many miles, and I knew that of necessity a very large herd of elephants, which had been in the neighbourhood all day, must resort to it at night.

On the lower side of the tank, and in a line with the embankment, was a thick forest, in which the elephants sheltered themselves during the day. On the upper side and all around the tank there was a considerable margin of open ground. It was one of those beautiful bright, clear, moonlight nights, when objects could be seen almost as distinctly as by day, and I determined to avail myself of the opportunity to observe the movements of the herd, which had already manifested some uneasiness at our presence. The locality was very favourable for my purpose, and an enormous tree projecting over the tank afforded me a secure lodgment in its branches. Having ordered the fires of my camp to be extinguished at an early hour, and all my followers to retire to rest, I took up my post of observation on the overhanging bough; but I had to remain for upwards of two hours before anything was to be seen or heard of the elephants, although I knew they were within 500 yards of me. At length, about the distance of 300 yards from the water, an unusually large elephant issued from the dense cover, and advanced cautiously across the open ground to within 100 yards of the tank, where he stood perfectly motionless. So quiet had the elephants become (although they had been roaring and breaking the jungle throughout the day and evening), that not a movement was now to be heard. The huge vidette remained in his position, still as a rock, for a few minutes, and then made three successive stealthy advances of several yards (halting for some minutes between each, with ears bent forward to catch the slightest sound), and in this way he moved slowly up to the water's edge. Still he did not venture to quench his thirst, for though his fore-feet were partially in the tank and his vast body was reflected clear in the water, he remained for some minutes listening in perfect stillness. Not a motion could be perceived in himself or his shadow. He returned cautiously and slowly to the position he had at first taken up on emerging from the forest. Here in a little while he was joined by five others, with which he again proceeded as cautiously, but less slowly than before, to within a few yards of the tank, and then posted his patrols. He then re-entered the forest and collected around him the whole herd, which must have amounted to between 80 and 100 individuals—led them across the open ground with the most extraordinary composure and quietness, till he joined the advanced guard, when he left them for a moment and repeated his former reconnaissance at the edge of the tank. After which, having apparently satisfied himself that all was safe, he returned and obviously gave the order to advance; for in a moment the whole herd rushed into the water with a degree of unreserved confidence, so opposite to the caution and timidity which had marked their previous movements, that nothing will ever persuade me that there was not rational and preconcerted co-operation throughout the whole party, and a degree of responsible authority exercised by the patriarch leader.

When the poor animals had gained possession of the tank (the leader being the last to enter) they seemed to abandon themselves to enjoyment without restraint or apprehension of danger. Such a mass of animal life I had never before seen huddled together in so narrow a space. It seemed to me as though they would have nearly drunk the tank dry. I watched them with great interest until they had satisfied themselves as well in bathing as in drinking, when I tried how small a noise would apprise them of the proximity of unwelcome neighbours. I had but to break a little twig, and the solid mass instantly took to flight like a herd of frightened deer, each of the smaller calves being apparently shouldered and carried along between two of the older ones."

ABOUT ELEPHANTS

By LIEUT.-COLONEL J. H. WILLIAMS (*Elephant Bill*)

From the Journal of the Royal Empire Society

OF all animals in the world the elephant, as far as I know, is the only one that had adopted something to take the place of the herd instinct. This is the "aunt" instinct or habit. As soon as an elephant among the domesticated herd is going to have a baby she takes up with another female elephant, and the two go about head to head more or less all the time during the 22 months of pregnancy. Then, when the calf is born, the other elephant remains with the mother as a means of protection against the tiger. When we got the baby elephants better protected the mortality due to killing by the tiger was reduced to 20 per cent.

Originally all elephants employed by man were captured from the wild herds. This trapping of wild elephants used to be a most cruel form of capture. In the stampede practically all baby elephants were trampled to death. What was wanted were the animals of about twenty years old. (Here I am speaking of Burma rather more than India, because in Burma elephants are more used for timber extraction; in India they are more used for processional purposes). Probably out of 20 elephants captured, only 12 or 13 were kept, because they had just about reached the age of 20. They were then broken in heart and spirit, and trained to work for man. We set out to stop that cruel method of capture by saving these baby elephants born to our domesticated herds. This became my life's work with other young assistants in the jungle.

You probably know that the elephant is supposed to live to the same age as man, three score years and ten, but what is more interesting is that these baby elephants grow up similarly to the ages of children. We decided that we must start to train these young elephants at exactly the same age as we start to train children—school age. I have met such young elephants when they are six years old—sturdy young fellows which had survived. I remembered seeing one stripping away at bamboo shoots and paying no attention to his mother's call half a mile away down in the creek. His mother continued to call and presently she gave a great bellow with a note of command in it. That child elephant thereupon cocked his ear as if to say, "If I don't go off I am in for it." He went crashing off to his mother, and the mother no doubt received him with a crack with her trunk across his tummy for straying too far. We arranged to send these young elephants to school at this age. They went to school in exactly the same way as children do.

The first school I ever had had two baby elephants in it. Before the end of my service I had as many as 29 baby elephants all being trained at the same time. A training spot was selected in the jungle, with good shade, good fodder and good water, then from over an area of probably 150 square miles the mother elephants were brought in with their babies. When these young elephants, all of much the same age, arrive at school and see each other they break into the most hilarious fun, twisting each other's tails and so on, and you scarcely know which belongs to which mother. In 12 hours between sunrise and sunset we were able to teach an elephant two things, the first to allow a little boy or "oozie" to ride on its head, and the second to let itself down into the sitting position. This is done inside a little pen or crush. By amazing patience the actions of the elephant are synchronized with the words of command. The mother elephant, by this age of six years, has had a little bit too much of the calf. She knows she is going to lose it anyway by its desertion and joining a wild herd, so she ambles off. But the baby elephant has learned in one day to

carry a boy on its head and to get itself down in a sitting position. The acts and motions are gone through so many times with a little physical assistance that the elephant gets tired of it and in the end does it automatically. These baby elephants are never made to work on timber dragging until they are 20 years old, but for 14 to 15 years of life are learning.

There are lots of other things to do in the jungle besides watching baby elephants being trained, but I saw them at various periods, at the ages of six and seven, again at 14, and then up to 20, just like children and youths. By about the age of nine these youngsters begin to develop different temperaments. Like other domesticated animals they vary. Some are good tempered and others are rather quick tempered. They all take shape at about 14 or 15 years and one gets to know them individually. With the mating of the elephants we have nothing to do at all. At a certain time they go through various flirtations, but the act of mating is all done in the wild.

At 20, the elephant literally knows 48 words of command. For 15 years it has been trained ; it has been told and given something to learn every day. It is able to recognize certain objects. The boy who rides it has probably been riding it ever since he himself was 12 years old and the elephant six. Simply by continuous repetition of orders the elephant more or less comes to know the language up to 48 words of command much better than any horse I have ever known. The elephant can, for instance, undo a knot in a chain and such things as that. I once saw a young elephant confronted with a spear sticking in the ground just by its head. The boy told him, "Pass me the spear," the spear being stuck in the mud and with the dangerous spearhead upwards. The elephant, with infinite care, gripped the spear at point of balance with its trunk and carefully handed it to the boy on its head. When told that it was handing it the wrong way, it reversed the position and handed it the proper way. The elephants fully appreciate what is said to them in the way of praise or blame. They know when it is said, "Don't be a silly ass," or when they are told what wonderful fellows they are. One has to realize that these riders or "oozies" are talking to the elephants all day long, which is the attraction of this man-animal relationship. Even if one wakes up in the night in camp one hears the elephant bells, one is conscious there in the jungle of their intimate presence all the time.

Swan Song on the Menik Ganga

By PHILIP K. CROWE

THE Menik Ganga, the river of gems, is among the loveliest in Ceylon. Rising on the tea-girt hills of the Province of Uva it flows for a hundred meandering miles to empty at last among the yellow sand dunes of Yala into the blue waters of the Indian Ocean. Much of its course flows through virgin jungle where its clear waters sustain the wild life and during the time of drought one can see examples, as they come to drink, of virtually all the big and small game of the Island. Happily the drought corresponded with the closed season for the spotted deer, sambhur, barking deer, peafowl and jungle fowl so that shooting was restricted to the unprotected leopard, bear and pig.

We camped on the bank of the river in the Galge district and a prettier sight it would be hard to find. Great Kumbukkan trees spread their branches in a cathedral arch above us ; the breeze, which running water seems to generate, cooled us ; and always there was the murmur of the stream as it tumbled over the rocks. In the dawn and the evening the

shama sang us his sweet song and bronze wing, green and imperial pigeons held bright discourse in the trees. We saw white-necked storks and white-breasted kingfishers and a host of other birds, while in the quick tropic evenings graceful spotted deer stole across the sands to drink within a hundred yards of the camp. Once an old cow elephant spotted my wife sketching and padded gravely in her direction. At night other animals called and in the shadows beyond the camp fires we heard the staccato bell of a sambhur stag and the sawing sound of a hunting leopard.

Gems have been found in the sands of the Menik Ganga since the days of the Sinhalese kings. Sapphires, garnets, aquamarines, cats eyes, topazes, moon stones, tourmalines and other jewels are picked up in their pale opaque form by licensed gemmers and a host of illegal collectors. But gems are not the only precious things to be found under the waters of the famous stream ; there are also fish and specifically mahseer, the premier game fish of Asia. For three years I tried without success to catch a mahseer, using the finest tackle made, and had become so discouraged by my failure to hook one that I had not brought my rod to the Menik Ganga. Then on my first afternoon's stroll along the bank I sighted the silver shadow of my dream fish. I had caught many of these battlers in India but this was the first one I had seen in Ceylon, and I had nothing to take him on. Fernando had a few rusty hooks and a length of string which I hastily tied to a willow pole. Baiting with a fresh water shrimp, I dropped the contraption in a swirl where the water cascaded over some rocks. There was a rush, a tug and the mahseer took off with shrimp, hook and two feet of the string. The fish could not have weighed two pounds but if I had caught it I would have mounted it on a silver plaque.

My companions were all knowledgeable jungle men. Bill Phillips, author of Mammals of Ceylon, the standard work, and Birds of Ceylon, a delightful set of prints and descriptive matter for the beginner, has spent forty-five years in the Island as a planter and in my opinion knows more about the jungles than any other European. It was the last jungle trip for both of us as Bill is retiring and going to the Maldive Islands to make a study of the fauna of that little-known archipelago and I had concluded my three-year tour of duty as American Ambassador to Ceylon. There was William Abeysekera, chief engineer of the Government Factory, President of the Ceylon Hunting Club, and the man who first showed me the Island's jungles. He and his wife Loi had accompanied my wife, Irene, and me on many of our expeditions into the bush and the Menik Ganga trip took place on almost the exact anniversary of our first shoot at Wilpattu in the Fall of 1953. Eric Fernando, leading taxidermist of Ceylon and former head taxidermist of the Colombo Museum, was the fifth member of the party.

The professional staff was headed by Babun Appu, a grizzled game watcher of the Wild Life Department who had begun life as a poacher and as a result had the finest possible experience for catching these shady gentlemen. As Babun had been kicked in the face by a wounded deer and lost virtually all his teeth, he learned to laugh tight-lipped. The camp staff was commanded by Ponniah, my excellent cook, and my chauffeur Ernest Kotelawala handled the jeep transport.

Tracks of leopard were everywhere and a blind having been constructed out of drift wood at a place in the river where they were particularly evident, Bill, Fernando and I with a brace of trackers made ourselves as comfortable as we could in the sand and waited. Scarcely had we settled down when a barking deer buck stepped daintily from the forest and picked his way across the sand to the river. He was followed soon afterwards by a big spotted buck and his harem of dour does. I note these deer usually send one of their wives to reconnoitre the terrain before venturing out themselves. The sun was setting and we were

just about to start home, when we heard a strange eerie cry. Babun said *Ulama* which Bill translated as Devil Bird, but added that the cry was probably made by the Ceylon Hawk Eagle and whether or not it was the evil one of legend he was not prepared to say. Later we saw a Hawk Eagle sitting on a dead tree, and I noted the black and white crest which, according to the Sinhalese folk tale, is the comb of the distraught woman who discovered that her husband had cooked and eaten their child.

In the morning we returned to the blind to find that a big male leopard had jumped into it and possibly used it as a hide in which to wait for deer.

Abey shot a wild pig, a large sow, and, noticing a pungent smell, investigated the nearby underbrush where he found the remains of a spotted deer, which a leopard had killed the previous night and which the sow had been eating. A hide was built and that afternoon I sat up over the remains. Soon after I took up my vigil a tribe of wanderoos, the grey langur monkeys, settled in the Mee and Satin trees around us. At six o'clock a pair of sloth bears came shambling down the dry brook which separated us from the kill. The male, a fierce-looking old brute, sniffed the bait, and, mounting the bank to the ledge where it was tied, started to eat. The light was fading and my gun arm cramped from long disuse : I missed, and the bear with a deep grunt went tearing off into the jungle.

The sun had set and we walked back three miles to camp along the river. Twilight heightened the giant trees and threw long shadows across the pools. A herd of wild buffalo emerged with a crash from the shallows, stood sniffing the breeze, and vanished silently like great black ghosts. Even more silent was the elephant we sighted as we rounded a corner. A bull with the sunken head of age he failed to see us until we were quite close and only when we shouted did he amble off, drifting through the dense jungle of wait-a-bit thorns as if they were silk.

The same evening Abey sat up on the rocks at Vihara Pudana and fired both barrels at a huge leopard which he failed to hit. Perhaps the beauty of the location affected his aim for the view from the old ruined dagoba which crowns the rocks is worth going a long way to see. To the north, blue in the distance, lies the Haputale range and on the south the seven hills of Kataragama, while on all sides, like a green tide, stretches the jungle. The water-hole at Vihara Pudana consists of a deep green pool imbedded like a pouch in the rounded flank of the vast whale-backed rock. When he first approached it Abey found an eight-foot crocodile sunning itself beside the pool but before he could shoot, it vanished in the water. The croc was fat with the deer that had come to the water-hole.

Galge is on the trail by which pilgrims walk to the Kataragama temple and there are tales of old people dying in the jungle and being eaten by leopards. Be this as it may there are no authenticated stories of leopards attacking live people in the area and the average Ceylon leopard, unless wounded, will do all in his power to escape coming to grips with man.

Of course, there are exceptions. Twenty-five years ago, R. S. Agar, a planter shot a man-eater credited with fourteen persons in Eastern Province. Fernando mounted the beast and told me that there was no physical defect which might cause it to turn on man. A four-year-old male about six feet long and in excellent health, the leopard bit its victims in the neck, dragged them in the jungle, and ate them at his leisure. Agar shot it over its last kill, a young postal runner. All the victims were men.

Sitting around the camp fire talking of leopards and leopard shooting, Fernando told us of a bad time he had had in 1927. He was shooting in Yala at a time when the pilgrim trail ran through that area and several corpses of partly consumed persons had been found. Fernando heard monkeys, and immediately recognizing their cries as denoting the presence of a leopard, he set out to stalk the beast. He found it in the scrub and shot it, hitting

it low on its right side with a bullet from a .375 Mannlicker. It was getting dark, and not wishing to make the follow-up in such poor light, he returned to camp. The following morning he returned with two men to retrieve his kill. But instead of finding a dead animal they faced one very much alive. The leopard charged Fernando who fired at him and missed. Then with the leopard at his feet Fernando fired again only to find his gun was empty. Springing aside Fernando evaded the leopard who was weak from loss of blood and ran away. He then reloaded and returned and tracked the leopard but never found it.

We saw seven elephants during our five days on the Menik Ganga and heard many more. Three of the elephants were cows with calves at heel, an encouraging sign, for the elephant is harried by the march of civilization and his breeding is said to be adversely affected. Few calves are born of captive elephants. No one knows what the remaining elephant population of Ceylon is but the informed guesses range from 800 to 1,000. I lean toward the latter figure for no survey has ever been taken and there is always a tendency to be pessimistic on such guesses. I had always heard that the Nilgiri Wild Goat was virtually extinct but on a recent trip to Ootacamund was told that at least four hundred had been counted on the high ranges of the Western Ghats.

There was ample evidence that bear and leopard are holding their own in the Kataragama jungles. At every rock water-hole and jungle pool we found their tracks. Both may survive a long time as poachers have no use for the bears ; they cannot sell their flesh nor skins, and while there is a fairly good market for leopard skins, the hunting of the big cats is uncertain and pays nothing like the dividends derived from the illicit slaughter and subsequent sale of spotted deer and sambhur meat.

The few deer we saw were thin and harried ; for drought lay on the forest and there was little to eat. As John Still vividly described it in Jungle Tide : " When the scorching wind rushes through the woods for months on end, and the papery leaves rustle harshly on wiry twigs ; when every footfall in the forest is betrayed by the crunching of its parched carpet ; when soil in hollows that once were ponds grows brick hard, and deep cracks chequer the baked mud where the footprints of the last beasts to seek water there remain cast as though in cement until again dissolved by the rains." . .

And this dryness made stalking the most challenging manner of hunting, even more difficult than it is. We heard a leopard while waiting in a blind above the river at mid-day and I decided to try and find it by the danger signals of the animals and the birds. There were many deer near the river and we could easily follow its path by their warning barks. When these died out the grey Langur monkeys took up the tale until their shrill danger calls ceased and we had to rely on the tell-tale twitter of the birds.

We turned inland from the river, and, trudging up the soft white sand of a dry feeder stream, followed it for perhaps a quarter of a mile. The leopard also used it and three times we came on the fresh pad marks of a big male. We came to a great mee tree, overturned by lightning, and found under its octopus-like roots a dark cave. It was high noon and just the place to tempt a leopard to curl up and avoid the heat. Cautiously we approached the entrance and Babun threw a stone in while I covered the black hole with my shot-gun. (A rifle is fine for long shots from a blind but a shot-gun loaded with slugs is a far more effective weapon for close work). The cave was empty and the only moment that might have given us high drama passed quietly.

Quite as exciting as shooting is the photographing of dangerous game and one evening I sat with Abey and Fernando on the rocks of Vihara Gala while no less than four bears played around in the surrounding jungle, but evidently smelling us, due to the shifting winds, refused to come and have their pictures taken. I was using a Nikkon with a telephoto lens,

a camera with which I had previously made some good flash light shots of game in India. The Ceylon sloth bear has poor eyes, a fact that may cause him to charge when startled, but his nose and ears are excellent and nothing would tempt these bears, even though they must have been very thirsty, to climb the rock pool when the scent of their arch enemy man hung over it. A big porcupine, making as much noise as any bear, came up rattling his quills and a brace of mongooses snarled at each other as they jockeyed for the first drink. Off in the jungle we heard the crash of branches as an elephant fed, and nearer the sharp bark of a spotted deer scenting the leopard. The moon rose at eleven and lit the jungle with its pale candle. Near us a bay-banded cuckoo called and faintly on the evening breeze I heard another crested hawk eagle.

It was an unforgettable scene, and, as the moon sailed high over the ruined dagaba from which the rock got its name, I thought of other nights in the Ceylon jungles and of how much they have meant to me. I remembered camps pitched on the sands of the Mahaweli when the elephants of the swamps trumpeted in our very ears and we built the fires high for protection. I thought of moonlight vigils in the jungles of Okanda when I waited for leopards, and a starry evening, on the sand spit of Kumana when I hooked a forty pound estuary perch and finally dragged it triumphantly to the beach. I remembered the still September evening in Nuwara Eliya when the big trout rose on the Bula Ella and my gut parted with a twang like a devil's harp memories of jungle and stream that money cannot buy and time cannot erase.

Kumane

By C. E. NORRIS

PAINTED storks and pelicans weaved and circled as they glided over the tall mangroves, which completely enclose the open waters of Kumane Villu. An increasing stream of cormorants and egrets came and went as they brought food for their young. The grating but, attractive, song of the great reed warbler gushed forth from the bulrushes. Such was my glimpse of Kumane Sanctuary as I came down the age-old cart track from Okanda.

The Villu is an awe-inspiring place hiding its secrets behind a fringe of mangrove trees and bulrushes. The unknown beyond is tantalising and intriguing but, without a boat, it is not possible to penetrate through this guardian fence. Bullfrogs "spatter" across the waterweeds and disappear with a plop ; their croakings in the evenings can at times be deafening.

Close by this fascinating haven stands the village of Kumane, an isolated hamlet in which lives a handful of people. They eke out a difficult existence but many of the men are employed by Government as guards and watchers in the Wild Life Department. These men are true sons of the jungle, well-versed in the ways of the animals with whom they share the surrounding forests.

Within living memory this village was much larger and was built nearer the Kumbukan Oya ; the site of the long departed circuit bungalow can still be seen. Noble palmyrah palms grow in the tangled jungle as a reminder of an old garden. The village, at this time, was large enough to have an Aratchi, who received the grand salary of Rs. 25 per month !

The present village is now nearer the villu than the river, but there is a tendency to move back again with the help of Government. I have noticed, however, these people seem to prefer their old homes built under the shade of cocount trees clustering round the village well.

Wattawah's house is, I believe, the only one still occupied remaining from the old village. Wattawah is a great story teller; he related to me one evening, sitting by a camp fire, how he had been attacked by a crocodile in the villu. Showing his thigh two horrid-looking scars were revealed caused by the crocodile's teeth. Whilst he was wading through the villu, probably in search of kirilla geddi (mangrove fruit) the crocodile suddenly seized his leg, with great presence of mind he forced open its jaws to release their grip. This part of the story was accompanied with much demonstration, realistically re-enacting the scene. For three months he was laid up with a very swollen leg and must consider himself lucky not to have lost it.

Less lucky was Garuwa, one of the last of the true jungle men left in the village. In 1945, when on duty, he was returning one day, at noon, from Okande to his house. He was accompanied by Sudubanda. They stopped to slake their thirst at a "kema" near Murunga Wala and as Garuwa approached the water he was confronted by a she-bear and her cub. The bear attacked, inflicting ghastly wounds on his head and then, as he held the bear at arms-length she bit and fractured his left arm in three places. Sudubanda then attacked the bear with his only weapon—a policeman's truncheon—she turned on him ripping open his left leg before disappearing into the jungle. Garuwa was able to stagger on to Kumane carrying his unconscious companion, who had dislocated his knee in his fall. Garuwa is now minus his left arm which was amputated at the shoulder in Batticaloa hospital but, in spite of this, he was discharged and back at work within eight weeks. Some years later Garuwa was again attacked by a bear and this time was badly wounded on his right arm and hand, but very luckily a doctor was visiting the Yala East Intermediate Zone and was able to administer first aid which undoubtedly saved him from losing his only hand.

Wattawah told me another story:—It took place at a time when a leopard was visiting the village taking dogs from verandahs and calves from the cattle kraals. One evening after his meal he heard a commotion amongst his cattle so he went out to see what was worrying them. He found an animal killing a small calf, he caught hold of its tail and belaboured it with a club thinking it to be a jackal—to his horror he realised he was holding the tail of a leopard, which let out a roar, described by him as a loud "whaaa" and bounded away! We all agreed this was a very good story and laughed heartily as it was being related.

I made enquiries as to why the village was moved from the banks of the river to its present site and was told that one of the villagers was taken by a leopard and his ghost kept returning to the village, visiting the house, which unnerved the inhabitants to such an extent they were forced to move.

It was shortly after this, or at about the same time, many of the inhabitants left the village to settle down in Panama. Nearly all those that departed were Goigamas, whereas those that remained are Paduwas. The Goigamas are reputed to have taken two of the comeliest Paduwa girls with them!

That great jungle man Bandua, well-known to many of the older members of the Society, was the patriarch of the village, a position now taken over by his son, Menicka, the only other true jungle man left in the village. Menicka married a very handsome and pretty girl when she was ten years of age. She bore his first child at this age and at the age of 29 she had a family of eight, with the eldest boy aged 19 years. Robo Singho is the eldest of this family and has entered the employ of the Wild Life Department as a guard at Yala. He is following his father's and his grandfather's footsteps as he is developing into a true tracker with a sound knowledge of the jungle and its inhabitants.

There was a move by Government to try to persuade the remaining eight families to finally evacuate Kumane to promised lands at Wella-

gama near Panama. The villagers are quite determined nothing will move them and they have stated they have been raised in Kumane and there they will die. Their life is very simple but it is all they wish for, as they have their paddy fields below Kumane wewa which give them all they want. They have, in recent years, increased the area of these fields and have raised the bund of the tank by some two feet. Although they have been given land in the reserve for chena cultivation, they do not appear interested in this work. During the season of the Kataragama festival, they sell nearly everything they possess to the pilgrims who pass through the village. They do not appear to worry about the future but live from day to day. This year has been an exceptionally hard one for them, as their paddy crops in the early part of the year failed owing to drought.

I am aware that human habitation within a reserve is not accepted as the best principle of wild life protection, but this village is so small and has been carrying on in its simple way for generations without any noticeable harm to the larger wild life, that little harm can come from allowing them to stay. The matter might be different however if an influx of newcomers were allowed to settle in the area. Many of the families came from Koslanda, in fact, Garuwa himself was brought down as a child-in-arms having been born on Diyaluma Estate. It is a mystery to me why these people should have chosen to move to such a remote place.

I recall one day returning to my camp at Bagura to find a completely blind lad, whose name now eludes me, squatting by the kitchen tent sipping a cup of tea. I enquired from where this lad had come and how he had managed to find his way, and was told he was from Kumane having walked along the seven miles of track by himself to visit our camp. He stayed the night and returned alone next day. The dangers of such an exploit are many but obviously the Kataragama Deviyo was watching over the lad to keep harm from coming his way.

I find it a great pleasure and privilege to know these people and to have them as companions on my visits to this reserve. They are men of courage and coolness whom I class as real friends, and it is they that have made so many of my trips such a joy to look back on.

THE JUNGLE TIDE

By ALAN BOWIE

MY bungalow, at three thousand feet, overlooks the Mahaweli, a ribbon of water, eight miles away....and at that spot only five hundred feet above sea-level. Behind tower the mist covered Nuwara Eliya range, while in front, the mountains, rising from the further bank of the river, formed the eastern ramparts of the ancient Kingdom of Kandy.

There are in this valley, about a dozen small hamlets, situated far apart, with no mode of transport, other than shanks pony, and pack bulls, over precipitous paths. The rest of the country is covered in dense lantana.

This scrubby terrain, has always held a certain amount of game, including elephants, which appeared during the North-East Monsoon months, and moved off again. Animals were more often heard than seen, and the only method of getting them out, was to hunt with a pack of hounds, and take a pot shot, when a pig or deer jumped across a narrow opening or path.

This is, I believe illegal, but nevertheless a sporting way of shooting, as the odds are greatly in favour of the hunted. I shot quite a lot in this manner during a period of stress, when I lived by my dogs and gun, and aided by village friends, poached game. Some of my pals

have often commented that I never refer to the things I ought not to have done, so I have got something off my chest at last. Actually I am grateful for these experiences, for I have learnt the lore of the jungle in the hard way.

During the last five years or so I have noticed a gradual increase of wild life in my old haunts. Elephants had decreased after 1933, but suddenly showed an increase last year, some have not left the area at all, as they usually do, after the monsoon. A significant fact in favour of my theory. Spotted deer unknown in the old days, except on the banks of the Mahaweli for five hundred feet, have now spread to both sides of the valley, up to two thousand five hundred feet. Sambhur, barking deer, and pig, have likewise increased in this range, while wild and semi-wild buffalo are becoming a pest round the lower elevation villages.

The macaque, commonly called red monkey, has always been here in numbers, but now the grey langur has appeared on the patnas, and can be seen with the troops of a rather larger, and darker race which are indigenous to the hills. Bear have not as yet made their appearance, but leopard are seen more frequently, probably following the deer.

The "Jungle Tide" is indeed ebbing from the low-country dry zones, but is flowing into the hills, making sanctuary for the beasts that have migrated there for safety. Here is a case in point. Recently the inhabitants of one hamlet referred to earlier, had been evacuated by a benevolent Government lock, stock, and barrel to Kantalai. On visiting this abandoned spot the other day two pigs jumped out of the ruins of the headman's house . . . As Kipling aptly says in one of his "Jungle Books . . ."

"And the does bring forth in the fields unsown.
And none shall affright them again,
And the blind walls crumble, unknown, o'erthrown.
And none shall inhabit again."

Perhaps Government would go even further, and consider leaving these steep and unremunerative areas, undeveloped, by transferring the population of some of these villages, whose inhabitants eke out a precarious existence to a land flowing in milk and honey, by some low-country tank. Not only would it help the villagers concerned, but also check the serious problem of soil erosion, as well as prevent the drying up of innumerable streams that feed the larger rivers. These abandoned scrub clad slopes could then be made Sanctuaries under a National Trust, for the elephant, sambhur, pig, and all wild life, to roam at will, unmolested by man and his schemes.

Wilpattu in July

By D. L. EBBELS

JUNGLE excursions begin in reality long before one starts for the wilds. They first begin as glimmerings at the back of the mind, a nebulous feeling of restlessness that gradually strengthens and takes shape, prompting one to pore over maps, discuss times, and decide what places appear to be most promising. As the time gradually draws near, people start cleaning cameras, getting in stores, and excitement slowly reaches a high pitch of eager expectation as the long-awaited day arrives.

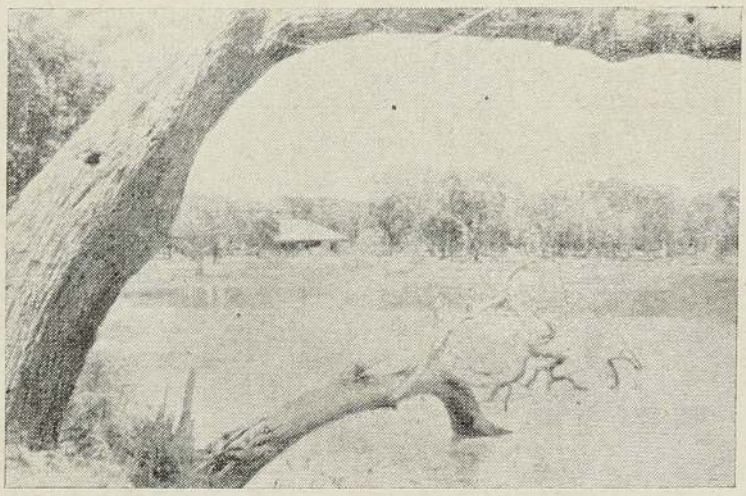
It was in such a frame of mind that July 12th found us. I had come down to Colombo from Up-country the day before, to join Valerie, (my sister), Mike, and Margaret, on a trip to the Wilpattu National Park. Valerie and I

were to meet the rest of the party at Maradanmaduwa—the main park bungalow, and the one we had booked for our stay. Accordingly we left the bungalow at 6.50 a.m., the back of the station wagon full to bursting point with stores and bedding, not to mention two kerosene tins of petrol.

The latter were the bane of our journey north. Ere we had gone two hundred yards the tops of the tins began to vibrate, giving a clever imitation of a steam hammer upon sheet iron, and then they started to leak . . . . A nauseous smell pervaded the car and we stopped to arrange some sacking over the tins. Heartily cursing the person who had given us these tins in exchange for our good ones when we had left them to be filled, we proceeded on our way, making a hurried detour into Negombo on what we rightly thought was a futile quest of petrol tins.

Pausing only for breakfast in a turning near the 70th mile post, we pursued our clamorous course, noting with approval how people skipped nimbly out of our way, and observing the expressions of surprise and wonder on their faces when on turning, they saw from what a small vehicle such a tremendous uproar was emanating.

Presently Puttalam lagoon appeared on our left, and turning right at the petrol station, we started on the last lap of our journey into the hinterland. No rain had fallen for weeks ; the dust swirled up behind us and found its way into every crevice, including our ears and noses. The undergrowth on the sides of the road looked wilted and each leaf was coated with a grey film of dirt. At long last we entered the 28th mile and turned left along the well-remembered cart track. We showed our permits at the gate and passed on through the East Intermediate Zone to the National Park, and so after thirteen dusty miles since leaving the main road, we stopped in the welcome shade of the Maradanmaduwa Bungalow. Here we were most courteously welcomed by Mr. Morrit, who told us that the famed Malhamy would not be able to accompany us as he had done on a previous visit, and allotted to us the services of Ranasinghe, who proved to be a really excellent organizer.

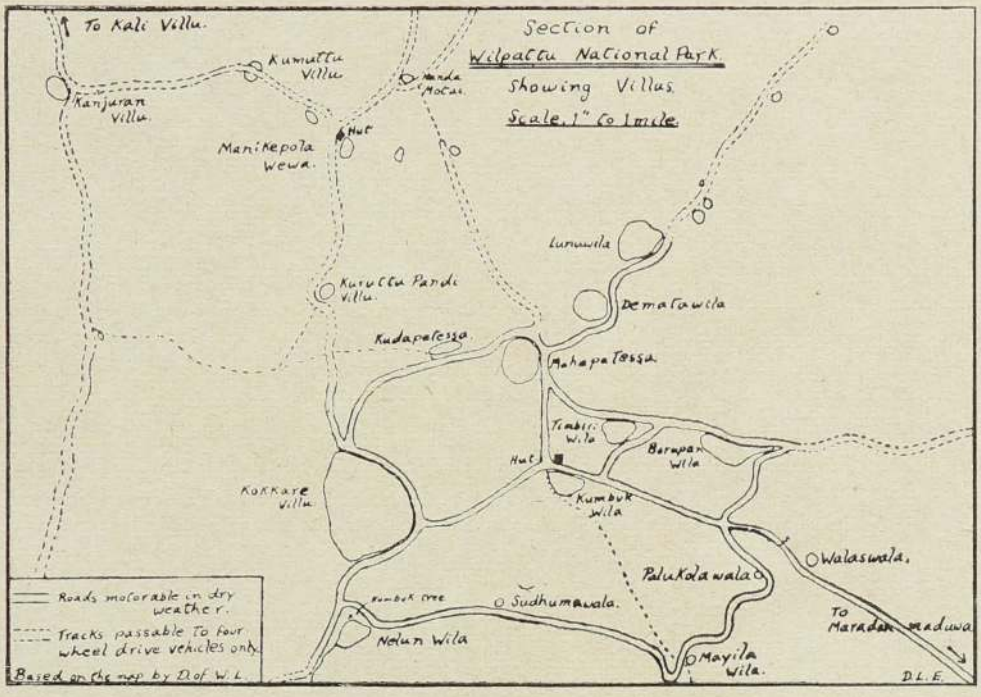


Maradanmaduwa.

We had lunch, a short rest, and got things straightened up. Then, having had some tea, we waited for Mike and Margaret to arrive before starting out on an evening round of the villus. They arrived at 4.50 p.m., just as Ranasinghe was telling us in his excellent English that we should be starting. Accordingly we whisked them out of Mike's car and into the station wagon and set off for Borupan Wila.

The country here is very different from that in the Yala and Buttawa areas. Instead of thorn scrub and park land, the country at Wilpattu is nearly all tall jungle with numbers of large palu trees. Ebony and *Cassia fistula* are also plentiful, and Kumbuk trees are found by the villus. The latter are very shallow for the most part, generally lying in roundish saucer-like depressions, surrounded by a broad or narrow strip of cropped grass, according to the water level, and then by high jungle. Park land is only occasionally found, though it is being encouraged by the authorities, who clear the undergrowth in certain places.

Having uneventfully traversed the long road through a tunnel of jungle to Borupan Wila,



Wilpattu National Park

we abruptly emerged from the jungle on to the cropped grass round the water and tall reeds. The first thing that met our expectant gaze was a fine elephant, deep in the reeds, and giving himself a shower. We moved down wind, round the wila and saw him start on a dust bath. Elephants are a much rarer sight in Wilpattu than in the Ruhuna National Park, so we were well pleased with our good fortune.

Continuing on our way, we came to Timbiri Wila, where the usual crowd of open-billed storks greeted us. Here also we had our first view of a small barking-deer. After passing to extract the car from some sand at Kumbuk Wila, we made our way to Kokkare Villu, the largest of the villus. This is an excellent spot for crocodiles, and as we circumnavigated the much shrunken sheet of water, we were able to see eight or nine. Great stoneplovers and peafowl were also on view, but pigs were conspicuous by their absence.

Another party had unfortunately preceded us to Nelun Wila, but on our arrival, the tracker accompanying this party said that they had recently seen a bear, and a leopard which had gone into the reeds and had not reappeared. Hardly had we turned away before Mike spotted the back end of a bear making its way off through the undergrowth. With a little manoeuvring we were able to get a good view of him and also had time to make some movie shots. That was the end of our luck for the evening, however, and after a fruitless attempt to see the vanished leopard, we returned homewards *via* Borupan Wila.

The following morning we were up at 5.15 a.m., and after having had some cocoa, we set off for the villus at 5.40. Borupan, Timbiri, and Demata Wilas only produced one civet cat, and we pressed on to Kokkare Villu. Here we saw a large elephant, which fed unconcernedly for some time before majestically moving off into the jungle.

At Nelun Wila we came upon a great company of storks, egrets, and herons, amongst which we were able to see the huge forms of three lesser adjutants, which greatly pleased me. We sat for a while beneath the spreading and massive branches of the huge Kumbuk tree, and silently waited for the fauna to reappear. We had not long to wait, for soon a pair of barking deer appeared on our left, timidly tripping this way and that, and evidently trying to screw up enough courage to enter the reeds in search of a drink. Two pigs approached the water less gingerly from the opposite side of the wila. A few wanderoos also came to drink, but by this time the sun was high in the sky and we returned to the bungalow for a late breakfast.

I strolled, after breakfast, along the bund of the tank, idly watching the numerous common kingfishers sporting in the sun. One was

Nelun Wila from under the Kumbuk Tree.

perched on the end of a dead stick protruding from the shallow water of the depleted tank, transforming it into a gleaming sapphire sceptre, flashing a brilliant blue against the brown water. A talagoya rushed from before me and, with anxious backward glances, hastily ascended a palu tree. Deer moved slowly in the park land below the bund.

Returning along the bund, a slight noise drew my attention to a pair of jackals with a half-grown cub, which were drinking from a most unwholesome-looking pool below the bank. They drank their fill and trotted off in Indian file. The mid-day sun was intense, the sky the palest blue, and the heat reverberated from the rocks and baked earth. On the verandah the thermometer registered 101 degrees ; it had a minimum temperature indicator which showed that at night the temperature fell to 73 degrees.

At a quarter past three, the fierce heat abated slightly, and we made our way to Sudhumawala (literally the "Water-hole of the White Doe") where human excavating had resulted in a small pool of water. We sat concealed behind some bushes for some time, but our patience was rewarded with only a pair of pigs that came to wallow in the thick mud. We moved on to Nelun Wila, where we had our tea under the Kumbuk tree. No less than four lesser adjutant storks were visible amongst a motley throng of painted storks, great, and cattle egrets, pheasant-tailed jacanas, paddy birds, white ibis, and grey herons. Crocs were also plentiful, and occasionally one would be seen to capture a fish, throwing its head up and biting once or twice before swallowing. We could see the rows of gleaming teeth and the pale lining to the saurian's jaws. Some deer and buffalo emerged from the jungle's shade, and much to our pleasure, a pair of sambhur hinds also appeared. Near us were the two barking-deer of the morning, and so inquisitive were they that one came down wind to within ten yards of where we sat, its small nose working hard. Not until it moved round to windward did it catch our scent and bound away.

We returned *via* Kumbuk Wila and made a circuit round Borupan, Timbiri, and Mahapatessa and back to Borupan Wila once again. Here we were lucky enough to see a most unusual sight. A small herd of eight elephants, including four young ones and two not above a year old, were belly-deep in the reeds. As usual at these times, the failing light rendered photography impossible, but we watched them through our glasses until they vanished whence they had come. The gathering dusk then necessitated a speedy return to the bungalow.

That evening a chance flash of a torch over Maradanmaduwa Tank revealed an astonishing number of wicked little red eyes, showing where the crocs lay in wait. We retired to bed to the strains of "Happy birthday to you," which proceeded from our neighbours in the two new aluminium huts close by, shattering the stillness of the night.

We were astir early again the following morning and departed for Sudhumawala, eagerly discussing the chances of seeing the leopard we had heard during the night. At the water-hole we saw two sambhur hinds, but no other animals, so we left after a short time, and drew the track to Nelun Wila.

The road here runs between dense scrub and

the surface is largely of fine sand. It was with great excitement that we noticed a perfect set of leopard pug marks going in our direction and we followed them for about a mile. Then we came round a bend and saw a small female leopard sitting on her haunches in the centre of the track. We stopped at once, but we were too close and she unhurriedly rose and entered the scrub on our left, from where she watched us with interest for a short while.

Continuing to Nelun Wila, we were unsuccessful in trying to film the storks. However, a large print of a bear's hind foot on the road in front heartened us. We returned *via* Kokkare Villu to Mahapatessa, where a sambhur doe was seen, made a short trip to Dematawila, and went on to Timbiri where two pigs and a barking-deer were on the edge of the reeds. Three white-necked storks were also to be seen, on the far side of the water.

Having returned for our usual late break-

Kali Villu.

fast, we hired the Wild Life Department's jeep and set off for Kali Villu. We made a short excursion to Nelun Wila, but soon retraced our tracks to Kokkare Villu and started along the Kali Villu track.

However, save for passing through hitherto unfamiliar country to us, the journey was singularly uneventful. At Kanjuran Villu we stopped for a picnic lunch beside the track, from where we could look through the undergrowth of the tall jungle, across the villu. This was the merest muddy puddle, and only two pigs appeared to relieve the monotony of the scene. The telescope, however, revealed a charming party of four red-wattled lapwing chicks and their mother.

We reached Kali Villu at about two o'clock and stayed for about an hour. The tall trees gave a welcome shade, but beyond them the white sand danced in the heat and the villu, shrunken and thus withdrawn to the far side of its expansive bed, was blurred in the haze. Some pigs lazed in the mud.

Returning back the way we had come, we turned off to the left at Manikepola Wewa, and after a long drive in vain hopes of seeing a bear, we had our tea at Mana Wila. Two small herds of pigs were feeding in the long grass, numbering about a dozen in all. A pair of barking deer were present, and a large number of the smaller birds of the trees. Ioras and white-eyes threaded their way amongst the branches, and a black-capped bulbul was visible in the foliage immediately above us. We quietly finished our tea and set off once again on our homeward journey. At Nanda Motai we saw three adjutant storks, standing like grotesque statues, with their heads drawn into their shoulders.

Not long after we had rejoined the Kali Villu track, we met the occupants of the bungalow returning on foot, as their jeep had broken down. On reaching Kokkare Villu we made a round of the other villus before returning to Maradanmaduwa. We saw nothing of interest, and only an elephant that trumpeted close by enlivened our journey. We were all covered from head to foot in dust that had swirled in over the jeep's tailboard.

Dawn the next morning brought with it the unpleasant feeling that this was our last day at Wilpattu. This, with the fact that we had heard elephant round the bungalow during the night, made us feel anxiously hopeful as we

started off. However, though we made a thorough round of the villus, we seemed to have exhausted our luck, for we saw nothing of unusual interest. Having breakfasted late, we sadly packed our various pharaphernalia and after a saunter along the bund, we started on the journey home. Lunch, which we had on the road side, was a curry. Unfortunately we had forgotten about spoons and forks, so we had to enlist the services of our not-too-clean fingertips, much to the amusement of passers-by.

The sun was setting when we arrived home, and as we tiredly unpacked the car, the flying foxes began their nightly hawking for insects. The clouds changed; gold, orange, pink, red, and finally to grey, which became ever darker until the day reluctantly relinquished its hold on the earth, and the night slipped into its place.

A jungle trip really ends long after the tangled wilds have been left behind. There is the business of processing and printing films, and innumerable odds and ends of stores and equipment have to be returned and replaced. It might almost be said that no trip really ends at all, for years later the sight of some picture will be enough to conjure before the mind's eye the shady tanks and forest animals, and one will mentally relieve those well-remembered and pleasant moments which passed away so long ago.

Wilpattu National Park—July, 1956

By R. P. GADDUM

AS usual at this time of the year, on the other side of the Maradanmaduwa tank, a number of animals and birds could be seen coming down to the remaining water, which was confined to a strip about 30 or 40 yards in width on the right-hand side of the tank.

On a sand spit eight large crocodiles were sunning themselves, most of them with their mouths wide open, and apparently taking no notice of deer and pig which were drinking in their immediate vicinity. I believe that, generally speaking, crocodiles feed at night, but are not averse to having any "snack" which offers during the day.

It is a mystery to me why crocodiles always leave the Waders, such as painted storks, egrets, ibis and herons, severely alone, for I know from experience they are particularly fond of ducks and teal, should the opportunity present itself.

We set off on a tour around the vilus, travelling *via* Borapan Vilu, then to Kumbuk Vilu, Thimbiri Vilu, Mahapetessa Vilu and, thereafter, tried to get to Nelum Vilu, only to run into heavy sand on the edge of Kokkare Vilu. At one time, as the car had dug itself into its axles, it seemed as if one of us would have to walk back to Maradanmaduwa, a distance of approximately nine miles, and obtain the departmental jeep to pull us out, but by jacking it up and packing small branches under the wheels, we were able to progress about a yard at a time, until the track was sufficiently firm to permit the tyres to grip. This operation, however, took a considerable time, and it cost us something like $1\frac{1}{2}$ hours to travel 10 yards; so, after a fleeting visit to Lunu Vilu we returned to Borapan Vilu, where we spent the rest of the evening sitting under a tree and watching animals emerging from the jungle for their evening drink.

We were amazingly fortunate, for at intervals of approximately 15 minutes we saw no less than four leopards come out of the jungle between 5 p.m. and 6 p.m. All of them appeared to follow the same routine, which was to walk sedately to the nearest water, where they disappeared into the long grass

at its edge and, presumably, after they had drunk their fill, they returned to the jungle. Needless to say, we did not see many deer during this particular period.

Unfortunately, the point at which the leopards drank was something like 200 yards away from where we were sitting, and directly in the eye of the sun, otherwise they would have provided an even more striking spectacle than they actually did. Still, seeing so many in such a short space of time was quite a unique experience.

Returning at about 6.30 p.m. we were quite glad to turn in. Our beds were on the edge of the veranda and, of course, quite accessible had any wandering "Jumbo" been interested. (This is where I remember waking up at 2 a.m., last year, and finding a large elephant feeding 14 yards away from where I was sleeping).

On Friday morning we decided we would sit over a small water-hole called Dhangaha Oorani and watch for bear, which were said to drink there, but as when we arrived it was quite evident from two deer and a mongoose, which came down while we were watching, that the wind was playing odd tricks, we moved on to a somewhat similar water-hole called Attambagaha Oorani, where I soon fell asleep on a comfortable bed of leaves on the ground.

After I had, as I thought, just closed my eyes, I felt my wife shaking my arm. Fortunately instinct made me move rather carefully, and it was as well I did so, as there in the open were two large bears, the closer one being between 16 and 17 yards away.

What made the situation rather more critical was the fact that the two bears were obviously a courting couple, although to what extent their courtship had progressed I do not know. They were, however, very thirsty !

Bears—when in love—are said to be even more vicious than they normally are, and resent any form of intrusion in the shape of "Peeping Toms" more than other animals. Fortunately, however, they were so engrossed with each other that we were able to remain unseen until they both had their noses well and truly in the tiny water-holes from which they were drinking and, whilst so engaged, we were able to conduct a strategic retreat to a safer point of vantage.

After drinking their fill, the male bear, rather ungallantly I thought, walked into the jungle, followed by the female, who was making an extraordinary mewing noise, rather like a kitten in distress. It was a peculiarly plaintive note and one which I would recognise again without any difficulty. Presumably it was intended to convey to her lord and master that she desired further evidence of his esteem and affection. It continued until it faded into the distance, and we were just returning to where we had been sitting when we heard it again, and back came the bears, only to have yet another drink, and then cross the road immediately below where they were standing. Fortunately, they were still too engaged in each other to see us, which was just as well, as our sole weapon was a large knife between the three of us—my wife, myself and Malhamy, the Game Guard. A very inadequate form of defence against two bears who, had they charged, would undoubtedly have done so together.

As no further animals came down, we returned to Maradanmaduwa in time for lunch, and in the afternoon repeated what we had done on the previous day. This time we were not so fortunate, as no leopards presented themselves for inspection. Nevertheless, we were lucky enough to see an elephant having his evening drink at 4 p.m. at Kumbuk Vilu. (The first I have seen during the daytime at Wilpattu, for in this particular part of the world they are virtually nocturnal feeders, and seldom come out of the jungle before it gets quite dark).

Later in the evening, and this time at about 6 p.m., another elephant came down to drink at Borapan Vilu, where he presented a magnificent spectacle, for he was only 50 yards from where we were sitting. In addition to the two elephants we saw a great many of the com-

moner animals, such as sambhur, spotted deer, barking deer, buffalo, pig, jackals, and literally hundreds of birds, particularly painted storks, who were fishing in strength in a small area on Thimbiri Vilu.

After another peaceful night we set out again on Saturday morning and went straight to Attambagaha Oorani where we had seen the two bears on the previous day. Unfortunately, we had a more or less blank morning, for the only animal which came down to drink was a small mongoose.

A word about Dhangaha Oorani and Attambagaha Oorani : these two areas consist of shallow " saucers " of fine white sand, about 50 yards in diameter, and are situated in scrubby jungle.

In the middle of each " saucer," bears and other animals dig for water, as instinct must tell them it is obtainable. They have to dig to a depth of as much as 3 ft. before a little trickle seeps slowly into the bottom of the hole they have dug, and this provides them with their requirements. It is, however, a very slow process, for a couple of gulps from a bear must finish the teacupful or so of liquid which slowly collects and the animal has then to wait patiently until the hole gradually refills itself, to a depth of two or three inches, from the underground water table.

During the afternoon we again returned to Borapan Vilu in the hope of seeing some more leopards, but they did not oblige, and it was not until nearly 6 p.m. that a large bear was seen coming down to drink. He came quite close to us, and we watched him for the best part of ten minutes before he had had enough, and walked sedately into the jungle.

On our way back, we had hardly entered the jungle track between Borapan Vilu and Thimbiri Vilu when round a corner and in a small double cutting we encountered two large bears coming in the direction of the jeep, and not more than 30 yards away. The Game Ranger, who was with us, was under the impression that the pair consisted of a mother and her full-grown cub, and, by the way in which the cub obviously disregarded the advice so plainly given by its parent, I can well believe the relationship was correct. We stopped the jeep, as there was nothing else to do, whilst the bears sat down and had a good look at the strange object in the middle of their path.

After some minutes, mother bear decided that we required closer inspection, so she shambled forward about five yards and had another look. Her child followed, peeping over her shoulder from time to time, and then obviously said : " Oh, it's nothing to worry about," and came on a bit closer. This time the mother was rather more concerned, so she hurried up until she was parallel with her offspring, and then they had a short " talk."

This manoeuvre was repeated twice, first one advancing, then the other, until the two bears were no less than 15 yards away from the jeep, when to our amazement, mother bear stood up on her hind legs (a characteristic attitude of bears when they want to intimidate anything, or contemplate charging), and made a loud yapping noise.

Mortified, that the jeep did not run away, the cub obviously said : " That's nothing, I'll show you," and proceeded to stand up—twice. On the second occasion I thought it was going to charge. However, after this demonstration had failed, the two bears decided to give the jeep best (its engine had been started), and climbed up the side of the double cutting from where they disappeared slowly into the jungle.

They gave us a highly amusing performance of what looked very much like clowning, even if it was tinged with a certain amount of anxiety, although personally I think that being in a vehicle—even though it is open—makes one virtually safe from any animal, except perhaps an elephant.

On our return from Kumbuk Vilu to Maradanmaduwa, we came across yet another bear, sitting on the ground with its face pressed against the earth ; after watching it for some time, it became quite evident that the wretched animal had been severely stung on its face, head and neck by hornets or bees, for it was

scratching the affected areas the whole time, and rubbing its muzzle and face on the ground to ease the pain and irritation.

By this time it was getting so late that we had to return, and on getting back to Maradanmaduwa we were greeted by the trumpeting of elephants, although it was then too dark to see them.

On the whole, a memorable day, and one I shall never forget.

After a blank morning at Attambagaha Oorani we went for quite a long afternoon run in the jeep to Pannikan Vilu, where a tusker had been seen two or three days previously.

Our vigil there, however, from 3.30 p.m. to nearly 6 p.m. was unrewarded, except for a number of spotted deer, barking deer, pig, and jackal coming down to drink, in fact, the stage was never empty.

From Pannikan Vilu we returned to Borapan Vilu and, on our way back, we again saw the poor bear who had been stung. This time it was in the middle of a large open patch of white sand, where his black coat showed up in startling contrast. It let the jeep and its occupants get to within 10 yards of where it was sitting before it showed the slightest interest. After a short time it kept giving us glances which plainly meant: "Can't you leave me alone?" It shambled off into the scrub, and I can only hope that the poor beast eventually recovered. It was a very pathetic sight.

We had a final thrill on our way back to Maradanmaduwa; just as the jeep had entered the main jungle, Malhamy, the guard, suddenly shouted, "Elephant," and the Ranger, Mr. de Alwis, who was driving, only stopped just in time to save us from hitting the hindquarters of a large Jumbo which was almost invisible in the dusk.

Fortunately, the elephant, though startled, did nothing except give a shrill trumpet of annoyance and fright before he crashed into the jungle, which suddenly came to life all round us, as he must have been one of a herd.

On Monday morning we packed up and left Maradanmaduwa for Colombo.

It was really a most interesting trip, and I doubt if I shall ever again see so many bears and leopards, in such a short space of time.

Other unusual sights worth recording consisted of a small pack of seven golden plover, exceptionally early for these migrants. We also saw a painted stork with a large fish, probably a lula in its beak. The fish must have weighed at least $\frac{3}{4}$ lb. and was, presumably, being taken by the stork back to its nest to feed its young, for I noticed several immature painted storks among the hundreds which were revelling in the remaining water, which must have contained a heavy concentration of fish and frogs.

The painted stork's method of fishing is quite fascinating to watch, for as the water gets less and less, all it does is to immerse its partly-open beak 6 or 8 inches, and run forward using it as a scoop, and when it feels something wriggling on the lower mandible it just closes its beak, lifts its head, and lets the meal slide down.

Finally, and probably the most unusual of all, I saw a jungle cock at the edge of Lunu Vilu, right out in the open, at least 100 yards from the surrounding scrub, where it appeared to be drinking the extremely salt water which this particular Vilu contains.

ELEPHANTS IN THE WILPATTU NATIONAL PARK

By R. P. GADDUM

THIS article is written as an apologia to those rangers and watchers of Wilpattu to whom I have expressed doubt that there were many elephants in this particular National Park, which I have visited regularly for the last six years, though perhaps I can be excused these doubts as prior to my last visit I had only seen three elephants, all solitary animals, even though I had always made a point of spending virtually all my time at spots which elephants were said to frequent.

Our party reached Maradanmaduwa Bunga-

low a little before noon, and after lunch we went by jeep to Pannikkar Vilu, seeing a leopard *en route*, as it sprang down from the fork of a dhang tree into the surrounding undergrowth.

At Pannikkar Vilu there was still a pool of water, about thirty yards long by twenty wide, and twelve to fifteen inches deep. To this pool spotted deer, barking deer, pig, buffalo and jackals came down in an unending procession.

The high-spot of the evening was when two elephants, which were immediately dubbed " Frankie " and " Johnnie " (they seemed very fond of each other) came down at 4 p.m., and spent nearly half an hour first drinking, and then squirting the water over their huge bodies.

After an early breakfast the next morning, we took our lunch with us and went down again to Pannikkar Vilu, where we spent the whole day—from 8.00 a.m. until 5.45 p.m., in a hide, and what a time we had.

Once again we watched a ceaseless procession of deer, pig, buffalo and an occasional barking deer and jackal, coming down to the remaining water, having a drink, and then dawdling by the water or returning to the shade of the surrounding jungle, as the spirit moved them. In fact, I do not think there was ever a period of even five minutes when the pool was deserted.

And as for elephants : first a party of three arrived—mother with her elder and younger daughter—they had hardly finished slaking their thirst when down came a herd of six more, which included the two smallest elephant calves I have ever seen—" teeny-weeny " little animals with undeveloped trunks, with which they splashed the water bravely, but when it came to drinking they submerged their mouths and drank like cattle. From time to time they would lie down in the water, only to be gently pushed up by mother's front foot. It was a most astonishing spectacle. After half an hour or so, they too returned to the jungle, only to be replaced by three more, including another calf, and these were shortly joined by yet another four, so that there were seven in the pool at the same time, making it definitely crowded. This last visitation brought our afternoon's bag to fifteen elephants between 3.00 and 4.30 p.m., seen only from thirty to fifty yards away from the hide.

On our way back we had a wonderful ending to a wonderful day, for nearing Nelum Vilu we saw two large bears feeding under a dhang tree, and watched them until they got our wind and faded into the jungle.

One little incident, which occurred just before mid-day, is worthy of record. Malhamy, our watcher, hearing a muffled thud just outside the hide, went to investigate only to find a bronze-wing pigeon which, though alive, died within a few minutes of his picking it up. It was virtually unmarked except for a red weal on its neck which had hardly broken the skin, except for two small punctures ; these had obviously been made by the claws of a Hawk Eagle which, failing to grip its prey, had let it fall to the ground and had then been too frightened to invade the immediate proximity of a party of human beings.

Next morning we paid yet another visit to Pannikkar Vilu, and were once again rewarded by seeing, in addition to masses of other game, no less than ten elephants come down to the water during the afternoon.

Once again, the elephants included two small calves, although they were not so diminutive as the two we had seen on the previous day. One had just learned to use its trunk, while the other kept on pretending it could, though it actually used its mouth to drink when it thought no-one was looking. The ten consisted of two groups : the first of four—two calves and two cows—which came down at 1.00 p.m., and another small herd—also with calves—at 4.00 p.m. On returning to the jungle after their drink, both families passed within thirty yards of our hide.

Another gift from the Heavens must also be recorded : this time a small grey snake, said to be harmless, which fell out of the tree (probably trying to escape a Serpent Eagle) on the forearm of a member of our party.

She was either too brave or too petrified to scream, and just shook it off and let it vanish into the undergrowth.

I once again take back anything I may ever have said about there being very few elephants in the Wilpattu National Park, for the twenty-seven we saw were all individuals, and not duplicates.

NIGHT SHOOTING OF A DEER IN WILPATTU NATIONAL PARK

QUITE an outcry was raised in the Press over the shooting of a deer in the Wilpattu National Park on the 17th March, 1957, by the King of Nepal on his visit to Ceylon.

The immediate and widespread public reaction to this was of the highest propaganda value to the cause of wild life preservation.

Unhappily, however, the subject was drawn into the vortex of political controversy from which we desire entirely to dissociate ourselves.

In conformity with our policy of maintaining a continuous historical record of the public reaction to transgressions of the conventions of wild life preservation, and of offences in connection with National Reserves and Sanctuaries, we reproduce the following excerpts from the newspapers :—

(1)

Police Report

This was made by A.S.P. Henry Corea who was at the wheel of the Land Rover from which King Mahendra shot the deer.

It states that the Minister of Cultural Affairs, Mr. Kuruppu, was in the second Land Rover driven by Sub-Inspector Bob Fraser, some distance behind the King's Land Rover.

The shooting occurred at Wilpattu between 12.30 a.m. and 2.30 a.m. on March 17.

On March 16 while at lunch at Polonnaruwa Resthouse the Military Secretary to King Mahendra, Brigadier-General Sher Bahadur Malla said that Their Majesties wished to see wild life.

That night the Royal party were taken to Manampitiya accompanied by the police and other officials. They carried firearms for the protection of the Royal couple.

On March 17, when the party came to Anuradhapura the Nepalese Military Secretary made a repeat request that the King wished to see more wild life as he had not seen much the previous night.

It was agreed that the Wilpattu Game Sanctuary was the best place after consultation with Mr. B. W. Perera, A.S.P., N.C.P., who is well versed in wild life.

About 10.30 p.m. after dinner the Party set out for Wilpattu in two Land Rovers and two Police jeeps. They carried firearms for the protection of the Royal Party.

The first Land Rover was driven by A.S.P. Henry Corea. Its occupants were the King and Queen of Nepal, and nine other officials.

In the second Land Rover driven by Sub-Inspector Bob Fraser were Lieut.-Gen. Arun Shumsher Jang Bahadur Rana, Minister-in-Waiting, the Rani Arun Shumsher, Lady-in-Waiting, and others.

The Party arrived at the main gates of the sanctuary at 12.30 a.m., from there the King's Land Rover drove ahead and the other vehicles fell back firstly because of the dust and secondly because the animals would be disturbed.

A little while later the King's Rover Party came across a magnificent elk. On going further in they came across a lonely stag.

Mr. Corea stopped the Land Rover and switched off the lights and engine and the King and the Party viewed the animal by the moonlight.

Within a few seconds the animal started off. Instantly the King of Nepal fired and brought down the animal.

The party left the sanctuary about 2.30 a.m. and reached Anuradhapura about 4.30 a.m.

At the Grand Hotel, Anuradhapura, Brigadier-General Malla conveyed a request from His Majesty to Mr. Corea that he would be very pleased if the head and antlers could be sent to him to Nepal as a trophy.

Deer, O Deer

OF course, a conspiracy of silence was set up as soon as it was realised that the entire Buddhist public would be horrified at the thought that the Minister of Cultural Affairs, in his role of guardian of the Buddha Jayanti celebrations, actually participated in an episode in which a royal visitor, hailing from the land in which the Gautama Buddha was born, killed a deer in a sanctuary by the light of the Full Moon, the appearance of which had just been celebrated by millions of Buddhists, including the Minister and his guests. With the best will in the world this is the kind of story that could not possibly be kept secret, and before morning the whole episode was public knowledge.

The most remarkable thing was that they apparently managed to prevent King Mahendra and his Queen from learning of the gravity of the incident in which they had unfortunately involved themselves.

Observer.

(2)

In Parliament

The Prime Minister, Mr. S. W. R. D. Bandaranaike, explained the circumstances under which the deer was shot, and read the following *Letter of Regret*, addressed by His Majesty's Secretary on behalf of His Majesty to the Governor-General, Sir Oliver Goonetilleke :—

" Your Excellency,

I have been commanded by His Majesty to inform Your Excellency that he has been deeply concerned at reports that have appeared in Ceylon papers regarding His Majesty's visit to Wilpattu National Park and the shooting of a deer by him on the occasion of that visit.

I have been commanded to convey to Your Excellency and through you to the Prime Minister, the Government and the people of Ceylon, an expression of His Majesty's regret in respect of this incident and particularly, if it has hurt the religious susceptibilities of the people of Ceylon.

His Majesty was keen on seeing the National Park and his visit was arranged outside his official programme when he went to Anuradhapura after the Buddha Jayanti functions had come to a successful conclusion. His Majesty travelled in a jeep with Her Majesty the Queen, accompanied by a few police officials who took rifles with them for security reasons. From the jeep His Majesty had sighted a deer and his sporting instinct momentarily getting the better of him, he fired a shot at it, which unfortunately ended in its death.

I have been particularly commanded by His Majesty to inform Your Excellency that no blame whatsoever attaches in respect of this incident to the Minister or to any other Ceylonese official attached to Their Majesty's party."

The Prime Minister then proceeded :

" His Majesty the King was very anxious to see wild animals. It had been brought to his notice that shooting, although His Majesty was a great sportsman himself, would not be proper on this visit of his paid at the time of the Buddha Jayanti.

" At Polonnaruwa they went to see some wild animals. They had not met any. Somebody apparently suggested to the King that animals could be seen fairly easily in the Wilpattu Sanctuary.

" That is really the whole situation. I express my regrets personally. I was wondering whether by some means I could follow the pattern of one of those very nice Jataka stories which concerned a King slaughtering a deer every day for his table. The herd agreed to send a deer every day to the kitchen to avoid the King troubling himself. Well, once the lot fell upon a doe that was heavy with young and the king of the deer, in order to protect this poor animal, offered himself to the King, who was so moved by this act that he gave up the practice of having a deer slaughtered daily for his kit-

chen. It is a very nice story which, I think, many of us saw even depicted in the film of the Buddha.

"In order to give merit to the unfortunate animal that has suffered, in order that even merit may accrue, I shall be ordering that no licence for sporting purposes for the shooting of any wild animal will be issued throughout the whole of this year. Licences, as Honorable Members know, are issued to sportsmen to shoot deer, elk, buffalo, and so on. For the whole of this year I shall order that no such licences be issued to any sportsman at all. Please do not think this a purely sentimental matter. I think that sportsmen, from a practical point of view, would welcome a certain rest given to our game in this country which have been slaughtered year in and year out on licences issued for sporting purposes. I think, therefore, that even sportsmen will agree to forego that pleasure in the course of this year, and I shall be asking the Minister of Home Affairs to issue that order which I think will have, from the religious point of view, a certain ameliorative effect and from the practical point of view also may not be undesirable.

"That is all by way of a statement that I wish to make on this subject and I trust that this incident—unfortunate, regrettable—can now be considered closed."

(3)

What of Humans ?

WITH unparalleled parliamentary finesse and decorum the Prime Minister closed the other day an exciting chapter on the story of an innocent little deer which at one time was endued with a touch of regality for the simple reason it had come to grief at the hands of a King.

King Mahendra of Nepal has now very courageously taken the fullest responsibility for the untimely demise of the unfortunate beau of Wilpattu, and all the public pother, the pious resolutions passed at the several meetings and the political vilifications hurled at each other must perforce cease, leaving the publicity-mongers and interested political parties incapacitated, with their "great expectations" deferred.

The Prime Minister has decided that no game licences should be issued for the rest of the year evidently as an expiation for the heinous crime committed by a non-suspecting and non-Buddhist King in the sanctuary of Wilpattu at such a time as the Sambuddha Jayanthi. We heartily applaud this noble resolve. But may I be permitted to ask Mr. Bandaranaike what he proposes to do to the many villagers who daily poach on the Government reserves by night and bring their "kill" by day. A royal visitor may be excused his act on the score of his sporting instincts. But can we excuse the unlicensed poaching of the starving villager who ventures into the forest urged by the instinct of hunger ?

A question that may be asked in the present context is as to why so many public spirited humanitarian-minded and religious-fervoured men and women of this holy country are so callously indifferent to the colossal murder rate and the alarming insecurity to human lives under their very nose ?

W. H. SAMARANAYAKE.

Polgahawela.

The King and the Deer

THERE has been a great to-do over the shooting of a deer at Wilpattu by the King of Nepal.

It is not the mere slaughter of a deer that matters—that is being done every day. What matters is that the animal was shot in a National Park at night with a Minister and an Assistant Superintendent of Police in attendance. And, of course, the permit to enter the park was issued by a Permanent Secretary, who is not authorised to do so—and not the Wild Life Warden who is. The whole affair was blatantly illegal.

As for the handling of this affair in Parliament, one correspondent has written, "with unparalleled parliamentary finesse and decorum

the Prime Minister closed an exciting chapter," etc.

Clever, no doubt. But was such handling of a serious affair to be extolled? With his facile eloquence and breezy banter the Prime Minister made light of the deplorable incident and seems to have rendered dumb those who should have been his critics in parliament—as the *Observer* editorial put it "a memorable masterpiece of elegantly carried out verbal mesmerism." But the master stroke was, "in order to give merit to the unfortunate animal that has suffered, I as Prime Minister shall be ordering that no licences for sporting purposes for the shooting of any wild animal will be issued throughout the whole of this year to any sportsman at all"—a grandiloquent edict, and a plausible act of atonement; but it will not abate the illicit shooting of animals in the least, besides being quite unfair to sportsmen who obey the laws.

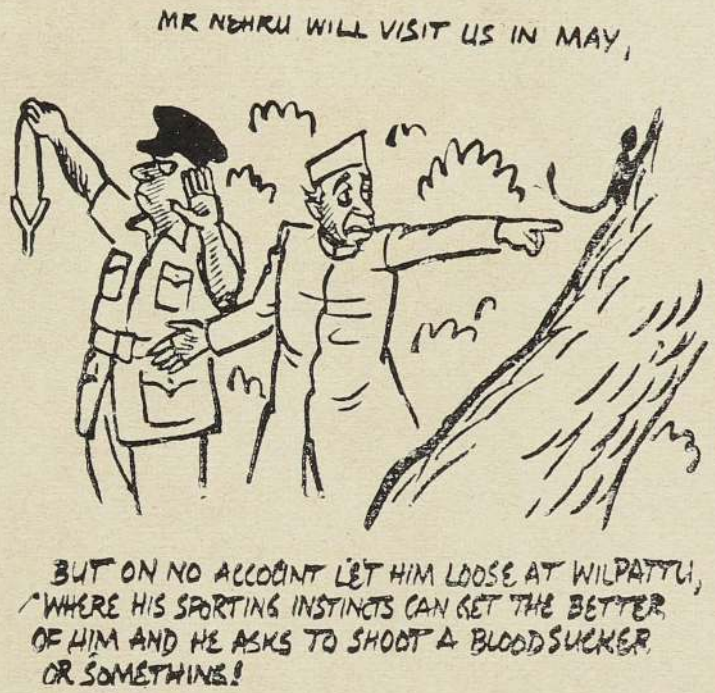
The main issue here was not the sacrifice of a deer, but the conduct of the attendant Minister and the Assistant Superintendent of Police who should have warned the King in no uncertain terms that night shooting of an animal in a National Park in this country would be an unpardonable offence.

If they did this, and the King acted in defiance of such warning, he only is to blame. If they did not, the blame must attach to the Minister and the Police Officer.

The one redeeming feature of the whole sad business was its bold exposure in the press especially in the *Observer* and the public outcry it evoked.

Let us hope that this incident will be a lesson for the future, and that a breach of our wild life laws will not be condoned, even if it were done by visiting royalty or political potentate.

ROVER,
in Observer.



The Leopard that got away

By REX LA BROOY in the *Sunday Observer*

IT is indeed rarely that a man can come into head-on collision with an angry leopard and survive sufficiently long to narrate his experiences.

Such has been my fortune, and, as I write this now, I can see those bared snarling teeth, the small ears flattened against the head, the tiny beady eyes just before mine, and in my nostrils is that smell, that awful nauseating smell of putrefying flesh coming from the leopard's mouth, so overpowering that even after I was carried away from the spot that stench remained around me. I have no desire to repeat that experience.

But let me begin at the beginning. Four of us, Ray de Costa, Malcolm Felsianes and Hugo

Bilsborough and I decided that a "Safari" in the jungles of South-East Ceylon was indicated. The July drought was at its most intense, when we left Colombo well-armed, as we thought, with still and cine cameras.

The next day found us travelling through parched plains over which the "Kachchan" blew raising dust storms that not only made us uncomfortable but reduced visibility to only a few yards. By noon we arrived at what used to be a tank except that now it was just a mass of black cake-like mud.

A solitary elephant stood in the tank casually tossing the black mud—the only thing that was moist in any way, on to his back. His tail was injured and hung in two raw ends.

Cameras at the ready, we stalked him to within twenty yards, when he observed us. Blowing through his trunk and squelching through the mud he strode away towards the jungle, away from us.

Then suddenly he paused, turned around and made as if to charge. But the heat was probably too much for him, and the next moment we breathed a sigh of relief as he plunged away into the jungle.

The temperature that afternoon was 101 in the shade. The effect of the drought was a picture that can never be forgotten. Once vast parklands were now bowls of dust. The cracked brown earth gasped for water and looked up at the merciless sky as if begging for a few drops of rain. The thick heat lay like a bronze-tinged fog over everything. Nothing stirred except the dust that was raised by the car in which we travelled.

Later in the day we visited the only rock-pool in the area, expecting to see some animal life. We saw none at the slime-covered carpet that covered the pool. Nothing except an occasional pig and a few peafowl. A bear grunted his protest at our intrusion into his privacy, close to an evenly spread bed of charcoal—probably left by pilgrims who had indulged in fire-walking some time earlier.

Dusk was setting in as we drove on. In the distance, something crossed the road. It looked like a large boar or a leopard. We drove on and stopped at the spot where the unidentified animal had entered the jungle. There was nothing on either side of the road except parkland with one large bush about ten yards away from the road, and few small dried almost leafless bushes here and there.

After a few minutes spent in discussing what the animal could have been I stepped out of the car and walked up to the bush, and round it, looking carefully at every dried leaf and branch. As I walked round, I heard a rustling within the bush.

Immediately I tensed and peered cautiously beyond the outer branches into the bush itself. I know now that it is virtually impossible to see a leopard hiding inside a bush. Nature's camouflage is perfect. All I saw was the bush.

The next thing I saw was the bush come to life. Then a blur and for an instant a hazy image of an angry cat, teeth bared, ears flat against its head pugs extended.

Years of conditioning by a life spent in jungle, have given me quick reflexes, and with an animal-like instinct I swerved away from the charging mass of feline lightning. But my movements were slow when compared to what flew out of that bush with the velocity of a bullet.

As the blackness engulfed me I heard the deep-throated growl that rose to a crescendo and died away.

As I went down my last instinctive movement saved my life. The impact of the animal hitting my right shoulder swung me round and I dropped to the ground as the leopard, carried by the momentum of his charge, went over me, to bound away into the jungle a few yards away from the bush.

The growls of the angry beast could still be heard as my companions, armed with only a stick rushed out of the car to where I lay. While Hugo stood by with a pathetic apology for a club, Ray and Malcolm picked me up and carried me over to the car.

At the provincial hospital, which they reached in a matter of minutes breaking all records for speed on those roads, I woke up with a sharp pain in my shoulder. On my forehead was a bump, bigger than a golf-ball where the leopard's head had struck me. Under my blood-soaked shirt, on my arm and shoulder were no less than nine claw and teeth marks.

The next morning we went back again to the scene of our escapade. This time we had a better weapon than a camera. We had a starting handle of a car! We wanted something more than pictures. We wanted measurements and a motive as to why the leopard behaved in the way he did. Had we disturbed him at a meal? Was he a man-eater?

We found no "kill" in the vicinity. No human had been killed by a leopard in this area recently and there was no man-eater roaming wild. The pug-marks indicated that the animal was a full-grown male.

The experts of the area, whom we consulted later gave three reasons for my good fortune in escaping. First, my instinctive turn-round which carried me in a direction away from that of the charging leopard.

Second, the head-on-collision with the leopard, a rare experience indeed, saved me, for I was knocked out like a light. Had I stirred after my fall, the animal would have come for me again and with fatal consequences.

And finally, the prompt action of my companions in rushing out of the car must surely have scared away the already bewildered animal.

But why did the animal come out of the bush to attack me, when I had no knowledge that it was there? All I could see was the bush. If it wasn't hungry and if it wasn't disturbed from a kill and if it wasn't a man-eater then why did it charge?

Perhaps the peculiar behaviour of the leopard in these circumstances could be attributed to the drought. I still wonder why. Perhaps the leopard roaming somewhere around in those jungles today, is also wondering why!

•

TRACKS

By C. E. NORRIS

A PATCH of damp sand: the sand in a dried up river bed or the dust on a path can reveal so much to those interested in interpreting signs left by various animals.

It is not always easy to identify the tracks left by animals that have used a path or approached a water-hole, unless one is conversant with their various, distinctive features.

Generally the tracker can be relied upon to give the right answer but, surely, it is more interesting to read such signs for oneself. In order to help those who are not conversant with the various tracks likely to be seen in the jungle a series of drawings are being published in this and subsequent numbers of *Loris*. I have made the sketches in the jungle from typical tracks and they are drawn to scale, which is given for those who wish to be really exact.

The present series contains the following:—

Bear.—These tracks are quite easy to identify as there are no others with which they can be confused. The impression of the rear foot can, at times, look somewhat similar to that of a child. The soft, damp sand where a sharp imprint has been left will show the claws, but in dust these are not always discernible.

Jackal.—Are very similar to those of a domestic dog but may be slimmer and not so broad across the toes.

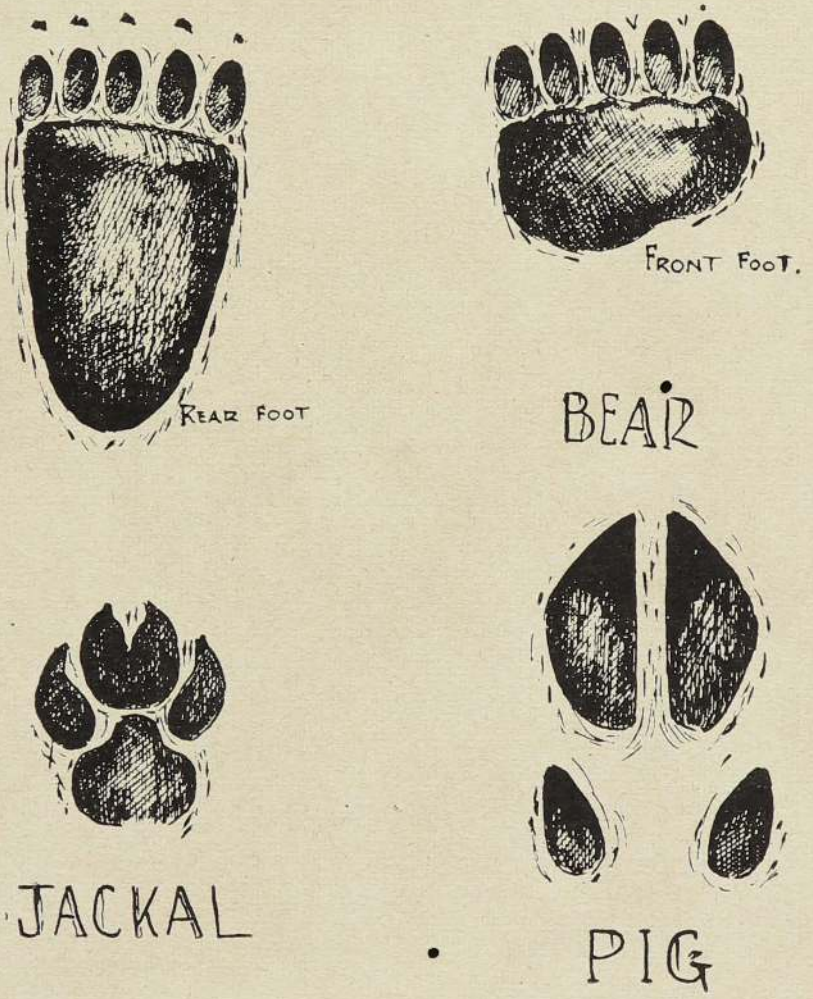
Pig.—Can be confusing at times, they are, however, blunter and broader than those of a deer, although this is not always so. The one identifying feature is the two indentations left by the rudimentary "toes" on the back of the fetlock, which are nearly always plainly imprinted behind that of the cloven-hoof.

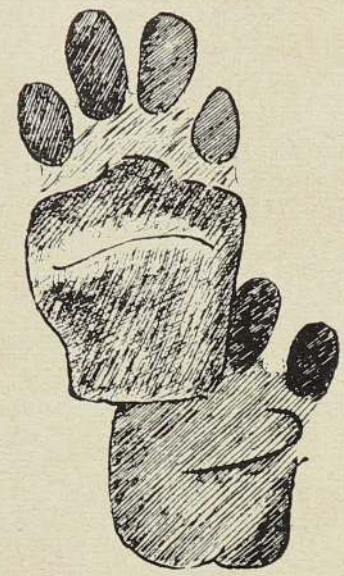
Porcupine.—Can at times look like those of a very small bear, but the number of toes very soon determines this fact.

Spotted Deer.—These can be misleading but the large mass left by a herd makes identification easier. I have found the shape of imprints range from " pear-shape " or a " drop-shape " to narrow oblongs. I have shown a typical track left by a doe in contrast to that of a stag.

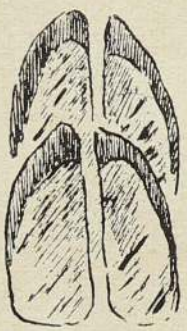
Leopard.—Is generally fairly easy to identify, but that left by a small individual can be confused with that of a Fishing Cat. I have not been able to collect a Fishing Cat's track as yet ; the last time I saw a perfect impression I had no note book with me ! Leopards will use cart tracks and river beds for their nightly wanderings.

Sambhur.—Are much larger than a Spotted Deer ; roughly giving the impression of a heart.



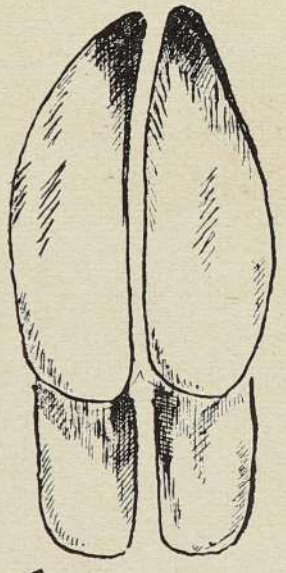


PORCUPINE.



SPOTTED DEER
STAG

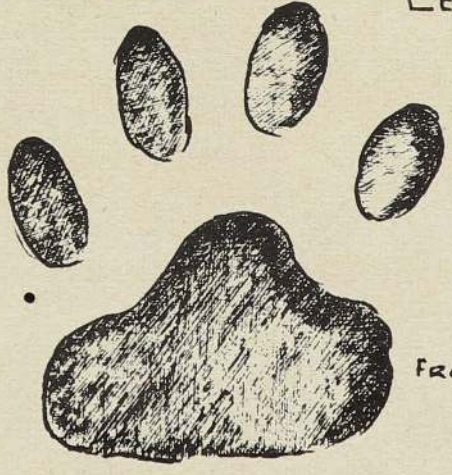
DOE



SAMBHUR.

BACK

LEOPARD



FRONT

Our Pearl Banks

By E. R. A. DE ZYLVA

IT is a clear Sunday morning, as I sit in the stern of one of the inspection boats off the Colombo harbour tug, "Hercules," which we are using as a diving tender. The Pearl Banks lie off the north-west coast of Ceylon from just north-west of Kalpitiya on the peninsula outside the Puttalam Lagoon up to Adam's Bridge, covering an area of some 60 square miles, or in other words nearly 40,000 acres. The oysters lie at a depth of 3 to 10 fathoms and anywhere from 2 to 20 miles off the coastline.

The sea is very calm as the divers go over the side to bring up the oysters from the bottom for examination and counting. There are two divers working, both Tamils from Nainativu. The older man is five and a half feet of slender sinewy activity, burned black by incessant exposure to sun and sea. He has half an inch of grey stubble sprouting from unshaven chin and forehead alike, for the front half of his head has been shaven in accordance with the custom of his people. The rest of his hair is long, and worn in a little knot at the back of his head. As soon as he got into the water he soaped his head and hair liberally until he got a lather in spite of the salt water! When I asked him why he did this, he said that it kept him from catching cold. He has been diving for his living for 45 years, and is 66 years old now, so he should know what is best by experience!

We were inspecting a patch of paar lying between North and West Cheval paars. The paars are areas of hard bottom on which the oysters are found attached. The dredge survey conducted from the "Hercules" showed that there were many oysters in this area, and it was our intention to get an estimate of the numbers present. The oyster beds lay 6 to 7 fathoms below the surface of the water, and the divers averaged 45 to 60 seconds under water on each dive.

The younger man was about 30 years old, and was a magnificent specimen of humanity, beautifully proportioned, straight limbed, and handsome, and he moved with an easy grace in the water. An oar was lashed athwart the boat amidships, with its ends projecting over the water on either side. To these projecting ends a sinker rope was tied, one on each side, with about 30 to 40 pounds of iron weight at the end of each rope. On a more slender rope was suspended an oyster basket, of netting attached to a metal ring about two feet in diameter for a mouth; this ring was attached by four bridle ropes, each about $2\frac{1}{2}$ feet long, to the hauling rope. Before they went down the divers put their heads under the surface of the sea and made a humming noise, blowing out air at the same time. After much blowing at the surface, the old man called out to the other, took a deep breath, held his nose with one hand and the two ropes (sinker and basket) with the other, gripped the sinker rope just above the iron weight with one foot, getting the rope between the first two toes, and went down to the bottom on the rope which was paid out by his manduck, or assistant, in the boat. The other diver went down simultaneously. As soon as the sinker touched the bottom, it was hauled up again to the surface and the rope made fast to the overhanging spar, and the manduck then picked up the other rope, waiting for the signal to haul from the diver below, and paying it out as the diver moved about on the bottom. On receiving a sharp tug on the rope, the manduck hauled it up as fast as he could, and the diver hastened his return to the surface by coming up hand over hand along the rope, leaving it just before he reached the surface and shooting up with the impetus he had gained off the rope. The basket was then taken into the boat, and the oysters counted and measured for age determination. Thereafter they were bagged, such as were too small for opening, and scattered in other parts of the banks where the paars were bare of oysters. By means of this trans-

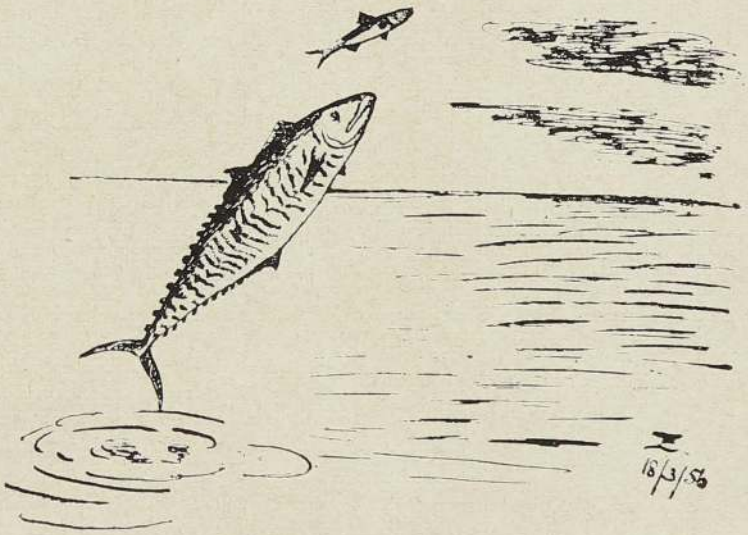
plantation we hoped to repopulate the barren paars with oysters.

The water was so clear that we could see the divers go down, move about like shadowy forms on the bottom, and then shoot up to the surface. At the bottom, the diver puts the bridle ropes of the collecting basket round his neck and uses both hands to pile the oysters into the basket, taking it off his neck when he pulls on the lifeline to be drawn up to the surface.

In the boat we had a helmsman and four oarsmen, two of whom served as manducks, a checker for counting, and myself. Periodically the manducks change places with the rowers. On one such occasion the older diver came up to the surface and upbraided the manduck for not heeding his signal from the depths. He had to come up all the way on his own power unaided by the lifeline. A similar thing had taken place with much more tragic results during the 1925 Pearl Fishery. The Arab divers who were there in numbers would stay on the bottom to the very limit of their endurance, and would rely on the attentiveness and agility of their manducks to get them up to the surface, thereby getting many more seconds on the bottom each time they went down. While a diver was at the bottom some disagreement arose in the boat and the manducks fell upon each other and a fierce fight ensued. Consequently there was no response when the diver signalled on the rope asking to be hauled up to the surface, and he was never seen again. The Government trawler which was on duty at the Fishery to tow the boats out to the paars trawled all round the area but the body was never recovered, so the story goes.

At each diving station the coxwain in charge of the sounding lead makes a cast, and calls out the depth in the traditional singsong manner which seems to be characteristically associated with this particular occupation. He called out in Tamil "Areii . . . mukkal!" meaning $6\frac{3}{4}$ fathoms of water, and then, perhaps by way of explanation for my benefit he said "Quarter to seven, Sir! This caused some amusement on the boat, grilling as we were in the open sunshine on a cloudless day at 11 o'clock in the forenoon.

And so the diving continues, station after station down the line of markers, until the end of the line is reached shortly after noon. The oysters which have not been opened are bagged in lots of 600, while samples are examined for pearls. Just at this moment the older diver comes somewhat hastily to the surface, ahead of the other man, and tells us that a skate took off from near his feet leaving a cloud of sand in its wake. Obviously the diver took off in the opposite direction with as much speed and despatch as he was capable of, and there is some good-natured ragging of the old man by the others, for he has come up without a single oyster in his basket while the younger man has come up with a large bagful, which when counted yields 230 oysters.



"A herring leaps followed by a four-foot Seer"

At half past twelve, having reached the end of the line we pick up the marker buoy and then proceed on a compass direction which I have previously decided upon after examination of the chart, to release the oysters on to a patch of good paar ground where our survey

has revealed the absence of oysters, in the hope that they will establish themselves there. The "Hercules" is visible as a smudge on the horizon as we turn back to rejoin the vessel, and it is nearly 3 o'clock before we get back. On the run we always troll a line hoping to catch a fish for dinner. As we move the surface of the water boils with the rapid movement of fish and a herring leaps out, followed by a four-foot seer, and for a moment pursuer and pursued are silhouetted against the pitiless glare of the seascape before they splash back into the water to resume the chase.

The oysters on this part of the banks are a healthy and vigorous stock of 1½ to 2 year olds, and appear to be lying in clusters, as many as 20 to 40 occurring in the larger clusters. The divers are able frequently to bring between 100 and 200 oysters to the surface on each dive. On some parts of the banks they are firmly attached to the rock slabs which lie at the bottom, and then they are much more difficult to collect, average hauls being as low as 10 or 20 per dive. The divers state that they are able to cover from one to three square yards of bottom on each dive, depending on how firmly the oysters are fixed to the bottom.

It is not every day that the divers can work successfully on the bottom. The weather must be clear and the sea calm, under which conditions there is no turbulence at the bottom and the visibility is sufficient to enable the divers to see what they are doing. Although a face mask makes visibility so much clearer under water the divers were not willing to use those which were offered to them. Theirs is an ancient calling, and the present generation will continue to battle unaided with the elements from which they have chosen to wrest a livelihood. Long may the noble breed survive.

Fish Stuck in his Throat.

TRAGEDY overtook a villager the other evening when he was fishing in a stream near his abode.

The villager, aged 35 and the father of four children, had just dug a few yams from his vegetable garden for the night meal, and walked down to a stream to catch a few fish for curry. He caught one, and tried to wrench it off the hook with his teeth, when the fish slipped into his mouth and down his throat, suffocating him.

He was brought to the Elpitiya hospital, where he died even before first-aid could be administered.

Times 1.12.56.

WANTED.

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Please communicate with

A. M. MORGAN DAVIES,
Ury Group,
Passara.

Fishing the Low-Country Rivers

By PHILIP K. CROWE

WHILE most anglers in Ceylon prefer to whip the trout streams of the high tea country or troll in the warm seas surrounding the Island, there is a small band of devoted fishermen who also seek their sport in the low-country rivers. Raging unfishable torrents during the rains some of these rivers fall away to knee-deep trickles during the drought but all of them, unless dynamited, hold fighting fish. The fast rocky runs are the haunt of mahseer, premier game fish of Asia, and the calm silent pools, overhung by jungle, form the cruising waters of Walaya, the fresh water shark of the Orient, and Lulu, an equally gamey denizen of these tropical streams.

Angling in the rivers and tanks of the low-country requires no previous effort. One does not need to join a club nor hire a launch. In most cases the advice of the local villager will put one in a position to enjoy some first-rate sport. During the past three years I have always kept a light casting rod and a few nickel spoons in the back of my car to enjoy just such opportunities and remember with infinite pleasure the sport I have found at odd times in unlikely places.

My introduction to low-country fishing took place in the Autumn of 1953 when I was viewing the ruins of Polonnaruwa for the first time and was intrigued as fishermen always are with the possibilities of the great tank before the resthouse. I was assured that there were fish in the tank but that the best way to catch them was with a net or failing that by the use of bait. I explained that neither alternative had much appeal and tried casting from the shore. This proved unproductive but one of the waiters told me that there were great fish in the Amban Ganga, the river that feeds the tank—it still seems funny to me to speak of a vast inland sea encompassing 6,000 acres as a tank—and I decided to investigate the tip.

The Amban Ganga is a typical jungle river consisting of black pools and fast runs over rocks. Parakrama Bahu, the king who built the tanks of Polonnaruwa, also dammed the river and traces of his ancient works are still visible. Perhaps half a mile above these ruins the river widens into a long pool and it was there that the sporting waiter had told me to try my luck. Just as I was about to cast I noticed a dark shape rising to the surface some fifty yards away. It was a crocodile, and, judging from the size of the head which broke the surface like a submarine, must have been a good ten feet long. The saurian swam a long slow circle, but, the moment it saw me, sank like a bullet. Hunted mercilessly for their belly skins, the poor crocodiles have learned to regard man as their bitter enemy, but I have never heard a case where a fresh water crocodile has attacked a human being.

My first cast landed near the opposite bank and I had retrieved it about half way across the river when there was a surge and a big fish hit the spoon, sucked it into his mouth, and made off down stream. My line, braided silk with a maximum strain of ten pounds, sang off the reel and scorched my thumb when I tried to brake the fish's run. Fifteen exciting minutes later I worked a twenty-pound walaya into the shallows where I was able to slide my hand into its gaping gill and hoist it ashore. With a mouth like a cat fish and a body like a dolphin, the walaya is not the world's handsomest fish but I regarded this one with both pride and affection.

That day on the Amban Ganga was the first of many good days after walaya and lulu but I was never able to catch a Ceylon mahseer. I have caught big mahseer in the Jhelum River of North India, in the Brahmaputra of Burma and even in the icy rivers of Yunnan in West China, but their shy cousin of the Ceylonese rivers defeated me. This was not for lack of trying. Not only did I fish every river where the silver fish were reported to swim but I enlisted the aid of some of the Island's most

Walaya, the premier game fish of Asia.

experienced anglers. Among these was Gilbert Waddell, ex-policeman of the Indian Civil Service and as good a man with rifle and rod as one could find. Waddell served for many years as chief inspector in the Kumaon district, the hill country made famous by Jim Corbett's man-eating tigers, but his favourite sport has always been the pursuit of mahseer, and some of his tales of battling fifty-pound monsters in the white water of the Sarda River make exciting telling.

Since coming to Ceylon some six years ago, Waddell has prospected most of the likely rivers and it was on his invitation in the spring of 1954 that my house guests, Robert and Sylvia Warner of Washington D.C., and I spent a day fishing the big pool below the Minipe barrage on the Mahaweli Ganga. Too big to dynamite effectively and too swift to net, the pool is reported to hold more mahseer than any similar body of water in Ceylon. Another secret of its fame may be in inaccessibility for the Minipe barrage is fifty twisting miles away from Kandy and some three thousand feet below the old Sinhalese capital. Descending from the highlands the road makes 17 distinct and hair-raising zig-zags, and then deteriorates progressively as one bumps down the Minipe valley.

The scene that greeted us on arrival at the barrage was a lovely one. High clouds were scudding over the jagged jungle-clad hills of Uva while the clear pools of the Mahaweli

mirrored a sapphire blue sky. The river is broad below the barrage and great yellow and brown boulders, looking like sleeping elephants, stud the bed of the stream. That the Mahaweli was a mere shadow of its monsoon strength was indicated by the high water marks on these rocks. In spate the river rises forty feet.

At the pool we were joined by two friends of Waddell, R. G. Johnston and B. J. Richards, fishermen wise in the ways of mahseer, and proceeded to set up our rods, select spoons and begin operations. I was using a spinning rod for the first time. Made by the Orvis Company of Manchester, Vermont, the six ounce bamboo impregnated rod carried an Orvis spinning reel with eight pound nylon line. Bob Warner was also armed with a spinning rod, while Waddell, Johnston and Richards were using short casting rods and conventional reels. The spinning rod, I soon found, shoots a lure much further than the casting rod but is, to me at least, a clumsier weapon with which to fight the fish. Instead of using one's thumb as a brake as one does with a conventional reel the angler must adjust the drag on the reel itself.

But the fancy tackle and the combined skill of five experienced fishermen proved to no avail. Johnston did hook a big fish, which, from the way it took the lure must have been a mahseer, but he lost it. My own efforts resulted in a five-pound walaya and no one else caught anything. Other operations against mahseer were equally abortive. I spent a grand day with Ted Norris on the Kumbukkan Oya but we caught no fish and subsequent expeditions to Kitulgala, where the Kelani Ganga was reported to swarm with mahseer, met with no more success. I do believe, however, that there are mahseer in the rocky pools of the Kelani, and, if one is willing to use bait, they can be caught. Dunking with a ball of dough is simply not my idea of angling.

The only time I touched a mahseer in Ceylon was in the Menik Ganga when I was on a shooting trip with W. W. Phillips, the naturalist, and for once forgot to bring my rod. Feebly armed with a willow branch, a piece of string and a rusty hook I hooked a nice two pounder and had the inexpressible chagrin of having it smash the flimsy tackle and swim serenely away.

The walaya and the lulu can be caught and studied by the veriest tyro but since the mahseer is so elusive he bears some describing. Called a "lehella" in Sinhalese, the mahseer is a barbel and a member of the carp family. It has bigger scales than any other fresh water fish, so big, in fact, that the scales of some of the Indian varieties are used as playing cards. The name mahseer is said to be derived from the Sanskrit word "matsya" meaning fish and as a sacred fish it is preserved in many of the temple tanks of India. Other students say mahseer comes from the Persian word "mahi" also meaning fish and "sher," meaning lion, and certainly there are few fishes in the world with the mahseer's reputation for fighting qualities.

MacDonald, author of "Circumventing the Mahseer," says of it that many a sportsman has said he would rather kill a big mahseer than shoot a tiger, and from my own experience I would rank the first wild rush of the hooked mahseer with that of a heavy rainbow trout in the High Brockies or that of an Atlantic salmon when it first feels the barb in the rivers of Scotland. MacDonald estimates that the mahseer is capable of fighting two to three minutes per pound of weight as its fin area is greater than the total area of the remainder of its body. P. G. Sanderson, author of "Thirteen Years among the Wild Beasts of India" caught a mahseer weighing 150 pounds and said it had a shoulder like a bullock, was five feet long, and had a girth of three feet two inches. He added that he could only lift it a few inches off the ground by hugging it with both arms. Mahseer of nearly 200 pounds have been found when artificial lakes such as that near Mysore City were drained. The largest Ceylon mahseer on record was a fifty-pounder caught in the Mahaweli Ganga near Kandy.

The means of capture was not divulged but it is highly unlikely the fish was taken on an artificial lure.

There is no doubt the Mahaweli holds some sizeable mahseer but they are certainly few and far between. I took a five-day canoe trip down that greatest of Ceylonese rivers and fished most of the way. The journey was made during the dry season when the water was very low and it was easy to fish many likely pools. Most of these pools had probably never been fished—the presence of large numbers of crocodiles was sufficient proof of the absence of men—but I had no strikes. In fact, the only fish caught on the entire trip were several fruit-eating geramis, hooked by Colonel Christie Jayawardana.

Tank fishing has never brought me big dividends in fish but has given me some unforgettable evenings. For unsurpassed beauty the view of the setting sun from the bund of a jungle tank is hard to equal. John Still ranked the tanks of Ceylon with the mountains and the valleys and called them the finest item of the ancient Sinhalese culture and the most beautiful feature of the Island, and because my prose cannot begin to paint a tank as it should be painted, I will quote from Still's "Jungle Tide": "I know a place where wooded hills thrust their long promontories far into a blue lake. In shallow bays between the woods families of pelicans cruise slowly, fishing as they go, their white bodies gleaming like a squadron of toy yachts. Waves break upon the shore and the crocodiles lie basking on the gravel. The trees that overhang the water are the nesting places for colonies of egrets, large and small; herons abound there, and several kinds of storks; and in the shallow water the strange spoonbills run with their flat-tipped bills, scooping up food like a boy with a shrimping net; plovers and sandpipers run along the beach and stilts with legs like red sealing wax, stand and whistle."

I think Still was writing of Minneriya tank for he mentions that there was an effigy of its builder on the bund. This was King Mahasena who was later deified but his memorial will always be the great tank and its sheet of silver water. Wood gods are said to haunt the tank and I have been told that if one wishes to be sure of a catch it is wise to leave a little offering for them.

SPORT FISHING IN CANADA

A Canadian Government Release

THE word "fishing" just seems to ring a Canadian bell. For most fishermen, Canada and angling go together like rod and reel. Where else can they find such an abundance of unspoiled lakes, rivers and streams, and so many fish therein?

From April to October all across this tremendous northern country hungry trout rise to flies like the Par Bell, the Montreal and the Grizzly King; bass lunge at deep-going lures; great northern pike gobble up gaily painted plugs, and wily west coast Tyee or King salmon flirt with flashing spinners and trolls.

There's nothing unusual in all this piscatorial activity. It's been going on ever since the first visitor to Canadian waters hauled in his dinner with a handline. What makes anglers everywhere scratch heads in wonderment is how this bountiful supply of fish can last, year after year, especially in waters that seem too easily accessible and are sometimes overfished.

The reason—scientific research and management, including the operation of fish hatcheries for restocking depleted waters, carried out by both federal and provincial governments, and by many of the fish and game associations of Canada.

It certainly pays off. Sport fishing in Canada's

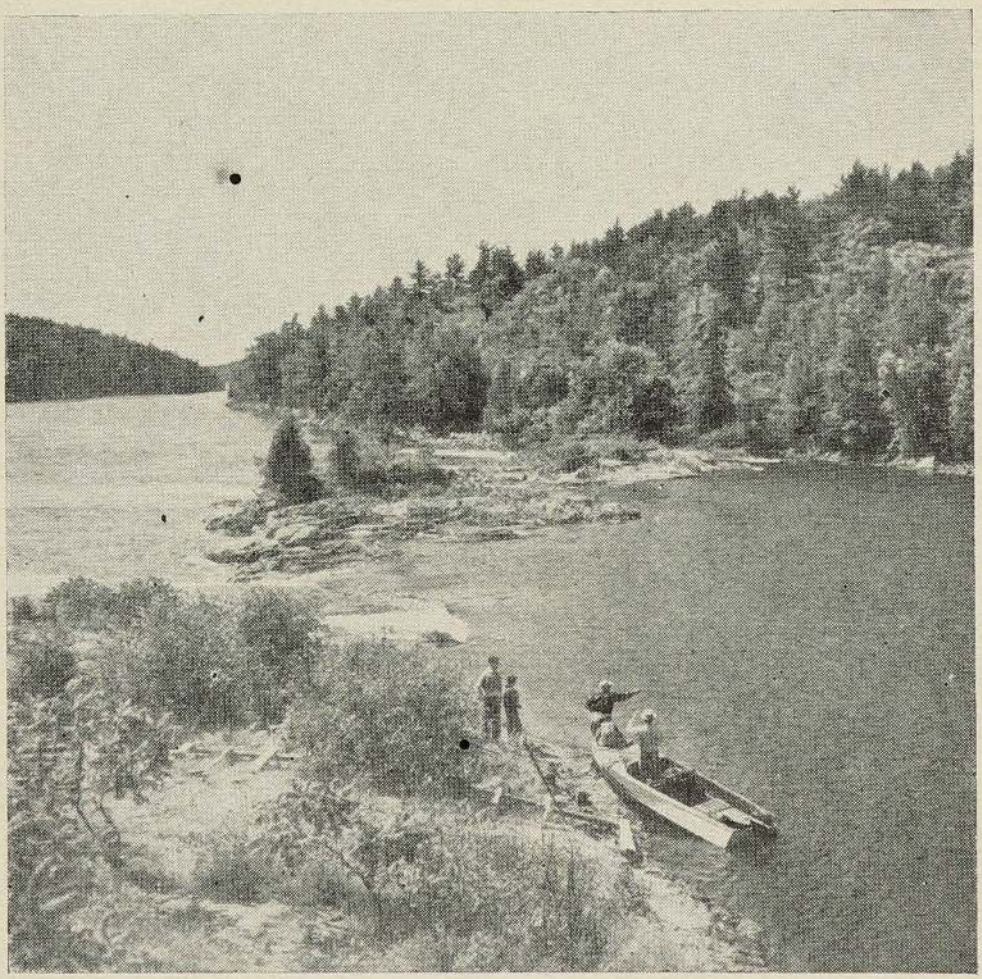
millions of lakes and streams continues to be a major tourist attraction. In a single year, for instance, nearly 500,000 non-residents pay two and three-quarter million dollars in fishing licence fees alone. An estimated three million Canadians join in the sport, too. When you consider the extra revenue this brings to sporting goods manufacturers and retailers, to tourist operators and outfitters, and to licensed guides, it puts sport fishing in the realm of big, big business.

But let's take a look at some of the fishing spots in Canada, and the kinds of fish visiting anglers and their friends will be catching this year.

If you're planning a fishing vacation in Western Canada, British Columbia, which has the mildest climate of all the provinces, offers good fishing the year round. Best of all, you may cast for trout in a mountain stream and in the same day try your luck with the famed Coho and Tyee salmon which run in practically all the coastal waters.

Along Vancouver Island's coast during January, February and March spring salmon and grilse up to four pounds can be found everywhere. In April and May the fishing steadily improves, and in June the great run of fish from the north begins.

They come in swarms around Sayward, about two-thirds of the way up the Island, and by the end of June they are in all the coastal waters. From July to November the Cohoes form wave after wave of fish. You can take them on the bays and inlets by trailing large bucktail flies over the surface from an out-



Northern Ontario offers an abundance of fine fishing waters. This party of anglers is at Recollet Falls on the French River.

board, or by casting spinners with ordinary bait-casting tackle.

Sea-run cut-throat trout, in perfect condition from a full sea diet, swarm in the estuaries of the coastal streams from March until October, with April and May, August and September being the best months for these fighters.

At Howe Sound, Jervis Inlet, Phillips Arm, Rivers and Smiths Inlets along the lower mainland, the fishing is something to remember. An 82-pound spring salmon has been taken from one of these British Columbia fjords, and a 50-pounder or better is always a possibility.

East of the Coast Range and south of the Trans-Canada Highway in British Columbia, you'll find hundreds of lakes, some of them up to 30 miles long, where fighting Kamloops trout, up to 20 pounds, give anglers spectacular surface battles. In the Chilcotin and Cariboo there are uncounted lakes and streams, some of them virgin fishing territory, where fifteen pound rainbows, cut-throats and Kamloops are commonplace.

The new John Hart Highway from Prince George to Dawson has opened up a great new fishing territory abounding in Kamloops trout and Dolly Varden.

In Alberta anglers find Rocky Mountain whitefish, great lake and eastern brook trout, and cut-throat and rainbows aplenty. The rushing streams of the Rockies, fed by glacial ice and mountain snow, breed firm and tasty fish. Some spots in the Rockies even provide their own natural refrigeration. Fishermen keep their catches fresh in the glacial snow around the lake edge until they're ready to take them out.

If you're seeking the unique experiences of landing an Arctic grayling, you can find them in the Peace and Athabasca River systems in Alberta, which drain into the Arctic Ocean. Although you'll have to go into this remote northern territory by pack-train, the trip is well worthwhile. Besides graylings there are giant rainbows and Rocky Mountain whitefish throughout the whole region in hundreds of virtually unknown lakes and streams.

Saskatchewan and Manitoba's great wooded, northern regions provide some of North America's best lake trout and northern pike fishing grounds. For 23 years Manitoba has held the record for the largest lake trout ever landed; a 63-pound whopper. They're still catching plenty of them in the giant size, with 15-pounder far from unusual.

Spring and autumn are the periods when the big lakers come into the shallow water and strike at shiny spinners, or streamer flies, cast with light casting or spinning tackle. In the warm months they go into the deep parts of the lakes and heavier tackle with copper or monel line is the order.

Perhaps one of the hungriest of all the tackle busters in these northern parts is the great northern pike. When a ferocious 24-pounder lunges at your lure, you'll think it's a guided missile zeroing in. They lurk in the shallow, weedy bays or in back eddies near fast water in the rivers, and they'll take just about anything that moves. A word of warning, however, if you're out for the big jacks, be ready for a hard strike. Many a good piece of fishing tackle lies at the bottom of some northern lake because the owner relaxed for a moment.

In Ontario and Quebec, perhaps the best-known angling regions of Canada, you'll find unmatched fishing opportunities in millions of lakes and streams. Large and smallmouth bass, speckled or eastern brook and lake trout abound in both provinces. And in Ontario the husky, hard-fighting muskellunge still prowls the waters of the Lake of the Woods and Cliff Lake country.

Many an angler's paradise is within a few hours' drive of Canada's metropolitan areas, while sportsmen still penetrate the northern parts of these provinces to fish in remote lakes and streams which have yet to be named.

The red trout of Quebec and the famous ouananiche or land-locked salmon are both worthy fighters. The ouananiche, which in-

habits the heaviest rapids, runs to about two pounds in weight, but despite its smallness it fights with the ferocity of species many times its size. Taken on a five or six ounce fly rod it will give you a battle you'll long remember.

best salmon rivers are under private lease, which probably accounts for this part of North America being the last stronghold for the valiant fish.

However, there is still much good salmon

Two jackfish, weighing 15½ and 9½ pounds, are proudly displayed by fisherman Mike Yano. He caught them in Lake Waskesiu, Prince Albert National Park, Saskatchewan, Canada.

But speaking of battling fish, the Atlantic silver salmon of Newfoundland, New Brunswick, Nova Scotia, Quebec and the shores of the Gulf of St. Lawrence, is the fish most coveted by anglers everywhere. Many of the

water open to public fishing in New Brunswick and Quebec, and in Nova Scotia you can fish anywhere as there are no leased waters in the province.

In New Brunswick, along the lovely valleys

of the Saint John, Metapedia, Restigouche and Miramichi Rivers, and in countless other streams and brooks is found some of North America's best salmon and trout fishing. The Restigouche, one of the world's finest salmon streams, is the pride of New Brunswick, with many other excellent black and striped bass, salmon and speckled trout streams to lure the inveterate angler.

If you're a fisherman who doesn't mind travelling for his sport, Newfoundland has become more accessible in recent years. Its interior is a network of rivers and lakes set in rolling country with rocky prominences. The Trans-Canada Highway runs up the west coast from Port Aux Basques to Corner Brook and it crosses and parallels hundreds of lakes and streams ideal for angling. For example, on the southwest coast the road crosses the famed Grand Codroy, Crabbs and Barachois. The Humber River is the largest and most inviting salmon river opened up by the road. Some sections of the Trans-Canada Highway are not yet complete, but the Canadian National Railways can provide railway transportation for passengers and their cars from Port Aux Basques to points across the province as far as St. John's, the provincial capital.

The question most asked is, how do you decide where to go in Canada, when there is such a tremendous territory to choose from? Best way is to plan far ahead, decide the kind of fish you want to catch and the Canadian region nearest your home where they can be found. The Canadian Government Travel Bureau, Ottawa, will furnish you with data on license fees, fishing laws and answer your questions about accommodation and cost. Each province has its own tourist organization and fish and game branch ready to help you, too.

A TRIP TO "DIETLGUT," UPPER AUSTRIA

September 24th to October 5th, 1934. Adapted from the diary of her husband

By MRS. A. C. TUTEIN-NOLTHENIUS

WE were the guests of Dutch friends and stayed the 24th night at the Burgomaster's delightful chalet. No one told us to keep our windows shut and a thick cloud of mosquitoes descended on us, we had to try and sleep with our heads under the bed clothes. Next morning C. and W. tried out their rifles on the range, C. being lent a Josef Lang .375 telescopic sight and hair trigger. We left Dietlgut after lunch, met the keepers and carriers at a ravine and walked up to the hut in the forest. It took 2 hours and 40 minutes to do four miles, as the ascent was very steep in parts. I was glad of an Alpen Stock to help me. We had a glorious view of mountains and pine forests. The elevation of the hut was 5,400 ft. We were out after tea to a "stand" to watch game; we saw a stag and few hinds, and heard the "roaring" at night in lovely moon light. At 4 a.m. we were out with Jager. A few stags called but we saw nothing except a few roe deer. The weather was very hot like midsummer. Starting out at 3.15 a.m. the next day, we climbed up a steep path, and I saw my first wild chamois very far above us on the cliffs. At 4.30 a.m. the following morning we began our climb to the top of the shoot. On the summit of a steep precipice the Jager suddenly says, "A stag (Lin Hirsch) shoot!" I fired not using the hair trigger and missed. I was very glad I did not wound the beast. The Jager was shocked. It was difficult to estimate the distance which turned out to be about 750 ft. If I had any idea it was so far I would never have dreamt of firing at all as it was an absurd and unsportsmanlike shot. We saw two other small stags and a few hinds and later on some chamois

far away on the cliffs ; after lunch, we only saw a hind calf and small stag. M. and I went out at 4 a.m. down the road up to the hut ; about half way, while it was still very dark, we heard a stag ; it gave us a most eerie feeling like being in a jungle surrounded by lions. As we proceeded along the narrow path through forest, we heard a stag above us. The Jager used his cow horn to call it up. A little while later I saw something move higher up above us on a very steep slope, I crept up the hill, much against the Jager's wishes, and tried to stalk it and get a better view. A moment later I saw the neck and shoulders of a stag ; it seemed a young animal, but Jager said, " Shoot it as it is a very old one," I fired and saw the stag give the usual jump, certain sign of a deadly shot. We sat down and smoked a cigarette but Jager implored us to wait an hour, after which we went up and soon found blood and the stag lying stone-dead. It was a very old beast, and it was a good thing I shot it as the left hind leg had been broken some-time ago ; its right antler was poor ; its foot was curious, the hooves having grown long. Wonderful formalities followed : the very much excited Jager handed me a twig of a fir tree, dipped in the blood of the stag, "Mit weid-mans Heil " for my hat, holding it out to me on his own hat, and I gravely, "Weidmans Dank," and we solemnly shook hands as in a play.

I estimated the stag to be 10 or 12 years old ; it had lost the " grannelyn " or upper tushes. The Jager took some of the long hairs of the neck to make me a " bard " for my hat. On the way back we saw a Capper cock and two hens. We received great congratulations at the hut. The stag was shot at 250 ft. with telescopic sight at 6.15 a.m., and we were back at 8.30.

We were amazed that shooting was allowed on Sunday in Austria ; but I did not go out. We left at 2 p.m. with Jager to the other beat where I stayed the night. I did a terrific round over glorious country ; the top reminded me very much of the Horton Plains. I neither saw nor heard a thing, and felt sad that such perfectly lovely country is empty of wild life. I got the impression that there was very little game about, which was later confirmed by the head Jager, who told me there were only 80 to 100 deer, stags and hinds, and about 40 to 50 chamois in the whole area of some 25,000 acres. Of course, a lot of the area is barren rock and shale. All game stayed high at the time as it was very hot, lovely summer weather during our stay. I had walked and climbed miles, far more than any of the others, but saw very little game and the stags were poor. I was of the opinion (although I couldn't judge) that the game was very inbred ; far too many good stags had been killed, and the beasts left could not improve the breed. All the heads seen pointed to a poor and weak race, thin horns and bad heads. We saw two small Roedeer.

I reached the hut dead beat and went to bed after supper. The hut had been charmingly decorated with green fir branches ; there was no " roar " to be heard. To my astonish-ment I was told that there was no closed season for deer in that part of Austria. " Sport " there is very different to ours. Few would dream of shooting stags during the rutting season, the worst time to disturb game and prospective mothers, leave alone to " call up " a stag and shoot it in a very artificial manner with every aid one can think of ; the greater the distance the more wonderful the shot, and the shot seemed the main thing ; there was no true stalking to try and get as near to the game as possible. It seemed to me like target shooting and no cleverness in true stalking as we know it. Wounding does not seem to matter either, as the hounds would always find a wounded stag !

I had tea at 3.30 with the Jager in the kitchen, and set out at 4.10 in pitch darkness up the hill. We heard a stag roar and got quite near to it when the sound stopped, and we heard nothing more. Later we saw two black game.

We did a long round without success and reached the hut at 11 a.m., where I was joined by the rest of the party. After lunch we returned to our hut by a long and lovely walk.

At 8 a.m. we drove up to "Der Tower," M. and I with the keepers went down the valley which keepers would drive. We saw a small poor stag on edge of forest which I killed but had no other luck. So we returned to the hut at 11 a.m. W. and J. turned up later. W. having shot a small stag. I got out with Kupfer at 2.30, down a very steep ridge to try for a chamois, but saw nothing, and had a very stiff climb back in cold wind. M. and J. went out after tea to a stand, where J. shot a nice stag—a mere fluke and very little sport in shooting a stag from a comfortable seat. We packed up early the next day and were very sad to leave that glorious spot. One would need three or four weeks alone there for a perfect holiday to dream and read and laze.

We reached Hinterstoder and "Dietlgut" by 11.30. After lunch we climbed up about 2,000 ft. and saw the huts we had occupied in the distance. At 5 p.m. we saw two fat chamois grazing far away up some cliff, much too far, and too late to try and stalk them; my last chance of a chamois was gone. Owing to the exceptionally warm weather, the animals were keeping to the tops of the hills. Out at 3.30 again in the car up the valley to a farm where M. and I stood near a small river. The autumn colours were lovely and M. thrilled to see the "Alpenglow" for the first time and find some gentians and other Alpine flowers still in bloom. We tried to call up a stag but only saw a small one. Later we heard a shot and W. and J. returned to the car, W. having shot an old stag with four points. We left Hinterstoder next morning after sad farewells to everyone, caught the train at Wels-Dutch Frontier at 8 a.m. and reached Arnhem where we said goodbye to our charming host and hostess. We can never thank them enough for this unique and wonderful experience.

WILD LIFE PROTECTION SOCIETY OF CEYLON

Minutes of the Sixty-third Annual General Meeting held at 6 p.m., on Thursday, 13th December, at the "80" Club, Torrington Place, Colombo.

Present: Senator E. B. Wickramanayake, Q.C., in the chair. 70 members and visitors.

Letters regretting inability to attend were received from:—His Excellency the Governor-General, Sir Oliver Goonetilleke, G.C.M.G., K.C.V.O., Messrs. B. Gordon-Graham, Mervyn Pereira, J. Mansergh Hodgson and Lt.-Col. R. C. Wall.

1. The Notice calling the meeting was read.

2. The minutes of the Sixty-second Annual General Meeting held on 13th February, 1956, were duly confirmed.

3. **Mr. C. E. Norris** in proposing that Mr. C. W. Nicholas be elected an Honorary member of the Society, said:

"On 1st December, 1950, Mr. C. W. Nicholas took charge of the Department of Wild Life. This Department had been formed in 1949, and took over from the Forestry Department the administration of the Fauna and Sanctuaries.

"Mr. Nicholas always has been closely interested in the jungle and the fauna that inhabited it. His hobby of hunting for ancient inscriptions took him to out of the way places, where he was able to study animal life; so the choice of the Government, in placing him in charge of this newly-formed department, was a wise one.

"During his term of office, the number of visitors to Ruhuna National Park, alone, rose from 1,839 in 1949 to 14,558 in 1955. He effected great improvements to this National Park and to Wilpattu, not only for the amenities of visitors, but also for those of the animals. New water-holes were established and old ones were repaired. The staff of rangers, guards, and watchers under his guidance reduced poaching in the Reserves to the absolute minimum.

"These improved conditions have been achieved against difficult odds in that staff was short and money insufficient to do all the work required. He always concerned himself, during his term of office, very closely with the protection and conservation of the elephant. The wanton killings which have occurred and are occurring must have caused him considerable distress.

"Mr. Nicholas has just commenced his well-earned retirement, and I am sure I speak for all members of this Society, in saying how sorry we are to see him lay down the reins of office. I shall miss the informal chats I had with him on my infrequent visits to Colombo. I generally managed to waste a great deal of his time. We may have, at times, had our differences of opinions agreeing to disagree with each other's views.

"I would like, on behalf of the Society and for myself in particular, to wish him every happiness in his retirement.

"It now gives me very great pleasure to formally propose that Mr. Nicholas be elected an Honorary Member of this Society for all the work that he has so ably done for the betterment of the wild life of Ceylon."

Mr. Aloy H. Perera, in seconding the proposal, said: "Generally speaking, public servants do a job merely for the salary they draw,

but in this case, Mr. Nicholas has gone beyond the confines of his salary because he loved the work he did and carried out so well. It, therefore, gives me great pleasure to second this proposal." The proposal was then put to the meeting and carried unanimously.

4. In moving the adoption of the statement of accounts for the year 1955-1956, the President, **Mr. E. B. Wikramanayake**, said:—

"Ladies and Gentlemen, in moving the adoption of this report, I propose to conform to custom and to review briefly the progress and activities of the Society during the past year. Our membership continues to increase, but apart from membership of the Society I have noted with satisfaction a greater interest in wild life throughout the Island. It seems to me urgently necessary that we should interest the children of the country in wild life, and to this end the Committee has decided to send free copies of our magazine to the leading schools. Apart from this it would help a lot if some members of the Society could find the time to give lectures, preferably with slides, and assist in the organisation of nature societies. There is, if I correctly forecast the future, a serious threat to wild life in the country and we must be prepared to meet it and the best preparation is to educate the people of this country to a realization that "the fauna and flora of a country are national assets possessing an educational, scientific, economic and recreational value," (I quote from the Administration Report of the Warden, Wild Life, 1951), and that in the words of the late King George V, "the wild life of today is not ours to dispose of as we please—we hold it in trust for those who come after."

"Last year there was mooted a scheme for a National Trust and a Committee was appointed to consider the feasibility of such a Trust and ways and means of establishing it. Nothing practical has come out of it so far but it must be remembered that a National Trust cannot be created overnight. It has got to be carefully planned and details as to staff, vehicles, administration and, above all, finance have to be carefully worked out before a concrete scheme can be submitted to Government for consideration. The scheme, moreover, must command popular support and for that purpose a good deal of propaganda is necessary. It will also have to be reconciled with the conflicting claims of population. I would, therefore, appeal to members not to be disappointed at the slow progress that has been made. It must take years before such a scheme can come to fruition. In the meantime I would earnestly ask them not to let their enthusiasm flag but to give what assistance they can towards its achievements.

"Early this year the then Minister of Lands and Land Development suggested that amendments should be made to the Fauna and Flora Protection Ordinance and I summoned a meeting of the Warden, Wild Life Department, the Assistant Legal Draftsman, Dr. R. L. Spittel, Mr. Aloy H. Perera and Mr. R. S. V. Poulier to consider what amendments were necessary. Our recommendations were also submitted to the Committee of this Society for consideration. I do not know what steps have since been taken to implement our suggestions, but I hope the Government will take early action to amend the Ordinance.

"The problem of the elephant still remains a problem. If we are to save the elephant from extinction something must be done and done immediately. Some of the amendments to the Fauna and Flora Protection Ordinance suggested by us were designed to prevent the irresponsible shooting of elephants. But, apart from this, efforts should be made to prevent elephants from straying into cultivation land. There are still some three million acres of forest in Ceylon and the task should not be beyond human ingenuity.

"On representations made by the Society the Warden, Wild Life, has agreed to restrict the shooting of partridge and leopard. Water-hole shooting will also, in future, not be permitted.

"A meeting of this Committee was held in Bandarawela because it was felt that it was hardly fair to expect outstation members to come to Colombo for every meeting. The attendance, however, was disappointing. I hope Colombo members will make it a point in future to attend these meetings if only to encourage members from the outstations.

"The Society's tie will be shortly available. I hope that every member will buy one. We are indebted as usual to Mr. C. E. Norris for a beautiful Christmas Card.

"The Society has suffered a serious loss this year in the retirement of Major W. W. A. Phillips and His Excellency Phillip Crowe. Of Major Phillips I need hardly speak. He is well-known to all of you and he has been the mainstay of the Society for many years. He has been of great encouragement to me personally and I have had the privilege of going bird-watching with him. I wish to place on record my own personal gratitude to him for the encouragement and assistance he has given me. His Excellency Phillip Crowe, the American Ambassador, has always taken a great interest in the work of the Society. He is a Life Member and will, I am sure, be always willing to give the Society whatever assistance he can wherever he may happen to be. On behalf of the Society let me wish them both all success in their spheres of activity.

"In conclusion let me urge on the Society again the need for increased vigour and more sustained enthusiasm and let me wish it all success for the future."

Mr. Donald Obeyasekera seconded the adoption.

The statement was carried *nem con.*

5. *Mr. A. Mc. N. Wilson* proposed Mr. Donald Obeyasekera take the chair *pro tem.* Seconded by Mr. R. S. V. Poulier and carried.

Mr. Donald Obeyesekera proposed from the chair that Dr. R. L. Spittel be elected President for the year.

Dr. R. L. Spittel, was unanimously elected.

Upon assuming the chair, Dr. R. L. Spittel said, a deep debt of gratitude was due to Senator E. B. Wikramanayake for all he had done for the Society in the three years he had been President (applause).

The following Office-bearers were duly elected:—

	Proposed by	*Seconded by*
Vice-Presidents		
Mr. Gorton Coombe	Mr. Aloy H. Perera	Mr. R. S. V. Poulier
Mr. D. Obeyesekera	Mr. A. Mc N. Wilson	Mr. R. S. V. Poulier
Honorary Secretary		
Mr. C. E. Norris	Mr. C. A. Maartensz	Mr. R. S. V. Poulier
Honorary Treasurer		
Mr. A. M. Morgan Davies	Dr. Brito Mutunayagam	Mr. D. Obeyesekera
Honorary Auditor		
Mr. Noel de Costa	From Chair	
Editor of "Loris"		
Dr. R. L. Spittel	Mr. C. E. Norris	Mr. E. B. Wikramanayake

GENERAL COMMITTEE

Under Rule No. 6

	Proposed by	*Seconded by*
Senator E. B. Wikramanayake, Q.C.	Mr. R. S. V. Poulier, M.P.	.. Dr. Brito Mutunayagam
Mr. D. B. Ellapola	Mr. A. Mc N. Wilson	.. Mr. R. S. V. Poulier
Mr. C. W. Nicholas	Mr. A. Mc N. Wilson	.. Mr. R. S. V. Poulier
Mr. Aloy H. Perera	Mr. R. S. V. Poulier	.. Mr. C. A. Maartensz
Mr. S. Ellapatha	Mr. A. M. Morgan Davies	.. Mr. D. B. Ellapola
Major A. N. Weinman	Sir James Obeyesekera	.. Mr. W. W. Beling
Mr. C. Bagot	Mr. Aloy H. Perera	.. Mr. A. M. Morgan Davies
Sir James Obeyesekera	Dr. B. Mutunayagam	.. Mr. Aloy H. Perera
Mr. C. A. Maartensz	Mr. W. H. Solomons	.. Mr. R. S. V. Poulier
Mr. W. W. Beling	Mr. R. S. V. Poulier	.. Mr. A. M. Morgan Davies

Land Development in Relation to Wild Life Preservation.

Mr. D. R. Ellapolla introducing the discussion, said:—

Land development, with the correct agricultural balance, and the preservation of wild life, are both problems which are closely related to the conservation of the natural vegetation of a country, particularly its forest vegetation. In his recent Presidential address at the Annual sessions of the Association of Science, Dr. C. H. Holmes indicated the importance of forests in the economy of any country. He decried the popular conception that "forests are a wilderness, dark, foreboding, sinister in their character, where unrelenting nature holds supremacy, something to be feared," and destroyed. He called attention to the fact that forests are "a closely knit, orderly, harmonious and delicately balanced" form of life, containing and developing within it, as an essential part, an animal population, ranging from the "microscopic microfauna, which the eye cannot see" to the lordly elephant, which today is in danger of extinction in this country. He referred to the pattern of forest life, as one "self-contained, self-sufficient, and self-sustaining dynamic system which can endure for all time" unless of course, devastated by man, at his own cost and peril. In his words, "the retention of a certain proportion of the green forest heritage" is a "fundamental biological necessity."

In practical terms this biological necessity finds apt expression in the *Report of the Indian Government on the Second Five-Year Plan.* —"Apart from these direct benefits, forests perform a vital function in protecting the soil on sloping lands from accelerated erosion by water, and on flat lands from desiccation and wind erosion. In the catchments of the rivers, they serve to moderate floods and to maintain stream flow. They have an important ameliorating influence on the factors of the climate. These protective benefits are fully realised when forests extend over sizeable tracts, but even scattered trees and clumps of tree growth, exercise a beneficial influence. Properly disposed shelter belts and wind belts serve to increase agricultural yields to a marked extent. Finally, forests are the home of our rich and varied wild life."

It is these and such other considerations that led the Government of India to lay down its Forest Policy by Resolution as far back as 1952. Working towards well defined objectives, such as evolving a system of balanced and complementary land use, the checking of denudation, etc., in the period of the First Five-Year Plan itself, no less than 75,000 acres of land have been reafforested and over twenty million acres of forest land which were in private ownership and management were brought under State Control.

The Second Five-Year Plan devotes even more special attention to the problem. It recognizes that the plan of further industrialisation, which is aimed at during the next five years' development, must mean increased demands for forest produce. Such industrialized countries, as are the most advanced countries of the world, have also the highest per capita consumption of wood. For example, in respect of round wood, the per capita consumption in India is only 1.4 cu. ft. as against 58 cu. ft. in the U.S.A. Pulp wood consumption in India is only 1.6 lbs. as against 78 lbs. in the U.K. It takes measure of the fact that India's forests account for only 25 per cent. of the total land surface, varying from about 11 per cent. in the north-west hilly regions, to about 44 per cent. in the central regions, and averaging about only half an acre per head of population—as against 4.5 acres in the U.S.A. and 8.7 acres in the U.S.S.R.

The plan accordingly proceeds to set out an energetic and comprehensive programme, working towards the targets set out in the National Forest Policy Resolution of 1952, which fixed the ultimate extent of land area in forests at 33 per cent. of the total land surface, ranging from 60 per cent. in the hilly areas to about 20 per cent. in the plains. In a programme of eight proposals set out in the Second Five-Year Plan, the conservation of wild life appears as a separate and specific proposal, as item No. 4 in the list. The plan proceeds to comment later as follows: "The conservation of wild life is an integral part of forest management, especially in view of the imperative need for protecting India's rich heritage of wild life, which is now finding its last refuge within the limits of the reserved forests of the country. Such notable animals as the lion and the rhinoceros are in danger of extinction. In order to serve the cause of wild life, forestry programmes in the second plan, include the establishment of eighteen National Parks and game sanctuaries, besides a modern zoological park in Delhi."

What then, is the position here, in our own country, where we can proudly claim that our own heritage of wild life is no less rich, nor any less varied? The dangers of possible extinction of some of our grandest and richest treasures of wild life are no less grave. Repeatedly we hear of the wandering elephant, driven away from his customary habitats by the onslaught of human greed for expansion, and even of vandalism, shot at and killed at a pace that threatens its complete extinction. It is time we took some positive action that would arrest this growing neglect of the valuable rich heritage of our own forest wealth, with its once abundant wild life.

We in Ceylon, have yet no defined forest policy, let alone any forest policy that takes cognizance of the need for protection of our wild life. According to Dr. Holmes, a new National Forest Policy statement was prepared by the Forest Department more than three years ago, but there has been no formal acceptance of this policy by Government. Consequently, the Department is now left to its own resources of action in many important matters, without any authority to demand the acceptance of its action at any level—whether as between Government Departments, or in its relations with the wider public. Claims to forest land in many areas are still unsettled. Administration of forest lands is in two categories, one as Reserved Forests, and Proposed Forest Reserves in charge of the Department itself, and the other as a category of "Other Forests" under the control of District Government Agents. Little wonder, that onslaughts are made on the forests of the country and its content of wild life, in a freedom and abandon, which extends some times from Ministerial level at one end, to the illicit clearer at the other, the latter ably backed by local 'mudalalis' and defended often by the local Member in Parliament himself. The practice has spread with

such freedom and licence, that well has illicit felling been called by Dr. Holmes "the national outdoor sport of timber thieving."

In 1953, a Special Committee appointed by the Hon. Minister of Agriculture and Lands examined in detail the problem of utilisation of Crown Lands. The Report of the Committee has dealt very exhaustively with this problem. It has assessed that out of a total of nearly 16,210,000 acres of total land area in the Island, only 3,487,000 acres have been so far developed, the balance 12,723,000 acres being apportioned as follows :—

	Acres
(*a*) Roads, streams, tanks, towns and villages ..	1,250,000
(*b*) Forests (including National Reserves and Sanctuaries)	3,500,000
(*c*) Rocky and steep-lands and land over 5,000 feet, etc.	4,750,000
(*d*) Balance available for future agricultural development	3,223,000

Almost the entirety of the land awaiting development is located in the Dry Zone. Allowing for existing forest reserves and proposed forest reserves, and land unsuitable for development such as sand dunes, etc., the available land for development is assessed as approximately 1,300,000 acres. This has been located as available in three specified Zones—one in the Northern part of the Island to the North-West of the Habarana-Trincomalee road; a second comprising the catchment areas of the Walawe, Kirindi, Menik-ganga, Kumbukkan Aru and the Heda-oya; and a third and Intermediate Zone, lying South of the Habarana-Trinco road, and extending as far down south as the Gal Oya catchment, and westwards up to the borders of the Matale District. This third Zone is regarded as only marginal land, and is therefore not intended for immediate use.

The Report examines in great detail the prevailing methods of land use, assesses the maximum extents that can be developed under irrigation at 960,000 acres, which includes approximately 371,000 acres to be exercised from existing Forest Reserves, and recommends a new approach to land development, as a form of dry-farming, in preference to the customary chena cultivation, now practised in the Dry Zone. The Report proceeds to discuss ways and means of stepping up the pace of development of land on dry farming schemes, so that the present pace of land development, assessed at about approximately 24,000 acres a year, may be stepped up to meet the needs of employment of the fast growing population and the problem of self-sufficiency in food.

In all this elaborate Report, one misses, however, a sufficient examination of the needs of the country's requirements of forest land. Any reference to the problem of wild life and its preservation is virtually absent.

The total land in forests and reserved areas, is sometimes assessed at over 50 per cent. of the total land extent, but in actual fact the extent of forest reserves and proposed reserves is only about 2,760,000 acres or 17.24 of the total land area, which in due course will decrease to 12.29 per cent. of the entire land area, when 371,000 acres are excised for purposes of irrigation. The rest of the so-called forest area is in the main, degraded forest land, chenaed over various periods of time and difficult of regeneration again in forest.

Dr. Holmes' assessment is, that according to conditions prevailing in Ceylon, we need a minimum of at least a 25 per cent. reservation of our land area in forests. Allowing for the needs of the increasing population of the country, his estimate of what would be considered safe, is as high as 35 per cent. of the total land area. This percentage needs to be even higher in the hilly areas of the Wet Zone, but here there is only at present 700,000 acres or a bare 14 per cent. of the total land area of that region. This is utterly insufficient for this area, but the problem of any increase of forest area in this region is by no means easy of solution. We must, therefore, endeavour to maintain our requirements of forest land in the lower dry zone areas.

The present per capita consumption of wood in Ceylon is assessed at about 3.8 cubic feet per annum, but this will be an average that will become increasingly more and more difficult to maintain, as the population of the country increases. In fact, it must be anticipated, that as living standards rise, and industrial development increases, as essentially our requirements of consumption of timber will increase considerably. The future is therefore by no means promising.

It is, therefore, vital that the drain on our forest area be checked. Land development must be planned in the context of other land uses so vital to the life of the community—the preservation of forests being one such need. This will also mean the preservation of our wild life, since when the needs of forests are provided for, it should be possible within reasonable limits, to so plan forest areas, that continuity will be maintained as far as possible, so that wild life may find a safe habitat within them.

It may be, that in planning for such forest areas, adjustments will have to be made, which may necessitate the shifting of some of our sparsely populated villages in forest Ceylon, so as to enable suitable continuity of forest land. If such displacement has to be considered, as has actually been so often effected for the country's needs of irrigation, is it too much to ask that the same be done, where the needs of forest preservation and wild life preservation so demand.

There is also the question of better land use of present cultivated areas so that the drain on forest areas can be confined to a minimum. That ample scope lies in this direction, is a matter of every day observation in all parts of the country. There is the further question of pacing development of new areas suitably, so that we may provide continuous forest areas for as long as we can. Even granting that present forest areas must make way for man's own needs of development, cannot the pace and location of new development schemes be planned, so that any deforestation destructive of forest resources and wild life, may result only when the need for such inhuman use actually develops ? When such a need arises it may well be that we will have in Ceylon a more enlightened generation that will decide on other ways of bettering its economy, without devastating its limited forest wealth and destroying forever, beyond any possible future replacement, such wild life as may still be left in the country at that time. All that is necessary is, that we should at the present time, make a planned scheme of land utilisation, allowing also for the country's needs of forest land and wild life, within limits of development, as far as they can now be assessed, over a reasonable period of time. If denudation of forests is allowed to proceed without any such plan, we may be soon faced with the complete extinction of forest areas, and within the country's wild life, which can never again be restored.

At the present time we have a team of Canadian experts who are conducting a land survey of the Kirindi Basin. This survey is setting the pattern for investigation of land uses within this river basin. Other river basins can be surveyed similarly, and these will provide all the data that will be required for a planned use of all our land resources. Let us hope that all this will lead, not only to the full development of our land resources, but to what is no less important, the preservation of our wild life, which contributes so much to the nation's recreational, aesthetic and scenic amenities, no less than to its cultural traditions of kindliness and benevolence, as reflected in its traditional religions.

Dr. Spittel considered it a great pity Mr. Ellapola had not delivered his address in Parliament as it would have undoubtedly had a telling effect.

Mr. R. S. V. Poulier said the conclusion to be arrived at was self-sufficiency in rice and kurrakan but, even with this aim in view, there was four times the required amount of land left available for preservation of wild life. This should be sufficient for 40 years more without causing concern.

Reserved areas appear to have a magnetic attraction as they were once opened up for cultivation in the past. There is, however, both room for animals and man in Ceylon. On the assumption 25 per cent. of the land mass must be reserved for forests this means that with the extent of Ceylon being 16,000,000 acres, a requirement of 4,000,000 acres will be needed for forests. For Wild Life preservation we want less than 1,000,000 acres.

Mrs. C. Wilson asked if Dr. Holmes had not said that forests should be evenly distributed?

Mr. Poulier considered this was meant as even distribution of forests between wet and dry zones. The present methods may lead to "dust-bowl" conditions. He stated this was commencing in the Western areas around Chilaw.

Mr. Aloy M. Perera stated it was pointed out by Mr. Ellapola that forest wealth must be preserved for increasing populations. He wished to know which came first. The Preservation of Forests, or Wild Life?

Mr. Ellapola considered forests could exist without wild life, but wild life could not exist without forests.

Mr. C. E. Norris said, one hears so much about the Balance of Nature, but really this expression means very little, as a constantly changing adjustment occurs between competing factors in ecological communities. These adjustments sometimes swing violently one way or another without human interference. Therefore the Balance of Nature indicates an exceedingly dynamic equilibrium which never stays in one place but moves constantly as the competitive species, which make up a biological community, prosper or fail. Land clearance causes changes in the equilibrium of insects, for example, polinating species, harmful species, and the behaviour of the various termites in relation to soil ecology, and the development and change in diet from indigenous to exotic plants. Land clearance can change the resting sites for viruses, bacterial, fungoid and other parasites. Better methods of agriculture of a more permanent nature must be taught to the people so that they can produce more food from smaller areas.

It must be recognised the larger forms of fauna must give way before cultivation, but many of the smaller forms are beneficial to cultivation and can survive in cultivated areas if they are given encouragement and protection.

The larger forms must, therefore, be confined to demarcated areas if they are to survive. These areas must be clearly defined and surrounded by intermediate zones, in which controlled shooting is permitted. The fundamental principle of National Parks and/or Sanctuaries for the larger fauna, being surrounded by a buffer area, has been lost sight in Ceylon in recent years. The formation of such zones not only protects the wild life, but also the cultivation.

National Parks or Sanctuaries for the larger forms must contain an adequate water supply throughout the year, cover and grazing and most important of all, a sufficiently large, properly protected area to permit of some movement during the year.

Dr. R. L. Spittel said:

The increasing use in this country in recent years of formidable machines that can devastate forests that have stood for centuries, within a few weeks must give all lovers of wild life great concern.

Nature has endowed this small island with a wealth of beasts and birds we can ill-afford to squander.

Up to a decade or so ago the axe was the main implement used to fell trees. It was thus the mountains were cleared for coffee and tea with infinite labour—a slow process.

This axe cultivation is the most ancient form of agriculture. The geographers name it *milpa* agriculture, the anthropologists call it *slash and burn*.

It was the form used by the Neolithic farmers when they advanced along the Danube from the Middle East to colonise Europe, at a time when Egypt was building pyramids, 2,700 years B.C.

Those farmers had no ploughs. They cut down or ringed trees and allowed them to dry; then burned the wood without clearing the stumps, and turned up the natural soil enriched by ashes, with hoes and sticks.

That method of agriculture exists to this day in chena or shifting cultivation, not only in Ceylon, but among jungle tribes in India and throughout the East.

Quite rightly it is considered very wasteful of our forests.

But how can it compare with the mass devastation of jungle lands by the mechnical monsters used today—bull-dozers, levellers and the like—leaving bare sandy soil exposed to the sun, without even a trace of the humid mulch that had accumulated for centuries. Examples of such devastation are seen everywhere in Ceylon in these days of vast and intensive agricultural projects—as between Polonnaruwa and Habarana, around Kantalai, and wherever large tanks like Padawiya are restored, or rivers dammed.

Not for one moment do I suggest that we should go back to the axe, or curtail the economic development of our land, which is such a crying need for our rapidly increasing population.

But are such projects planned as they should be with due regard to forest conservation and, what goes hand in hand with it, wild life preservation?

Chiefly are we concerned in these times for our wild elephants.

Their depletion is far in excess of their birth rate. They are being killed at the average rate of about one a week. There are barely 1,000 left. They will soon have reached a biological minimum when the propagation of their species will cease.

Their great danger is agricultural encirclement of their haunts without means of egress—as has happened at Bingiriya and Wasgamuwa.

To obviate such encirclement we must provide *jungle corridors* connecting one forest reserve with another, along which the animals can go without having to encroach on human plantations.

This is best ensured by the establishment of a *Board* composed of the heads of the Agricultural, Irrigation, Survey and Wild Life Departments, which would sit in conference whenever any large agricultural project is undertaken—as has been done at Gal Oya. A preliminary air reconnaissance by helicopter or plane would help to indicate what forest reserves should be left and how the corridors should run.

Meanwhile what can we do to lessen the slaughter of elephants, the record of which one reads in the daily papers from time to time?

Most of the elephants are killed by peasants in defence of their crops. They can hardly be blamed for this; it is harrowing for them to see their months of labour brought to naught in as many minutes. I do not think it would be an exaggeration to say that at least half our wild elephants have gunshot wounds, and this ratio will increase in the coming years. That elephants must be sacrificed when they come into conflict with man is inevitable.

To mitigate this, Mr. R. L. Arnolda has made two excellent suggestions:—

(1) That Government should provide rockets to peasants at cost price.

(2) That peasants should be compensated to the full extent of the damage caused, provided the plantation is properly fenced and watched.

I shall only mention the Armstrong fence, so successfully used to preserve the elephants of the Addo bush in Africa, to indicate what can be done to save an isolated herd.

Those then are the ways by which we can smooth the passing of the Ceylon elephant, and delay the day of its ultimate extinction.

The increasing popularity of our National Parks among all classes of our people, as well as visitors to the Island, needs no stressing. It does show that "man shall not live by bread alone"; and that, as Julian Huxley says, "the sight of wild animals in untouched surroundings is profoundly stirring and indeed one of the valuable things in life."

It is up to us therefore to guard our Wild Life Reserves with care.

We have within recent years seen what damage could be caused to some of our wild life reserves by the fiats of ministers within their few years of power. The only way to ensure against this is by the creation of National Trusts for our Reserves so that they will remain inviolate from political interference.

Let us next consider the *flagrant infringement of our wild life laws*—especially that howling scandal, the dynamiting of fish, also the slaughter of deer at night.

The law as it stands is quite inadequate to deal with these evils.

As regards the blasting of fish, the Angler's Club has recently

presented a memorandum to the Minister appealing for concerted action against the unlawful exploits of mudalalis employing underlings to do their dirty work, and who have to take the knock on the rare occasions on which they are caught.

The memorandum attributes the disgraceful practice to :—

(*a*) The availability of dynamite—which, as a press correspondent has said, can be bought in the Pettah over a counter like lozenges ; though a single cartridge cannot be purchased except by a licensed firearm holder.

(*b*) The profitable use of dynamited fish.

As remedies, the Anglers' Club recommends :—

(i) That the Explosives Act, No. 21 of 1956, should be amended* to make dynamite purchasable only on a Government permit.

(ii) That laws should be enacted that would allow the authorities to confiscate the dynamited fish, or any vehicle transporting the fish for barter, or carrying dynamite or other explosives without a permit.

As for the slaughter of deer at night, especially over water-holes during the drought, and the illicit sale of venison, a drastic revision is required of Section 63 of the Fauna and Flora Protection Ordinance of 1938.

As it now stands, any police officer or other prescribed officer can "stop and search" any person whom he suspects on reasonable grounds of having committed an offence or any vehicle in which that person may be, or be suspected to be.

That takes us nowhere. But if for "stop and search" the words "seize and detain" are substituted, and further reinforced by amplification of Section 63 of the Ordinance—then the prescribed officer will have real power to bring offenders to book.

This as well as other sections of the Ordinance, have during the term of office of our President, Mr. E. B. Wikramanayake, as Minister of Justice, been considered by a committee composed of himself, the legal draftsman, the Warden Mr. Nicholas, and representatives of our Society. As a result of this an Act to amend the Fauna and Flora Protection Ordinance of 1938 has been formulated. It now remains to have it legally enacted.

If by the end of the coming year we shall have contributed, in however small a measure, towards the attainment of the main objectives I have outlined, namely, the better protection of our elephants, and the amendments to our wild life laws and to the explosives act—then we shall have achieved something worthy of our Society.

*This has now been done as will be seen by the following article.

7. *Mr. Norris* read a proposal put forward by *Mr. Dunbar-Jenklaas* in which he requested the Society to make representations for the formation of a Sanctuary at Lahugala Tank and Kitulana tank in the Eastern Province. He stated elephants regularly inhabit both these tanks throughout the year, they are easily watched by the public.

Mr. Norris strongly supported this suggestion.

Mr. Poulier considered it would be difficult to make a Sanctuary in this area owing to the right of access allowed by the law.

Mr. Davies in supporting the proposal said he had regularly watched elephants here throughout the year, he thought boundaries might be difficult to demarcate.

Mr. Poulier suggested the matter be investigated more closely by the Committee before any decision be taken.

The meeting agreed to this suggestion.

Dr. Spittel considered that the holding of a general meeting in the middle of the year would be a great help and suggested that Kandy be the venue.

Mr. Poulier, strongly supported this suggestion.

Mr. Davies suggested Nuwara Eliya be chosen, as this was nearer for Uva, which was such a staunch supporter of the Society.

Dr. Spittel considered Nuwara Eliya was isolated and not sufficiently centrally situated. The holding of a meeting in Kandy could have excellent propaganda value as University and Trinity College students could be invited to attend.

The suggestion was put to the meeting and it was agreed to hold such a meeting in Kandy.

Mr. Norris informed the meeting the Uva district had resolved that the suggestion for the increase of the Yala reserves contained in Newsletter No. 6 of the 21st December, 1954, be represented to Government.

It was agreed the General Committee should pursue this matter to carry out the suggestions.

There being no other business the meeting terminated with a hearty vote of thanks to the chair.

C. E. NORRIS,
Honorary Secretary.

DYNAMITING OF FISH

By E. R. A. DE ZYLVA

THERE has been a considerable amount of interest evinced on this subject by members of the Society. Many of them may not, however, be aware of recent amendments which have been made in the Fisheries Ordinance, No. 24 of 1940 by the Fisheries Amendment Acts, No. 25 of 1952 and 30 of 1956.

The following extract from the Fisheries Ordinance as amended by the above-mentioned amendment acts is reproduced for the information of members, setting out the present position of the law in regard to the dynamiting of fish in the hope that those members who are sufficiently interested in the subject may be able to render themselves more extensively helpful to the authorities should they be in a position to help in bringing offenders to book.

Extract from Fisheries Ordinance, No. 24 of 1940 as amended by Fisheries Amendment Acts Nos. 25 of 1952 and 30 of 1956.

2. (1) The Minister may appoint—

(*a*) any person, by name or by office, to be or to act as Director of Fisheries ;

(*b*) any person, by name or by office, to be or to act as Deputy Director of Fisheries ; and

(*c*) such other officers as may from time to time be required for the purposes of this Ordinance.

(2) Subject to the general direction and control of the Minister, the Director shall be responsible for the administration of the provisions of this Ordinance.

(3) Any person appointed under sub-section (1) to be or to act as Deputy Director of Fisheries may, subject to the control of the Director, exercise all or any of the powers conferred on the Director by or under this Ordinance.

(4) All officers appointed under this section shall be deemed to be public servants within the meaning of the Penal Code.

(5) All officers (not below the rank of preventive sergeant) appointed under this section are hereby declared to be peace officers within the meaning and for the purposes of the Criminal Procedure Code.

14. No person shall in Ceylon waters use any poisonous, explosive or stupefying substance for the purpose of poisoning, killing or stupefying any fish.

14A. No person shall possess, sell, expose for sale, or transport any fish knowing or having reasonable cause to believe that such fish has been taken in contravention of any of the provisions of section 14.

19. The Director or any prescribed officer, or any person authorised in writing by the Director either generally or specially in that behalf, may—

(*a*) go on board any fishing boat which is for the time being within Ceylon waters and may make such examination of the boat, the personnel of the crew thereof, the nets and other equipment carried therein and the fish found therein, as may be necessary, for the purpose of ascertaining whether any provision of this Ordinance or of any regulation has been contravened ;

(*b*) examine any fishing nets, fishing kraals, fishing stakes or other fishing equipment, which may be found in Ceylon waters ;

(*c*) enter any premises in which fish is stored, kept or cured for profit, or in which any aquarium is maintained for profit, and examine any fish found therein for the purpose of ascertaining whether any provision of this Ordinance or of any regulation has been contravened.

19A. (1) Any officer appointed under section 2 (1) may, if he has reason to believe that any offence under this Ordinance has been committed, **seize and detain** any fishing boat, or any fishing net or stake, or other equipment or instrument or any vehicle used in or in connection with the commission of the offence, or any fish taken in the course of such commission.

(2) Where any article is seized under sub-section (1), the officer by whom the article was seized shall, as soon as possible, produce that article before or make it available for inspection by a Magistrate's Court of competent jurisdiction ; and the Court shall make such order as it may deem fit relating to the custody of the article pending its disposal under sub-section (3).

(3) Where any article is seized under sub-section (1) from the possession of any person—

(*a*) it shall be returned to that person forthwith upon the expiration of fourteen days after the seizure, unless a prosecution for the alleged offence is instituted before the end of that period ; or

(*b*) it shall, forthwith after the final determination of the prosecution, be returned to that person or to such other person as is considered by the Court to be entitled to its possession unless it is duly declared to be forfeited to Her Majesty under sub-section (2) of section 24.

20. For the purpose of this Ordinance it shall be presumed until the contrary is proved—

(*a*) that where any fish is found at any time in any fishing boat at any place in Ceylon or in Ceylon waters, such fish was taken—

(i) by the owner of that boat, if he is in the boat at that time or if no person is found in the boat at that time, or

(ii) by the person for the time being in the boat and in charge thereof, if the owner is not in the boat at that time ;

(*b*) that any person who takes, or is presumed under paragraph (*a*) (ii) to have taken, any fish from a fishing boat of which he is not the owner, is employed by the owner of that boat for the purpose of taking such fish ;

(*c*) that where any fishing boat which has not been registered is at any time within Ceylon waters, any fish found in that boat at that time was taken for profit in Ceylon waters ;

(*d*) that any fish which is not taken for sport, scientific research or for any other prescribed purpose, is taken for profit.

21. (1) Where any poisonous, explosive or stupefying substance, which can be used for the purpose of poisoning, killing or stupefying fish, is found in the possession or control of any person in the neighbourhood of any Ceylon waters, shortly after such substance is proved to have been used in such waters, that person shall be presumed, until the contrary is proved, to have used such substance for the purpose aforesaid.

(2) Where any poisonous, explosive or stupefying substance which can be used for the purpose of poisoning, killing or stupefying fish, is found in the possession or control of any person in a fishing boat in Ceylon waters, that person shall be presumed, until the contrary is proved, to have attempted to use such substance for the purpose aforesaid.

22. (1) Any person who acts in contravention of any provision of this Ordinance shall be guilty of an offence and shall, on conviction after summary trial before a Magistrate, be liable to a fine not exceeding five hundred rupees or to imprisonment of either description for a term not exceeding six months or to both such fine and imprisonment.

(2) Any person who acts in contravention of any provision of any regulation or of any condition lawfully inserted in any fishing licence or permit granted under this Ordinance, shall be guilty of an offence and shall be liable to a fine not exceeding five hundred rupees.

(3) A person who acts in contravention of any provision of any regulation shall, in addition to any other penalty which may be imposed under sub-section (2), be liable to a fine of one hundred rupees for each day during which the contravention is continued after conviction thereof.

(4) Any person who attempts or conspires to commit any offence under this Ordinance shall be deemed to be guilty of that offence.

22A. (1) Any person who acts in contravention of any of the provisions of section 14 shall be guilty of an offence and shall, on conviction after summary trial before a Magistrate, be liable to a fine not less than five hundred rupees or to imprisonment of either description for a term not exceeding one year or to both such fine and imprisonment or on a second or subsequent conviction to a fine not less than one thousand rupees or to imprisonment of either description for a term not exceeding two years or to both such fine and imprisonment.

(2) Any officer appointed under section 2 (1) who shall—

(*a*) be guilty of cowardice, or

(*b*) wilfully fail in his duty to report any offence against this Ordinance, or

(*c*) connive at the commission of any offence against this Ordinance,

shall be guilty of an offence and shall, on conviction after summary trial before a Magistrate, be liable to a fine not exceeding one hundred rupees.

(3) The preceding provisions of this section shall have effect notwithstanding anything in section 22.

22B. Notwithstanding anything in the First Schedule to the Criminal Procedure Code, an offence under section 14 of this Ordinance shall be a non-bailable offence within the meaning and for the purposes of that Code.

23. Notwithstanding anything in the First Schedule to the Criminal Procedure Code, every offence under this Ordinance shall be a cognizable offence within the meaning of that Code.

24. (1) Where the holder of a fishing licence or a permit granted or issued under this Ordinance is convicted by a Magistrate of any offence under this Ordinance, the Magistrate may make order cancelling the licence or permit.

(2) The Magistrate may, on the conviction of any person of any offence under this Ordinance, make order declaring that any fishing boat, or any fishing net or stake, or other equipment or instrument or any vehicle used in or in connection with the commission of the offence, or any fish taken in the course of such commission shall be forfeited to Her Majesty :

Provided that in the case of a conviction of an offence under section 14 or section 14A, the Magistrate shall make order as aforesaid unless it is proved that the fishing boat, fishing net or stake, or other equipment or instrument or vehicle belongs to a person other than the person convicted and that the owner thereof had no knowledge that it would be used in or in connection with the commission of the offence.

25. Where any offence under this Ordinance is committed by any person in any part of the sea which is within Ceylon waters, the Magistrate's Court having jurisdiction—

(*a*) over that part of the coast nearest to the place at which the offence was committed ; or

(*b*) over the place at which the person comes ashore after the commission of the offence,

shall have jurisdiction to try the offence.

26A. (1) A fund to be called the Fisheries Reward Fund (hereinafter referred to as the "Fund") is hereby established.

(2) There shall be paid into the Fund all fines recovered under this Ordinance and all sums of money realised by the disposal of articles forfeited under this Ordinance.

(3) The Director may, in his discretion, pay a reward to any officer appointed under section 2 (1) or informer out of the moneys in the Fund :

Provided, however, that no such reward shall exceed fifty rupees unless the Director has obtained the approval of the Permanent Secretary to the Ministry of Industries and Fisheries (hereinafter referred to as the " Permanent Secretary ").

(4) Where any witness incurs travelling expenses in attending court for the purpose of giving evidence at any trial in respect of an offence under this Ordinance which are not payable to him under any other law, the Director may pay to such witness out of the moneys in the Fund such amount as may be determined by him to cover the cost of the expenses properly so incurred :

Provided that no such payment shall exceed fifty rupees unless the Director has obtained the approval of the Permanent Secretary.

(5) The Director shall be responsible for the administration of the Fund and accounts of the Fund shall be audited annually by the Auditor-General.

Snips

Depletion of the Wild Elephant

At the moment we are in grave danger of losing an invaluable national asset—the wild elephant. Depletion among wild elephants is far in excess of its annual birth-rate since the last century. For in 1858 Emerson Tennent wrote blaming the resident European community with commencing a wave of slaughter of wild elephants. He described the slaughter as colossal for even the Government at that time posted a reward of five shillings for every tail produced.

In the Southern Province alone it is reported, that over 2,000 tails were produced within a very short period. One Major Rogers alone accounted for 2,000 elephants. Many others had varying numbers from 200 up to 500 animals to their "credit." These figures sounded fantastic. Whatever the actual numbers had been these were their proud boast at their club. Undoubtedly this was the beginning of a great tragedy—for there are only about 800 now left.

Henceforth, either their ever decreasing numbers annually will soon touch the biological minimum below which propagation of the species will naturally cease or in-breeding will cause degeneration to hasten extinction. The Department of Wild Life, year after year, with an inadequate budget and a small staff, will not be able to avert a national calamity—the extinction of the wild elephant.

C. R. W. Abhayaratne.

Times of Ceylon

Stop that Baiting

Invariably at sundown a few cars can be seen parked near the culvert at Medamirijjawala, three miles from Hambantota. These belong to elephant-watchers who come regularly to salute the pachyderm and his staggering efforts to keep alive in a drought-ridden land.

At this spot on the seaside about 150 to 200 yards from the Matara-Hambantota road, there are a few shallow wells dug for cattle. The thirsty elephants, having been driven from the baked water-holes in the jungle, come to them for drink. They come to a couple of fast-drying puddles also on the right of the culvert where they can be watched and photographed safely from a distance of not more than thirty yards.

Unfortunately, not all visitors come to salute the elephants or to watch them in peace, as I found out one evening when a group of rustics, who had obviously punished a bottle of the strongest brew, behaved like schoolboys in front of the monkey cage at the Zoo. They were armed with 8-cell torches and one of them even brandished a gun when a charge seemed imminent after the teasing had gone on a bit too far. Carters and bus drivers, too, annoyed the animals and allowed the passengers to shout and hoot! Car headlights and torches were trained on the animals whenever they came to the water edge and they were thus driven time and again, to the fringe of the jungle.

Who, therefore, can blame the elephants if they lose their well-tried patience? Unless discipline is maintained, it is certain, that a few imbeciles will come to grief or they will succeed in driving the animals away forever.

I would like the Department of Wild Life to consider digging wells below the sand mounds on the left and one large hole on the landward side about 100 yards from the main road, preferably in front of the tamarind tree there. The water main which passes through the culvert can be tapped and the animals assured a refreshing drink even in the worst drought. Not only elephants but other animals also will then come to enact their wonderful dramas on moonlit nights.

With the expansion of the Hambantota Resthouse now been carried out rapidly, such a spot for watching animals will be an irresistible incentive to visitors from the other parts

of the country as well as from abroad.

How about it, Warden Nicholas ?

SHIRLEY J. PAYCE,
October, 1956. *Observer.*

The Age of an Elephant

After man, the elephant is the longest lived mammal, both living over fifty years. The age of an elephant can be roughly gauged by the amount of turn-over of the upper edge of the ear. In young animals, the ear is quite straight, at the age of twenty-five the turn-over measures about one inch, it increases by approximately half an inch in the next five years and an elephant of approximately sixty years of age may have a turn-over of about two inches.

The very great ages attributed to some elephants are, without a doubt, a fantasy and their life span may be around seventy-five to eighty years.

C. E. NORRIS.

Morning Times.

No Shooting of Wild Elephants in Johore

The Sultan of Johore will not allow wild elephants to be shot in his State even though they are doing many thousands of dollars worth of damage each year.

This is stated in the annual report of the Johore Planters' Association which added that although the game laws provided protection for estate owners, in practice it was found difficult to implement these laws.

The Chairman of the Association interviewed the Sultan twice last year followed by several letters addressed to him giving him a detailed account of the damage that had been done to many estates and asking that the Game Warden be authorised to shoot wild elephants.

But the Sultan was not agreeable to the suggestion, merely stating that these animals could only be driven away and no shooting would be allowed.

Agency houses were not prepared to bear the expense of a test case and the only action that could be taken was to continue the useless task of drawing the attention of the authorities to the continual damage caused by elephants from time to time.

Human " Sacrifice " to Cure Sick Elephant

In Ceylon, animal lovers have raised an outcry against the senseless slaughter of elephants by human beings. A superstition from India gives this a grim little twist :

The superstition—that a human sacrifice would cure the illness of an elephant—led to the cold-blooded murder of a sleeping sadhu recently. The elephant was suffering from rheumatism. A man, described as one who loved elephants, is stated to have murdered the sadhu, buried part of the body in one place, and the head at another spot, to be utilised later.

Unfortunately for him (and perhaps for the elephant, too), too much blood was spilled, and this led to the man's arrest.

Times

31.10.56.

Valiant Struggle for Freedom

A lone elephant, struggling valiantly for freedom, has been drawing large, sympathetic crowds to a spot just 50 yards away from the Technical Training Institute Staff Quarters at Amparai.

She came here for a stroll with a herd of thirty-two other elephants, and suddenly found herself trapped in a swamp. Threats, shouts and pleading from the troubled spectators did her no good. She was getting deeper and deeper into the swamp with every effort she made to free herself.

While well-intentioned men and women,

who had gathered close, were doing their best to free her, the herd of 32 grazed close by, apparently indifferent to the plight of their comrade.

The men at Amparai, who were concerned over the frequent and neighbourly presence of these great animals, had put up the huge skull of an earlier victim in the neighbourhood as a warning to any future herd that might be inclined to stray too close to town.

Apparently, this elephant had elected to ignore the advice of her well-meaning human friends, and the rest of the herd, grazing indifferently within view of the trapped elephant, appeared to be saying, "Served you jolly well right! You couldn't say we didn't warn you of danger."

Observer.

1.3.57.

Elephant runs amok in Temple

Enraged when it was prevented from pulling a branch off a coconut palm, an elephant chased the mahout into a nearby temple.

A Buddhist monk gave the mahout sanctuary in the upper storey of the temple. The elephant, meanwhile, ran amok, uprooting trees, and attacking everything in sight.

Another elephant (a female) was brought in, in an effort to control it. But the female was attacked, and it fell on a parapet wall, damaging the wall considerably.

Several hours later, an experienced mahout managed to bring the animal under control.

Times

28.11.56.

Elephant's Three Wasted Hours

Even the tank at Amparai is at a low ebb—and the elephants have to wade far into it for their customary bath.

A lone veteran—nine-foot high if an inch—thought he would do something about it and decided to explore his old haunts across the jungle reservation behind the tank. He was wending his leisurely way towards the recreation rooms of the Gal Oya Board when a crowd of very disorderly human beings started shouting at him. They even began beating drums and hooting.

This was going a little too far he thought—and he made a bee-line for the bungalow of the Assistant Superintendent of Police. He stood outside for three long hours—from seven in the evening to ten at night—but he was not attended to. And so trumpeting his disgust at mankind in general and the police in particular he walked back into the jungle.

September, 1956.

Scaring Wild Elephants

Sir,—With reference to the letter on the above subject by Mr. B. C. Fernando, blowing his motor horn in order to scare the elephant he did the very worst thing possible. The elephant might easily have mistaken the sound for trumpeting and charged. What he should have done was to remain silent or get out of his car and seek the shelter of the jungle on the other side of the road.

I remember some years ago I had a somewhat similar experience on the Vavuniya-Trincomalee road. An elephant broke cover as we were proceeding. I had the car stopped at once. The driver, a Malay, was about to sound the horn but I forbade him. We alighted from the car and stood quietly where we were. The elephant just quietly crossed the road, taking no notice of us and went into the jungle on the opposite side. Had I allowed my driver to sound the horn it might have had disastrous consequences.

T. W. H.

Katane.

He Cheated Death—and an Elephant

Mr. S. S. Johnpillai was bored. The drought, the monotony of his routine job

as C.G.R. ticket agent at Manampitiya was making him feel that his life was at its dullest.

And then things began to happen to Mr. Johnpillai. While walking near his work-place and still thinking how bored he was, he saw an elephant emerge from the jungle.

What happened next can well go into a wild life film.

The elephant charged Mr. Johnpillai. There was no point in running so he lay down flat and shammed dead. The elephant came up to him and placed one large foot on Mr. Johnpillai's chest.

The pressure increased slowly. Mr. Johnpillai dared not breathe or cry for help. And equally slowly the pressure eased, the elephant looked down at the man, and ambled off into the jungle.

Batticaloa's hospital told Mr. Johnpillai that no bones of his body were broken.

October, 1956. *Observer.*

Titanic Encounter

A man who was traversing the jungle on foot walked into the trunk of a wild elephant.

The elephant lifted him up. Through the open mouth of the beast, he thrust his hand and grasped the enormous tongue.

For what seemed to the man an endless while, they struggled. Then the beast quitted the fray, leaving the man lying on the ground, according to his story.

He is M. E. Peter of Padaviya. At the height to which the elephant lifted him, he may have felt a bit tall. Yet his story may not be altogether a " tall " one.

Broken branches and stumps of broken trees mark the spot where passers-by found the bruised man lying prostrate after the titanic encounter.

And Peter's injuries are real. He was admitted to Vavuniya hospital.

The fray took place at Nickawewa, three miles from Padaviya, when Peter was walking alone through jungle.

October, 1956. *Observer.*

Elephant Attacks Jeep in National Park

Police Superintendent L. I. de Silva, of Galle, and a party of seven have had a near-death adventure with elephants in the heart of the Yala Sanctuary.

The party included Mr. and Mrs. de Silva, their nine-year-old son, Dulip, Dr. and Mrs. D. G. de S. Kularatna of Galle, Mr. and Mrs. Brown, an Australian couple, honeymooning in Ceylon, and Game Ranger, Bernard Mendis.

Mr. de Silva, driving a jeep, on the Yala-Katagamuwa road was about two miles from the circuit bungalow when a 12-foot tusker emerged from the jungle and charged the jeep.

The long tusks pierced through the metal work of the jeep and when the angry elephant shook its head to free its tusks, the jeep and its eight occupants were hurled into the air.

Mr. de Silva was trapped inside. The others were flung out as the jeep came down on its side. But all escaped injury.

As Mrs. de Silva lay on the ground, the tusker had stepped over to the other side.

The Australian lady, Mrs. Brown, ran towards the jungle. The tusker gave chase. She ducked behind a large tree and eluded the elephant who disappeared into the jungle.

The jeep was out of order, so the party trekked through jungle paths to the main road, encountering three elephants on the way but these did them no harm.

Daily News.

Waliga Kotta (Short Tail)

(i)

" Waliga Kotta," the notorious Yala elephant distinguished by an unusually short tail, gave a party of sight-seers at the Yala Sanctuary something to think about recently.

The party had attempted to take pictures of the animal, when it suddenly turned and came towards them.

Then it seemed to think better of its move, and turned aside into the jungle.

One lady in the party was so terrified that she had begun to tell her beads.

Observer.

23.2.57.

(ii)

My contradictory friend tells me that there is no such thing as "Waliga Kotta."

"If I've seen one," he said carefully, "I've seen a dozen. And all those elephants had short tails."

He continued: "People like Engelbrecht wrote and spoke of 'Waliga Kottas.' If they saw the same elephant, then it must mean that it is over a hundred years old."

He left it at that, but it started off a train of inquiries for me. A person, who knows the jungles like the back of his hand, told me how the short tails come about.

"It's the oldest story in the world," he said. "Elephants fight; and when they fight, something has to give way. Sometimes it is the tail."

That suggests that the story I'd heard of an usually vicious crocodile, who has a weakness for elephant's tails, may not be true.

Observer.

26.2.57.

Mercy Killing ?

A crow, brought to earth by a stick (or it may have been a stone) thrown by a boy, spent all night sitting on a branch of a small tree, blind, in pain, and in the rain which fell almost continuously throughout the night.

The following morning it was still there, its feathers drenched, stiff with cold, and unable to move.

And with the dawn came hundreds of other crows, cawing and flapping, and very concerned.

Years ago we read the story of a man who had spent part of his life studying crows and their ways.

He said that an injured crow is examined by the rest of its flock; if the injury is grave, the crow is usually pecked to death.

The words came back to our mind as we watched the crows come down out of the sky. They crowded round the injured crow, and then they flew away.

Some time later, they returned. And they killed the crow. And then, they were gone.

Observer.

Angle on Spearfishing

Where it is necessary that we should kill it is one thing. Where killing is organised for pleasure as in fox-hunting and spearfishing something different is at work.

The fishermen who catch fish and the farmer who ensures his crop by destroying pests are engaged in a business vital to themselves and to the community. The taking of the fish and harvesting of the paddy is the motive—not killing. But the prime motive and chief joy in spearfishing is the actual physical murdering of fishes.

This sort of "sport" is popular among the unthinking, unfeeling schoolboyish type of person because the glamour and the "heroics" in it. Like the gladiators of old these spearmen drape their skins, sharpen their spears and give themselves a Roman holiday. It makes them feel brave and primitive.

B. A. Andrews.

Observer.

Water-hole Shooting

On principle the Department of Wild Life should not encourage "sportsmen" to sit at water-holes during the drought season which is the "close" season for all other animals; it should extend protection to leopard and bear and not permit these animals to be shot

whilst quenching their thirst. For this is not in keeping with the dignity of a true sportsman.

Some people are under the hallucination that deer and sambhur are not protected during the annual drought which is from May 1st to November 1st, of the following year. This is known as the " close " season.

" Mudalalis " trade freely in venison and sambhur, whereas leopard and bear are only sought after by genuine sportsmen who are keen to bag them as trophies. But these very same " Mudalalis " pay up to Rs. 50 for a leopard skin. In addition the dried flesh and fat have a good market, as these are thought to be remedies for asthmatics. The fat of bear also has a good demand as it is thought to be a remedy for baldness and to arrest falling hair.

I wish to quote the eminent playwright, the late George Bernard Shaw who commented on sport thus :—

" When a man wants to murder a tiger he calls it sport, but when the tiger wants to murder the man he calls it ferocity."

C. R. W. ABHAYARATNE.

Times.

Hunter's Surprise Bag

A villager of Wendaruwa, who went out shooting, had wounded a wild boar. While the animal was trying to escape, a large leopard pounced upon it.

A fight followed between the two animals. The hunter watched the animals at battle for several minutes, and then fired at the leopard as it was gradually overpowering the wild boar.

The hunter returned home with the boar and the surprise " bag."

21.2.57. *Times*

Cobra Wins Battle with Viper

Bandarawela was the scene of a rare spectacle of two large venomous snakes engaged in mortal combat. The combatants were a large cobra and a polonga (Russell's Viper).

The battle royal, which started about 1 p.m., continued for about 15 minutes, and attracted quite a crowd to the spot.

The frequent hisses of the snakes, however, kept the crowd at a safe distance. Now and then, the cobra, who had the better of the polonga, repeatedly held its victim in its mouth, as if to compel the foe to yield. The deadly polonga, after giving a good fight to its formidable opponent, went down fighting, and ultimately yielded only to be gobbled, head first, by the cobra.

Though requests were made to summon a cameraman to the spot, nobody dared leave and thus miss such an exciting scene. In the midst of the grim battle, word was sent to the Police Station which was close by, but the constable, who had brought a gun, was reluctant to kill the victorious cobra.

The cobra, after raising its mighty hood as if in warning, was about to start on its triumphal march, when Mr. Reginald Perera, a resident of the area, shot the cobra with the constable's gun.

Morning Times.

11.1.57.

Pet Cobra Kills Snake-charmer

Babu (42), a wandering snake-charmer, will no longer attract crowds to see his pet cobra, Seela, dance or to hear him advertising his snake-bite cures.

It used to be Babu's favourite show to let this six-foot, silver spotted cobra sink its fangs into his hands and then to demonstrate on himself the efficacy of his antidotes.

But Seela's sting has at last proved fatal ; and despite the efforts of snake-bite specialists, Babu died.

Mapilas (Cat-snakes)

(1)

There are four mapilas appearing in Ceylon, and are generally known as cat-snakes due to the fact that the pupil of the eye is vertical like a cat's.

None is more than feebly poisonous and their bites can produce only trivial local effects in man though they are aggressive and will often strike at the least provocation.

They belong to the family *Dipsadomorphus*. The largest—Forsten's Cat-snake—grows to over seven feet, in length, the others to a maximum length of about four feet. Forsten's Cat-snake is sometimes called the *Maha Mapila* or *Ley Polonga*.

T. E. TUNNARD.

Hatton.

(ii)

I was interested to read Mr. T. E. Tunnard's letter on Mapilas in your issue of 14th September, 1956. I am not a snake authority, but I thought I might help to throw some light on an earlier query to which Mr. Tunnard has presumably replied.

As Mr. Tunnard says, mapilas are only "feebly poisonous snakes" of which there are four, or probably five species :—(1) Barnes', (2) Gunther's, (3) Beddome's, (4) Forsten's, and (5) The common (Indian) Cat-snake (*Dipsadomorphus trigonatus*)—all belonging roughly to the Colubride group of land-snakes found in Ceylon. The last-named is also called the "gamma" snake (in India) because the sandy-brown marks on its back resemble the Greek letter gamma.

Though mapilas are popularly believed to be poisonous, they are not so, despite their fierce-looking appearance. Writing in one of the old "Times of Ceylon Christmas Annuals" years ago, Dr. Lucius Nicholls states that in mapilas "the poison gland and grooved teeth are so small that sufficient venom to cause a general poisoning effect in a man could not be injected. I have obtained many of these snakes alive, and have never succeeded in extracting sufficient venom from one of them to kill a guinea-pig. It appears that a flow of secretion only takes place from the glands of a mapila for digestive purposes ; the secretion is not stored as in the case of the cobra so that it may be injected in large amounts, but is slowly excreted on to, or into, its prey during the act of swallowing."

Referring generally to cat-snakes (mapilas), Lt.-Col. Gharpurey in his book on snakes, also thinks that they are "non-poisonous."

Hump-nosed Viper (Kuna-katuwa)

I may mention that the term "mapila" is also applied sometimes to the Hump-nosed Viper (called in Sinhalese "Kuna-katuwa") because of the superficial resemblance one bears to the other. This viper (*Ancistrodon*), which is so called, because its nose is turned into a small hump or "boss," has scales on its head instead of shields as in the mapila—a sure mark of identification !

Opinion is divided, however, as to the effects of the bite of this hump-nosed viper. Emerson Tennent, in his "Natural History of Ceylon," is emphatic that a fatal issue does sometimes occur, though not invariably. Gunther thinks that it is exceptionally fatal to man, and then not before the lapse of some days.

But Colonel Ward states: "the venom is probably never fatal to man" ; and Dr. Lucius Nicholls, endorsing his view, says, "My experiments support this statement because I have never squeezed out sufficient venom from the glands of one of them to kill a rabbit. The venom is an intense local irritant and causes much pain and swelling."

Machell Cox writes : "Its habits are similar to those of the Tic-polonga (Russell's Viper), but its bite is rarely fatal to man."

It is interesting to note what Major Wall says in regard to the poison-effects of the hump-nosed viper, which, though not a large snake, is armed with large fangs. He states: "Dr. Davy knew a dog bitten by one recover after severe symptoms in 48 hours, but a fowl bitten by the same snake the next day succumbed after four days. These effects on small animals serve to show that the poison is not very virulent. Mr. Drummond Hay has written to me of two cases of bite, both in cooly women.

One bitten on the ankle did not suffer in the slightest once she had recovered from her fright, but whether she was treated or not, I am unable to say. The other bitten in the hand became unconscious, and he thought, when he saw her the same night, she would die, but, with the aid of stimulants, she had recovered the next day. Ferguson mentions the self-related facts of a Mr. A. F. Sanderson who was bitten by one. The seat of injury was the little toe. Pain was so acute as to prevent sleep, and the limb swelled to the knee for two or three days, but he recovered. He treated himself by ligature above the knee, cross cuts locally with the application of carbolic acid, and strong potations of brandy."

S. V. O. SOMANADER.

Kalkudah. *Times.*

The Galapagos Islands

Strange and unique plants and animals, because most of them are not found elsewhere in the world, make of the Galapagos Islands, an Eden which deserves to be kept intact. Situated in the Pacific, about 500 miles off the coast of Ecuador, this group of volcanic islands which covers some 3,026 square miles derives its name from a Spanish word which signifies "Giant Tortoises." More than a century ago the Galapagos were visited by Charles Darwin in the course of his famous voyage in the *Beagle*. This led to the discovery of the existence of these unique endemic species, both of vegetation and of animals. These were among the early lights which led on to the forming of the theory on evolution. The Galapagos archipelago has never been attached to the mainland. Each emanation of life which has taken place here has had to adapt itself to such limited ecological space as there was. Perhaps the most celebrated is Darwin's finch which subdivided itself into ten different species living together on the same isle. There is a wingless cormorant, there are amazing-looking lizards both of land and sea, crenellated like dragons, seventy-seven species and sub-species of endemic birds, penguins, whole colonies of seals. Moreover, there are very varied forms of giant tortoises who are part of this Noah's Ark where the animals show no fear of man, only a curiosity equal to the curiosity of man himself. Alas, this lack of fear makes them all the more unsuspecting and vulnerable to massacres. To this unique fauna must be added several rare and valuable kinds of hardwood of the genus *Psidium* and *Piscidia*.

The Galapagos constitute one of the rare territories. They are already partly ravaged by the fact of the presence of man, and his domestic animals run wild. Cats and dogs and pigs, savage in their struggle to survive, have become wholesale destroyers of the local species. Today there is an intensive destruction of vegetation, and intact woods are destroyed by fire for temporary and shifting cultivation. With the woods which are their shelter, there are steadily disappearing the unique island-animals which are also hunted. Whalers, oil-prospectors and commercial fishing crews, uninformed of the value and uniqueness of these species, increase the threat. Moreover, there is a movement to exploit the islands as a "tourist paradise." Here bands of tourists are to be assembled and organized *en masse* for surface and under-water gunning of animals, which means a more rapid move towards extermination of this unique scientific heritage before even it has been scientifically studied.

The Republic of Ecuador, conscious of its responsibility, had, since 1934, passed protective laws which however have not been much respected. Unesco under the guidance of its first Director, Dr. Julian Huxley, had on several occasions shown its anxiety that at least certain parts of these islands might be allowed to become effectively protected and maintained intact.

Today the International Union for the Conservation of Nature tries to support the saving of what still remains of these riches of nature. The appeal has been for the establishment of

a total reserve on one of the islands which is most representative of the life of the archipelago. A first expedition composed of biologists and naturalists needs to be given a preliminary mission to establish an inventory of the living species and to determine the most suitable part of the islands for the establishment of a permanent station of biological research and conservation. This is the plan which today is being pursued by the Union, which has just received the sympathetic approval of the Ecuadorian Government.

To quote Charles Darwin :

" The most remarkable feature in the natural history of this archipelago is that its different islands are to a considerable extent inhabited by a different set of beings. The natural history of the islands is eminently curious, and deserves attention. Most of the organic productions are aboriginal creations found nowhere else . . . Hence, both in space and in time, we seem to be brought somewhat near to that great fact—that mystery of mysteries—the first appearance of new beings on this earth."

From *The International Union for the Conservation of Nature.*

Predators and Natural Balance

In *Nature Magazine,* Washington, October, 1956, Bill Geagan opens his article, *A World for Old Porky,* by stating that he is tired of continually hearing the word " predator " used by those who often do not know its exact meaning and who employ it as a pretext for killing something they had meant to kill. In spite of arguing in favour of the lowly, prickly little porcupine, the author also mentions its misdeeds—and they are often exasperating. The worst damage comes from girdling the bark from young trees, causing them eventually to wither and die. But, Mr. Geagan claims, the porcupine in this way is carrying out forest management. Is this not what foresters know as thinning? What is more, apparently when the winter is very severe and the forest's herbivorous animals risk starvation, having browsed all the branches within their reach, the porcupine—perched high in the conifers—unconciously strews the ground with branch tips ; this helps, above all, to keep the deer alive. Mr. Geagan believes that the incentive to seek out and slaughter porcupines will come to an end when the bounty for their capture is removed. Moreover, he emphasizes each creature's well-defined place in a region's natural balance, and the danger that may be caused to the whole structure by destroying one of its links.

From *The International Union for the Conservation of Nature.*

There may be no Whales Remaining

The whaling nations of the world are faced with the choice of restricting their activities or finding themselves forced out of business because there will eventually be no whales left to catch.

When the coming season opens in the Antarctic at the turn of the year, skippers will be keeping a closer watch to see that the number of animals they catch does not exceed a certain number.

Britain, Japan, Norway and the other countries sending out fleets are being forced into closer co-operation to see that the rules are strictly kept.

The world's fleets will be restricted to taking 14,500 blue whale units, as against the 15,000 units permitted last season.

This unit measures all species in the area as compared with the blue whale. One of this type, for example, is regarded as being equal to two and a half humpback whales.

Skippers catching one kind of whale must work out its equivalent in these units and keep to within the total specified for them.

Other rules specify the dates on which it is permissible to kill the various species.

Size must also be taken into account. Small specimens must be left untouched and allowed

to get away to be caught in a few years' time when they will be fully grown.

Blue whales must be at least 70 feet long before they can be hunted down. Fin whales must be not less than 55 feet. Zoologists fear that the blue whale, largest species concerned, is being exterminated despite these regulations.

Land stations in South Georgia report the same experience as the whaling ships. The three stations there caught only three blue whales last season. In the mid-1920's five stations in this area were killing about 1,500 blue whales a year.

But this problem cannot be confined to blue whales alone. As they die off, hunters will naturally turn more and more to species which have been less sought after hitherto. And as this happens, it is likely that they, too, will face the same threat of being rooted out as the blue whale.

Zoologists recall in this connection the annihilation of the dodo in the past.

The difficulties of the situation are heightened by the fact that the international agreement that obtains at present is a purely voluntary one with nothing except the goodwill of the signatories to ensure its enforcement.

—NAFEN.

Rhinoceros and Elephant

The erudite editor of the London weekly, *The Tablet*, was much moved when visiting the 67-foot long brontosaurus in the New York Natural History Museum. "Alas, the sight of the brontosaurus prompts the melancholy reflection how many other startling creatures are on the way out." There are now only two or three thousand rhinoceroses left in Africa and a mere two or three hundred in India. It is true that there are still 200,000 elephants in Africa but what are their chances of survival when the human race is increasing by 100,000 a day? It should be considered a disgrace to shoot an elephant instead of being a matter for boasting.

In this context it should not be overlooked that between 1920 and 1930 an average of 1,170 tons of ivory were absorbed every year by the world market. This corresponds to the slaughter of 41,000 elephants purely and simply for the sake of their trophies. Apart from the considerable number killed for meat, this means that many more elephants were killed for ivory than were born. Yet there are plenty of materials that can replace ivory for such uses as piano keys or billiard balls. In fact, substitutes have an advantage, for they do not become yellow with age.

From *The International Union for the Conservation of Nature.*

U.S. Game Book

The various hunting seasons are opening in the United States. When they are over, some six million big-game hunters will have accounted for approximately: deer, 1¾ million; antelope, 80,000; elk, 52,000; bear, 24,000; boar, 1,200; moose, 900; mountain goat, 300; mountain sheep, 250; and buffalo, 40.

The hunters will also have slain around 1,175 of each other.

This year the hunter will be even more nervous of his fellow. Hitherto, as a measure of self-protection, he has worn a bright red jacket and cap, but the Fish and Game Department of California reckon that 50,000 of their 650,000 registered hunters are colour-blind. After extensive field tests, they have announced that red is definitely unsafe and that the best colour for caps and jackets is lemon yellow—a hunting fashion not yet in the shops.

Sunday Times (London).

Amphibian War in Singapore

One thousand frogs, in December, fought a life and death battle in a small pond near Alor Star, North Malaya. The cause: a landlubber bullfrog invaded the harem of his water

king rival. The fight lasted thirty minutes. Casualties were heavy on both sides and when it was all over the little pond was littered with dead and wounded warriors.

The fight began when the bullfrog "made a pass" at the water king's favourite. She evaded him and swam to her lord and master for protection. As the two rivals sprang for each other's throats hundreds of their followers pitched in. At times the war croaks could be heard a mile from the pond.

As the fighting gathered in tempo the land-lubber frogs brought up reinforcements and forced the water king and his men to flee, As the water frogs retreated the victorious land frogs swam away with shrilly protesting harem beauties.

Frog war Note.—Frog wars preceded world war two, the Japanese invasion of Malaya, the outbreak of the Korean war and the present fighting in Hungary.

Express News Service.

Big Game Photography

Nothing so infuriates big game as the steady purring of a cinema camera or the sudden click of a big still camera. If I wished to induce an elephant to charge, I can think of no better way to do it than suddenly to click a heavy camera at him. That fatal, mechanical note has brought on many a charge. Before I take a client up to a herd of elephants, I always explain that when I give the signal, he must instantly stop picture taking and move back. The man invariably promises in all good faith. There follows a long stalk in which matters always seem to work against the camera. The elephants are in thick cover, the wind does not coincide with the sun, or the animals keep their rumps to the lens. Then a big bull becomes alarmed. Suddenly he breaks out from full cover, into the sunlight. He stands motionless. His great ears are outstretched. His trunk is up, testing the breeze, I instantly motion my client to retreat for I know the bull will be on us at the first sound of the camera shutter. But the photographer sees a chance for the picture of a lifetime. He clicks the camera. At once, the bull charges and there is another elephant "shot in self-defence."

Yet, I must admit that animals are sometimes remarkably tolerant of picture taking. I have watched in amazement while a group of photographers ducked in and out of brush within thirty yards or so of a herd of elephants, taking light readings, changing lenses, and assuming the most incredible poses to get unusual "angle shots." The elephants must have known that they were there and still the big brutes put up with their antics very patiently. After considering the matter carefully, I am convinced that the elephants thought that the photographers were a herd of baboons. Elephants are short-sighted, so this is a natural mistake for them to make under the circumstances.

J. A. Hunter.

Arrow Poison

The Wakamba poison is far more deadly than the much-touted poison used by the pygmies. The old leader told me that it is made from the sap of the mrichu tree. This tree is scientifically known as *Acocanthera friesiorum*. "We can always locate the tree because it is surrounded by dead bees and humming birds that have tried to drink from the mrichu's beautiful purple flowers," the old man told me. Poison makers boil the bark for several hours until there is nothing left but a black, tar-like substance. This is then mixed with other ingredients such as snake venom, poisonous spiders and the roots of certain deadly weeds. Occasionally a live shrew is thrown into the mess.

J. A. Hunter.

The Scorpion and the Frog

A fable for our times worthy of James Thurber comes to us over the international grapevine from the Middle East. A bullfrog

about to swim across the Nile was accosted by a scorpion.

"I have to get to the other side," he told the bullfrog "and I can't swim. Will you take me on your back?"

"No," said the bullfrog firmly. "Why should I? You're quite likely to bite me on the way, and then where would I be?"

"If it comes to that," said the scorpion, "where would I be? If I bite you, we'll both sink so you're quite safe."

Convinced by the logic of this argument the bullfrog accepted the scorpion as a passenger, and they made the trip in good order until they reached the middle of the river, where the scorpion bit the bullfrog hard in the neck.

As they both sank into the waters of the Nile, the bullfrog, at his last gasp, said: "Why did you do that?"

"It only goes to show," replied the scorpion, "that there's no logic in the Middle East."

WALRUS in *Daily News*.

The Egg and the Dove

An amorous glance from a male dove may make a female dove lay eggs, according to a Rutgers University scientist.

Dr. Daniel S. Lehrman, Associated Professor of Psychology, strongly suspects that once a female dove has laid an egg after physical contact with a male, further egg laying can take place with just a loving look from the male.

He explains that ring doves which he is studying, ordinarily do not produce eggs unless they are stimulated by the male of the species.

The Rutgers researcher is trying to find out what stimuli cause the glandular reactions which result in egg laying. He believes that just courting by male birds can bring about egg laying in a female which has had "children" once before.

A male bird courts his lady by billing and cooing. He bows his head and puffs himself out with a series of coos. At times his bill may come into contact with the bill of the female.

Most of the time, the lady flips her wings and shyly retreats into a corner. When the male makes a "conquest" (or the female "traps" him), the lady dove selects a place for a nest. After they build it, egg laying begins.

Dr. Lehrman is placing male and female doves, who have been parents, in isolation for three to five weeks. Then he puts them in adjoining cages, separated by a pane of glass.

There he observes the male courting the female on the other side of the glass. The question is, will the female follow her normal cycle and lay eggs? Dr. Lehrman says she will.

—NAFEN.

A Pet Shama

I have an Indian shama cock and would like to know how to look after it. Would it breed if I found a hen; Should it be kept in a cage?
—F. G. M. (Walton-on-Thames).

There are two objections to keeping the Indian cock shama in a cage. Its body, 5 in. long, carries a tail of 6 in., which will become frayed by the bird's active movements about the cage. Secondly, shamas quickly soil a cage and its fittings and thereby add to the disarrangement of this lovely plumage. Your cock should have a roomy flight or covered outdoor aviary and should not be mixed with other than its own kind. The aviary should have simple fittings and a concrete floor capable of daily thorough cleaning. Provided they are healthy, a pair of shamas should breed in an aviary from about April to June. The hen lays four or five eggs to a clutch in a simple nest on a tray or bundle of brushwood suspended from the roof. For diet we recommend, a mash freshly made of breadcrumbs, finely minced raw meat and grated cheese. Offer pieces of fresh fruit in a separate container.

Correspondence

Angler Hooks Python

Sir,

As astonishing a catch as Mr. Szechowycz's cobra was made at Matara some years ago.

It was a 4 ft. 3 in. python and caught in saline water nor a quarter mile from the mouth of the Nilwala Ganga.

A stout hand-line had been left overnight with a "madakariya" (*Ophiocephalus punctatus*) as live bait. Early next morning I was most surprised to find the line thoroughly tangled in the mangrove roots with a python at the end. It had climbed into the tree and dived under water again and was found wedged in the roots well above the high tide line.

As the hook was swallowed it was with great regret that my brothers killed the snake. This is no fishing story, for other fishing companions, including Peter Jayawardena, now a Game Ranger at Okanda, positively identified and measured the python.

LANGSTON PEREIRA.

University,
Colombo.

Wild Life Society Christmas Cards

Sir,

The Society is to be congratulated on, once again, producing a Christmas Card for 1956, but several Members have thought of a suggestion that a possible source of income to the Society would be to have a competition for the design for the Christmas Card for 1957.

The general idea being as follows :—

1. Members to submit a drawing or design of a subject pertaining to Wild Life, *i.e.*, animals, birds, tank scenes, etc.

2. Entrance fee to be Rs. 10 per picture submitted. Any number of pictures may be sent in, providing there is an entrance fee for each one.

3. The judges for the competition should be convened by the Editor of *Loris*. But no competitor should be allowed to be one of the judges.

4. Fifty per cent. of the entrance fees to be donated to the competitor whose picture is selected for the Christmas Card for 1957, and 50 per cent. of the fees be credited to the Society funds.

There are several members of the Society who are very fair artists indeed, and the response to the competition should be good.

X. Y. Z.

January, 1957.

Ed.—The Hony. Secretary informs me that the copy for the picture must be available by about April so that cards are ready by October. He suggests, therefore, that the *competition be open to members for the 1958 Christmas Card.* Will intending competitors, therefore, please submit their designs to the Hony. Secretary as soon as they are ready ?

REVIEWS

Butterflies of the Indian Region by **M. A. Wynter-Blyth.** *Bombay Natural History Society*, Rs. 28/-.

I BELIEVE I am right in saying, that since—*The Identification of Indian Butterflies* by *Brigadier W. H. Evans*—no book on Indian butterflies has been published; so this book will be very welcome to both the beginner and expert alike, and the author is to be congratulated on producing such an admirable and instructive book.

No mention is made of the number of butterflies described in the book, but a rough count gave some 860 in all, including 216—found in Ceylon—out of a total of 243 given in *Woodhouse's* book on the *Ceylon Butterflies.*

There is a very full and instructive Introduc-

tion, giving—Structure, Variation, Distribution, and a Key to Field Identification of the Commonest Butterflies—which should be of considerable help to the beginner, as the key is a simple one and easily understood. Finally comes a Key to the Families of Butterflies; this might, at first sight, be a bit confusing, as the arrangement of the families is not the same as that given in the text, but the Author has explained the reason on page 9 of the Introduction.

Next comes Collecting and Preserving, early stages—which includes black-and-white plates, Nos. 2 and 3, of some larvae and pupae. After that Protection from Enemies, with two-coloured plates—No. 4 showing examples of Batesian Mimicry, and No. 5 Mimicry amongst the Danaids. Butterfly migration comes last and then the description of each family and butterfly, where, under the description of the family, the general form of egg, caterpillar and chrysalis is given. Under the description of each butterfly, range, status, description, habits, are given. Finally, at the end of the book, an Appendix—giving a List of Larval Foodstuffs followed by a glossary of terms, and finally an Index.

There are 27 coloured and 45 black-and-white plates. The former are, on the whole, very good, but plates Nos. 37 and 42 are poor. For instance, the Blue Admiral, shown on plate 37, is coloured green, but the description in the text is perfectly correct—a bit confusing for the beginner who is on the look-out for a *blue* Admiral and is confronted with a *green* one! The figure of the Dark Cerulean on plate 42 bears little or no resemblance, in colour, to that lovely little butterfly. Both these butterflies are found in Ceylon. The black-and-white plates appear to be reproductions from photographs and are very good and clear. I think it is a pity that the coloured plates are so few and that the butterflies have not been shown life-sized, but as a scale in centimetres is given under each plate, and the measurements in the text are given in millimetres there should be no difficulty in visualising the size of each butterfly. I realise that more plates would have raised the cost of the book considerably, and the production of life-sized figures increased the bulk, which, after all, only measures 10 in. by 7 in. by $1\frac{1}{2}$ in. a very handy size; and the price is only Rs. 28 or Rs. 22-8 annas to members of the Bombay Natural History Society, which is most reasonable. Altogether an excellent book in every way, and one to be highly recommended.

T. E. T.

Far-off Things by **R. L. Spittel,** 2nd Edition, 287 pages text and illustrations—*K. V. G. de Silva & Sons, Bambalapitiya, and Colombo Booksellers.* Rs. 12/-.

THOSE familiar with the previous edition of Dr. Spittel's highly readable and stimulating "Far-off Things" will be thrilled to see the new edition. It has not only taken on an entirely new look but is extremely well-turned out and has three new chapters.

Dr. Spittel's understanding of the important factors that keep natural communities together and his flair for descriptive writing stimulate interest in the call of the wild which to so many is just an alien world.

In his extremely busy life Dr. Spittel has done many things and done them well. His interests have been most varied, ranging in the scientific field from surgery to anthropology. Author, poet and conservationist, this son of Ceylon has done much to further in us a knowledge and love of nature.

Dr. Spittel's studies of the Veddas are valuable contributions to the lives of a primitive people now practically extinct. I had the pleasure of accompanying him on an excursion to the Pollebedde Veddas. The enthusiastic reception they gave him and the pride and delight with which the Vedda chief took us round his little domain was truly fantastic. The contrast was great when I went again with an

Italian Countess some months later when the reception was cold and distant and the atmosphere very different to what it had been on the previous occasion.

The book is of absorbing interest. I first read it 34 years ago and enjoyed it immensely and it does seem strange that I should like it so much more after all these years. It is a book that appeals to both old and young. My little boy David was coiled up in a chair with it for days oblivious of all that was taking place around him.

The author paints an accurate and varied picture of many different aspects of the Ceylon jungles. It is all here: history, ethnology, folklore and natural history: Parakrama, Sigiriya, Veddas, elephants, cobras, the devil bird, Nittaewo (negrito pygmies), gypsies, beauty spots and many other things. It brings back nostalgic memories and makes me long to go back to the jungles.

Those who have not read the book before will find it enthralling; those who read it again will appreciate it more than they did before; and all will agree that examined chapter by chapter the jungle themes so vividly described have never been surpassed.

AUBREY WEINMAN.

The Amphibia of Ceylon by **P. Kirtisinghi,** Lecturer in Zoology in the University of Ceylon. Printed by *William Clowes & Sons, Ltd., London.* Price Rs. 14/-.

THIS book brings the systematics of the Ceylonese Amphibia up to date. The author reviews the growth of our knowledge of these animals through just over a hundred years since the first list of them was published in Kelaart's "*Prodromus Faunae Zeylanicae*" in 1852. He recognizes thirty-three different forms of frogs and toads and two forms of the limbless, burrowing amphibians. The physical characters, the colouration and the known distribution of each of these forms are given. The book is extremely well illustrated with one colour plate and seventy-four black-and-white drawings. Keys are provided for the identification of the adults and also of the tadpoles.

Amateur naturalists will not find this book beyond their comprehension and those interested in the fauna of Ceylon will welcome it as it fills a gap that has long existed in our knowledge of the vertebrate animals of Ceylon.

A. M. MORGAN DAVIES.

Animals of the Ruhuna National Park by **C. E. Norris,** F.Z.S. *Associated Newspapers of Ceylon, Ltd.* Library edition, Rs. 3.50; Popular edition, Rs. 2.25. Postage 35 cts. extra.

THE author describes in clear and precise language twenty kinds of animals likely to be seen in the Ruhuna National Park, giving their scientific and popular names, the habits of each kind, and the parts of the Park in which each is found.

A full page drawing, also by the author, printed on a coloured background faces each description.

The book also contains: (1) A list of Mammals so far recorded from the Park and the surrounding country; (2) an index to English, Sinhalese, and Tamil names separately. (3) Hints to visitors to the Park; (4) a scenic map of the Yala Sanctuary, forming the basis of the cover design. It is therefore a very useful guide to the Park.

When a second edition is called for, as no doubt it will be, we would suggest that it be made in a handier pocket size, and that the various animals depicted be drawn to a more proportionate scale.

The author, Mr. C. E. Norris, the Namunukula planter, is a keen field naturalist and wild life protectionist. He has been, for the last eight years, Honorary Secretary of the Ceylon Wild Life Protection Society.

Diversions of a Diplomat in Ceylon by **Philip K. Crowe,** *Macmillan & Co., London.* Rs. 30/-.

THAT the author's three and a half years as American Ambassador in Ceylon have been well spent is fully revealed in the pages of this book. Apart from his duties in the Embassy he has found time to savour to the full the delights of this Island, as well as to cultivate the friendship of its inhabitants, and gather first-hand information from them. As he remarks in the preface, " it was one of my most pleasant duties to meet and get to know all types of the Ceylonese peoples."

There is no place of interest in the Island that he has not visited, keenly observed, and described.

All those who have met Mr. Crowe have been struck by his genial affability so spontaneous and natural to him ; there was nothing forced or formal about it, whatever the occasion, or to whomever it applied, whether to the highest in towns, or the humblest in the backwoods.

He acquired much information from knowledgeable men. To every one of them he has made full acknowledgment in his pages in the context of time and place. He travelled with many of them on his hunting and fishing excursions, and contacted others in such old-world towns as Galle and Jaffna. Incidentally his most thrilling experience seems to have been, not in the jungles, but in the park at Jaffna where, at night, he fell head foremost into a twenty-four-foot well containing four feet of water, and shared his enforced vigil with what afterwards proved to be a cobra !

The knowledge he gained by personal contacts was expanded by wide reading. There does not seem to have been a book on Ceylon that Mr. Crowe has not read, as his enlightening references to them show. He has told me, for instance, that he has read the various volumes of *Loris* from the first page to the last. He has also been a valued contributor to this journal, as the present number testifies.

The result of all this research, both verbal and written, is what gives this book its authenticity. The reader, both at home and abroad, can rest assured that the information imparted here, whether historical or present-day happenings, is impartially assessed.

The chapters I liked best were the first two, and the 7th entitled " Desperate Days," with the highlights of history touched in.

Being the great sportsman he is, Mr. Crowe devotes the greater portion of his book to hunting and fishing, and this will make a strong appeal to all sportsmen who will find here much information about rod and line, guns and ballistics.

Each jungle trip he has made is separately described ; there is therefore a tendency to some repetition. The emphasis is more on sport and the collection of trophies than photography ; but it is fully revealed that an innate love of the wilds was the lure. The easy flow of narrative occasionally slips into such sportsman's parlance as " big cat " and " huge pachyderm " when a leopard or elephant is meant. And why is it that writers on hunting cannot escape the temptation on dwelling unduly on what they ate and drank ?

Both the resident and the visitor to the Island will learn much from the fascinating pages of this book. It is not one to be read through at a sitting, but to be read and re-read and to be browsed upon as the mood seizes one. It should stimulate our young men to explore the nooks and corners of the Island that is theirs ; it should teach them to observe and enjoy.

Here we have a valuable contribution to the literature on Ceylon from an American diplomat, the first of its kind. It is also a worthy memorial to a true ambassador of his country, who made it his duty to know and understand the Island and its people. The book is the man.

R. L. S.

Printed at The Times of Ceylon, Ltd. for the Wild Life Protection Society of Ceylon.