

LORIS

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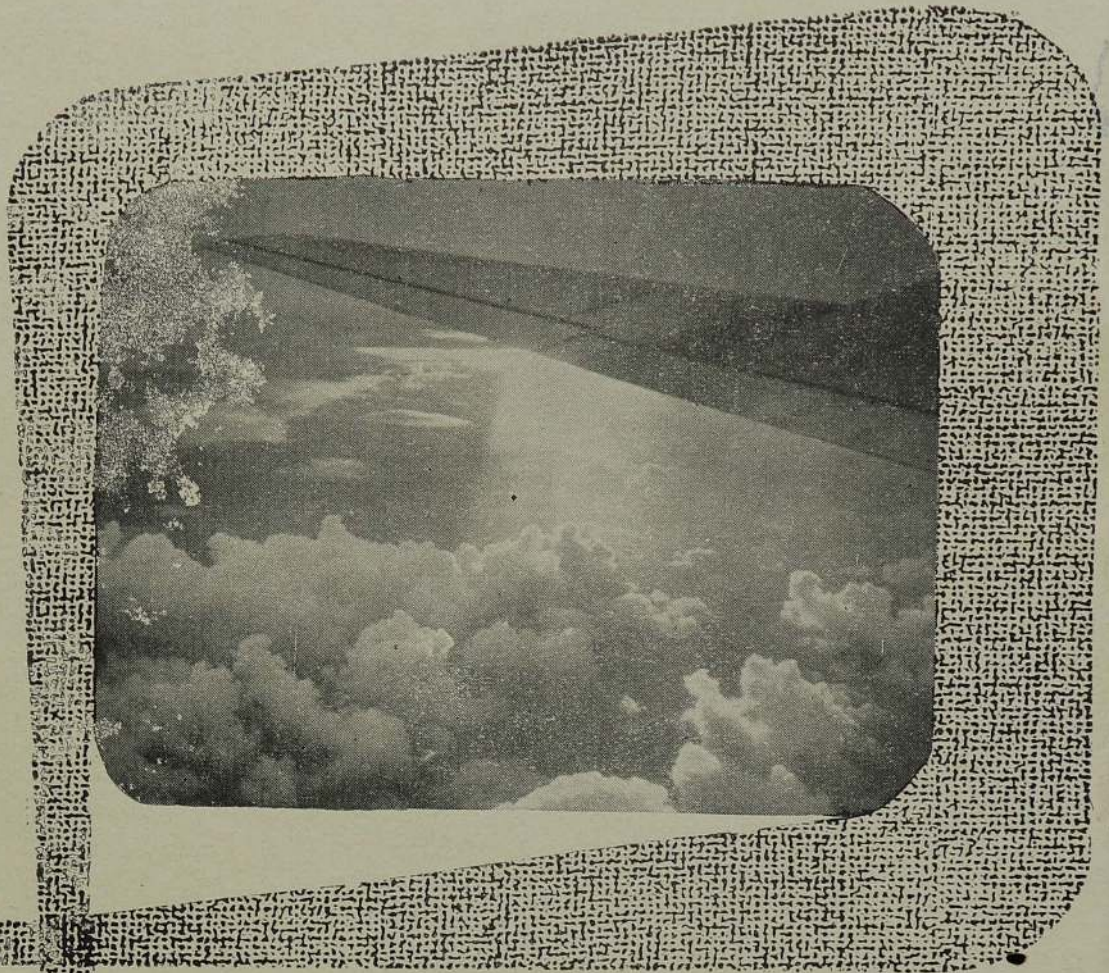
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Wild Life Protection Society of Ceylon

FOUNDED 1894

The objects for which the Society was formed were—

“ 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.”

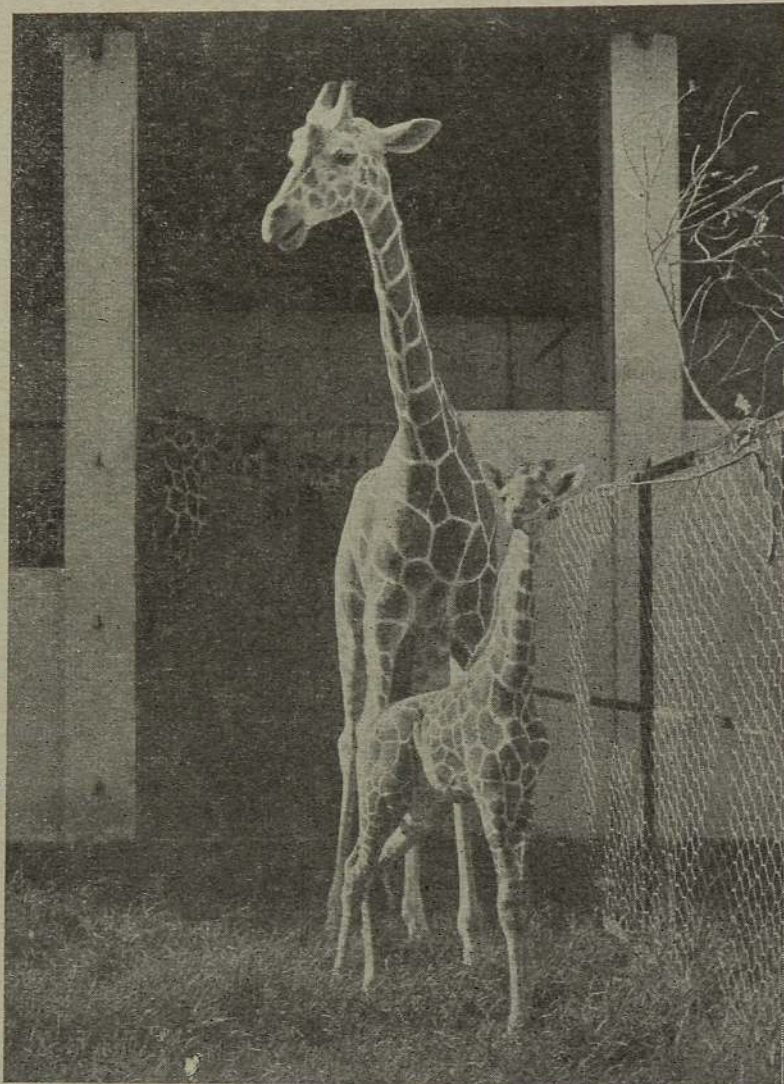
At the Annual General Meeting held on 30th November, 1945, the Rules were revised, and the objects of the Society now are—

- (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. 15 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
PUBLISHED BY THE WILD LIFE PROTECTION SOCIETY OF CEYLON

Edited by
R. L. SPITTEL

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An Introduction to the Amphibia of Ceylon

By A. M. MORGAN-DAVIES, F.Z.S.

DURING the past decade the *Classes* of the vertebrate animals, e.g. the Pisces, Reptilia, Aves and Mammalia of Ceylon have received considerable attention from Zoologists but the *Class Amphibia* has received little notice. The study of the life histories and ecology of the Ceylonese amphibians, especially those peculiar to the Island, provides much scope for the field naturalist.

Like many other tropical parts of the world Ceylon has been gifted with a very large selection of Amphibia, some of which have most interesting and unusual life histories. This article is designed to give a very brief outline of the numerous amphibians that inhabit this small Island.

The *Class Amphibia* is divided into three *Orders*: the SALIENTIA or frogs and toads, which are represented in Ceylon by thirty-five species and one hybrid form; the URODELA or salamanders, newts, etc., which are animals of the temperate regions of the Northern Hemisphere and are therefore not represented in Ceylon; and the APODA or coecilians which are limbless, burrowing amphibians and are represented by two species.

Till quite recently three species of toads only were recorded from Ceylon but it is now known that there are five, of which one, *Bufo kelaartii*,



Photo by A. M. Morgan-Davies

Fig. 1.—*Bufo melanostictus*

is peculiar to the Island. The commonest of our five toads is *Bufo melanostictus* which is distributed throughout Ceylon, certain parts of India and many other Eastern countries. In Ceylon it is found at all altitudes from sea-level to the central hill zone regardless of the climatic conditions. The life history of *Bufo melanostictus* usually commences with the onset of the monsoon rains when the females often under-

take long and hazardous journeys to spawn; the bodies of these toads found crushed on the roads by passing vehicles during the monsoon months is a melancholy reminder of these spawning journeys. The small black eggs are enclosed in long gelatinous strings in the usual toad fashion and are deposited in small streams or ponds, entwined about aquatic vegetation or stones. The minute tadpoles are gregarious, about three-quarters of an inch long, and dark black in colour. When metamorphosis is complete they are the perfect miniature replicas of the adults, and can, in certain areas like the Nuwara Eliya park, be seen in their hundreds hopping about in search of food and shelter.

The remaining four species of toads are not nearly so common as *Bufo melanostictus*. *Bufo kelaartii*, which is the smallest Ceylonese toad, about one and a half inches long, has only been found at a very few places and the tadpole is yet to be accounted for. *Bufo stomatictus* though fairly common in northern India has only been found at Mutwal and is considered as probably being a recent immigrant. *Bufo microtympalum* has only been taken at Battaramulla, Marichchukkaddi and recently, I have collected it from the Kumbukan Forest Reserve near Siyambalanduwa. *Bufo fergusonii*, on the other hand, has been taken from half a dozen places and would seem to be confined to the Low-country, Dry Zone.

The frogs of Ceylon are divided into three Families; the *Ranidae* or true water-frogs, the *Rhacophoridae* or tree-frogs and the *Microhylidae* or spade-feet and narrow-mouthed frogs.

The *Ranidae* is the largest Family of frogs in Ceylon and consists of eleven species, of which six are peculiar to the Island. The most commonly seen is *Rana c. cyanophlyctis* or the water skipper, whose peculiar and unmistakable habit of skipping along the surface has given it its popular name; it is to be found throughout the Island wherever there is water. The most remarkable characteristic of this species is its love of sun and heat. Unlike most other frogs it will lie on the surface of the water under a

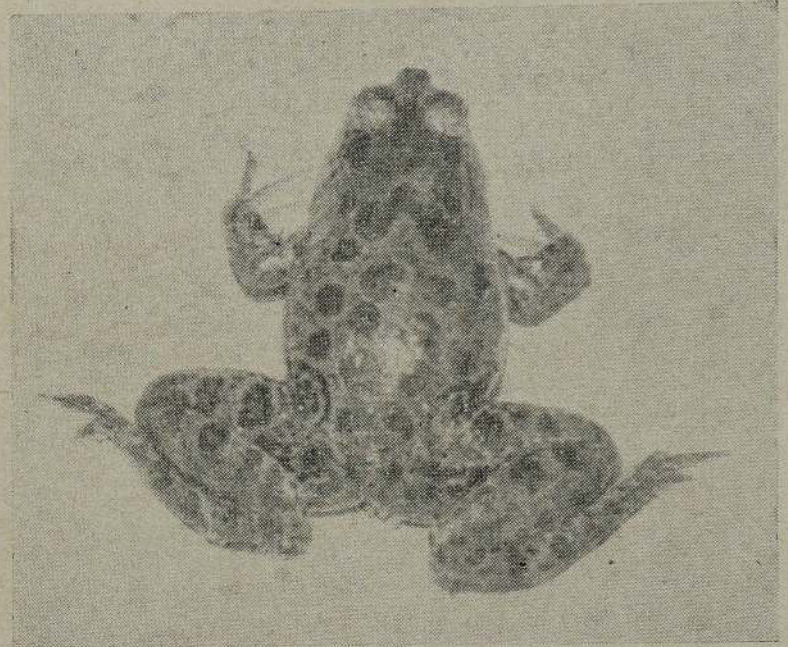


Photo by A. M. Morgan-Davies

Fig. 2.—*Rana c. cyanophlyctis*

burning sun and can survive water temperatures far in excess of what would be fatal to the majority of other frogs; a water temperature of 110°F does not seem to be at all excessive. It is this little frog that one sees so often skipping from the edges of jungle water-holes when animals come to drink; or it can be heard calling from flooded paddy fields with a loud distinctive note that has been likened to the rattle of castanets.

A very common and large frog found in the Low-country is the bull frog, *Rana tigrina crassa*, whose claim to fame is its large size, cannibalistic tendency and loud booming voice. Female specimens of this species have been known to grow to five inches or more. It is one of the largest species of frogs recorded, though it cannot compete in size with the Indian and North American bull frogs which grow to nearly eight inches or with the giant Cameroon frog, *Rana goliath*, which attains to ten inches or more. The cannibalistic trait in the bull frogs is well known. I have on one occasion lost three half grown juvenile specimens of this species in one night to a rather voracious adult specimen kept in the same cage. The

loud sonorous bass note emitted by these frogs is clearly audible on a still night at very considerable distances and I have heard tell of a country greenhorn who, each time he had to make a nocturnal visit to the privy situated outside his house, used to be so upset by what he thought was the voice of some fierce forest beast, that he invariably went armed with his rifle at the ready!

The burrowing frog, *Rana breviceps*, is another Low-country species, somewhat toad-like in form, two inches long and reputed to be more terrestrial than aquatic and able to dig itself into the ground to a depth of over ten inches. Owing to its nocturnal and sedentary habits it is seldom seen even during the monsoon months when most frogs and toads are about.

Rana corrugata, a chocolate brown frog nearly two inches long, is a species peculiar to Ceylon and is unmistakable owing to the numerous transverse corrugations on its back and its short podgy hind legs. It is common in the wet zone areas around Kandy and Ratnapura and is found very often in perennial marsh lands where leeches seem to abound! The ability of this little frog to remain half-buried in soft mud and not be easily noticed is due to the adaptive texture of its brown dorsal surface which is a perfect example of protective cryptic colouration. The six-toed frog, *Rana hexadactyla*, is another species that illustrates the use in frogs of adaptive colouration. This large four-inch frog is normally found in low-country water-holes and around the shallow edges of lakes that are usually stagnant, dark green and choked with algae and rotting vegetation. The predominant colour of the dorsal surface and legs of the frog is a dark green which harmonises to such an extent with its environment that it is almost impossible to spot the animal till it moves.

The two frogs most commonly met with in the up-country hill zones are *Rana l. limnocharis* and *Rana l. greenii* which are both very similar in colour, form and size and can be found in almost any damp grassy area. Both are about two inches long and are dorsally olive

green, blotched with brown. The readily distinguishing characteristic of *Rana l. greenii* are the longitudinal ridges on the back that are absent in *Rana l. limnocharis*.

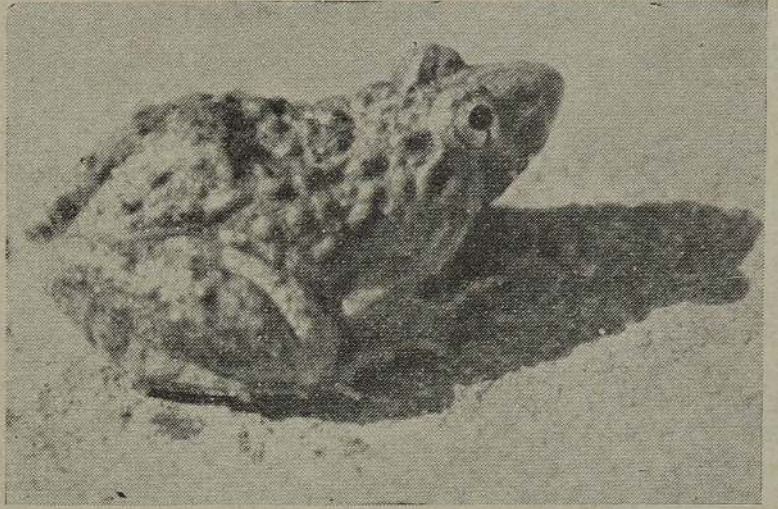


Photo by A. M. Morgan-Davies

Fig. 3.—Hybrid, *R. l. limnocharis* x *R. l. greenii*

Before leaving the Family *Ranidae*, mention must be made of the frog depicted on Fig. 3. This is suspected to be a hybrid of *Rana l. limnocharis* x *Rana l. greenii* and is only found in the hill zones where the ranges of these two sub-species coincide. This theory of hybridisation has been posed by Mr. Kirtisinghe of the University of Ceylon in his recent book "The Amphibia of Ceylon," and remains an intriguing, unsolved problem.

We now pass on to the Family of tree-frogs or *Rhacophoridae* which consists of some of the most interesting species of all our frogs and although the life histories of many of them are still a mystery, there are two species that are peculiar to the Island, whose life histories are now comparatively well known.

The first of these is the hour-glass tree-frog, *Rhacophorus c. cruciger*, which is the largest of our tree-frogs, the females growing to three inches or slightly more. Due to their large size and the hour-glass marking on the dorsum this species cannot be mistaken for any other with perhaps, the exception of the spur-foot tree-frog,

Rhacophorus cruciger eques, which has a very similar marking but also has a small cutaneous spur on the heel, not found in the hour-glass tree-frog. The interesting feature of *Rhacophorus c. cruciger* is its method of spawning and

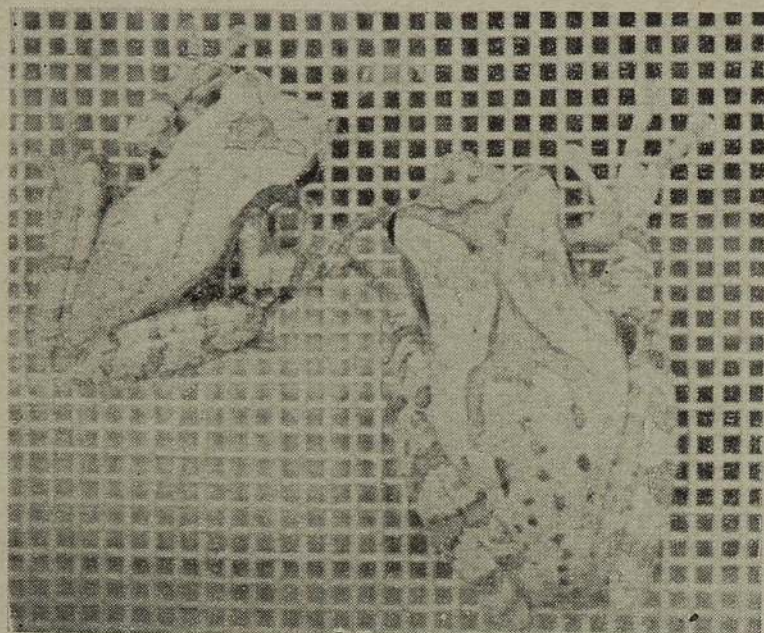


Photo by A. M. Morgan-Davies

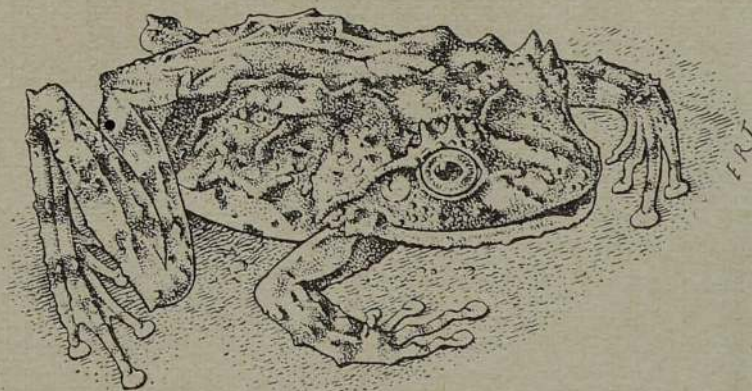
Fig. 4.—Tree-frog, *Rhacophorus c. cruciger*

early larval stages, for, unlike the members of the Family of *Bufonidae* and *Ranidae* which deposit their spawn directly in water, it constructs a foam nest suspended above water level in which the small cream-white eggs are deposited. The size of the foam nest measures about three inches in diameter and contains about two hundred and fifty eggs. The nest is made by the female from a sticky colourless liquid flowing from her oviducts at the same time as the eggs are laid. This is beaten into a bubbly mass of foam by her back legs and becomes adherent to whatever she may be resting upon at the time. Normally the nest is placed overhanging water, either amongst the terminal foliage of trees or shrubs, or upon the vertical sides of rocks. A few hours after construction the white foam-mass becomes a pale blue-green or fawn and the outside soon becomes hard and brittle. The centre remains soft and frothy and after a few days the eggs develop into

minute tadpoles which remain within this cocoon-like nest till, due to their increasing weight, they fall to the water below. From then on they live as free swimming tadpoles till they metamorphose into frogs.

The second species with an unusual and interesting larval life is the Ceylonese tree-frog, *Rhacophorus microtympanum*. This little frog is abundant in the central hills and south-west corner of the Island but, as yet, has not been recorded from the dry-zone areas of the north, east and south-east corners of the Island. When it is time for the female to deposit her eggs she retires to some damp secluded corner and there deposits about twenty large eggs in loose, moist soil. The very fact that a frog should deposit its eggs upon land is curious enough but more curious is the fact that the developing tadpoles do not emerge from the egg and lead a normal, aquatic life—they emerge as fully formed little frogs; the tadpole stages prior to metamorphosis have taken place within the egg. This form of development is made possible by the very large yolk-content of the egg which enables the developing tadpole to obtain sufficient nourishment without recourse to an aquatic life and the obtaining of food from outside.

Apart from these two species with their unusual larval stages many of the other species in this Family are equally interesting if only because of the little that is known about them. One of the most interesting of these is the



Reproduced by courtesy of P. Kirtisinghe
Fig. 5.—Tree-frog, *Philautus schmardanus*

minute three-quarter inch tree-frog, *Philautus schmardanus*, which, besides being our smallest frog, is the most weird-looking and possibly one of our rarest species, for no more than half a dozen specimens have so far been taken. I have, however, recently discovered a quarter-acre block in an up-country forest where this species seems to be quite plentiful and the only reason one can advance for its apparent rarity is its very localised distribution.

The fourth and last Family of the Order SALIENTIA is the *Microhylidae*, of which there are seven species and one subspecies, none (with the exception of *Uperodon systoma* which is about two and a half inches long) larger than about one and three-quarter inches. They are some of the less seldom seen species owing to their small size and characteristic habit of burrowing beneath rotting vegetation or into the ground. This burrowing habit in certain frogs and toads is well known in countries like North America, Australia and India, and the

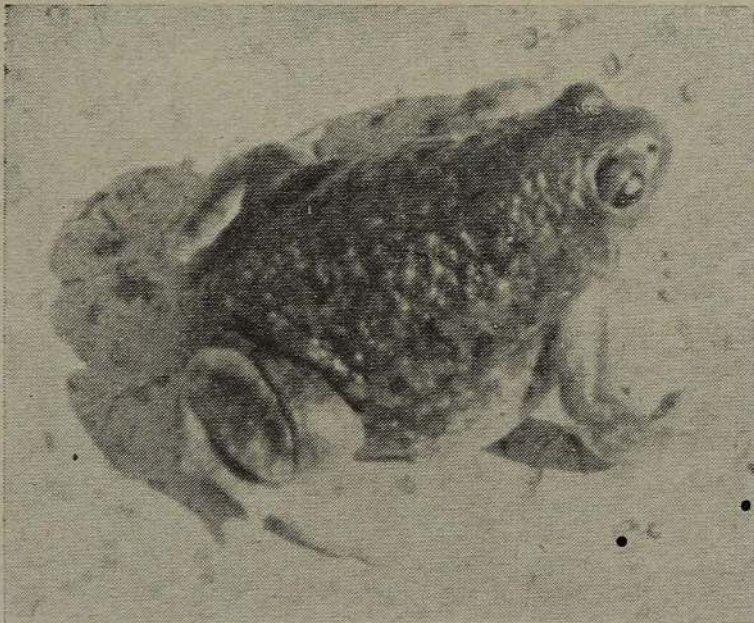


Photo by A. M. Morgan-Davies

Fig. 6.—*Uperodon systoma*

Ceylonese species *Uperodon systoma* is one of the best exponents of the art. These burrowers do not dig themselves into the ground head first like most burrowing mammals and reptiles but backwards with the help of small spade-like projections of hard flesh, known as metatarsal tubercles, at the heel of each hind foot, until they are completely covered and so remain during the heat of the day, emerging at night in search of food or a mate during the breeding season.

Apart from the burrowing habit of the majority of Ceylonese *Microhylidae* the main distinguishing anatomical features of the Family are the triangular or truncate discs on the digits, the metatarsal tubercles on the hind feet and the narrow head and broad body. Three of the eight species of *Microhylidae* found in Ceylon are peculiar to the Island and the larval stages of four of the eight have not, as yet, been described. They remain as one of the most intriguing Families of our Ceylonese frogs and toads and considerable research regarding their habits, ecology, distribution and life histories is still required.

To complete this article on the Ceylonese Amphibia mention must be made of the two coecilians of the Order APODA, which is the third and last Order of the living Amphibians.

The coecilians in no way resemble frogs or toads; they are limbless worm-like burrowing creatures with minute eyes, and are fourteen to eighteen inches long. The two species found in Ceylon are purple in colour, the larger of the two species having a broad yellow lateral band running from head to tail. They lay about twenty large 8mm. eggs in the soil which are clustered together like a bunch of grapes and which the female conscientiously guards till they hatch into small one-and-half inch aquatic larvae. As the life of the coecilians is mainly subterranean, they usually only make a chance appearance above ground.

Pearl Fishery

HARVEST TIME FOR CEYLON PEARL OYSTERS

A Radio Talk by A. S. MENDIS

(Research Officer, Department of Fisheries).

NATURAL pearls have always been held in the highest estimation and have fetched enormous prices. Perhaps the most remarkable one, of which we have any authentic account was bought by Tavernier at Catifa in Arabia, a fishery famous in the days of Pliny, for the fabulous sum of one million, four hundred and thirty thousand rupees! This pearl had a pear shape and its length was over two inches.

The Ceylon pearl banks are reputed to produce some of the finest natural pearls in the world and the demand for them is to be found in the ancient writings of the Greeks, Romans, Venetians and more recently the Dutch, Portuguese and British. The *Mahavansa* records that in 540 B.C., King Vijaya sent a gift which included pearls to King Pandu, his father-in-law, and in 306 B.C., King Devanampiyatissa's Ambassador took with him pearls of eight different varieties to King Asoka of India. In 161 B.C., the King's hall in the Brazen Palace was studded with pearls. The mortar in some of the ruins at Polonnaruwa shows remains of pearl oyster shells—no doubt obtained at an ancient fishery.

Most of the Ceylon pearl oyster banks or "paars" (meaning rock or any form of hard bottom) are in depths of from five to ten fathoms. Oysters are also found in shallower depths but in very limited areas which are liable to be quickly silted up. The banks stretch for about fifty miles in length and have a maximum width of twenty miles opposite Arripu. The southern banks extend as far as Chilaw. Ceylon pearl oyster fisheries have been characterised by their uncertainty. Only sixty-one fisheries have taken place during the last two hundred and eighty years, and this year's

fishery is being held after a long lapse of thirty-two years. Twenty million rupees were derived from the thirty-nine fisheries held since 1800. From 1905 the pearl banks were leased to the Ceylon Company of Pearl Fishers (a British Company) for the annual rent of three hundred and ten thousand rupees. After the fishery of 1907 the supply of oysters failed and the company went bankrupt, compelling the termination of the lease in 1912.

The irregular nature of the fisheries and the probable cause of the blank years when no fisheries could be held has been attributed by marine biologists to the following reasons:— (1) Sand which silts up the oyster beds, (2) predaceous fish and other enemies which attack the oysters, (3) overcrowding of the beds by the oysters themselves, thereby retarding their growth, (4) over fishing, and (5) disease. The banks or "paars" are widely separated from each other. They are accordingly subject to very different physical and biological conditions so that the sudden disappearance or the continued absence of pearl oysters in different localities and at different times may be due to very different causes.

When no fisheries could be held after 1907, immediately after the foreign company gave up the lease, local opinion of the time made the suggestion that it was due to the "wrath of the gods" for allowing a foreign commercial company to exploit the pearl banks. A quotation from the records of the Legislative Council for 1925 will illustrate another view: "The company paid no attention whatever to the pearl banks. They tried to get as much as possible out of them and scraped the spat (young oyster) and subsequently sold out." This criticism, however, seems to be unfair,

as records go to prove that in subsequent years compact beds of mature oysters were found, unfortunately too late in the season to be fished.

The formation of pearls and their presence in the oyster had been a mystery till the early nineteenth century. Ancient writers had given various views as to their mode of formation. One such view was that during heavy rain the oysters ascended to the surface of the ocean, opened their shells, took in drops of fresh water and that these drops consolidated as pearls. Pliny and other classical writers held the view that the oysters ascended to the surface in the night, drops of dew entered the gaping oyster at dawn and these drops were transformed into pearls which reflected the first rays of the sun. Others have advocated the view that pearls are the result of lightning.

Today we know for certain that pearls are formed around small particles which irritate the oyster causing it to secrete the pearly material encasing the particles. However, the formation of pearls does not start till the oyster is about three years old and a suitable nucleus is present inside it. Particles which act as nuclei for pearl formation are numerous. They may be small sand grains, small pieces of shell, the oyster's own ova or excreta and dead larvae of fish tapeworms or other parasites.

To Dr. Kelaart in 1857 belongs the honour of having first connected the formation of pearls in the Ceylon oyster with the presence of vermean parasites. The commonest type of nucleus for pearl formation in the Ceylon pearl oyster is the dead larva of a certain species of tapeworm. The life history of this tapeworm could be divided into several stages. The adult tapeworm is found in sharks and skates. The eggs hatch out in the open sea and the embryos die unless they can enter the flesh of a pearl oyster where they remain encapsuled. When the infected oysters are eaten by a group of fishes termed the file fishes, the cysts change into larvae inside the fish. The file fishes in turn fall prey to sharks and skates where they are transformed

into tapeworms. If the oysters with the cysts are not eaten by the file fishes within a certain time, the cysts die and these dead cysts stimulate the oyster to secrete the pearly material around the cysts.

A short reference now to *cultured pearls*. Pearl culture is carried out extensively in Japan and China. In order to culture the pearls, oysters are picked up from the ocean bed and then introduced into wire cages. These cages are hung from rafts which float in the sea. When the oysters are mature they are removed from the cages, an artificial nucleus is introduced into the flesh of the oysters which are then placed back in the cage where they are kept for periods varying from one to three years. At the end of this period the oysters are taken out and examined for pearls. The commonly used nuclei are the perfectly round beads made from the shells of fresh water mussels. These nuclei are of various sizes resulting in pearls of the required dimensions. However, these cultured pearls have only a very thin layer of pearly material and could be distinguished from the natural ones without much difficulty and are relatively quite cheap.

Due to the irregular nature of the natural fisheries, inspections of the pearl banks are carried out almost every year during the months of October and November. These inspections, if they reveal that sufficient oysters are present in quantity and maturity, pave the way for a fishery which is held in the period between February and April, the season of calm weather. It is not possible to fish the entire area at a fishery because the oysters are not evenly distributed. The inspections show the areas where they are concentrated and where they could be fished. Inspections were carried out in 1955 and 1957, resulting in the fishery which is now in progress. The inspection of 1955 was done with the aid of divers and dredges working from departmental fishing trawlers. The 1957 survey, however, did not employ divers and depended solely on the dredge. The dredge was so successful at this inspection that in this year's fishery several

dredges are being used which are worked off two small fishing vessels donated to the Department of Fisheries by Canada under the Colombo Plan. These two boats are skippered by Canadians. The dredge consists of an iron frame, 6 feet by 1 foot to scrape the oysters from the beds, and a bag made of iron mesh permanently attached to the frame to receive the oysters that are dislodged. Two dredges can be operated from each vessel at the same time. The dredge is dragged along the sea bed for about fifteen minutes and hauled up by winches in the vessel. When fishing is good a dredge can bring up as many as 5,000 oysters. Opinion, however, seems to differ as to the advantages and disadvantages of the dredge over the divers. Among the advantages are: (1) The rapidity with which the dredges bring up the oysters; and (2) the relative cheapness of this mode of operation. The chief objection to the use of the dredge seems to be its inability to operate on uneven ground, the pearl banks being not consistently even, but having rocks or growths of coral and other organisms. This year's fishery which hopes to bring in some seven to nine million mature oysters, will be a small one and will take place on reasonably even ground. Depending on the success of this year's fishery it is proposed to organise a bigger fishery in 1959.

Fear has been raised in certain quarters that the use of the dredge will damage the beds by scraping the young oysters along with the mature ones. The surveys have indicated that there are an estimated two hundred million oysters in our banks. Of this quantity only seven to nine million oysters inhabiting an area of three square miles are to be fished this year.

When dredging it is impossible to cover the entire area without skipping some spots which will always have sufficient stock for re-colonization. It might be mentioned that Prof. Herdman in his valuable reports of 1907 in making his recommendations to the colonial government after an exhaustive examination of the banks did advocate the use of the dredge. The dredge alone, without divers is used in the

pearl oyster beds of Margarita Island in the Caribbean Sea since the middle of the last century. There has been no damage to the beds off this island. Canada and U.S.A. on their east coasts use the dredge for scallops without harmful effects. Now that the use of the dredge has been so successfully demonstrated in the fishery of 1958, it is most unlikely that divers will ever be employed again at a Ceylon pearl oyster fishery.

Only fifteen officials and the two Canadian boats are engaged in the fishery this year. This is quite a contrast to the earlier fisheries when thousands of divers and boats were employed. A small camp to accommodate the officials has been established at Karaduwa Island off Kalpitiya. The two vessels when not engaged in dredging are anchored off this island near the camp. The vessels with their crew and scientific staff set out daily, except on Sundays, at 6 a.m. for the banks which are reached in about an hour and a quarter. Dredging operations commence immediately on arrival at the oyster beds, which are marked by buoys that remain there till the end of the fishery. The mature oysters coming up in the dredge are placed in coir bags, sealed when full and placed in the ship's hold. The ships return to base by about 6 p.m. and the oysters are transported to Colombo where they are temporarily stored in the cold rooms of the Mutwal Fisheries Factory. These bags are sold at auction sales held daily at the factory and also at outstations.

In former years the news that a pearl fishery was to take place in the Gulf of Mannar spread throughout India and elsewhere with amazing rapidity. On the appointed day, 20,000 to 50,000 gathered in what was usually an uninhabited desert—a bare sandy coast with jungle extending for miles inland. These special fishery villages in the north western provinces sprung up at various spots particularly in the Mannar District, the last one being at Marichchukkadaï which served the fisheries of 1905 to 1907 and 1925. An

enormous amount of preparation was necessary prior to these fisheries. Strong and comfortable barracks were first constructed to shelter the soldiers who did the policing of the village. The "kottus" which stored the oysters and served as auction sheds were situated at least 250 yards from the nearest habitation. This was not only for security reasons but to reduce the stench from decomposing oysters to a minimum. A kachcheri, treasury vaults (to store the money obtained by the sale of oysters) jewellers' quarters, small hotels and eating houses and sheds for various trades were all provided. This village became a hive of activity for about two months in the year when the fisheries were held and was then deserted for the rest of the year. Today the village at Marichchukkadai has been overrun by jungle and the ruins serve only to bring back memories of previous fisheries.

At these old fishery villages records of disease breaking out in epidemic proportions were not uncommon. Small-pox and typhoid had broken out with a vengeance on several occasions. At the 1828 fishery camp cholera broke out and the loss of human life was appallingly heavy. The fishery of 1858 commenced full of gaiety and hope but its termination was saddened by sickness due to cholera. When the steam ships were returning to Colombo after the curtailed fishery, the journey taking twenty-four hours, anyone who had sea-sickness thought he had cholera and a few died through sheer fright.

The former fisheries employed large numbers of divers not only from Ceylon but also from India and even countries around the Arabian sea. The Sinhalese and Tamil divers could remain under water for about sixty seconds and dive up to a depth of eight fathoms. The Arab remains under water for eighty seconds and dives up to a depth of thirteen fathoms. These divers start on their profession early in life and the long period spent in the water together with the exacting nature of their duties leave a distinctive stamp on their phy-

sique. They are invariably small-made with bulging bloodshot eyes and appear sickly and it is indeed surprising that they are able to perform their duties so well. Each boat usually carries five divers and five attendants or "munducks." When the divers are ready, they plunge into the sea and swim to their respective stones which the "munducks" have hung over the side of the boat.

Before each dive the diver draws a deep breath, presses his nostrils between the fingers (Arab divers use clips made of horn) and sinks down aided by the sinking stone which weighs about thirty pounds. On reaching the ground he abandons the stone (which is hauled up by the "munduck"), throws himself on his belly and appears to cling to the ground while he is plucking the oysters. Each diver could collect up to four thousand oysters per day. To enable divers to come in from distant places, the decision to hold a fishery had to be advertised well in advance. Among the boats used were a few from Colombo and Jaffna and a great many from South India. The Colombo boats were invariably small barges used for transporting goods from ship to shore. The arrival of these various boats at the village was always a picturesque sight. The boats and divers were registered as they arrived since only a specified number was allowed to fish at a particular fishery.

Each fishing day commenced with the firing of a gun a short while after midnight, when the boats with the divers were prepared for towing to the banks. The banks were reached in the early hours of the morning and the diving operations started after sunrise at the firing of a gun. Similarly fishing for the day would terminate in the evening at the firing of a gun. Immediately the boats reached the village the police boarded them to see that no oysters were hidden in the boats. The oysters collected by each boat were divided into three lots, one lot was given to the divers and the other two taken to the Government "kottus" for auctioning.

A Shark Charmer to keep sharks away was present at every inspection and fishery and was on the Government pay roll. In addition he collected for himself one oyster daily from each diver. This appointment was held by succeeding members of a family residing in Mannar. Once a shark charmer was requested to exhibit his ability to assemble some sharks round one of the boats, but he got away with it by saying that it would be improper for him to trifle with the mystical charm entrusted to his family. On another occasion when a shark appeared near a buoy which marked an oyster bed, the charmer said that he summoned the shark to the banks to impress the English gentlemen present at the time. In addition

to the Shark charmer there were priests belonging to the various religious faiths present at the fishery. These priests called upon the gods for their blessings for a successful fishery and the safe return of the divers each day.

No blessings or charms are being officially solicited this year but there is little doubt that individuals and traders will be making their personal prayers for a rich harvest of pearls. There is every possibility that the fishery of 1958 will provide many valuable pearls (as the inspection revealed) and there is even a chance that a lucky person might stumble upon a pearl of great price, which might rival the famous one purchased by Tavernier during the time of Pliny.

THE PEARL BANKS

By R. L. SPITTEL

OVER the tranquil sea of the Gulf of Mannar the morning breeze blew fresh. The blue unruffled sheet stretched to the low horizon where it met the vast immensity of the pastel sky, with its soft cloud masses motionless as in a picture. It was a scene of breathless beauty, a glory of the firmament that whispered to the heart of man : *It is God.*

But the few fishers on the shore gave it no thought, being used to it from the beginning of their days.

The desolate coast of that arid land was covered with patches of scrub ; standing here and there amidst which, singly or in clumps were columns of gaunt palmyrah palms centuries old breaking the monotony of the landscape and giving it a character of its own. A brace of brahmyny kites quartered the sky watchful for the stir of a lizard or snake amid the spiny tussocks of the beach, or a fish in the lazy shoals. Kitti-clar-clar, Kitti-clar-clar, came the fitful calls of partridge coveys from the brakes.

In the Gulf of Mannar is found the turtle, the dugong and the pearl oyster. No place in the East Indies abounds more with rare shells than

here ; for here they remain sheltered from the turbulent seas and the fury of the surf.

This is an antique land.

The mounded beach is sequined with the fragmented shells of pearl oysters that have accumulated here from the innumerable fisheries of two or three thousand years, carried out under the same conditions as they always were.

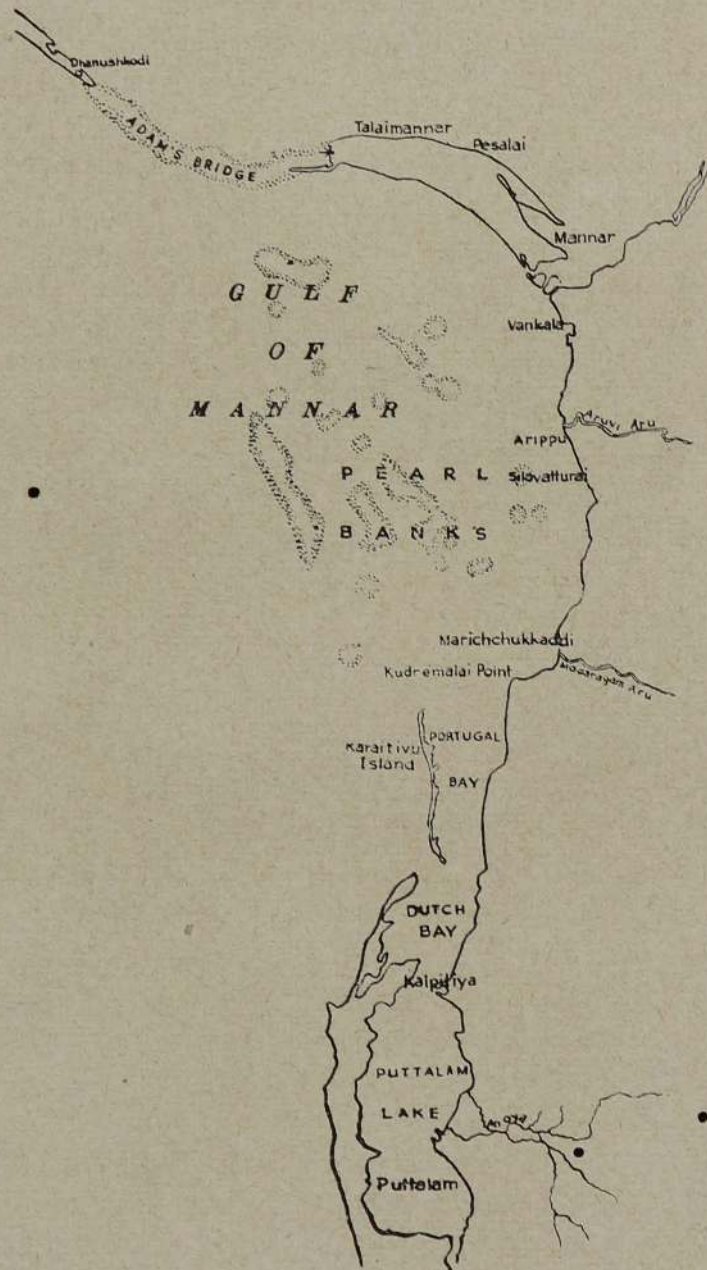
The coastal landmarks of the Gulf are of interest. Poised like a cobra's hood to the north is the Island of Mannar now connected at its lower end by a bridge to the mainland. From its other extremity, the nose of the cobra, a chain of islands and shoals called Adam's Bridge is slung like a hammock connecting it with Dhanushkodi, the southernmost point of India.

Beneath the glittering waters of the Gulf, lie the famous Pearl Banks or Paars as they are called—many of them with distinctive names : Cheval Paar, North and South Modaragams, Muthuvaratu, etc.

Two great rivers, the Arivu Aru and Modaragam Aru pour their waters into the Gulf, with much detritus from the land, during the southwest monsoon.

South of the Gulf is Kudramalai Point, a cliff sheering down to the sea.

Here in A.D. 47 came a Roman ship which was despatched to the coast of Arabia to collect Red Sea revenues, but having been caught by the monsoon (the winds of Hippalus) it was carried to Kudramalai (Hippuros). The officer in command was courteously received by the King, who, struck with admiration of the Romans,



Gulf of Mannar

despatched an Embassy to Italy. From those envoys Pliny learned about Ceylon and its people; its precious stones and corals; and the pearls that abound in the Gulf of Mannar.

From here the pearls of Cleopatra probably came. And the fleets of Solomon carrying ivory, apes and peacocks, must surely also have had pearls from Ceylon.

According to an ancient tradition there once lived at Kudramalai a powerful Queen named Alarasamy. She is said to have had the dead of her city buried in an island nearby which has since disappeared, and now exists as a ridge of sand (a paar) about three fathoms down. Fishers say that this bank is covered with pearl oysters to the height of a man, and that those on the surface alone are alive.

South of Kudramalai Point is Portugal Bay sheltered from the sea by the long, eroded shoal called Karativu island. Below that is Dutch Bay which merges into the Puttalam lagoon at Kalpitiya, with its Dutch fortress, standing near the point of an up-thrusting peninsula, shaped like a lobster's claw, enclosing the bay and lagoon.

But older than all is a tiny patch of rock near Puttalam (Tabowa) which tells of an epoch when Ceylon formed part of the great Indo-African-Australian continent (Lemuria) on which was formed the great coal fields of India, Australia and South Africa, and on which roamed enormous reptiles of the dinosaur types.

Surrounding the entire island of Ceylon is a shallow platform caused by filling up of the sea by soil washed into it from the land. In the Gulf of Mannar spits of sand deposited from the mouths of rivers opening into it are cemented into calcareous sandstones to form the pearl banks of paars. This is done chiefly through the agency of minute marine animals (polyzoa that multiply by budding) and lime-secreting coralline algae (nullipores) of the vegetable world. These are the tiny architects of the coral reefs which are here found in all stages of growth and decay, from living reefs to bare compact limestone. Some banks are formed of this sandstone rock and the shells of dead oysters, cockles, etc. Others are sandy with the underlying flat rock cropping up at intervals.

The pearl banks lie 9 to 12 miles off shore, and

in depths of 5 to 10 fathoms. They occupy a large shallow area nearly 50 miles long and where broadest 20 miles wide. On the western edge of this area is a steep declivity deepening to 100 fathoms and in one part to 1,000 to 2,000 fathoms. In these abysses there is only ooze and green mud, quite different from the cemented sands of the coral beds.

Associated with the oysters on their banks are corals, seaweed, sponges, minute shelled animals (foraminifera), small crabs and worms; also star-fishes, holothurians (beche-de-mer), cockles and chanks, including the elephant chank that preys on oysters.

The sea over the pearl banks is the home of the turtle and of the dugong which basks on the surface or browses on the submarine pastures. Here are

trigger or file-fishes (leather-jackets, clartee or "old woman") gnaw open the shell with their sharp cutting teeth to reach the animal within; those living torpedoes, the voracious sharks, whose mouths like those of the rays, are set on their under surfaces, rake up adhering oysters and devour them. In all these fishes the crushed shells of the molluscs and even pearls have been found.

The oysters, ripe for the taking, lay thick on the Cheval Paar.

Four to six years previously they had been born. Their fathers had emitted sperm into the sea and snapped their valves to disperse it through the water. Of the myriads of sperms set free only a minute proportion found the



fishes of every kind—a predaceous world of monsters such as giant rays and sharks, a magic world of coraline beauties of brilliant hues and fantastic forms.

From many of these denizens of the reefs the pearl oysters, despite their strong armour are not secure. Star-fishes and boring sponges and molluscs destroy their shells and suck out their flesh; a large conch, the "Elephant Chank" preys on them. So do the carnivorous fishes of the rocks and reefs whom nature has endowed with special weapons to deal with corals and crustaceans. The sluggish, ground-loving sting rays crunch up the shells of oysters and sea urchins with their powerful tooth plates: the

floating ova released by the females, and fertilised them.

By the second day the ciliated embryos swam freely. On the third day their shells began to form; at first clear and transparent, they soon became bipartite. The embryos drifted like those of fishes in profusion in the sea, some clinging in dense crowds to floating filamentous algae (sargassum). Many were devoured by fishes before their shells were hard enough to protect them. As the shells ossified they sank in heaps of brood oysters, the size of a finger nail, to the bottom of the sea; a few attached themselves by their byssus to floating timber or buoys. Those that fell on hard ground adhered

to it. Of those that settled on clear sandy bottom, some were buried or got scoured out or were rasped to pieces by the sand grains; but others saved themselves by adhering to shells or fragments of coral that lay about, and then to each other in agglomerate heaps. Some fell on beds of a large mussel called pinna to which they clung.

Feeding on microscopic spores of algae, minute animal and plant organisms (infusorians), and the embryos of fish and shell-fish, the oysters grew to maturity.

In the first two years of life their shell growth was vigorous. Thereafter growth was concentrated on the thickening of the nacreous internal layer of the shell to counteract the ravages of boring sponges and anelids. From the third to the fifth year of the oyster's life pearls were formed, this being the period of greatest pearl production. In the fifth year the oysters reached maturity. One or two years more, and they would release their hold, and drop off and die—and what pearls they contained would bestrew the ocean bed.

The pearl oyster is not a true oyster but a mollusc more nearly related to the mussels. Unlike the oyster it has a byssus, a bundle of tough muscular threads placed between the shells near the hinge which is broad, unlike that of the European oyster.

Its valves are unequal: one flat, on which it naturally lies, the other cupped. Near the hinge is found a wedge-shaped adductor muscle enabling the oyster to close and open its valves. Adjacent to the hinge too is the byssus or foot of dark sea-green colour, by means of which the oyster can attach itself to an object or crawl from place to place, about a foot an hour. It does this by protruding its byssus and re-attaching it to a new spot and drawing itself on. While advancing the foot the valves are widely open; as it drags its body forward the valves are snapped together, thus aiding its progress.

The oysters that now lay on the paars, had escaped many devastating influences to which myriads of their kind had succumbed. Oceanic

currents, monsoon storms and shifting sands had scattered and overwhelmed them; they had fallen prey to "Elephant Chanks," and boring sponges and molluscs, predaceous rays, file-fishes and sharks.

But though those that survived had escaped their external enemies, they harboured minute foes within their gates.

By a subtle dispensation of nature some of the very fishes that destroyed the oysters were the means by which pearls were created in those oysters that survived.

Sand grains, foreign particles, and damaged splinters of nacre might gain access to the fleshy body of the oyster and by their irritation form the nuclei of pearls—"ampullar pearls" in pockets of the epidermis, and "muscle pearls" in the insertion of muscles. But the more common way by which pearls were produced was by the agency of living creatures. Boring sponges and burrowing worms might penetrate the shells. To repair such damage the oyster thickened its nacreous layer (the inner iridescent surface of the shell) and so piled up excrescences on the inside. These when separated formed "shell pearls," useful for setting in rings and ornaments.

The process of pearl formation was the same whether it took place outside the flesh of the oyster or within it. In both limy salts were deposited in the living tissues. This nacre was produced most freely when the oysters were three-and-a-half to four years old.

The finest pearls of all—the 'cyst' or 'orient pearls' were caused by the tapeworm of fishes (*Tetrarhynchus*). They were formed by the deposit of concentric onion-like layers of nacre on the cysts containing the larvae of the tapeworm (larval cestodes). The cycle was this: the adult worm in the intestines of the ray or shark set free young embryos into the sea. These passed into the body of the oyster with food particles or got lodged in the gills and entered the liver or connective tissue, and became encysted; many, by the irritation they produced induced a reaction in the oyster and were formed into pearls. Nor

did it end there. Some of the oysters with the encysted parasites—and pearls—were eaten by file-fishes which in turn were devoured by rays, or sharks or these may have preyed directly on the infected oysters—and in them the larvae matured into the adult tapeworm—and so the cycle was repeated.

Truly has Dubois said: '*La plus belle perle n'est donc, en definitive, que le brillant sarcophage d'un ver.*'

All oysters do not have pearls; some have many, others none; as many as 150 pearls of various sizes (mostly seed) have been found in one oyster. In the 1828 fishery 67 pearls were found in one.

It is considered possible to say from the appearance of an oyster whether it is likely to contain pearls or not. Oysters below the age of four years are not likely to contain pearls of much value.

In young oysters the edges of the shells are soft; as they become older the shells become harder and the soft rim is worn away.

The hinges too become thicker and the groove at the back of the hinge, which admits of the oyster opening its shell, becomes wider and deeper.

After the fifth year the oysters fall off from rocks and are scattered and more easily collected—but that is near the time of their deaths. Oysters, though they are of one species, and of the same regular form tend to differ in appearance

according to the nature of the ground to which they are attached, and the zoophytes (plant-like animals such as sea anemones and sponges) that encumber them. On one bank oysters are found with cup-shaped sponges covering them (*kuday chippi* or umbrella oysters). On another bank they may be smaller and reddish like betel spit (*codda pakku chippi* or betel oyster). These two classes are reputed to produce valuable pearls.

Dr. Roxburg says that those oysters with a thick calcareous crust on them to which sea tubes (*serpulae*) and other zoophytes are fastened are at full growth and usually contain the best pearls; but those with smooth shells contain none or small ones only.

Some of the zoophytes encrusting oysters are trees of coral, even 5 times their own weight; others have sponges of tubular and branching forms full of small holes. Sometimes a large cluster of young oysters is brought up with an old one in their midst (*Cordiner*).

NOW IS THE TIME

April, 1958, was the ideal season for an investigation of the pearl banks, as the Canadian dredging boats were there. It would have been advisable to enlist the services of such underwater experts as Mr. Rodney Jonklaas and Mr. Mike Wilson, the famous photographer, girt with aqualings to give us, by direct observation, pictures, both verbal and photographic, of that Submarine World.

Birds and Bushes

Blackbirds, thrushes, tits and starlings, though they do a considerable amount of harm also do a great deal of good, and even the mischievous little house sparrow does some good. An old friend of mine who lived in Cornwall once told me of a neighbour of his who had a large garden and was so incensed at the damage caused by birds that he determined to exterminate them. For three years he trapped, shot and even poisoned all the birds he could to the extent that no bird would come near his ground. What was the result? My friend told me that the garden was the sorriest mess he had ever seen, all edible vegetation was

stripped by caterpillars and every kind of aphid swarmed everywhere. He said the garden literally smelt of pests.

While one may hold the view that birds are entitled to their keep, one has to adopt methods to control them and to see that the rule of fair shares is recognised. The greatest problem is perhaps with soft fruit and here my answer is a permanent fruit cage with 6-foot wire surround and a string netting top. The latter is kept on only to protect the fruit while for the rest of the year the whole area is open to the birds to find what food they can.

London Sunday Times.

CULTURED PEARLS

AN OLD CEYLON VENTURE

By KENNETH J. SOMANADER

THE cultivation of pearls has been regarded as a fascinating science since K. Mickimoto of Japan started experimenting in that direction. Experiments were conducted in Ceylon too, and in a little corner of the beach at Marichchukadai, where the ancient pearl fisheries were conducted, there stands a little concrete structure to tell the story.

Mickimoto in 1905 started experimenting with the production of cultured pearls. He found that pearls are made up of concentric layers laid down around a nucleus of some foreign body. To overcome the irritation caused by this, the oyster produces a paste-like secretion which envelopes the irritating substance. This gradually hardens and becomes the pearl.

Mickimoto began his experiments by inserting a glass bead into the oyster and leaving it to grow for three or four years. He found that such oysters began to develop pearls inside. He soon opened a pearl oyster farm for cultured pearls.

In Ceylon, investigations on an organised scale were begun by Mr. Joseph Pearson, Director of the Colombo Museum, Marine Biologist and Inspector of Pearl Banks; Mr. A. H. Malpas, Assistant Marine Biologist; and Mr. J. C. Kerkham, Marine Superintendent.

After the Great War, they were able to work only two months in the year, owing mainly to the shortage of technical personnel. Their operations were thus slow.

The fisheries of 1903, 1904 and 1905 were conducted by government. But at the end of the last, a firm which called itself the Ceylon Company of Pearl Fisheries Ltd., obtained a lease of the pearl banks for 20 years. The fishery of 1906 was again run by government, but the nett proceeds were handed over to the company.

The firm did not neglect scientific research, for one of the principal clauses of the agreement was "that the company spend each year not less than Rs. 50,000 or more than Rs. 150,000 on experimental and "cultural" work.

The company was placed in an extremely lucrative position at the end of the fisheries in

1906 and 1907, but the supply of pearl oysters failed subsequently and "public opinion in Ceylon viewed the complete disappearance of oysters as unprecedented and as something of a judgment from Heaven on the Ceylon Government for having allowed a commercial company to exploit the pearl fisheries!"

T. Southwell and J. C. Kerkham undertook the scientific work for the company, and the concrete bank at Marichchukadai was erected by Southwell to breed young oysters. By this method, the finest pearls are developed by careful breeding.

The oyster spawn is collected and when old enough, the young oysters ("spats") are placed in fine meshed cages to protect them from the attacks of star-fish, octopuses or other enemies, and then lowered into the sea. The oysters are frequently examined for disease, and at the age of two are transferred into a wide meshed cage and lowered into the sea. At three, the age of maturity, they are operated on for pearl development. During the next seven years, secretion and development proceed exactly as in the formation of a "natural" pearl, and finally the oysters are opened for the extraction of the "cultured" pearls.

Unfortunately, the Southwell-Kerkham regime coincided with the barren period, and the shareholders of the company were alarmed at the failure of the two men, the Marine Biologist and his Scientific Adviser, to produce results.

The shareholders demanded something in the nature of a miracle. They put extraordinary faith in scientific work and expected that science, with the wave of the magician's wand, would be able to produce a plentiful supply of oysters out of barrenness.

The affairs of the company soon became critical and it was obliged to terminate its lease in 1912.

It is interesting to note that in a memorandum dated 1909, a Mr. John I. Solomon wrote: "There can be no doubt that the yield of oysters and valuable pearls from the pearl fisheries of Ceylon can be increased by artificial means."

Referring to the possibility of cultivating the Ceylon pearl oyster, Southwell wrote: "It is quite reasonable to believe that scientific culture will be as successful here—if not more so—as at other places." (He was thinking of the methods practised in France and Holland).

He added: "It is only when the ecology of the pearl oyster is understood that a perfected system of culture can be adopted which will place the industry on a sound commercial basis."

Hornell, however, who was once associated with Southwell and who was a keen advocate of pearl oyster culture, wrote later: "Cultural operations are so uncertain in their results and entail such heavy expenditure that it pays to restrict attention to inspection and to let nature have a free hand."

And that is how the concrete bank at Marichchukadai came to be abandoned.

From the Newspapers

i

After Thirty Years

Pearl fisheries are to be resumed, after a lapse of about 30 years, between Mannar and Puttalam.

The Fisheries Department will dredge the sea-bed for an estimated 9,000,000 oysters which are regarded to be mature enough to bear pearls.

The oysters will be auctioned to the public as in former years, and will be sold in bags.

Unlike on earlier occasions, however, there will be no pearl-divers as trawlers will be used for the combined purpose of fishing oysters and dredging.

In a recent sample survey it was found that approximately one oyster in every 50 contained a pearl.

January, 1958.

ii

Damaged Beds

Experts who have explored the precious pearl banks are positive that dredging has caused immense damage to the oyster beds. Eggs, spats (young ones) and oysters that could have been harvested on another date would have perished in one dredging, they said.

Mr. Rodney Jonklaas who explored the beds

in 1945 with an aqua-lung and a face mask—swears to this. And so does Mr. Mike Wilson—another deep sea diver of Clarke-Wilson Expeditions.

He told me yesterday that "the dredger leaves a grim trail of utter desolation."

"He asked: "Why is it that other governments which have better dredges and better scientists have given up dredging?"

He said that there were about 5,000 rupees worth of aqua-lungs that could be used for deep sea diving, which was not touched by the Department.

Mike Wilson said that the Australian Government gave up dredging its oyster beds on the recommendation made by the Commonwealth Scientific Industrial Research Organisation.

"It is true dredging brings in a good harvest but it doesn't do the beds any good," he said.

Observer.

iii

And What of their Future ?

Who are these brash vandals? Must they be permitted to destroy one of Ceylon's most valuable assets—the precious pearl banks in the Gulf of Mannar?

A heavy steel net drawn by power over the pears would naturally cause inestimable damage by loosening, and break up larger areas of the

Dredging Will Not Damage Oyster Beds

(a)

A press communique issued by the Information Department states :

Fear has been raised in certain quarters that the use of the dredge will damage the beds by scraping the young oysters along with mature ones. The Ceylon pearl banks stretch for about 50 miles in length and have a maximum width of 20 miles off Arripu. Only seven to nine million oysters inhabiting an area of three square miles are to be fished this year. The pearl banks have rather irregular contours and it would be impossible for the dredge, having a width of six feet to cover the entire areas without skipping some spots thereby always leaving sufficient stock for recolonization.

Random sampling of oysters taken at this year's fishery and also at the surveys of 1955 and 1957 have revealed that the oysters coming off the beds which are now being exploited are mature. All the oysters belong to one age group and hence hardly any immature ones would come up.

The dredge alone without divers is used in the oyster beds of Margarits Island off Venezuela since the middle of the last century. There has been no damage to the pearl oyster beds off this Island. Canada and U.S.A. on their east coast use the dredge for scallops without harmful effects. Now that the use of the dredge has been so successfully demonstrated in the fishery of 1958, it is most unlikely that diver will ever be employed again at a Ceylon pearl fishery.

If we are to quote experts, here are the views of two experts eminent in the pearl fishery field.

Dr. Herdman in his recommendations to the colonial Government in 1905 advocating the use of the dredge mentioned : " There need be no fear that dredging operations will be destructive to any young oysters that may be mixed with the old, or will in anyway damage the

marine sandstone. When the monsoon comes in May this year the ruination of the banks will be speedily completed. Swift running oceanic currents will also take further toll of the priceless formations, which are found at this convenient depth of an average of eight to ten feet, only in very few places in the whole world.

Professor Herdman, who spent two years in Ceylon at the beginning of this century, and others like Stewart who was Inspector of pearl banks during the last century under the British, expressed the opinion that oysters on the pearl banks are not homogeneous with regard to age. Different age groups of oysters are often found on one piece of Pinna, a large shell which grows in quantity on the paars. That is why from time immemorial, from the days of Ptolemy, the wise men of those ages employed divers to gather the precious harvest from the pearl banks—by hand. Once the paars are damaged and broken up, the Ceylon pearl, which was known to all the world, both civilised and barbaric, in the days of long ago, will be lost forever.

From the times of the Sinhalese Kings there was a certain system by which the pearl fishery was run. The Sinhalese did not dive for oysters. The right to fish the banks was sold by a system of tender to the highest bidder and fetched, in the times of the British, something like fifty thousand pounds.

About a tenth of this amount was expended on the establishment of medical services, water supply and the other amenities which are necessary to maintain the health of a heterogeneous collection of persons numbering about ten thousand. Before a pearl fishery was undertaken the fact that there was to be a fishery was advertised very widely all over the oriental world. (The Minister made the amazing statement the other day that unfortunately there was no time to advertise the fishery that was to be held in this year of our grace 1958).

No comments are necessary but the question may be asked how fast are we going back to the Stone Age ?

ground as an oyster paar. Dredging is the usual practice on oyster beds in Europe and America, and it is well known that a certain amount of dredging improves the condition of a bed."

During 1905 fishery Mr. Hornell actually made use of the dredge and he was so impressed by the results as to state that "Dredging is economically more sound method of fishing than is diving."

Observer.

(b)

There are at least 18 square miles of potential oyster beds off the Mannar coast which have been surveyed and possibly much more not yet surveyed.

The department in its present operations have therefore only touched on the fringe of the oyster beds.

The department maintains that the oysters in the area are fully mature. The life span of an oyster is about six years and in the present operation quite a number of dead oysters have been fished which proves that the bed had reached its peak and was waning. An oyster produces about three million spawns and if a few baby oysters are "fished" that is no reason for alarm.

As for using aqua lungs, Rs. 5,000 worth of aqua lungs means just two lungs, states the department. With two lungs, two divers could fish about 5,000 oysters a day. Besides, they would need a boat and several men to aid them. In Ceylon, there are very few people who can use an aqua lung at a depth of eight fathoms. The customary South Indian divers used no "lungs" or equipment and were able to bring about 400 oysters a day. At least 3,000 divers and seven thousand others would have been involved in diving operations. The operation would have been cumbersome and costly.

Dredging for oysters is being successfully done every year off the East coast of America, where the terrain is suitable as in Ceylon. In Australia the oyster beds are at a depth of 40 to 60 fathoms, probably not suitable for dredging. The Australian oyster fisheries also have at their disposal fully equipped "dress divers." In Ceylon there are only two such divers working for the Port Commission. They are both expen-

sive and difficult to equip, states the Department of Fisheries.

The oyster auctions at Mutwal continues to draw the crowds.

iv

First Bag of Oysters Fetches Rs. 475

More than Rs. 26,000 was realised from the first day's auction of 175 bags of 1,000 pearl oysters at the Mutwal fisheries. The first bag was knocked down for Rs. 475 by a business man who donated it to the Church.

Towards the end of the auction prices dropped to an average of Rs. 105 and in succeeding days to about Rs. 70 a bag.

Some days later auctions were held in outstations such as Kalutara, Kurunegala.

[*Ed.*—Towards the end of the fishery, 1,000 oysters fetched Rs. 35 to 40.]

v

He Bought Four Oysters

A man I know, who bought four oysters at 25 cents each and proceeded to open them up and search around in the mess, stifled a shout of joy and amazement when he came upon a hard lump the size of his thumb in one oyster.

He was right about the size. It was the size of his thumb.

It was his thumb!

vi

The World was Her Oyster

It would have been strange indeed if anything so widespread and nation-wide as the recent selling of pearl oysters did not find an echo in our Courts.

And it was Ango Nona who brought the oyster-case to Court by charging Jinadasa with criminal abuse and insult.

Said Ango Nona's lawyer: "Sir, this incident took place because my client refused to buy a pearl oyster from the accused who was selling them on the street at Slave Island!"

Ango Nona looked down coyly as all heads turned in her direction. She was an extremely comely young woman with a black satin skin and flashing eyes. Her cloth and jacket preserved both the straight lines and the curves of a figure which had world class at 35—23—35.

One understood why she did not want to buy an oyster from Jinadasa—for with looks like hers the world was her oyster!

“What have you got to say?” asked Mr. Sally turning to Jinadasa’s lawyer.

“My client did nothing at all, Sir,—except to proclaim his wares,” he replied.

Ango Nona’s lawyer: Didn’t he refer to *Kalu Menike*? (black gem) (laughter).

Jinadasa’s lawyer: Sir, *Menike* is a precious stone and is loosely used for pearls also. My client was saying there were ordinary pearls and even rare black pearls in his oysters. The complainant misunderstood him and came and abused him.

Magistrate: So your client was really being complimentary to the young lady? (laughter).

Ango Nona’s lawyer: Far from it, Sir, Your Honour can see for yourself the type of thug he is—certainly not a ladies’ man paying compliments to pretty girls (laughter).

•When my client passed him on her way to the boutique, he shouted “Dip your hand and take out a *Kalu Menike*!” and pointed his hand towards her. There was laughter

and jeers from the crowd at this exhibition of wit. When my client was returning from the boutique the accused shouted out again pointing at her “Twenty-five cents for a *Kalu Menike*. Here she comes.”

Laughter and jeers from the crowd made my client feel insulted and ashamed. When she protested the accused used the foul language for which he is now charged.

“I think it is the attitude of the crowd rather than that of the accused which angered the complainant,” said the Magistrate. “I believe the whole incident arose out of the attempt by the accused to push his sales by complimenting the complainant. He must, however, apologise to her now in open court.”

Jinadasa walked up to Ango Nona and the two were about to shake hands when the Interpreter intervened.

Interpreter: Not that way. Make the namaskar in Sinhalese fashion.

“Yes, yes,” said the Magistrate amidst laughter “that would be a reasonable use of Sinhalese customs!”

THE RECORDER in the *Daily News*.

Birds and Books

By E. B. WIKRAMANAYAKE

LORD Grey in *The Fallenden Papers* discussing the capacity for pleasure said this, “Books I would put first. By books I mean the power of taking pleasure in the best literature. But next to books I would put the capacity for finding pleasure in Outdoor Nature.” To most people outdoor nature means birds. From almost the beginning of time birds have had an extraordinary fascination for man. And this interest in birds has not been limited to people of any particular capacity or any particular walk of life. James Fisher in his book *Watching Birds* tells us that among the bird watchers of his acquaintance are a Prime Minister, a President, three Secretaries of State, a Char-

woman, two Policemen, two Kings, two Royal Dukes, one Prince, one Princess, a Communist, seven Labour and six Conservative members of Parliament, several Farm Labourers earning ninety shillings a week, a rich man who earns two or three times that amount in every hour of the day, at least forty-six schoolmasters, an Engine Driver, a Postman and an Upholsterer. Birds appeal to different people in different ways. To some, particularly to schoolmasters, the appeal is to their intellect. They like to wrestle with such problems as bird territory, migration, the effect of protective colouring and things like that. To others it is to their sense of beauty. To yet others it is to their sense of

wonder. To the majority probably it is to their emotions. In the result the love of birds has produced a good deal of what Lord Grey would include among the best literature and one can combine in them the capacity for taking pleasure in the best literature as well as in outdoor nature.

Chief among such books is, of course, Gilbert White's *Natural History of Selborne*. White was a curate in charge of the parish of Selborne. His duties were not, apparently, very exacting and he had plenty of time to indulge in his favourite occupation of watching birds and other manifestations of nature. His observations were reported by him to two of his friends who were interested in natural history. His book is a collection of the letters which he sent to these two friends. It has gone through about 144 editions.

What is the reason for the popularity of this book? Why, as one reviewer puts it, does this little cockle shell of a book come gaily down to us over a sea full of waves where so many brave barks have foundered. There have been greater naturalists than Gilbert White. There have been better masters of English prose. The secret seems to lie in this man rather than in the book. White had the knack, more than any other writer, of communicating to others his own capacity for pleasure in outdoor nature. He was never dogmatic. He had an inquiring mind. In a letter to Danes Barrington, he wrote: "The investigation of the life and conversation of animals is a concern of much trouble and difficulty and is not to be attained but by the active and the inquisitive."

Perhaps the best assessment of Gilbert White is to be found in Richard Kearton's introduction to his own edition of the book. "Here was a countryman talking to a countryman with magical reality of the chattering sedge warbler in the bush and the sibilous wood wren in the tree top; of the twittering swallow and the screaming swift; of the drumming snipe cleaving the still evening air high over his native swamp and the blast defying missel-thrush piping his

clarion notes from a swaying bough. We saw the glorious massing of the foliage on the steep face of the sunlit Hanger, walked through the thatch roofed village, drank from the clear cold spring at well head and finally fell asleep holding on to his stirrup strap and looking up into his benign face as he rode and we walked down the spate-washed sunken road to Alton discussing the lives and habits of the many feathered friends we both knew and loved so well."

The mantle of Gilbert White fell on W. H. Hudson of whom Joseph Conrad said that, "he writes as the grass grows." Hudson was born in South America and spent his boyhood roaming about the pampas where it was that he first began his communion with Nature. His best book, to my mind, is his autobiography, *Far Away and Long Ago*, in which he describes his early life. His later years, however, were spent in England and it is his description of English birds and the English countryside that has resulted in his best books. It was his delight to roam the English countryside passing from village to village observing the birds and snakes and insects. Nothing was too small or too ordinary to escape his observation. He looked at wild birds emotionally as he says in his book, *Birds and Man*. It is only then that they could register lasting impressions and he had no patience with the cursed collector whose "specimens twisted by the stuffer into a variety of attitudes—ancient dusty dead little birds painful to look at—were a libel on Nature and an insult to man's intelligence."

Hudson's best known book is *Green Mansions* which, however, is not a bird book. *Afoot in England* is a record of his ramblings from village to village on foot or bicycle—leisurely ramblings which gave him time and opportunity "to force my way through unkempt hedges, climb hills and explore woods and thickets to converse with every bird and shy beast and scaly creature I could discover." In *Birds and Man* and *Hampshire Days* one finds further examples of his acute and sympathetic observation of birds and beasts, snakes and insects. *Purple Hand*, although

in form of a novel, bears on every page evidence of his deep love and compassion for living creatures. "The Saints forgive you, my child," says a father to his little child who has come running to him with a captured firefly. "Go, little son, and put it back in the grass, for if you should hurt it the spirits would be angry with you, for they go about by night and love the *linterna* that keeps them company."

Perhaps Hudson may best be left to describe himself. The following passage occurs in his *Hampshire Days*. "The blue sky, the brown soil beneath, the grass, the trees, the animals, the wind, the rain and stars are never strange to me; for I am in and of and am one with them; and my flesh and the soil are one, and the heat in my blood and in the sunshine are one, and the winds and the tempests and my passions are one. I feel the strangeness only with regard to my fellow men, especially in towns, where they exist in conditions unnatural to me but congenial to them. In such moments we sometimes feel a kinship with, and are strangely drawn to the dead, the men who knew not life in towns and felt no strangeness in sun, wind and rain."

The tradition of White and Hudson was carried on in England by Richard Jefferies and Sir Edward Grey who is better known as Lord Grey of Falloden. Jefferies died young but even in that short space of time he gave promise of a great writer and naturalist. Undaunted by loneliness and poverty he wrote what he had to write in pride of heart and independence of mind. In *The Gameskeeper at Home* he gives us a charming picture of the life of the gamekeeper, of the territories over which he bears sway, the meadows woods and streams, and of his subjects, the furred and feathered inhabitants, and the enemies against whom he wages war, vermin poachers and trespassers. *The Spring of the Year* is a collection of essays which represents all phases and sides of the genius which was Jefferies. But it is *The Story of My Heart* which will ensure immortality for Jefferies. It is a book unique in literature which will remain a

landmark in the reading of thousands.

Lord Grey of Falloden was a politician who took to bird watching as a hobby. He was over thirty when he started and it continued to give him pleasure until his eyesight went back on him. In his book, *The Charm of Birds*, he has set down his own personal observations over a period of many years. In his extensive grounds in Falloden the wild duck used to come to his hand for food. In his book too one can find that atmosphere of calm and contemplation which is found in writers like Izaak Walton and Gilbert White. "If books about nature are to live," he says in his *Falloden Papers*, "they must not be descriptions written at the moment of the rapture; they must be books written as the result of observation which recall and convey the emotion even after it has sunk into the mind. Wordsworth said that poetry was emotion recollected in tranquillity. I will not discuss how far this is true of poetry but I think it is true of books of nature. These should be the result of long observation, much feeling and tranquillity and then the effect upon the reader is one of calm and contemplation and brings that sense of leisure and repose for which, in these days, we are more and more grateful."

A charming South African writer who has caught the spirit of White and Hudson is Mrs. Madeline Alston. She is an elderly lady who has rigged up a caravan in which she wanders about South Africa in search of birds, for she believes with Dr. Frank Chapman that "If you would reap the purest pleasures of youth, manhood and old age, go to the birds." Her observation is both keen and accurate, and she has, moreover, the gift of painting for you in words a picture as vivid, or even more vivid, than any to be found in the coloured plates of a book on birds. Take, for example, this description of the Roseate Tern: "I saw a flock of perhaps two hundred on a rock with the morning sun on them and their plumage had a delicate flush like that on a sea washed shell and about half of them had the bill red at the base. Every now and then a wave would wash over

the rock and the birds would rise like a spray of silver stars, flitter and flicker in the air and then, when the wave had subsided, they would alight on the rock again and continue their preening and conversations." Mrs. Alston has written two books on birds, viz. *Wanderings of a Bird Lover in Africa* and *Sunbirds and Jacarandas*. As Mr. Leonard Gill said in his preface to the letter, "To dip into the book almost anywhere is to realise what a gain to one's life this bird watching may mean."

India has produced a number of bird books but only one writer deserves mention in this company. That is E. H. Aitken who wrote under the pen name of Eha. Aitken spent the greater part of his life in India and his knowledge of its birds and their ways is unrivalled. He had the capacity, as it were, of entering into their lives, of becoming one of them. "He whose ear is untaught," he wrote, "to enjoy the harmonious discord of the birds travels alone when he might have company." His descriptions are unforgettable. The screech of the cicada, for example, he likens to the drawing of an iron nail across the teeth of an endless iron comb. Those who have heard the cicada will realize the aptness of the description. And listen to this description of the Magpie Robin, a bird with which everybody must be familiar: "Sweetly does the Magpie Robin sing in the small hours of the morning when we are in our beds but if you want to know what he can do look at him and listen to him as he follows this fair disdainful dame and his rival from branch to branch and tree to tree suffering the ecstatic pains of a jealous suitor. What a masher he is in his new spring costume with his black and white tail expanded like a fan and his glossy breast at the very point of bursting with the frenzies of song which spout and gush from his swollen throat." Apart from *The Common Birds of Bombay* Eha's claim to immortality rests on three books, *A Naturalist on the Prowl*, *The Tribes on My Frontier* and *Behind the Bungalow*. They are all characterised by the same keen observation, imagina-

tion, elegant writing, vividness of description and whimsical wit. Eha's own philosophy of life may be summed up in his own words—"Any hobby will draw out the mind but the one I plead for touches the soul too, keeps the milk of human kindness from souring, puts a gentle poetry into the prosiest life."

To a beginner in ornithology Miss Frances Holmer's *Bird Study in India* will prove invaluable. It is not, perhaps, among the best literature, but she imparts a wealth of information in a most charming style. The book, however, is out of print. Dr. Frank Chapman's *Autobiography of a Bird Lover* is another enjoyable book. It was Chapman who said: "The sight of a bird or the sound of its voice is at all times an event of such significance to me, a source of much unflinching pleasure, that when I go afield with those to whom birds are strangers I am deeply impressed by the comparative barrenness of their world." Another autobiography that is equally absorbing is that of Ernest Thompson Seton called *The Trial of an Artist Naturalist*. One incident he relates is worthy of note by all lovers of birds. "One day," he says, "a kingfisher flew merrily overhead skreeling his loud and joyous cry. I raised the gun and fired. Down fell the kingfisher and in a few minutes he was dead. I hastened to dissect him and learn all I could of his food, his body and anatomy. Very soon in his liver I found curled up a large active liver worm. It had eaten much of the liver and established a morbid and dreadful condition. The kingfisher must have been in great pain and yet he had been apparently singing his spring song in the full joy of life. I never forgot that lesson. The wild things too have their sorrows but keep them to themselves."

The number of books on birds is legion and each one must suit his fancy. But in the choice of books it might be well to remember the words of Lord Grey: "Any pleasure to be lasting, so that we wish to return to it and to think of it again and again, must have its hold not only upon the intellect but upon the affections."

A Note on the Nidification of some Common Birds

By D. L. EBBELS

THOUGH much has been written on the birds of Ceylon, and at least eight books on this subject come readily to mind, yet as far as I am aware comparatively little has been published on the more detailed aspects of their behaviour. Indeed, in works of a general nature, such as are most of the books on the avifauna of Ceylon, space does not permit of a detailed treatise on each bird.

During the past few years I have tried to determine in detail at least the nidification habits of some of the birds common in the garden. The trouble is that long periods of watching are necessary, for which only a few fortunate people are able to give the time, and frequently my notes have been cut short by the untimely destruction of the nest.

The Black Robin (*Saxicoloides fulicata leucoptera*) is particularly unfortunate in this respect as it exercises very little wisdom in choosing a nest site, and also draws attention by flying away from the nest very conspicuously. I have attempted to keep records of 26 nests of this species at one time or another, but of these only in one nest did the young reach the fully fledged state. Unfortunately I did not discover this nest until the young were well advanced, and so was unable to record the exact fledging period. On estates the birds usually nest in the banks by roadsides and in the sides of drains, and almost invariably the nests come to grief when some field work is carried out in the vicinity, or are pulled to pieces by small children who pass by. In the garden one can keep an eye on the human element of destruction—to a certain extent—but squirrels, lizards, snakes, and crows take a high percentage of the eggs and young.

Some time ago a pair of Black Robins started building in the outlet of a drainpipe, and though washed out by each heavy rain, they were so persistent in rebuilding that I determined to

see if something could not be done. After they had been washed out of the pipe four times, I got an empty Quaker Oats tin (which was just the same diameter as the pipe), blackened the inside, lashed it alongside the drainpipe and temporarily blocked the mouth of the pipe with the tin lid. I put the few pieces of fibre, roots, and fluff that the birds had already collected into the tin and kept an eager watch to see how they would take to their new home.

The next morning I was pleased to see that the tin had been accepted, and the hen was inside, busily engaged in cleaning out (with apparent disgust) all the material I had carefully transferred from the drainpipe. No sooner had she done this than she began collecting new material and arranging this inside. At first the fibres and roots would not stick to the smooth surface of the tin. Much was dislodged each time she emerged, and this piled up below the mouth of the tin. For some reason the dislodged material was never replaced save on one occasion. The hen did almost the entire work of nest building, and she seldom collected material further than about 30 yards from the nest. Meanwhile the cock bird spent his time in singing from his favourite perch, chasing away rivals from his territory, and sometimes he would perch on top of the tin to see how his mate was getting on with the building of their home. Several times he went right inside to inspect the arrangements and on a number of occasions he brought her offerings of dried tea flowers, all of which she carefully incorporated into the nest.

In common with most birds, no building was done when the weather was wet and most of the afternoons were spent in feeding. As the weather was rather wet at this time, the birds took seven days to finish building. One day (of apparent rest) elapsed before the first egg was

laid, probably about dawn. A second egg was laid the following morning, and the hen commenced sitting on the same day. She had sat very closely for a week when, on returning for my lunch one day, I found the nest empty, though intact, the eggs gone and with them my hopes of recording the breeding habits of my pair of robins.

The Ashy Prinia or Ashy Wren-warbler (*Prinia socialis brevicauda*) has not actually bred in the garden, but I was able to make some notes on a pair that nested in a tea bush close by. This nest was about 4 inches below the surface of the plucking table, about 2 feet from the ground. On plucking days I took the precaution of plucking the nest bush and surrounding bushes myself and so minimise disturbance. I give below some extracts from my note book.

28th April.—This morning the hen was seen carrying spider webs, thistledown, and other soft materials to the nest site. This is only a very rudimentary framework of rootlets bound together and to the surrounding stems, and was probably started today. After disposing of the material she had brought, the hen would perch for a little time on a tree and sing a few joyous notes. The cock bird was not seen in the vicinity and apparently takes no part in nest building.

2nd May.—The last three days have been wet and no work was done on the nest during that time. Probably the material is difficult to work when wet. Building was recommenced today.

5th May.—The nest, if not complete, is very nearly so. The entrance faces upwards at an angle of about 45° . A resourceful bird this, for it has incorporated a large tea leaf into the nest, which serves as an excellent waterproof roof. The edges of the leaf have been punctured and threads of cobweb and moss pushed through. They hold it remarkably firmly.

8th May.—One egg, laid sometime before 7 a.m. this morning, was found in the nest. It has the characteristically high gloss, but is a slightly more pinkish chocolate-brown than usual.

9th May.—A second and similar egg was laid, probably at about the same time this morning.

10th May.—A third egg was seen in the nest early this morning. The bird seems to spend the first hours of daylight off the nest, probably feeding.

15th May.—The hen has been incubating since 10th. I have been unable to find if the cock takes any share in incubation.

23rd May.—Two eggs hatched early this morning, and the third later in the day. The young are minute, and when first hatched are a pale dirty yellow colour. Incubation period was 13 days. Though she remains on the nest until the last moment, the bird always leaves the nest most unobtrusively, slipping away through the bushes.

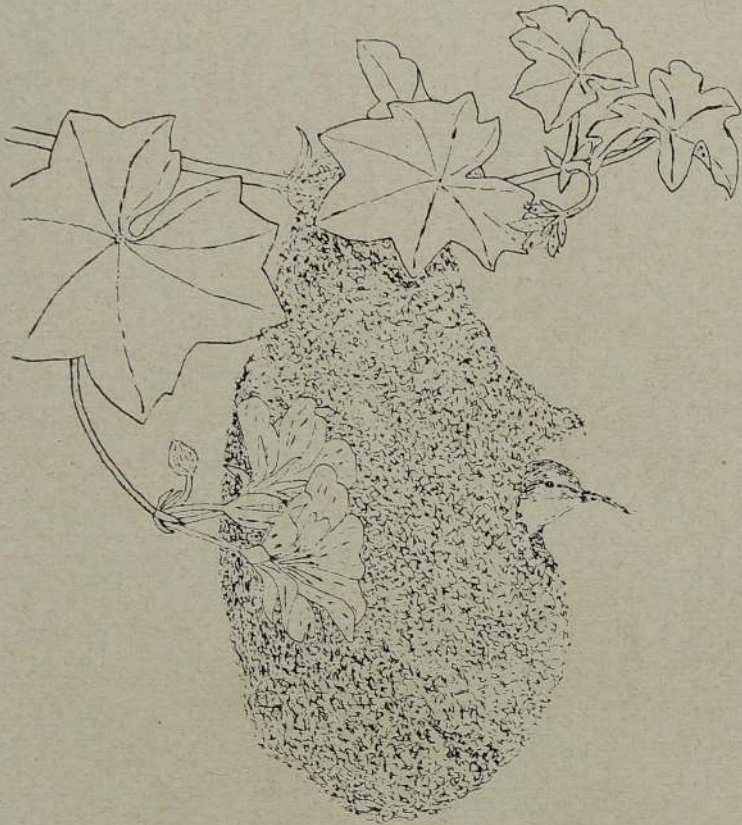
24th May.—The chicks today appeared to have darkened in colour to a medium brown, with black, closed eyes. They are appreciably larger than yesterday.

25th May.—On inspecting the nest this afternoon I found one chick dead in the nest. The other two had disappeared. The nest was intact.

Here again my notes were sadly cut short, and sometimes I found myself wondering how any birds managed to survive at all.

However, when a pair of Purple-rumped Sunbirds (*Cinnyris zeylonica zeylonica*) decided to suspend their home from one of my hanging flowerpots, I again was filled with high hopes. These were nearly curtailed almost immediately, as the gardener pulled off the beginning of the nest and threw it away, thinking it was a piece of fluff. Fortunately the birds took no notice of this and continued to build throughout the next day, April 21st.

The site chosen was 4 feet above the ground and about the same distance from a door that was frequently used. This did not appear to disturb the birds, and on April 22nd the nest (a collection of cobwebs and dead vegetable material), about the size of a golf ball in the morning, had grown to tennis ball size in the



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Purple-rumped Sunbird emerging from nest

On April 25th the nest was almost complete. I was greatly intrigued by the method of getting the characteristic pear-like shape. Having made a hole in the side of the rough ball of material, the bird crept inside and by pressing and stretching movements the sides were pushed out and the bottom pushed down, while the nest chamber was enlarged—almost as if it were being blown up like a balloon. This naturally made the walls thin and they were then reinforced and thickened and the stretching process was repeated until the desired shape and size had been attained. However, part of the rear wall of the nest was left very thin and transparent—evidently to give the hen a view to the rear when sitting.

The next five days were spent in making a small “porch” over the entrance hole and in collecting the lining of vegetable down. This was made very thick and a considerable quantity of down was required. Principally this was collected from the seeds of *Ageratum conyzoides* (“Pum-pillu”).

The two eggs were laid on May 1st and 2nd, respectively, but the nest was destroyed by a squirrel on May 13th, before they hatched.

Whether this garden is unusually full of predatory animals or not, I do not know, but it certainly is disheartening to have one's hopes dashed merely because a squirrel decides to have an egg for breakfast. However, there is a certain satisfaction in recording the habits of even the commonest of birds, and even if things do not always go right, there is always the possibility that one may be making a contribution—however small—to the store of ornithological knowledge.

evening. A small hole had been made at the side. The building was again done entirely by the hen, the cock making occasional visits of inspection and encouragement, when there was a great exchange of cheeps and tweets. When it was only a matter of collecting as much material as possible, the hen made very short visits to the nest. As this grew in size, however, so her visits did in length, as there was much work to do in weaving the new material into the nest. On several occasions nearly two minutes were spent on this work.

There is much evidence from animals and savage tribes that once a species has been reduced below a certain critical level it cannot recover its numbers.

A BIRD WATCHER ON THE SOUTH COAST

By D. L. EBBELS

THE four eggs lay together in the shallow depression that was the nest. The narrow ends were neatly together and by way of decoration some water-snail shells had been dotted round them. As I stood there I heard the shrill cries of the stilts and could see them flying overhead.

The sky was blue ; the hot wind heralding the approach of the dry weather blew in gusts, stirring up the dust ; the sun was hot, very hot, and as I retraced my steps to the thorn tree beneath which I had been sitting I could feel my shirt sticking to my back. Sitting once more in the scanty shade, I looked out across the blue water of Bundala Lagoon. The opposite shore danced in the heat and occasionally cormorants would come past in threes and fours, flying low over the water with firm wing-beats.

Scanning the shore and dried flats through the glasses I could see the squatting forms of brooding stilts and Kentish Plovers dotted here and there among the short grass. Through the telescope one could clearly see the feathers of the birds being slightly ruffled by the wind. In the shallows were those birds who were temporarily having a respite from domestic cares. None of them appeared to be feeding, however ; perhaps they were feeling the heat too and were merely cooling their long legs. Unhitching the telescope from its stand, I carried both towards the place where I had left the car.

Pushing through the bushes, I noticed two leaves that had been neatly sewn together at their edges and further investigation revealed, as I suspected, the tidy residence of a tailorbird, containing one tiny and speckled egg. The nest swayed gently in the wind.

The car was oven-like, but my inner self declared it was nearing lunch time: so I braved the heat and continued in a half broiled condition to Ridiyagama, where I had a word with the irrigation officer and was then allowed to drive along the bund of the tank. Turning up the track at the end, I parked the car under a tree and lunched near the water. Clouds were piling up in the south-west and their shadows chased

across the expanse of water. The back-lighted wavelets gleamed like silver. A Pied Kingfisher was fishing in the shallow water close by and a Pied Crested Cuckoo alighted on a nearby bush.

I found myself looking at something on the flood-wrack on my left—two white stripes and a central black one. It moved and I realized it was the nape of a brooding Red-wattled Lapwing. Several times while I was watching she left the place and searched for food by the water's edge or stood close by preening. Always she returned to the same spot. I carefully marked the place and during her absence searched for the eggs. However carefully I looked, I could not spot them even though I knew they were within a few feet from where I stood. My efforts did not go unrewarded, however, as I discovered a pair of Great Reed Warblers building their neat nest in a low bush standing in the water.

I made my way back to the car and returned along the bund. Turning right at the village, I soon came to the place where the road runs along the West Bund. Numbers of bushy trees stood in the water at no great distance from the shore, and these to my delight were covered with nesting Herons, White Ibis, and Egrets of all kinds.

I was rather surprised to find these birds nesting as late as June, since all authorities agree that the season is generally in the first months of the year. However, nesting they were, and through the telescope I could see that many of the Egrets and some of the Herons were still incubating. Others had scraggy chicks which called ravenously for food whenever their parents came in sight. The Ibis were nesting rather apart from the Egrets and Herons, and the trees they chose were not so bushy, some being almost bare. These were also further out in the tank than were the others, but bringing the telescope into use once again, I clearly saw the bare and blood-red patches of skin beneath the wings as the birds flapped about among the nests.

So greatly was I intrigued by the sight before

me, that I spent most of the latter part of the afternoon seated on the bund with my eye glued to the eyepiece of the telescope, and not even the appearance of a family of four sooty water-hen chicks and their parents could divert my attention for long. Not until the sun was fast dipping behind the south-west clouds was I able to drag myself away and return along the road to the coast. It was almost dark as I reached the Bundala turn-off, but I could not resist having a last look at the stilts: so turning onto the grass flats about a hundred yards down the road, I stopped by the channel and soon had picked out the white front of a brooding Black-

winged Stilt that showed clearly against the dark ground.

The four eggs lay together in the shallow depression that was the nest. The narrow ends were neatly together and by way of decoration some water-snail shells had been dotted round them. As I stood there I heard the shrill cries of the stilts, but could hardly see them overhead. Close by I heard the lap of the water on the shore and the occasional plop of a frog in the channel; from farther away behind the sand dunes came the murmur of the sea.

Reluctantly I turned back, and leaving the birds in peace, I drove home.

A Visit to Kumana Bird Sanctuary

March 21st to 25th, 1958.

By VALERIE JONES

SINCE it has long been my ambition to do a trip to Bagura and Kumana, I felt I could scarcely believe my good fortune when I arrived with my brother at Pottuvil to find the rest of the party ready, and our expedition actually beginning. Our object was to film the nesting birds in the sanctuary, and we had brought a punt, which David had just completed, in which to explore the villu. The Warden had most kindly enlisted the help of the Game Ranger at Okanda, Mr. Jayawardena, and I must say that his kindness and assistance to us all, and to myself in particular, were invaluable. He had arranged for two bullock carts to meet us at Panama, where we left David's Morris at the doctor's house. We transferred all our kit to the carts, reserving only the essentials for the jeep, which had to carry the punt. Roy and Mary decided to try to take their Vanguard in, and succeeded in getting through a good deal of very rough country, but after the jeep had twice towed it out of difficulties we came to a deep mud and water patch that

definitely spelt "Stop" for it. David and I went on to Okanda, where we unloaded and I remained with Mrs. Jayawardena and her small son, a dear little boy, while the jeep fetched the others. Mrs. Jayawardena revived us all with cups of tea, and we were made very much at home in the empty bungalow nearby. We drove down to the beach to enjoy a very pleasant bathe, and on the way back were lucky enough to see an elephant.

Time being rather a problem, the Ranger persuaded our carters to start for Kumana at 2 a.m., taking the trackers Piyasena and the famous Garuwa, and David's 12 bore. They had quite an eventful walk, as they met another elephant and were charged by a buffalo, which was turned by a shot fired over its head. We heard a leopard near the bungalow during the night: it had been round several times, apparently, trying to get a cow.

An early start and a lovely drive through beautiful park country brought us to the Kumbukkan Oya about 9 a.m. We should not have made such good time if the Ranger

had not been with us to point out the best detours, for the track is in extremely bad condition. We saw little or no game on the way, but had a good view of a Black-necked Stork on some dunes. The Bagura Oya presented no difficulties being only some 6" deep since the cutting of the sandbar.

After setting up camp Mr. Jayawardena and David went off to reconnoitre, and reported very optimistically on conditions in the villu. The punt, on its first test, worked very well, though not quite as stable as Mr. Jayawardena's outrigger canoe, which he had very kindly sent to the villu for us. On his advice we confined our filming to the mornings, as the villu is patronised by a number of elephants in the evenings, and we had no wish to share it with them! We therefore spent a leisurely afternoon, bathing in the river and exploring it in the punt. We were liberally entertained by bird and animal life, in the shape of Grey Langurs and Toque Monkeys which abound in the great trees that shade the camp site, and Red-vented and Black-capped Bulbuls, Black-headed Orioles, Common and White-breasted Kingfishers, to mention only a few of the species; and a quite incredible number of Pied Hornbills. On one occasion, when they were alarmed by something, a tree literally exploded hornbills in all directions! That tree must have held 30 or 40 of them. In the punt we got within 25 feet of a young Serpent Eagle of rather unusually bluish-grey colouring. Elephant trumpeted in the distance, and late in the evening came the roaring (not "sawing") of a leopard very nearby, and the anxious calling of sambhur.

David and I took the punt down river at dawn, and paddled down to the estuary. The rising sun laid a gold carpet along the water; interested families of monkeys stopped their breakfasting to peer down at us. A Stork-billed Kingfisher flew upstream, and a little later I had my first glimpse of the tiny Three-toed species, as one flashed across in front of us. At the top of a tall straight tree on the village

side of the river, we saw the nest of a White-bellied Sea Eagle, with the heads of two chicks just visible. On a neighbouring branch sat one of the magnificent parent birds, perhaps gloomily contemplating another busy day of food finding for its hungry family!

Because of our morning voyage, we were rather late reaching our rendezvous at the villu, and the Ranger was there before us.

David went out first, and ensconced himself in the tree he had selected; then Mr. Jayawardena took me out in the canoe, whilst the Camerons took the punt. The entrance to the villu is beautiful. Green tunnels of mangroves open out on either side, starred by white water lilies, and through the curving counterpoint of branches the sunlight filters in emerald drops. Above, in a burning blue sky, storks and pelicans spiralled upwards on still wings. It was wonderful to see the villu opening out before us, and hear the shrill chorus of the young birds.

My first endeavour was to take plenty of film of the adult birds before trying for pictures of the nests, which might scare them away for some time. The Pelicans were very shy, but the Painted Storks less so, and the most obliging species was the Open Bill, unfortunately, not the most photogenic: the grey hens and immature birds, especially, look as if they would benefit from a good wash!

Having, I hoped, secured enough film of the adults, we selected a suitable bushy tree, with a footing on firm ground, and here Mr. Jayawardena landed me and left me to film the nests: meanwhile he went off to help David, who had found he was insufficiently hidden to get any shots of Painted Storks building. For this, and to see the young being fed, it is certainly necessary to build a hide and let the birds become accustomed to it. Unfortunately we did not have time enough for this.

By climbing a little way into the tree, I had a good view of several nests. There were three broods of Open Bills, all fledged but in different stages, and a single chick that must have been a second laying, for it was very tiny, still clad in

black down with a pink plastic beak. There was an Ibis nest with two eggs in it, and a brood of four just ready to leave. Lower down was a Grey Heron's nest, with a single chick, fully fledged, and just opposite in a similar tree two Egret nests with young in the same stage.

We now made an addition to the party, in the shape of a young Pelican. It fell out of the nest and was picked up by Roy and Mary in the punt. Since it was impossible to reach the nest and put him back, and he seemed a strong and lively chick, I decided to take him back to Colombo where he would find a good home at the Zoo.

As the day wore on the sky clouded over, and after a last look round the villu we made our way back through the water lilies to dry land. The water level had fallen about 6" during the morning, and Mr. Jayawardena had trouble getting the canoe through, and got out and waded through the last bit. We found some small White-breasted Waterhen chicks hiding in the reeds, and quite a large flock of Whistling Teal. Last back in camp, I found the others had finished lunch, but had kindly left enough for me!

Late in the afternoon David and I took the punt upstream a little way. Several small flights of Egrets and a few Storks passed overhead, and we thought it odd that they should be heading away from the nesting area. Presumably these birds are not nesting, and after feeding in the villu by day return to roost up the river each night. Early in the evening we heard elephant and later sambhur, but no leopard that night. Just as we were about to have dinner it began to rain. We heard the downpour coming, roaring through the trees, and for a dreadful moment wondered if it was the river coming down in spate in a second flood. However, it was no more than a heavy rainstorm, which tested out my new tent most satisfactorily. We were worried about the road back, and the level of the Bagura Oya, but it transpired that the rain had been local and had done no harm.

The next day was fine, and the driver took the Ranger back to Okanda at dawn, returning to

camp in record time: about 2½ hours. David again visited the villu, with Piyasena, but I had used all my film and anyway one of us had to start packing up, so I remained in camp. By lunch time everything was packed in the carts, and we looked about for the carters. They were gaily enjoying a swim, and the bulls were nowhere to be seen! Realising that they would be very late arriving at Okanda, we struggled to unearth some tins from the carts, thinking it wise to take our supper with us. The carts, finally started at 2 p.m. and we followed an hour later. After crossing the river, which had risen only a few inches, we stopped on Bagura plain under a big palu tree and had tea. Several small herds of deer began to wander out, and we saw five sambhur go down to the lagoon. A small sounder of pig came out, and a few peafowl, including one cock with a fine tail. The buffalo in this area are, on the whole, much better specimens than those at Yala and Wilpattu, especially the lone bulls. I expected to see more deer, but I understand from the Ranger that the population has dropped considerably of recent years. Amongst other contributing factors is the great increase in jackals, who have become very predatory and account for many of the fawns. I do not know if the Departmental staff have to contend with much poaching in the area, but the lack of a jeep such as the Game Rangers have at Yala and Wilpattu must make their task more difficult. It seems to me that a jeep is just as necessary at Okanda as in the National Parks.

The big tree at the Bagura camp site is still alive, though badly burned by pilgrim fires. The palu trees in the vicinity are very fine specimens, and if the Department is considering planting some shade trees these might answer the purpose. The well still provides good water, I am told, though we did not sample it.

Back at Okanda, we first had a look at our pelican, which the Ranger had taken back with him in the early morning, for we were unable to find any fish for him at Kumana. There were plenty of small fish in the river on Sunday,

but on Monday it had risen and was running faster, and they had all vanished. Probably it would be possible to get fish if one warned the villagers in advance.

The next morning we thanked Mr. Jaywardena for all his help, and set off about 8 a.m. We were running short of oil in the jeep, so it was most fortunate that we met the next party on their way in and were able to borrow some, returning it by messenger from Panama. We visited Panama tank, where a number of Jacanas are nesting, and then went back to unload the carts at the doctor's house. Here we were met with the news that the ferry had sunk. The rest of that day, and a good part of the night, were a nightmare of cutting a path to get the cars down to the sandbar, and getting tractors to tow them across. Luckily the weather stayed fine, so while David was tractor hunting the rest of us took the jeep down to the beach and bathed. Sooner than expected, the driver walked down with a message that they were ready to start towing: we told him to rush back in the jeep and tell David to start on his car, without loss of time, and to send the jeep straight back for us. Unfortunately the driver was needed for the operation, so we were marooned in the sea, bereft of all save our swimsuits, for the two hours it took them to get over, have a row with the tractor driver, (who refused to return to fetch the other car) and walk back! Since it was out of the question for the jeep to tow anything over the steep sand-dunes (it only just got over alone) it looked as if the Vanguard was stuck. At this juncture I was sent over to the resthouse by canoe, with the pelican, who needed feeding. Here I met Mr. Bartholomeusz, of Messrs. Maurice Roche, who most helpfully got his dealer's tractor to come to our assistance. Roy and David were already on the trail of this dealer, who was known to own tractors; and after being unloaded the Vanguard was successfully towed across, the kit being ferried over by boat. At last all was well, and we finally got

back to the estate at 2.30 a.m. The drive back was made interesting by the sight of a large pangolin, the first I had ever seen.

Despite our difficulties we were very lucky, and consider it a very successful trip, for which our most sincere thanks go to the Warden of Wild Life and his staff, who helped us so much.

To conclude, I attach a brief note of the conditions met with on the trip.

Roads.—Panama-Okanda bad, just jeepable, improving with continued dry weather. Okanda-Kumana not quite so rough, but deep water in places.

Rivers.—Bagura Oya very low since the cutting of the sandbar, but had been quite impassable prior to that, and might become so again if heavy rain falls. Kumbukkan Oya very full, estuary open.

Camp Site.—On the Kumbukkan Oya, excellent, few mosquitoes, pleasant in afternoons and evenings.

Kumana Villu.—It will be difficult to take a boat in unless the water rises.

Birds Seen at The Villu.—

Open Billed Storks: large numbers, young fledged, many ready to leave.

Painted Storks: plentiful, have just finished building.

Pelicans: plentiful, young not yet fledged.

Egrets: large numbers, all stages, majority of young fledged.

Grey Herons: not so many, young fledged.

Night Herons: few, young not yet fledged.

Ibis: few, young fledged, nearly ready to leave, but one or two nests in earlier stages as well.

Cormorants: small colony, not nesting.

Whistling Teal: large flock, believed to be nesting.

White-breasted Waterhen: seen with unfledged chicks.

Purple Herons: none, though possibly the odd one may have been overlooked.

Spoonbills: none.

Jungle Adventure

OKKAMPITIYA TO KUMANA DOWN THE KUMBUKKAN RIVER

By REX JANSEN

In the *Times*

A TRIP into the jungle starts long before one really undertakes it. First comes the planning. Maps are poured over and the course carefully plotted. A compass is taken in case one gets lost.

What shall we eat? We cannot carry a gun. It is an extra burden which must be eliminated. We are three and there are only three haversacks. Everything must get into these, our food, our clothes, a tent, a ground sheet and other miscellaneous things we need. The only thing we carry in our hands is an axe for our defence. Our food must be easy to cook and easy to carry as well. Noodles and oats provide the answer. A few tins of salmon, corned beef, a bottle of sauce, chillie powder, salt, sugar, cocoa, tea, powdered milk and chocolates are all we can carry.

And so on one September morning 1957, we set out on the first lap of our journey down the Kumbukkan Oya. We took train from the Fort to Haputale and thence by bus to Buttala which was the real starting point of our trip.

From Buttala we walked to Okkampitiya, a distance of nearly five miles. The sleepless journey of the previous night had told on us and we decided to call it a day at this village which is on the river.

We were about to pitch camp in the bed of the river when a villager, with the proverbial generosity of the Ceylonese villager invited us to his house. We gladly accepted. That night we swapped yarns about our jungle experiences. Hinniappuhamy, for that was his name, briefed us on how to deal with the bear and the buffalo, the two most dangerous animals to be encountered in Ceylon jungles.

"It's sheer madness to get into this forest without a gun," Hinniappu chided us. "Anyway, now that you are determined on going let me give you a few hints on how to tackle the

bear. One of you hold him at bay with a stout stick. The other must attack from behind with the axe. Don't panic," were his words of advice. "If you meet a buffalo, the best thing to do is to avoid him. If he charges your only hope is a tree. Finally, don't say anything out of the way. This is "deyiange rata" (God's country). The gods will visit you with their wrath if you do so. A safe journey to you, sirs."

With his words ringing in our ears we set out early next morning on what was to be an eventful and adventurous trip.

What peace pervaded the jungle! The only sounds we heard were the song of birds, the occasional warning bark of a deer as he ran away from us, the belling of a sambhur telling the others of our presence, or the distant trumpet of an elephant calling to its mate.

We would occasionally see a big herd of deer or a herd of sambhur drinking by the edge of the water and we would stop to observe them. We would attempt approaching them as close as possible. It was fascinating to watch these animals in their natural habitat at such close quarters.

Suddenly ahead would emerge a huge antler. He would sniff the air, cock up his ears and stand stock still for a while. He would then give a bark and out of the jungle would scoop out the rest of the herd.

That day we walked for nearly eight miles and struck camp about 4 p.m. by the side of the river in a spot we thought was perfectly safe. We lit two fires on either side of the tent to scare away animals.

The jungle at night is most terrifying. Every little sound, the crack of a twig, the bark of a deer, the hoot of an owl, the distant trumpet of an elephant or the plaintive "hoot" of a bear, give the jungle a most eerie aspect. In spite of all my jungle experiences, I felt ill at

ease. To the adventurous, however, it is adventure that gives immense pleasure.

The camp fires were burning high and we felt secure. That was probably why we three of us went to sleep. We were suddenly awakened by a tremendous crash behind the tent. We jumped up with fear. The fires had gone out, a half moon cast its pale light on the jungle. And by that light we were able to distinguish the shadowy outline of an elephant very close to the tent. We were petrified and perhaps that was what saved our lives.

Although I am an agnostic I said a silent prayer instinctively. He passed by slowly. In ten minutes he was gone. No sooner had we recovered from the shock than a leopard "sawed" so close that I swore I felt his breath. We shouted in concert and scared the beast away. It was in the morning that we learnt that we had camped beside a game track.

Panic gripped one of our number. He insisted on turning back. In spite of all the cajoling and all the coercing he would not change his mind. So the next day we were back at Okkampitiya. But on the day after, my friend was more confident and back we were on our journey. That night we camped amidst some rock in the middle of the river where we were quite safe from surprise visits. From the safety of our rock we watched the animals around us.

We passed through some of the most magnificent jungle I have ever seen. The trees were massive. The majestic kumbuks spread their branches in an arch over the gently-flowing water of the Oya. So tranquil, so still was the place that it gave one a sense of peace with oneself—a peace which passeth all understanding.

This was the home of His Majesty the Elephant. They were all around us and we had to watch our step lest we took them unawares.

It was here that we noted some of the various trumpet calls of elephants. One of my friends, an experienced jungle man, interpreted them for us. "Ah!" he would say of a shrill trumpet, "he has scented us and has warned the rest of

the herd." Then suddenly on our left there would be a roar. "Careful, he is angry," he would say and we would run for cover.

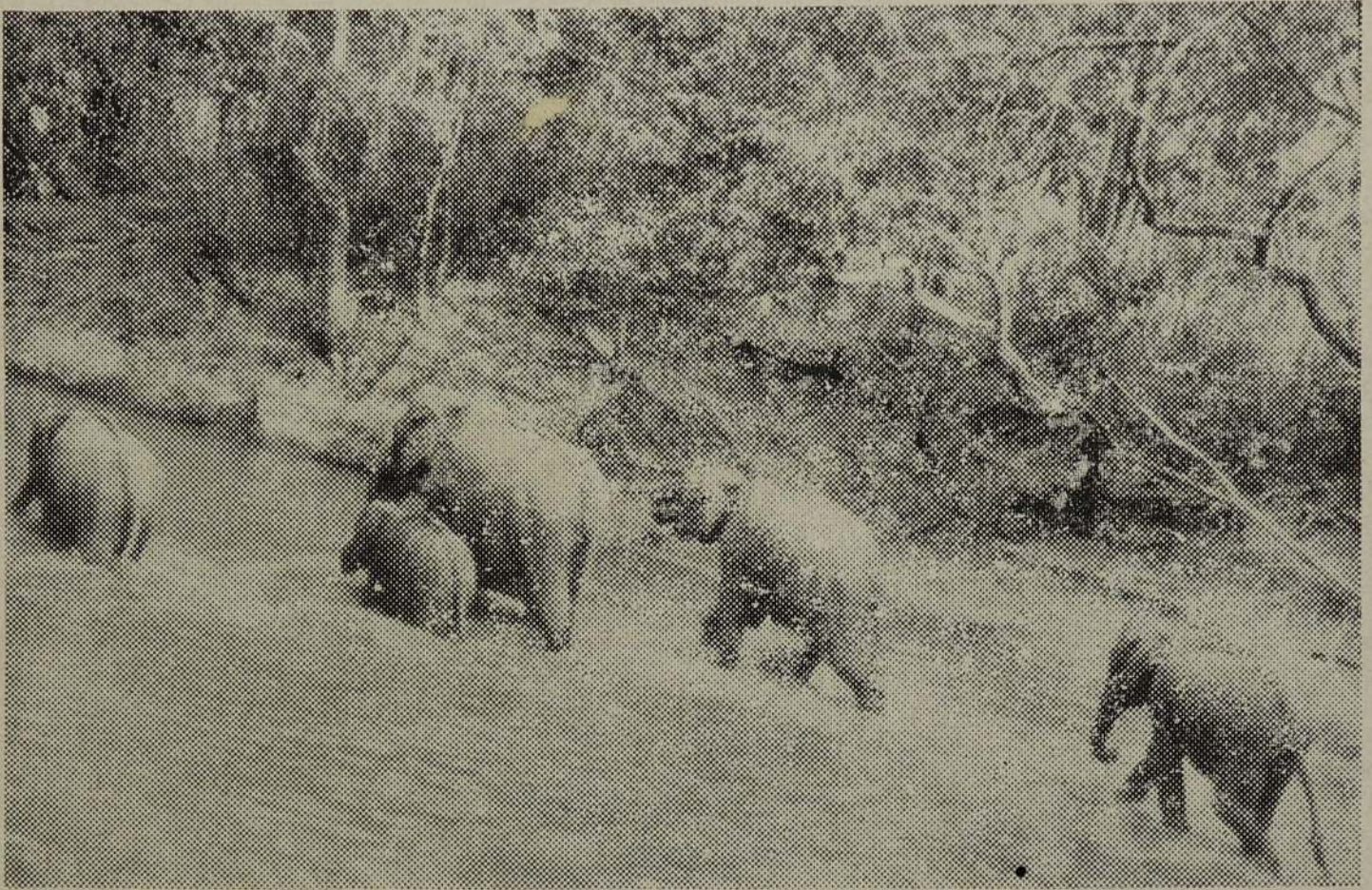
We noticed that animals in this part of the forest were not afraid of us. Deer, sambur and pig did not run away on seeing us. We moved very close to these animals and they did not show the slightest sign of fear. This probably is due to the fact that they have seldom come into contact with man.

Wild buffaloes were plentiful in this part of the forest. We had to proceed very cautiously shouting out most of the time to scare them away. But buffaloes are lethargic animals and very difficult to frighten. Often we had to make big detours through the jungle to avoid them. One of them unexpectedly charged us. Fortunately for us there was a tree close at hand and easy to climb. Up we went and unable to trace us he went back into the forest.

It was on the fifth day that we saw a bear at very close quarters. It was early morning and we were having our tea. He was crossing the river barely 30 yards away from us. Slowly but sure-footedly he was jumping from rock to rock across the river and we watched him for well over 10 minutes. It was our luck. I suppose, that he did not see us, for bears are known to attack on sight.

The going was becoming more and more difficult. We could not walk along the banks any longer because the jungle was too thick to penetrate. So we were forced to walk in the water and on the sand. This made us very tired. We hardly trekked five miles that day. We would have been glad of a respite but we just could not stop because our food supplies were running out fast. According to the map we had more than ten miles to cover to come to Kumana, at the mouth of the river. That was a two-day journey.

It was the last night of our journey along the river. On the previous night we camped on an island in the river. Having had our dinner we had retired to rest. We had not put up our tent on this occasion. Bears were calling all



Elephants on River Bed

around us. We heard an elephant approaching. We did not know from where he would emerge. Suddenly His Majesty came out from the forest directly in front of us. We made for the nearest tree. He strode up to the water and began drinking almost under the tree we were on. He was blissfully ignorant of our presence above him.

He drank his fill and was bathing for well over half an hour. We decided to test his reaction to a flash of the torch. There was suddenly a frightful roar, a stamping of heavy feet and off he went. We spent an uncomfortable night on the tree because there were elephants all around us.

It was not until we saw the first streak of grey-eyed dawn that we decided to leave our perch. It was truly a wonderful morning, a morning one would only dream of. The song of myriads of birds of all description and of all colours greeted us. There were the painted stork, the pelican and the hornbill. Cormorants and egrets wove in and out of the trees. We knew we were near Kumana, the island's most

beautiful and most prolific bird sanctuary. And Kumana is where the Kumbukkan meets the sea. It is a beautiful little hamlet nestling in the jungle.

The villagers are a hospitable people. They treated us lavishly to a meal of pittu. With their blessings for a safe journey we started on the trek to Panama, 25 miles away, through the Bagura plains.

This was easily the most difficult part of our journey. The land was almost desert. There was nothing but sand for miles on end. The sun played down on us relentlessly. It was the first time I knew what thirst was. There was no water anywhere. With our tongues cleaving to our palates we walked almost mechanically to Okanda, a distance of about 10 miles. That night we stayed with the game ranger who was kind enough to entertain us at his place although he had just come there from Yala on transfer.

And so early next morning we set out for Panama—and civilization—at last.

Maritime Elephant

By CHARLES S. ROWE

THERE is, I believe, a widely held theory that elephants will not swim in sea water. Here is a factual story which disproves this theory once and for all time.

On the night of January 7th, 1958, the Royal Naval Police Marine Patrol visited Sober Island. On landing at Java Jetty, they found quite definite evidence that an elephant had been at that spot at a very recent hour. I personally visited Sober Island on the morning of January 9th, and simple tracking led me to the only well on the island where I found ample evidence that an elephant had been able, not only to slake his (her ?) thirst but to indulge in a wallop in an adjacent pool caused by the recent rains.

At about 1900 on January 14th, four Petty Officers from H.M.S. "Highflyer" were fishing at the rear of Honeymoon Cottage which, as most people are aware, is one of the oldest residences in the Royal Naval Yard, Trincomalee. Suddenly these fishermen heard a great splashing which they took to be caused by some large fish; imagine their surprise when, on flashing a torch in the direction of the sound, they saw an elephant scrambling out of the sea at the end of Honeymoon Point. Petty Officer Riley, who came to my bungalow together with his companions, gave me a graphic description of their experience and stated that there was definitely only one elephant and that it had made off, along the foreshore, in the direction of Nicholson Cove.

At about 0800 on January 15th, this year, Major Stevens, District Officer, Royal Artillery, telephoned me the news that an elephant had been seen by one of his Watchers at "Oxford Circus," which is situated in the direction of Chapel Hill. It was, apparently, close to the fence surrounding the Army Generating Station and was trying to obtain water from a trough by putting its trunk through the bars of the fence.

I immediately proceeded to the spot and, although I did not sight the elephant, I was able to measure a very clear foot print which, on calculation, gave me the impression that our

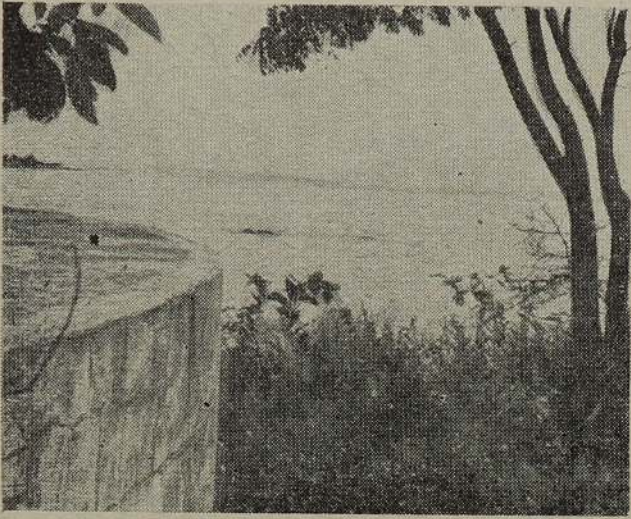
visitor must stand about 8 ft. at the shoulder—quite a sizeable elephant.

It is interesting to note here that there have been the inevitable rumours about this visitation. Fishermen and the driver of a well known taxi firm have definitely seen two elephants; the elephant has or is going to have a calf, etc., etc.

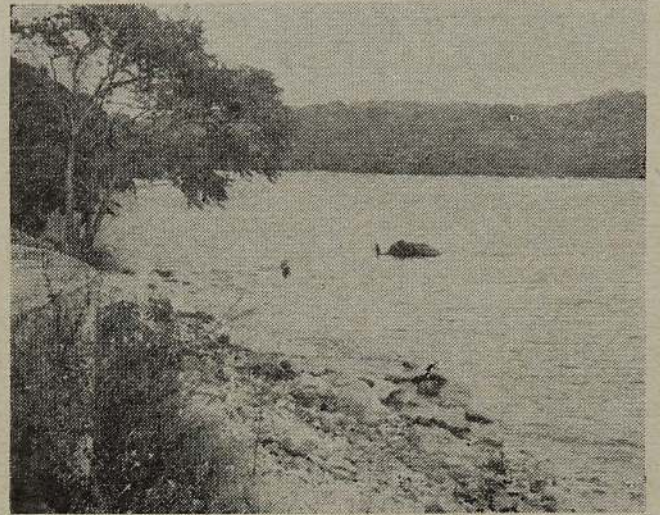
On the afternoon of January 16th, four sober males gathered at Honeymoon Cottage and over a brew of tea discussed a plan to obtain a sight of the elephant. The party first examined the place where the elephant had landed and then traced its course along the water's edge where it had obviously walked along to Nicholson's Cove. Some further discussion then took place and it was decided to proceed to Hood's Tower by car and start the search from that point. However, our four Petty Officer friends were again engaged in their piscatorial art and somehow the party was delayed. What a lucky break! The occupants of a native fishing craft, which was passing, informed us that they had just seen an elephant walking along the foreshore at Elephant Point. Two of us therefore decided to go back to Honeymoon Point and take a look through binoculars—and what a look! Suddenly, without any warning, a huge head appeared from around the Point and there was our elephant not ten yards away! Fortunately for my companion and me, the surprise was mutual and whereas we "stood not upon the order of our going," the elephant turned and retraced *her* steps in the slow and dignified manner which only an elephant can achieve; and this in broad daylight and no camera!

As many are probably aware, past residents of Honeymoon Cottage have planted plantains and kitul palms at the rear of the cottage. This was undoubtedly the attraction and, by concealing ourselves and possessing our souls with patience, we were privileged to witness the elephant enjoying her evening meal.

Not only were *we* (our party consisted of Captain Cecil Hooper, Commander Stacey Gare, R.N., Mr. H. C. Paterson and your scribe) so privileged but we were able to summon



' the only part visible was the top of the head and a little of the back.'



' . . . from time to time she took a breather.'



' . . . she paused to take a look at Cecil and me.'

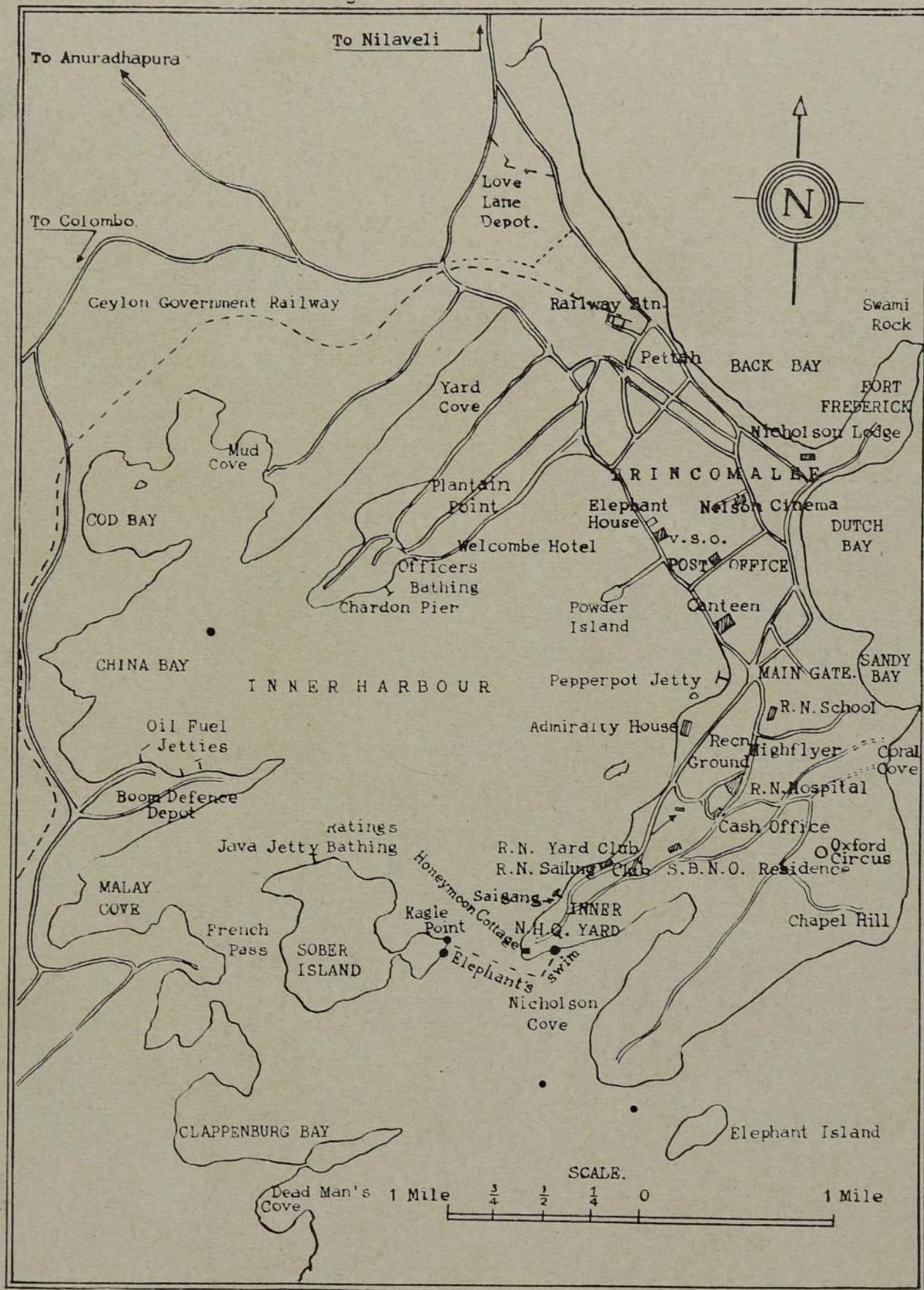


' then ambled off in the direction of Nicholson Cove.'



Honeymoon Cottage garden after visit of Elephant.

All the pictures on this page are the Copyright of Charles S. Rowe, Nuwara Eliya.



Trincomalee Harbour—the 'Elephant's Swim' is indicated.

considerable numbers of our friends with their children and give them a "front seat" view from behind the wall of Honeymoon Cottage. After what must have been nearly two hours of observation, the latter part in the baleful light of the green navigational light at Honeymoon Cottage, our elephant decided to call it a day and the last we saw of her was her enormous bulk sliding into the sea. The remarkable part of all this was that we were not more than fifteen yards from the elephant with the wind *behind* us yet our obvious presence seemed not to disturb her at all!

The following day, January 17th, I visited Sober Island in company with Cecil Hooper and there was ample evidence that the elephant had returned to that sanctuary. There seemed no reason for us to interfere or disturb her solitude but it is regrettable to have to record that many of the local inhabitants of Trincomalee thought otherwise and large parties of "shikaris" proceeded to visit the Island. This probably accounts for the events which took place on Sunday, February 16th, 1958.

I was taking a much needed siesta (after a monumental curry with the usual preliminaries) when Cecil Hooper, who lives at Honeymoon Cottage, telephoned me at about 1500! I was all prepared to improve his education on auspicious hours for the use of the telephone, when he said, "Come as quickly as you can, Charles, and bring your camera—the elephant is swimming over again from Sober Island." I am unaware of the record for a standing start from bed to destination but I must have set up a record which will remain for all time! On arrival at Honeymoon Cottage, I was privileged to record the unique photographs which you see reproduced here.

Cecil Hooper told me that he had first spotted the elephant about half an hour previously, on the foreshore of Sober Island at Eagle Point. He said that she appeared out of the jungle and had made one or two sorties along the narrow beach before entering the water. The distance from Eagle Point to Honeymoon Point, mea-

sured on the chart, is 1,700 feet and the greatest depth of water is 33 fathoms. Allowing for the drift of current, which at that time would have been running at between one and two knots, it is estimated that the elephant must have covered a distance of some 2,500 feet and that in the time of 17 minutes. Some swimmer! During the swim the only part visible was the top of the head and a small portion of the back, as the picture shows; from time to time she took a breather by exposing the tip of the trunk. Eventually, on finding ground beneath her feet, she paused to take a look at Cecil and me and then ambled off in the direction of Nicholson Cove. We were able to watch her for a while but, as the foreshore curves, she was soon out of sight. Quickly embarking in a launch, we again saw the elephant about half way down the Cove. She must have been startled by the noise of our boat's engine because she suddenly disappeared into the jungle and our next sight of her was on top of Ostenberg Ridge. It is interesting to record that, during her climb, she had dusted herself with the surrounding terrain making her difficult to spot against the open gravel patches. Back to shore and into the car, we proceeded to Ostenberg Ridge where, after some not so easy climbing, we again sighted the elephant at close quarters just below the reservoir. By this time it was getting dark and we were obliged to abandon our observations. Since then the elephant must have again made the swim to Sober Island and back because on the afternoon of March 31st the R.N. Police patrol at Inner Yard reported having seen an elephant landing at Honeymoon Point. This is the last report to date and diligent search has failed to again locate our Maritime Elephant.

Tailpiece: When the elephant made her first trip back from R. N. Yard to Sober Island, I sought the advice of The Department of Wild Life who were most co-operative in sending a Warden from Vavuniya. This officer was able to assure me that the elephant was indeed again

in residence on Sober Island and that he had been able to view her at a distance of about 15 yards. The Warden informed me that a licence has been proclaimed for the capture of this elephant but the insuperable difficulties attached to such a venture make me hope that it will never be issued. Already legend is building up about this strange visitation. It is said that the elephant has come back to Trincomalee Royal Naval Yard to see if the British have left ;

that she will remain until we *do* go, when she will pass the word to her mates to return to an ancient elephant sanctuary—who knows? I can only conclude by voicing the hope that our “Royal Naval Elephant” will long enjoy her freedom and eventually find her way back to her kind.

(*Ed.*—We sincerely hope that the licence for the capture of this captivating creature has been revoked.)

The Ceylon Elephant

By J. H. WILLIAMS (Elephant Bill)

in Ceylon Observer.

DURING a visit to Ceylon in 1955, I had the honour to be invited to a Symposium on Fauna Conservation. The danger to the dwindling population of the wild elephant in Ceylon was discussed.

I was prompted to speak. My main interest then was to know the estimated population, and how this estimate had been arrived at. As expected I was readily satisfied that it had been purely guess work, and on that I strongly confirmed the opinion, founded on experience, that there was a most pressing need for an elephant census.

It is not probably understood by some what an elephant census means and all that it entails. Now, three years later, it is of particular interest to me, to receive from my publishers, a headline cutting of the “Ceylon Daily News” in which Dr. Spittel, President of the Wild Life Protection Society, proposes that I might be considered by the Ceylon Government, to undertake a census, and prepare a conservation programme.

For this reason, I am submitting this letter to the public to express my reactions and general opinions on this problem which to me is of national importance.

It is very evident, that both The Wild Life Protection Society and the Government are

alive to the alarming and certain threat of extinction of the Ceylon wild elephant, but there is delayed action.

That the threat of extinction is great there can be no doubt. Of equal importance, of course, is the damage done to crops, increased land development, irrigation schemes, and forest silviculture. These must progress. They have to be understood, appreciated and taken into consideration before any action can be taken.

The public must be made fully conscious and understand what a catastrophe will befall Ceylon if she loses this great gift of her fauna—the elephant, on which her very history, coupled deeply with her religion, is built up. This is not sentiment but a matter of national pride. Conservation is most essential to the future of humanity and a conservation movement cannot reach its objective until the concept is accepted as a part of the culture and belief of the people of Ceylon.

Some years ago, following the last Kraal operation in Ceylon, public opinion was voiced strongly against this mode of capture and control. Today, it is not so aware of what is happening. Indiscriminate shooting of individual animals by cultivators doubtlessly needs control by legislature, but that is by no means all. Wild

herds have become so broken down in numbers, locked in by cultivation and other schemes of development in isolated and congested forest areas, that they have been deprived of their natural habitat and migration cycle. They are so harrassed, that the birth rate had dropped alarmingly. This alone means certain extermination.

Only by giving them back that which is demanded by nature, by organised and systematic planning can there be hope of survival. Further, the elephant is not only part of the fauna, but essential to natural regeneration in the mixed deciduous forests. That, in a nut-shell, is why a census, or term it an organised and reliable estimate, is imperative.

Within one year every herd should be plotted, known and referred to by name, as to its strength and movement. On that and that alone can follow a successful plan for conservation.

• My first reaction is that a campaign of educating the public to that end is of immediate and paramount importance. It should be launched immediately commencing at primary school level, and making full use of the press, magazines, educational broadcasting, teaching films and every other available aid.

A census and plan is more practical for Ceylon than any other country I know. Wet and Dry Zones are so clearly defined ; it is well mapped ; roads and tracks are far more numerous than in any other countries where the wild elephant is indigenous ; the Island is populated, though in scattered proportions, by men who are great naturalists.

They possess invaluable knowledge of local areas, which co-ordinated, would lead to rapid work in a census, and prove invaluable in the execution of any accepted plan.

Coupling my name with this problem means more than a great number of people outside the Wild Life Protection Society can be expected to appreciate. It would not mean merely counting and estimating with accuracy the distribution of actual herds, and of equal importance, solitary males, but of a full under-

standing of the working and problems of every department of Government affected, so as to present a practical and acceptable plan.

It would, however, be a full time occupation for one year, so as to include all Seasons, for on the Seasons depends the migration, breeding and habits.

The fact that any one year might be climatically abnormal would not affect the census work. Within that year a plan would emerge, and it would be submitted to the Ceylon Government. The actual census period and preparation of a plan would cost a considerable amount of money. But the plan itself when in operation would not, as it would become the concern of all Government departments working in co-operation under the guidance of the Warden.

The plan would probably cover a period of ten years, divided into two sub-periods of five years each, in particular relation to the expected increase in the birth rate of elephant calves. The height of ambition to such a plan would be, that after ten years, not only breeding in the wild state would have returned to normal, but that breeding in semi-captivity would be fully established. This latter outcome, I am convinced, is the ultimate defeat of this threat of extinction of the Ceylon elephant. Any forecast on this is dependant so much upon the census.

The work for one year would necessitate a team. I personally could not attempt it without the help of Major Aubrey N. Weinman, Director of the Ceylon Zoo and others selected in consultation with the Warden, Dr. Spittel and others.

Something concrete would have to be prepared and the actual approach to International Societies for financial help would have to be on the highest level by Government. I suggest a preliminary assessment be made of this proposal, and I would be prepared to make a visit to Ceylon at the invitation of the Government, to scrutinise and organise the scheme generally.

Such a visit would greatly inconvenience me,

as at this stage there is no certainty that census or conservation plans will materialise, but I cannot imagine how I can gain the confidence which would have to be placed in me, or formulate a scheme, without it.

If Government accepts in principle the proposals of The Wild Life Protection Society, I should have intimation at an early date, as I have been approached for a lecture tour in U.S.A. for winter, 1958-59. I should like to express my sincere interest, that if my services

are required they would be given in full measure, to Government, to The Wild Life Protection Society, and the entire interests of the people of Ceylon, applying everything of my knowledge, experience, organising ability, and integrity.

This interest, coupled with my love of Ceylon and her people gives me the confidence that with the co-operation of those I came to serve, it would result in the saving of this sagacious and lovable animal, the pride of Ceylon fauna—the Elephant.

(*Ed: With deep regret we report the death of Elephant Bill on 30th August, 1958*)

THE PROTECTION OF THE WILD ELEPHANT

By F. W. A. SOYSA

Bata-ata, Hunugama.

The last copy of your journal (vol. vii, No. 6), contained much matter on the problem of the protection of wild elephants. I would wish to make some observations from the view-point of a cultivator which has not been adequately touched upon by the numerous "wild life enthusiasts," a symposium of whose opinions had been given.

I would, first of all, set down the conditions that prevail in the agricultural zones where the elephant intrudes. I refer only to the areas that fringe the habitat of the elephant and established human habitations. For example, the village of Bata-ata. Here, at the end of the drought, this is about October, elephants from the hinterland visit the villages of the coastal areas in search of food and water. The jungle foliage on which they feed and their water supply having dried up, they naturally wander down to the cultivated areas where there is food and the village tanks hold some water. This seasonal visit occurs year in, year out.

It is then that the inevitable clash over rights occur. The animals are not content to go back to their own territories with the rains but linger about like those guests who hang on in spite of hints of the lateness of the hour. They feed

on the village gardens, dispute the right of way on village tracks, monopolise the village tanks even before nightfall so that women dare not go for water, and are emboldened enough to, sometimes, go about in daylight.

In days gone by, it was customary, when these depredatory beasts arrive, for the village headman to muster the villagers and drive the animals back to their own haunts, which, in this case, are on the upper reaches of the Walawe Ganga. But now the days of Raja-kariya are gone, and the headmen have not the same standing in the village in matters like this as before. The V. H. of Bata-ata informed the writer that he could not find volunteers the last time the animals were here. It is also an established idea among the present-day villager to expect the Government to do everything for him which, previously, he did for himself.

The result is that these unwanted visitors stay on, and during their sojourn receive, in return for all the damage they do to cultivations, innumerable gun-shot wounds. The cycle completes with wounded animals turning on human beings resulting in awful tragedies, or, in the miscreants leaving the neighbourhood to die a lingering death from festering wounds.

What the villager would like to ask is: "Why don't the Government see that these animals, who have unwittingly strayed into human habitations, are promptly driven out?" A small herd of five elephants were first observed in Bata-ata village on October 26th, last, but they were driven out finally only on the morning of December 5th by exasperated villagers of neighbouring Gurupokuna. The V. H. was not there. The authorities had not taken the slightest notice all this time although the Hambantota Kachcheri was notified of the presence of elephants. (Since then the animals have not come back). Had the authorities taken steps to have the herd removed on their first arrival in the village, these unfortunate beasts would not have received the innumerable shots from village guns. The writer was informed, somewhere in January, by a villager of Bata-ata, that a month-old carcass of a full-grown male elephant was found by herdsmen who had gone to the Gajaman Mukalane (a few miles north of Bata-ata village) in search of their cattle. So ends this sad episode.

One writer requires the villager to be "sturdy, persevering and hard-working," all this we endeavour to be—and to "keep awake all night, lighting fires, beating drums and shouting," all this we do. Yet for all, the wild animals invade our gardens and destroy the crops.

Section 13 of the Fauna and Flora Protection Ordinance permits the cultivator, "after notifying any police officer, to pursue it (the elephant) and kill it in the jungle." This right is not practicable for the simple reason that the cultivator has no suitable firearm for elephant hunting. If his intentions were nefarious he does not notify a police officer before, say, going out after a tusker. It is very unusual for an elephant to fall to a shot from a smooth-bore gun, but, more often, it dies of the cumulative effect of the innumerable shots it had received in the course of its depredations.

One policy which to us seems so asinine is that compensation in case of crops damaged by wild elephants would be calculated only for

"the shortfall in food supply for the family needs." In other words, the surplus belongs to the wild elephants.

Another short-sighted regulation is that cultivators who are "rich" may not be compensated, but only those who are "poor." Presently it is the headman who assesses the crop damage, and also the worth of the aggrieved party. In this instance it is hard to be counted poor, and so, none, or few claims are entertained.

What would be the inevitable result of this callousness? The man who gets no compensation satisfies his vengeful spirit by shooting the animals. 13 elephants are valued at about $1\frac{1}{2}$ lakhs, or Rs. 11,500 each (please see p. 443 of *Loris*, vol. vii, No. 6). If a wild elephant is worth so much to the country, Government should take greater care of it.

Some suggestions have been made to safeguard elephants:—

(1) *Driving of elephants from fields and gardens without recourse to shooting.*

Fires and shouting do make elephants wary, specially the former. But what happens on a rainy night? A mere drizzle can put the fires out, and the wind makes the shouting ineffective. It should be noted that the rainy season is also the chena season.

(2) *Stouter fences round the chena.*

What about the more permanent cultivations in gardens—coconut, fruit trees, plantain, etc.? Usually these are fenced with four, or five, strands of barbed wire, and often a thorn fence added to boost it. Yet it is nothing for an elephant to place its foot on the top strand and press them all down to the ground. In its coming in, and in its going out, it breaks all the wires down with consummate ease. It also happens that the village cattle trespass by the ingresses so made and sometimes do worse damage to the garden. But, mark you, the villager's claims for damage done by the elephants only are entertained. The villager's submission is that there is no adequate fencing, unless it be a stone rampart, to stop the intruding elephant.

(3) *Proper watching of cultivations.*

We would ask what exactly this means. If a landowner while lying asleep in his house is disturbed at midnight by the ripping of timber and wakes up to find a marauding animal in his garden, must he be considered as not watchful enough? Or, must he have to watch from a tree night in, night out? What must the next step be that he must take on a pitch black night, with rain falling, and the wind veering round and round?

To summarise :

- In order to safeguard this valuable animal—
1. Elephants that make inroads into cultivated areas should be forthwith driven out of such areas, the initiative for this should be taken by the wild life authorities.
 2. Full compensation should be paid by Government unconditionally to *all* who have proved a claim for damage caused by wild elephants.

Sporting Postscript

By PHILIP K. CROWE

THE arrival of *Loris* opens pleasant vistas of days and nights in the jungles half a World away. I drift again with the Old Moors down the winding reaches of the muddy Mahaweli ; cast my flies in the gin clear streams of the Horton Plains ; wait for leopard in the moonlight at Okanda ; and study the brilliant and varied bird life of the ancient tanks. Since leaving Ceylon a year ago last October, I have done a good deal of travelling ; and even though my opportunities for sport have been limited, I believe some of them have been somewhat unusual.

Take fly-fishing in Russia. Early in September, I was in Batumi, the Black Sea port that lies under the Caucasus Mountains. Reminiscent of Nuwara Eliya, the tea-planted slopes of these rugged peaks are bisected by streams where in Tsarist days fine trout fishing was said to exist. The Russian word for fly is "muxa" ; and when I linked it with "ribu," meaning fish, the genial manager of the Batumi Intourist Office, said he would be only too happy to arrange a fly-fishing excursion for me. He did just this, but the flies were strung on a hand-line rather than on a fly rod ; the locale was the Black Sea rather than the mountain streams ; and the fish to

be caught were sea-, not fresh-water trout. Obviously, my Russian vocabulary was only partially adequate.

We set out early in the morning. The Manager, his attractive eighteen-year-old daughter, the Sub-Manager, and the captain of the fishing dory. Batumi is on the same parallel as Lisbon and is hot in late summer. The men soon stripped to bathing trunks as we chugged across the placid expanse to where a fleet of dories and trawlers were busily engaged in pulling in the "stravida" or sea trout. Drifting with the tide, the captain rigged nylon lines with eight large flies tied about a foot apart, and a heavy lead sinker at the end. We fished by raising and lowering the line in the manner of "jigging" for suckers. This was not as tame a business as it would appear. The stravida weighed about five pounds each, the nylon was slippery, and the flies close together. As we attempted to hoist a fish aboard, it was necessary to grab the line between these needle-sharp flies and if the line slipped, the choice became one of chancing a barb in the hand or dropping the line and losing the fish.

•We caught eight fine stravida, lunched sumptuously on the beach of Green Cape,

and sailed back in the sunset with the Caucasus throwing purple shadows on the quiet sea.

My one chance to shoot wild fowl in the Soviet Union—on a lake near Moscow—was prohibited by the departure of the jet airliner, TU-104, to Central Asia; and my desire to bag a wild goat of the Tien Shan Mountains was frustrated by the unwillingness of the local authorities to allow me to leave the city of Alma Ata. It seems that larger explosions than those made by hunters' guns were then echoing down the valleys of the "Mountains of Heaven," and the Governor of Kasakhstan ordered me restricted to the town. All I could do was peer sadly through glasses at the snowy summits where Theodore and Kermit Roosevelt once hunted and later described their journey so vividly in their book "Eat of the Sun and West of the Moon."

On my return from Russia, I saw vast herds of reindeer in the tundra lands of Finlands; and later when we flew over the southern end of the Greenland ice cap, we dropped low enough to see a polar bear sitting majestically on a large berg. Fearing only an occasional esquimaux hunter, the arctic bear is as much lord of all he surveys as the elephant of the Ceylon jungles.

In the spring of last year, I had a few good days fishing in the trout lakes of Connemara in Ireland where the cloud castles sailed across the horizon and the big brown trout rose with a swirl to the mayflies. Later, in the summer, I fished for rainbows in the fast water of the Blackfoot River which runs through the ranch where my daughters and I visited near Greenough, Montana. And in December, during the recent NATO Conference in Paris, I walked along the Seine and chatted for a moment with an

old man who had been dangling his worm in the river for most of the day without reward. He told me, however, that on the preceding day, he caught a magnificent eel. Fishing, like diplomacy, is a patient business.

The most satisfying times out of doors I find at my own place in Easton, Maryland. Situated on the Eastern Shore of the Chesapeake Bay, the estate, known as Third Haven, borders the Tred Avon River for several miles and affords some fair duck and goose shooting as well as excellent opportunities to study wild fowl. As I write this, I can look across the Bay formed by Long Point—a peninsula where the land juts out into the River—and see a great flock of wild swan sitting on the water. Nearer along the shore are two herons, and swimming just off the lawn is a flock of Golden Eye. These pretty ducks, though wild, are fed with corn and have become quite tame. Canvas Back, Black Ducks, and occasional mallards are shot from four shore blinds and then retrieved from the river by King, my Labrador. In the fields, there are a few covies of quail, as well as rabbits; while in the woods, live four foxes I know of, and perhaps twice that number of raccoons. No deer stay permanently in my woods, but I have seen a half dozen emerge from it this Fall.

During most of the year, my nearest neighbours are almost a mile away with the result that the quiet of the land is seldom disturbed. My daughters bassets baying a rabbit, or the honking of the geese as they fly in their wedge high in the winter sky are often the only sounds to break the solitude. Like Bill Phillips former house high in the tea country of Namunukula, there is a sense of peace that is rare and desirable in this difficult and hectic world.

A LEOPARD IN ORANGE AND CREAM

By A. N. WEINMAN, *Director, Zoological Gardens of Ceylon*

MRS. W. B. Thompson of Colombo drew my attention to an article by Mr. Frank Rose entitled "The Case for White Leopards" in the *Field* of April 16th, 1955, as well as a letter in the *Field* of October 4th, 1955, headed "The Leopard's Spots" from Mr. H. A. Fooks. There was also a photograph of two leopard skins, one of ordinary coloration and the other without black markings.

On the 10th of August, 1952, there was born in the Zoological Gardens of Ceylon, a pair of cubs which gives a splendid and correct idea of the variation in colour that occurs amongst leopards. These two cubs had as grandfather a black panther, as the melanistic variety is more commonly called, named Blackie, who has since been sent to the Cairo Zoo. The grandmother was an ordinary leopard of normal colour named Hilda. Their cub named Nera, that is the son of the black panther, an ordinary leopard, was mated to an ordinary female named Rosie. This mating resulted in the abnormal cub called Blondie and another cub which showed a tendency towards melanism by being several shades darker in colour than the usual leopard cub is at birth. The male cub was called Tarzan. Both Tarzan and Blondie were abnormal in colour at birth though this was very much more pronounced in Blondie. She was as near white as white could be, but in the undercoat light orange spots were visible. I first thought she was going to be an albino, but I soon discovered that the eyes did not react to sunlight and that there was no trace of pink in them. In fact the colour varied from palest blue to aquamarine depending on how the light caught them. As the cubs grew older the white changed into cream and the light orange grew correspondingly darker. By the time the animal was a year old she tallied exactly with the description by Mr. Fooks, resembling a large sized tortoise shelled cat in shades of orange and cream. The eyes were still blue. Could this variation in colour be due to lack of melanistic characteristics or is this a blonde or xanthic sport?

Tarzan, her brother, grew into a handsome leopard darker in colour than the average leopard. I should say he is at least three or four shades darker, but he has a long way to go to approach the black panther.

Both are very beautiful creatures and showed black panther characteristics in being exceptionally ferocious even at a very tender age.

I have tried ever since they reached maturity to breed from them and have been very disappointed that there was no result. I am happy to say that after a course of Testosterone they produced a couple of cubs. The cubs are both males, again one a darker phase of the ordinary leopard and the other one just like what the mother was when she was born, *i.e.*, very light cream with light orange spots and blue eyes.

I now propose to mate Tarzan to an unrelated ordinary female; Blondie to an unrelated male black panther, and when the two cubs have matured I shall carry on further experiments.

In closing I should mention that the black panther is very rare in Ceylon. As far as I am aware only two or three have been recorded. The black panthers in the Zoo are of Siamese origin and have hitherto always thrown black cubs only. Their offspring crossed with ordinary Ceylon leopards have only thrown all blacks, but the cubs have been darker in colour than the cubs of ordinary leopards and correspondingly several shades darker than ordinary leopards when adult. What deductions, if any, can be drawn from this I do not know. Albino leopards are rare in Ceylon if not unknown entirely, but there is not the slightest doubt that the normal ground colour is subject to many varieties. Black is a very strong colour and usually breeds true, but I have had an isolated case of a pair of black panthers producing one black and one ordinary cub in the same litter. Unfortunately the cubs were still born and only exist in specimen jars.

ABOUT A KING, A BUFFALO AND CROCODILES

By DR. R. W. SZECHOWYCZ

CEYLON has a very old history and hence it is no wonder that the country bristles with legends and stories. As these are of interest, the staff of the Forest Branch keep their eyes and ears open for whatever material that may come their way and record them carefully.

In the Lower Catchment Area of the Senanayake Samudra the following stories were recorded:—

“In the olden days a Sinhalese King was travelling from the coastal area towards the hills *via* Bibile. As his horse was not in a fit condition he broke journey at Alupitiya (a small village situated south of Deliva). All efforts were made to cure the horse but finally the horse died and was buried at this spot.

The king continued his journey in the direction of Bibile on a buffalo named ‘Ruwala,’ which was given to the king by the loyal inhabitants of this area. The buffalo was sent back by the king on completion of his journey and this animal which had the honour of serving the king was not used thereafter for any work and was looked after with great care and respect in a place where the present village Reulvala is situated. It is said that the name of this village originated from the name of this buffalo.”

Close to Alupitiya the villagers pointed out a tomb which is marked with stones placed in a semi-circle and stated that it is the tomb of the king's horse. Local tradition further states that about 60 years ago the Ratemahatmaya from Bibile came to this place and made an attempt to dig up this grave, but this attempt was foiled by a mass of black ants (kadiyas) which swarmed all over the place and made digging impossible.

The second interesting story, most probably connected with the same king, was recorded by a Forest Officer.

“A king was travelling towards Bibile, and

when crossing the Gal Oya river he noticed a man-eating crocodile in the water. The king attempted to kill the reptile with his spear but failed. The crocodile escaped into the river carrying with it the king's lance which was driven into its body. The king's minister, Kappagoda, who accompanied the king on his trip jumped into the river, killed the crocodile and recovered the lance.

For this brave action he was highly rewarded by the king.”

The king in question most probably was King Rajasinghe (1632—1682) as it is known, that he has made several trips to the coastal area in connection with his agreement with the Dutch to oust the Portuguese from the Maritime Provinces. The villagers, however, do not know the name of the king, as to them a king was a king. The name of his companion Kappagoda is remembered.

The conclusion that this king must have been King Rajasinghe was made by the Director of National Museums in Ceylon; Dr. Deraniyagala when writing on crocodiles he records:

“One of the earliest references to man-eating crocodiles from Ceylon is the tradition that King Rajasinghe (1658 A.D.) thrust his javelin into the jaws of a large specimen which attacked him as he attempted to cross Gal Oya.”

This event must have taken place during the dry season, when travelling through the Dry Zone is possible. At this time the Gal Oya river usually carries only a small quantity of water with a few deep pools here and there in which even at present crocodiles can be often observed. Muslims from the village of Kotabova hunt them with spears even today. They use canoes and after locating crocodiles through release air (bubble) they spear the reptiles. There are no man-eater crocodiles at present in the Gal Oya Valley and it is doubtful if they were in this river in the past. The crocodile which was killed by the king must have

been the "Hala Kimbula" (swamp crocodile, *Crocodilus palustris*) which grows in Ceylon up to a length of 13 feet. Only this crocodile is found in the Gal Oya river and in the tanks in the Valley. This species in this part of the Island is fortunately not dangerous but in certain tanks of the Island many people lost their lives to this "harmless" variety. Dr. Deraniyagala writes on this reptile:—

"The Ceylon animal is not frequently a

savage man-eater and often frequents strongly saline lagoons."

In the Valley in spite of the fact that this reptile is often seen (it was even seen in newly-constructed channels and often damaged fishing nets, etc.) no one was attacked up to date.

The crocodile Pitiya Ketiya (Esturine crocodile, *Crocodilus punctatus*) which grows in Ceylon up to 21 feet in length and which is always very ferocious is found in the Valley only in lagoons close to Mandur, along the coastal belt.

SOME FACTS ABOUT PYTHONS

By A. N. WEINMAN,

Director, Zoological Gardens of Ceylon.

A GOOD deal has been written in herpetological literature about the habits of pythons and other constrictors, but little first-hand knowledge is available.

Since 1926 I have more or less continually had the *Boidae* under my observation. I have kept pythons both big and small as pets. Some have been very tame and I have been able to study their habits. I have also come across them in the jungle, and even captured both the local python—*Python molurus* and the Malayan python—*Python reticulatus*. I have heard many stories about pythons but most of them are fantastic and there is no point in repeating them. I have been told of pythons of 35 and 40 feet but these I regard as the usual traveller's tale.

What I am about to state is based mostly on what I have observed of these large snakes in captivity and to some extent in the wild. The biggest python I have ever seen is *Python reticulatus* which measures 30 feet and which is still with me in the Dehiwala Zoo. The largest specimen of *Python molurus* was 17 feet. I had this specimen some years ago and was sorry to lose it some time later. I have seen many specimens of *Python reticulatus* between

20 and 30 feet and there have been times when I had as many as a dozen *reticulatus* with me of this size. At present I have only two very big ones, *i.e.*, the one of 30 feet referred to above and another one of 27 feet.

In 1950 a *Python molurus* hatched out 18 little babies 8 to 10 inches long. They used to be a wriggling handful and they grew very quickly. About 50 per cent. survived. The rate of growth varied, some grew fast, others slowly, depending on the temperament of the babies. The most active got the most food and naturally grew fastest. The rate of growth appears to depend only partly on heredity and more on temperament.

It is not generally known that a female python has to mate with several males if all the eggs in both ovaries are to be fertilised. It is therefore evident that fertilisation may be by males of various sizes and condition. For this reason although the babies are very much the same size when they are hatched out, by the time they are two years old they vary a good deal in size and health. In nature snakes eat very large meals without any bad effect. The swallowing capacity of a python is about a fourth of its own weight. So that a python

weighing 100 lbs. would have no difficulty in accounting for an animal 25 lbs. in weight. They seem to know their capacity pretty well, and seldom kill anything too big for them to swallow.

I once saw a 15-foot *Python molurus* with a spotted deer stag in its snout. It was so gorged that it was easily destroyed. The stag was in velvet. In captivity very large meals are not advisable particularly if the space is confined. I feed my big snakes at intervals of about three weeks and always take care not to overfeed them. As soon as they are hungry they begin to move about which indicates that they are looking for food. They are accordingly fed in the evening when the prey is stunned and put in through the cage. They seldom take dead food particularly after rigor has set in, but so long as the body is warm there is a reasonable chance of their consuming it. They are extremely temperamental and fastidious, some prefer pigs, others rabbits, others chicken, fish and so on. I once had a python who refused food for months although it was tried with every conceivable animal. I had read that some of them who are used to creatures which have a musk gland refuse other animals, so I tried it with a rabbit which I anointed with musk. It fed that night, and every time I gave it a musk smelling animal.

Python eggs are quite easy to hatch provided they are kept at a temperature of 23° to 25° centigrade. The baby snakes are quite docile and seldom or never bite unless roughly handled, but as they grow older their temper takes a change for the worse. The males are

usually timid and shy, but the females are bold and intelligent.

Python molurus is very often to be found in captivity and becomes extremely docile and adapts itself to all sorts of strange surroundings. It seldom grows to more than 13 or 14 feet in length, but it is quite stocky and powerful. There is hardly any variation in colour or body pattern. For food it prefers small mammals and readily takes rats, hare, etc.

The Reticulated Python, as I have said before, is the largest of the constrictors. Its favourite food is the wild pig but it is not averse to deer and other mammals. It is very temperamental, but it has been noticed that large females are very much more dangerous than the males. There is a good deal of colour variation in the Reticulated Python. The Reticulated Python is more arboreal than the *Python molurus* and also more nocturnal. Other varieties of Python are the black-tailed Python, *Python molurus* (*Bivittatus*), the African Python, *Python Sebae* and *Python regius* of West Africa. There is also the Blood Python, *Python curtus* from Malaya, Sumatra and Borneo. These pythons are much smaller and live on small mammals, chickens, etc., but none of them are so amiable as the *Python molurus*.

Pythons make very good pets and seldom bite their owners once they are tame. They are very clean and no difficulty at all to feed because they readily take rats. They seem to get to know their owners and even learn their names. They are largely used in the show business because they are so peaceful and get used to human beings.

PROTECTION OF WILD LIFE IN SWITZERLAND

ABOUT 50 years ago it had been noticed in Switzerland that the ibex, which for centuries had lived in the Alps, had disappeared. Urgent and appropriate measures had to be taken for this purpose. Some young couples were purchased abroad, fed and brought up,

then set free in different places on the Alps. That happened in 1911. Since then, a strict law is in force, protecting these handsome animals which counted only a few years ago 1,365 specimens, grouped in 16 different colonies, spread in 16 mountainous regions.



ibex—Eastern Switzerland

The ibex is a less cunning animal than the chamois, and if the wind is favourable, the males let people approach them to a distance of 40—45 yards. This is the reason why they disappeared, while the more wily chamois persisted much longer without protection. The ibex have not caused any harm to the beautiful troops of chamois that live in the same regions. Without avoiding each other completely, those two species do not mix. Thanks to a strict protection which regulates the hunting season and specifies the number of animals to be

killed, there are now in Switzerland about 35,000 chamois, of which 5,000 are hunted yearly.

Another ruminant which at the beginning of the century was rare, except in some hunting reserves, is the roe deer. It is now very numerous almost everywhere, and about 18,000 animals are shot yearly.

To come back to the ibex and its development: in 1951 one of the communities in the region where the ibex are numerous, asked the local Inspector of Hunting and Fishing and the Federal competent office for authorization to shoot 40—50 ibex yearly under payment of Sw. Frs. 1000—1500 for each animal, on account of the damage caused by these large quadrupeds to the agriculture in the region. To solve the problem, inquiries have been made and reports have been obtained. The reason for that damage lay in the fact that in the previous season the heavy snowfall had driven the animals towards the cultivated areas. It had been possible to establish the exact number of ibex living in the district: 650. But the rigorous winter had killed out nearly 250 of them, so that only 400 animals were to be considered. The Swiss Association for the



Marmots at lunch



Chamois buck in the Engadine

Protection of Nature intervened publishing an article stating that if 30—40 animals were shot yearly, in a few years there would not be any

ibex left in the district, for from a colony of 400 animals there would be about 70—85 births a year, but as only 30—35 per cent. of the young animals would survive their first winter, only 21—30 of them would be alive. Also the disappearance of the old ones had to be taken into account. The appeal concluded that there would be a number of other communities that might like to get specimens of ibex, and even a neighbouring foreign country had declared that it would be happy to have some for the repopulation of frontier districts.

This intervention has been successful, the concerned community has withdrawn its plea to have the ibex shot, and it has been decided to preserve the animals with a view to repopulating other districts.

Today, about 1,500 ibex live in Switzerland, and this figure increases every year. Everybody, either climbing or travelling in the alpine railways, enjoys more and more the sight presented by these beautiful and bold animals.

WITH ROD AND LINE IN SWITZERLAND

IN this small land there are no less than 20,000 miles of rivers and streams, while the lakes occupy an area of 521 sq. miles. These waters are situated at heights between 700 and 6,550 ft. above sea-level, and they vary in their configuration and fauna as much as in their altitude. Such a wide choice of conditions puts the angler on his mettle, for he is presented with a fascinating range of problems the solution of which can be a source of unending joy. For those who know how to adapt themselves there is indeed excellent sport in store.

The management of fishing waters is given first priority, and good stocks are maintained, thanks to judiciously applied protective measures and constant re-stocking.

ANGLING TECHNIQUES.—Good catches can be obtained only if the technique adopted and the bait are suited to the water one happens to be

fishing. In the short space of this statement we cannot describe all the methods and tackle that might be used. Such details can be gleaned from any good angling textbook. The following points are, however, worth noting :

UPLAND LAKES.—Float-fishing from the shore with simple hooks and natural baits (but not with live bait-fish) is free of charge at most mid-altitude lakes in Switzerland. Catches are rarely impressive and usually consist of small perch and members of the carp family.

By taking out a fishing licence the visitor can, however, enjoy far better sport, for he can then angle from a boat, and hook pike, large perch and, in some waters, pike-perch. In the colder seasons lake trout and char can be caught by the same method. Spinning is suitable for the smaller lakes, but where larger expanses of water are concerned trolling gives better results. For

trolling we would recommend the following baits : one piece wobblers, about 3 in. long, two piece wobblers, up to $6\frac{2}{5}$ ins. long, or three piece wobblers, up to 8 ins. long, for pike ; "Colorado" type spoons, 2—3 ins. long, for lake trout ; and the same type of spoon, 2— $5\frac{3}{4}$ ins. long, for pike.

UPLAND RIVERS AND STREAMS.—Only a few of the rivers and streams at mid-altitudes are populated entirely by Salmonidae. Besides game fish, they usually also contain barbel, chub, beaked carp and, to a lesser extent, pike, pike-perch and perch. With such mixed stocks, bottom-fishing can be practised as well as fly-fishing and spinning. Depending on the type and depth of water and the species of fish one is after, float-fishing with natural bait or live bait-fish, ledgering or peternostering can all produce good results.

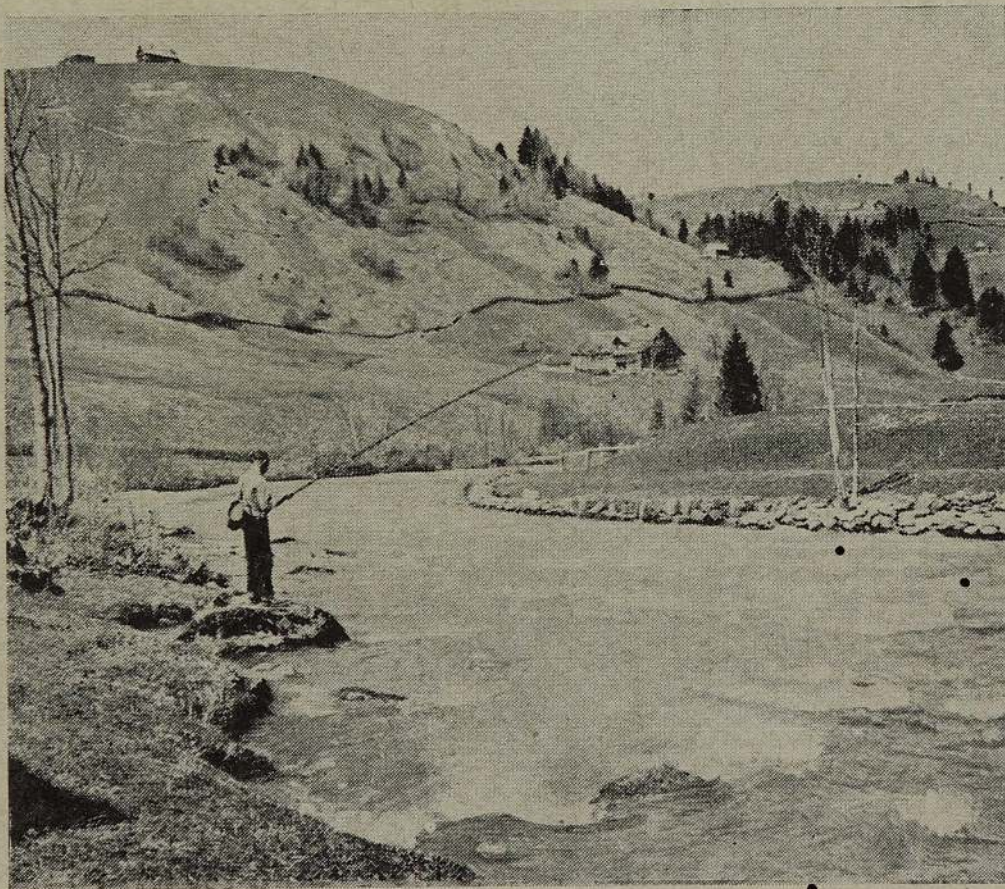
Artificial baits, whether spinners or artificial flies, are best obtained from local fishing-tackle merchants, who know the waters in the

neighbourhood and can recommend the most killing baits.

ALPINE STREAMS AND RIVERS.—Brown trout are in the majority, with rainbow trout and brook-char in second place. In the upper reaches, where the waters are turbulent, good bags can usually only be obtained with natural bait. Dapping with extra-light rods, 16—20 ft. long, is a particularly profitable method. Among the best baits are woodworms and grasshoppers. When a mountain brook begins to level out and has been swollen by tributaries, it tends to form backwaters and deep pools, which can be fished successfully with flies or spinners. Small spinners and wet flies are most suitable under such conditions.

ALPINE LAKES.—The most delightful of our fishing waters, these high-altitude lakes are situated at heights up to 9,200 ft. above sea-level and are framed by mountain ranges that are among the most imposing in Europe. They can be fished only for a short period during the height of summer, for only then are they entirely free of ice. The fish population consists mostly of brown trout, although the Canadian lake trout (namaycush) has been introduced in some lakes with promising results. Attempts to stock with rainbow trout and native lake trout have been less uniformly successful : in some lakes these species have flourished, in others the experiment has been a failure. Char are also to be found in certain lakes.

The best results are to be had by spinning with small spoons $\frac{4}{5}$ — $1\frac{1}{5}$ in. long and weighing up to $\frac{1}{6}$ oz. If the fish approach the shore dry flies can also be used to good advantage.



•Trout-fishing in Eastern Switzerland

FISHING REGULATIONS.—In Switzerland fishing by-laws are very complicated. A Federal law on shooting and fishing provides the legal basis for these regulations, but the management and leasing of fishing waters is the concern of the individual cantons. Opening dates, the cost of fishing licences and the minimum sizes and

which fish may be retained are, therefore, matters that vary from canton to canton. In order to avoid the possibility of misunderstanding and hence friction with the bodies responsible for the fishing waters, visitors are advised to study the regulations reproduced in the leaflet accompanying their fishing licence.

Hunting with a Camera in Canada

THE north woods are calling from Canada, and their summons to the camera-carrying fraternity is as imperious as it ever was to hunters armed with more lethal equipment. There's a special charm to hunting with a camera in Canada's most colourful season of the travel year.

There are some 14 million holders of hunting licences in the United States, but camera owners outnumber them by nearly three to one. A goodly proportion of these 36 million addicts of photography find the Canadian autumn offers them intriguing opportunities for outdoor adventure and picture-taking fun.

It's an ideal time for pleasure travel. Canadian highways now never better, are clear and uncrowded, and accommodation is plentiful without the need for reservations. The air is crisp and stimulating, and its clarity helps in making pictures needle-sharp. The sunshine is bright and warming, and the nights are blanket-cool.

In the 17 scenic National Parks of Canada, found in eight of the ten provinces, the woods along park highways become a riot of colors—orange, gold, green, crimson and russet-brown.

Autumn coloration unique in North America is found in Northern Ontario, where the bush country fills with golden light, touched with green, and from cool blue waters of the myriad lakes are reflected a galaxy of shades of red. There is the sumach's vivid scarlet, the Norway pine's trim green, the oak's deep red, and a range of pinks and bronzes on the elm, beech, ironwood and maple.

Throughout Quebec's Laurentian Mountains and Gatineau Hills oak, beech and maple groves are aflame with splendor when autumn comes. In Western Canada, Indian summer brings quiet, mild weather marked by gentle day-time haze and clear, cool nights. Climatically speaking, these and other parts of Canada pull out all stops as summer's glories shift to another season.

But what of the wildlife? The National Parks of Canada, all of which are federal game sanctuaries with hunters' guns forbidden, offer in the mountain parks of Alberta and British Columbia such species as buffalo, wapiti or elk, moose, Rocky Mountain sheep and goats, and of course, the ever-present families of bear.

When animals learn that humans will not harm them—and they have been so educated in the Parks for some decades now—they become astonishingly tame. So it is that in the National Parks of Canada visitors may photograph fawns at close range while the mother deer looks on, and the rest of the wild community shows a friendly interest in the human callers. Deer, elk and moose will come quite close without fear, and on the mountain highways Bighorn sheep allow visitors within easy camera range. For Rocky Mountain goats, however, a telephoto lens is recommended equipment; these high-climbing animals are shy and elusive.

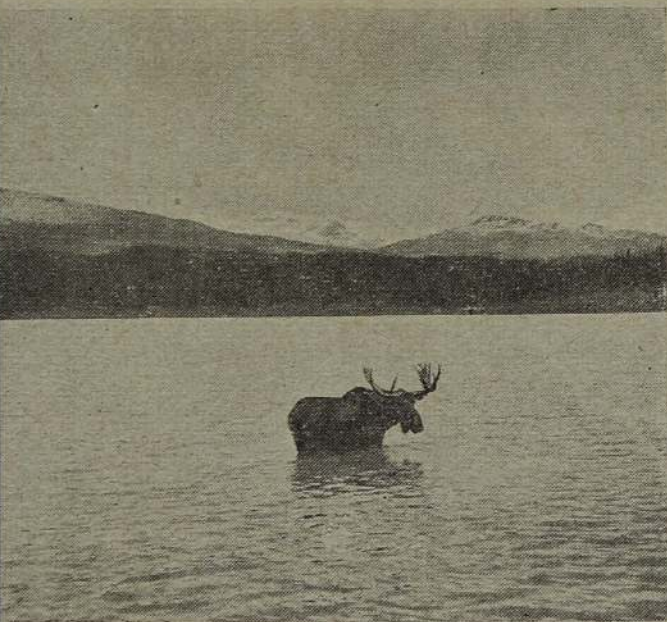
Banff and Jasper National Parks, perhaps the best known of the mountain parks, have such species as Bighorn sheep and Rocky Mountain



Rocky Mountain Goats taken with a telephoto lens.



Mountain Sheep—Jasper National Park, Alberta.



Moose in a lake in Jasper National Park, Alberta.



A bear cub being snapped as it wanders across a section of the trans-Canada Highway in British Columbia

All these illustrations are by courtesy of the Canadian Government Travel Bureau.

goat, mule deer, elk, black and grizzly bear, moose and cougar. Playful bears frolic on the fairways of the golf courses there.

If it's buffalo you wish to photograph, Elk Island National Park, Alberta, has an abundance. More than a thousand fine, healthy plains buffalo roam this 75-square-mile enclosure of lush pastures, fresh lakes and shade trees. Other big game species in this park include elk and a smaller number of mule deer and moose.

In Eastern Canada, an ideal stalking ground for the camera-equipped traveller is Cape Breton Highlands National Park on Cape Breton Island, Nova Scotia. It has white-tailed deer, bear and moose, and great bald eagles soar above its highest hills.

These are but a few of the sections of Canada with unusual opportunities for hunting with a camera. As in other countries, the advance of civilization has had the effect of driving back the game, and restricting its range, but Canada is fortunate in possessing still a vast hinterland of wild territory, in all its infinite variety of forest, lake, stream and mountain. There are many well-stocked game districts throughout the length and breadth of Canada which are tapped by railways or reached by modern motor roads.

Moose, deer, bear and smaller game are found in the wooded and unsettled areas of every Canadian province, while in the west there are such different varieties as caribou and lynx.

Let's see what each of the provinces has by way of photographic wildlife.

Newfoundland, Canada's most easterly province, is one of the country's finest hunting areas. The game includes moose, caribou and bear. Moose, which were introduced shortly before the turn of the Century, have multiplied, and caribou are next in importance.

There is not sufficient cover for big game in Prince Edward Island, but waterfowl abound. Nova Scotia has numerous accessible game areas, with moose, deer, bear, wildcat, fox and raccoon. The white-tailed or Virginia deer is particularly plentiful.

New Brunswick has more than 14,000,000 acres of woodland, providing fine cover for white-tailed deer and black bear. Moose is found also.

Quebec game includes moose, deer, bear and wolf. While the deer are found in most of the province's big game grounds, they are not so plentiful in the northern areas. Among the best deer grounds are the Laurentian Mountains, the Chaudiere district, Lake Magantic, Labelle county, the Gatineau district, and the lower Pontiac and Kipera districts.

In Ontario, white-tailed deer are super-abundant in the area from the northwestern shore of Lake Superior to the Manitoba boundary, and are plentiful in a belt across the province from the Sault Ste. Marie region to Ottawa. Bear are numerous throughout Northern Ontario. Southern Ontario is, of course, densely settled, and game is not so easily found.

Manitoba, though usually called a prairie province, has forests over 75 per cent. of its land area, providing excellent cover for moose, deer, bear, wolf and much small game. Deer are everywhere throughout the wooded areas, and bear are fairly plentiful. Riding Mountain National Park is a famed sanctuary for many kinds of game.

Saskatchewan, another prairie province, still has more than half of its area wooded, and deer are quite numerous, though moose and woodland caribou have declined.

In Alberta, the great national parks on the eastern slope of the Rockies are breeding grounds for moose, wapiti, deer, bear, Bighorn sheep, Rocky Mountain goat and other game. There are buffalo and antelope, timber wolf and coyote. Moose, deer and caribou abound in the wooded area of the north, and grizzly bear is found in the high mountains. Perhaps Alberta's finest hunting ground is in the vicinity of Sheep Pass.

British Columbia's game includes many species. Mountain goat, bear and deer are found along the various inlets and islands of the coast and wapiti is found in some sections.

Mountain sheep, mountain goat, mule deer, grizzly and black bear roam in the southern interior, and other fine hunting grounds with all these species plus moose and caribou lie in the Kootenays. The Peace River territory teams with game, and plenty is to be found in the central and northern interior, though the last is somewhat difficult of access.

Add to these areas the scenic National Parks, and the opportunities for capturing Canadian game on film are obvious. Information, literature and maps are available on request from the

Canadian Government Travel Bureau, Ottawa, Canada, which has also ground-floor offices in New York City and Chicago.

Cameras declared on entry at the border may be brought in free of duty, so long as they return with the visitor, and free entry is permitted for six rolls of film and 12 flashbulbs per person. Colour film is available at any Canadian city or town, and processing can be arranged also.

Canadian Government Travel Bureau, Ottawa, Ont.

Snips

CEYLON

Disturbed and Hunted Herds

Mr. N. G. Illangantilleke, an expert on the capture, training and treatment of wild elephants is of opinion that in the Nuwara Kalaviya district of the N.C.P. alone, exclusive of the Tamankaduwa district, there are at least 450 wild elephants. He says that the majority of these animals are in the forest area of Kanadarawa Wewa, which is now being cleared of jungle in view of the impending restoration of this major irrigation tank in the Medawachchiya electorate. The jungle clearing operations in this area have made the elephants scatter into the village areas of Pihimbiyagollewa, Kallanchchiya, Wahalangunachchiya, Ginikatuwewa and Kanadarawa.

He has come across about ten small herds of five and six elephants roaming in the village areas of Kirigollewa, Mahakongaskada, Kudakumbukgollewa and Palugollewa, having been driven out of the jungle clearing area.

In the D.R.Os. division of Nuwaragam Palata West, in the jungle areas of Gambirigawewa, Asirikgama, Udumbugala and Alutgama, there are, he says, over 80 elephants which he has counted. These are villages occupied by traditional elephant noosers and trappers. These villages border the Kanadara Oya and the Ma-

watu Oya, and the elephants are migrating to this area because of the availability of water.

Mr. Illangantilleke says that lately, following the Maha Willachchiya Tank restoration scheme, large herds of elephants have been disturbed and driven out of the Wilpattu Sanctuary area into the jungle areas of Ittikulame, Ranorawa, Ambagaswewa, and Kukulkatuwa. These herds have migrated into these areas in search of food and water.

In the area of Gallewa recently, he counted 60 elephants in one herd. Among them were three large tuskers. He believes that tusk-hunters, for whom the N.C.P. is notorious, are already after them.

Morning Times.

Prevention of Silting of Senanayake Samudra

A paper published by R. W. Szechowycz, of the Engineering Association of Ceylon, Colombo, in 1956 considers the problems resulting from the silting of the Senanayake Samudra Water Storage Reservoir which receives the waters of the Gal Oya river and controls the great irrigation plans of this valley situated in East Ceylon. Concern has been expressed on the accumulation of river deposits

carried down by the rains and which, largely due to the erosion of the slopes, would seriously impair the utility of the dam and its duration. Erosion is said to be caused principally by shifting cultivation (responsible for an annual destruction of some 5,500 acres of forest and jungle) and to grassland fires, lit by the farmers, which lay waste the whole water catchment area around the reservoir.

One of the measures which has been adopted to fight against these two destructive forces has been the creation of a reserved area around the reservoir—the Gal Oya National Park. The vegetation and wild life that would flourish there would give protection to the dam. Another recommendation concerns a vast programme for the utilization of the soil, to keep erosion to a minimum, and involves the collaboration of technicians including pedologists, sociologists and economists.

Mr. Szechowycz draws attention to the plentiful wild life that is to be found around the Gal Oya dam, including birds, reptiles and fish. The abundance of water birds, which often consume as much as five times their weight in fish daily, shows that fish are copious. However, those fish are not quite lost to the water community. The digestive system of the water bird is quite primitive, and the food is returned in the form of droppings. Moreover, since many of the fish feed on the malaria larvae, this has been a means of controlling the mosquitoes and has, in spite of the increase in surface waters, lowered the incidence of the diseases in the area.

International Union for Conservation of Nature.

Valley Park may vie with Yala

The Gal Oya Valley National Park and sanctuary opened in the Valley a few years ago bids fair to become as popular as Yala and the other sanctuaries of the Island. While in the past elephants and other animals were observed around the Senanayaka Samudra only at dusk or early morning, now visitors to the

Valley have observed them even as early as 11 a.m.

In the reservoir itself, trees are becoming the refuge and breeding places of aquatic birds such as the pelican, painted storks and cormorants.

The park skirts the boundaries of the Senanayake Samudra. It is likely to be the chief attraction to many visitors to the Valley.

14.4.58.

Daily News.

Wilpattu at Dawn

I cannot recall anything more delightful than going round Wilpattu at dawn.

Gradually day took over the misty Villus from the night. Slowly and silently the miasma rose over the glades making the dew on the blue carpet of minute kohorama flowers which surround the edge of the villus shine with silver.

A sounder of pig like a flotilla of slow-moving destroyers made their way towards the jungle through the mist. A herd of doe and fawns stood flicking their red flanks. With a whisk of white tails they had vanished. Peafowl, long tails trailing like a bride's train, glided across our path. A few lurking crocodiles saw the new day with a yawn. Jungle fowl, remarkably unafraid, displayed their colourful, sheeny feathers as they came into the open to escape the drips.

The sun quietly rose to clear the mist and wash colour on the waters and gave depth to the shady paths and game tracks on one of which a full-grown leopard's pug marks were visible over the wheel marks of our dawn arrival into his domain.

All around us were bird songs of jungle crows the first to rise and "coop" the Reveille. All in the space of a couple of hours we saw and heard peafowl, lapwings, battagoya, nilagoya, ash doves, parakeetes, whistling and cotton teal, Indian rollers and the "cock-koi-joyce" of jungle fowl.

Yes, the animals are there in the Sanctuaries

but in fewer numbers, and the birds too, than of old. Care is necessary, or even those places will fall victim to the poacher's gun and the drought.

D. J. G. HENNESSY,
in *Sunday Observer*.

Picnickers Save Turtle

A mother turtle, captured just after it had laid its eggs, was saved from a slow death, and becoming provender for many a larder, on Saturday night. It owes its life to the Colombo Horse Club picnickers.

Revelry at the Horse Club's moonlight outing at Mt. Lavinia was at its height when two fishermen were seen dragging along the beach a turtle they had just noosed.

Twenty-five rupees was what the men expected to get for it at the nearest market.

A whip-round, and willing wallets soon provided the money, and to the accompaniment of cheers the terrapin flipped its way back to the water.

Observer.

Friendly Flying Fox

Flying foxes live in colonies and all members of the community set out every evening looking for food. In the mornings they return to the particular trees which they have selected for their homes. They appear to sleep and are fairly quiet up to a little past mid-day: then they wake up and quarrel fiercely until sunset, when it is time to set out in the quest for food.

Periodically there appears to be a migration to pastures new, and such a migration is an awe-inspiring sight.

Flying foxes are purely vegetarian, and their flesh is edible. They are very destructive if one attempts to grow fruit, and are treated as pests in parts of Australia. It is said that they destroy young coconuts. I have no certain proof that they do this but I do know that they are very partial to toddy!

Some years ago—in the early 1930's—when coconuts had slumped badly, I leased out some palms for toddy-tapping. A flying fox had got at one of the pots one night and had become gorgeously drunk! He was picked up at the foot of the tree in the morning fast asleep, with a badly damaged wing.

I put him into a sort of aviary which was occupied by only a rock squirrel, to sleep his drunkenness off. He slept for 48 hours, and woke up very hungry. I gave him two bananas which, I found, was all he required in the way of food for a day: he would never eat more.

At first, the squirrel protested volubly at the bat's intrusion and the bat adopted a defensive attitude whenever the squirrel tried to approach him. In a very short time, however, each accepted the other's presence, although they never became friends. In course of time the damaged wing healed and the bat would move about quite freely. He became quite a pet and would answer to his name, which of course, could be nothing else but "Dracula."

After a time the squirrel died and I decided to break up the aviary and let Dracula join his friends. I counted without Dracula! He positively refused to go away and took up his abode on a tree in the garden. I shall never forget the Rev. Basil Jayawardene's amazement when he visited me one day and saw Dracula answer my call and come down to my hand for food. What was more, Dracula would follow me when I walked out, flying from tree to tree *en route*.

Then came the first "call of the wild" and Dracula sought his companions one evening. I missed him the next day, and thought I had lost him. The following morning, however, he was back on his tree, very sick and sorry for himself. He was bitten all over and a wing was badly torn: he had become an outcast owing to his association with humans, and the tribe would have none of him.

He remained quiet on his tree for many days, until the wing healed. The V-shaped tear began to knit at the angle and the edges were drawn

together, until the whole disappeared, without the vestige of a scar.

Dracula resumed his old friendly ways and lived on his tree for some time after that. But the second "call of the wild" came, and he answered. This time he never returned, and I can only think that his fellows killed him for his friendship with a human.

R. H. SPENCER SCHRADER,
in *Times*.

Set a Snail to Catch a Snail

There is good news, for gardeners who have found the Kalutara Snail to be a menace. Scientists have taken a page out of the book of life to control this pest. They have set a snail to catch a snail.

The small delicate shelled Gonaxis Snail from Africa lives on a diet of the Kalutara snail. Hence countries like Hawaii, Guam and Mauritius are now importing and liberating the predatory Gonaxis in an attempt to control the ravages of the Giant Snail, states the Publicity Division of the Department of Agriculture, Peradeniya.

Through the courtesy of the Chief Entomologist at Nairobi, the Department of Agriculture have obtained a number of Gonaxis snails for preliminary release and study.

The Kalutara Snail is really a native of Africa from whence it was introduced into Ceylon by an enthusiastic collector in 1900, unconscious of the potential dangers involved. Soon afterwards acting on the advice of the Government Entomologist, he destroyed all the snails he could find. Unfortunately a few escaped.

A man who worked near Rozella is said to have accidentally transported a couple of these snails in a gift of vegetables to a friend in Kalutara. Here the unwanted molluscs were thrown out into the garden, and were presumably the origin of an alarming outbreak near Kalutara in 1910.

Since then the snails have spread throughout

the Island in overwhelming numbers. So the Department of Agriculture hopes that with the liberation of Gonaxis, gardeners will get round to growing those prize blooms and vegetables which have so often been nipped in the bud by that arch enemy, the giant Kalutara snail.

Times.

The Warden Addresses Boy Scouts

At the Second Annual General meeting of the C.A.P.S., held in the Boys' Scouts Headquarters Hall on 29th March, Mr. J. A. de Silva, Wild Life Warden said, "Parents should take an interest in cultivating care for wild life in their children. Our department shall encourage the youth to see and enjoy wild life in all aspects."

Advising the youth on ways of watching wild life, Mr. de Silva said, that in their youth (including himself) they knew very little of the natural history of this country as that measure of alertness and guidance was not provided by their elders and in schools hitherto.

He said, "Watchfulness will make one see many things even in the garden. Therefore all of us from our young age should keep our eyes wide open. If animals are seen in a quiet and disciplined manner without rushing to grab a gun, when they are sighted, you will learn that even the biggest specimen of our jungles, namely the elephant, is comparatively harmless."

With reference to the elephant, Mr. de Silva said that it was common knowledge, that this animal was dwindling rapidly in numbers and therefore he vehemently appealed to all wild life enthusiasts to help his Department in their dogged and grim struggle to save this species.

He said that the elephant needed enormous quantities of water and food and as such it was compelled to wander and roam far and wide. This made the elephant an open target to those mischief-makers, who wantonly destroyed this beast. He said that the march of culti-

vation also destroys the elephant. This was a major problem as people also had to live. As a remedy they of the Wild Life Department have now decided to set up two sanctuaries, one in the North and the other in the South. They were also watching the migration of elephants with a view to afford protection during this period. The population of elephants, he said, was approximately a thousand.

Mr. de Silva finally added that the preservation of wild life of this country depended to a great extent on the attitude adopted by the younger generation.

Whither the Kruger Park ?

The purpose of the old Sabi Game Reserve (now part of the Kruger Park) was to provide a permanent Sanctuary for wild life in the lowveld. The animal was to be the paramount consideration and everything was to be subordinated to its welfare. There were then no inquisitive hordes of sightseers to disturb the tranquillity of the place.

But this happy state could not last for ever. By 1928, by pressure from the public, the park was thrown open to visitors. They did not arrive in a deluge, for cars then were somewhat rudimentary and only a few rough tracks connected the various rest camps. But in time tourism and publicity captured the park and it became an increasingly fashionable holiday resort. More and more cars flocked in and the road network grew more elaborate.

The type of visitor too was changing from the true animal lover, who was prepared to rough it, to the luxury addict who put personal comfort first.

The Park's Board did its best to check this trend. They resisted the clamour for cinemas and swimming baths and liquor licences and luxury hotels. The result has been a park getting rapidly cluttered with people. There was no time to spare a thought for the animals who were mere pawns in a publicity machine.

How have the fauna of the park fared meanwhile? Finding their home dotted with villages

Later an excellent techni-colour film "Wild Ceylon" was shown. It consisted of such rare scenes like an elephant taking a siesta, two antlers duelling, presumably for a mate, a newly born buffalo calf struggling to stand erect, a herd of elephants guarding their "babes" and a thirsty bear in a desperate search for water.

Messrs Zackie and Amarasekera of Phoenix Studio, Kandy, the makers of the film, deserve congratulations for the splendid piece of wild life photography.

N. W. B.

FOREIGN

and criss-crossed with a tangle of roads along which cars sped with gay abandon, swamping the bush with a blanket of dust—they were forced to move further afield to cleaner feeding grounds. The animals are becoming depleted and moving off the roads.

If the park is to survive for any length of time we must realise quite clearly that it is there primarily for the benefit of its fauna. Its visitors must realise that it is not intended as a super holiday resort.

J. C. SMUTS in *Veld and Vlei*.

Dwindling Fauna in the World

While we are much worried by the dwindling elephant population, the preservation of wild life from the ruinous inroads of men is causing concern to Governments elsewhere.

Mr. David Gunston who has made a study of the animal kingdom reports that the nyala, most beautiful of the antelope tribe, is now very rare. The last refuge of the lemur is Madagascar where, because of the clearance of forests for agricultural purposes, they may not remain untroubled for long.

The Australian koala bear came near to extinction and it was only drastic action by the Government that helped conserve the few left. There are reported to be less than 30 specimens left of the Java Rhinoceros. The extent of the massacre is shocking when it is remembered

that this one-horned monster once roamed all over Burma, Malaya, Siam and Sumatra. The Indian Board for Wild Life in Assam has taken adequate steps to preserve the great Indian rhinoceros, only some 440 specimens of which now remain.

Man, the destroyer, has not spared the birds of the air and sea creatures. The ivory-billed woodpecker of North America and the Haitian parrot have become extinct, while there are said to be no more than 24 whooping cranes left in the world.

The whale's greatest enemy is man. The sperm whale is scarce, and the Greenland whale may soon become extinct if the present rate of extinction goes on.

Big Game is Vanishing

Once more this fact has been confirmed in an outstanding series of articles, by Alan Moorhead which appeared in *The New Yorker* and *The Sunday Times*, London, on African fauna. Apart from his visits to the well-supervised game reserves, his impression of the terrible wastage of this magnificent natural resource, since much of the destruction is caused by poachers whose sole aim, once the animal is killed, is to sell the trophies for no more than a few pence to grasping traders; elephants are slaughtered for the sake of their tusks, giraffes for their tails—which provide a twine suitable for making spears and arrows—while wildebeests' tails are sold in Mombasa for use as fly-switches. Nearly always the animal's carcass is left to rot. Mr. Moorhead catches the atmosphere of Africa and the tragedy of this destruction of its giants, in spite of the noble efforts of the few who defend the cause.

The Bighorns

The vigil began in September at the corral built in the mountains of central British Columbia. The hunters who manned it could

see their quarry, wary but curious, watching from the edges of the near-by forest.

The months went by, Winter came on, and still the choice alfalfa and grain inside the enclosure failed to lure the hunted animals. Still the lookouts waited, ready to set off a powder charge that would drop a gate to trap the animals inside the corral. For this was no ordinary hunters' ambush.

The animals in the Canadian forest were rare California bighorn sheep (*Ovis nelsoni*). Only 1,000 existed in the entire world. And 200 of them grazed in the woods near the corral.

The huntsmen were three biologists and two game wardens of the British Columbia Game Commission. They hoped to capture a small flock of the wild sheep and return them to their ancestral habitat in the mountains of the U.S. Northwest. This would be an international venture, with Oregon conservationists co-operating.

Unlike the Rocky Mountain bighorns of the high altitudes, which were still numerous and thriving, the California bighorns which roamed the U. S. West by the thousands 75 years ago were now extinct everywhere but in a tiny area of British Columbia. Now even this range was threatened by growing cattle ranches.

The plan was to transport the sheep that were captured to the Hart Mountain National Wildlife Refuge in Oregon, 800 miles south. If all went well, the bighorns would increase. They could then be turned into open-wilderness range to spread throughout the lower mountain areas their ancestors had once roamed.

But the whole plan depended upon capture of the sheep. At the corral near the fork of the Chilcotin and Fraser rivers, the conservationists waited and worried. Winter was deepening and the first snowfall might cause the departure of the bighorns. Then biologist Lawson Sugden had an idea; he brought in a truckload of succulent cabbages and scattered them within the enclosure, where they sparkled

in the sun. Early on a sunny morning in late November he gazed from his lookout and suddenly hit the electric plunger. He had trapped 28 sheep inside the corral.

Twenty choice sheep—a huge 205-pound ram and 19 ewes—were cut from the pack, roped in a wild tussle, and trucked to the Hart Mountain Refuge in Oregon.

By the following Spring, one ewe had died, but others had given birth to eight lambs, six of which survived. Last Summer, 17 months after the Winter capture, the flock had increased to 32.

Canada's gift of rare bighorns to its southern neighbour continues to grow with the birth of new lambs—international lambs—each Spring. Thanks to the warm friendship that has existed between two nations for more than 140 years, the California bighorn may not, after all, vanish from the face of the earth.

By Francis Dickie in *The Rotarian*

General Nature Reserves—Strict Reserves

In all reserves covered by the term "general nature reserves," flora, fauna, soil and sub-soil are under strict and permanent protection. Human access is controlled. The legal status of such reserves is the outcome, not of activity of private persons, but of legal enactments from public authorities.

In the case of general nature reserves, three objectives may be pursued: scientific investigation of a region's ecology, protection of rare and threatened communities or individual species and upkeep of areas of outstanding tourist-value.

Strict nature reserves are established principally, if not exclusively, to attain the first of these aims. The main purpose of these reserves is to permit free development of natural biological changes. And the wish to avoid at all costs interference with the balance of nature can even result, through absolute non-intervention, in the depletion of species, which may be rare or of outstanding interest, by an

increase in the number of their predators. Similarly, strict protection involves forbidding access to visitors, often at the cost of public discontent.

International Bulletin

The Classification of Nature Reserve

Like many other specialists, those concerned with nature reserves have experienced much difficulty in coming to an agreement over a nomenclature which is sufficiently precise and at the same time generally acceptable. A totally different meaning is attached, for instance, in the United States to the word "national park" than in the Belgian Congo. At regional conferences (London, 1933, for Africa; Washington, 1940, for the New World) attempts have been made to standardize the use of these terms. In this editorial the technical terms used will follow the nomenclature proposed by E. Bourdelle in the first number of *Pro Natura* (August, 1948).

This nomenclature draws a distinction between **General Nature Reserves** (strict nature reserves, managed reserves, national parks) on the one hand, and, on the other hand, **Nature Reserves for Special Purposes**. Among the latter can be cited partial reserves, concerned with only one form of life, and special reserves, dedicated to the protection of a particular living community, whose disappearance would mean a loss to either man's pleasure or profit which he had hoped would be indefinitely available. The living communities, considered of sufficient interest to merit protection, can be a spectacular landscape, a natural monument (monumental trees, etc.), or a forest whose preservation can safeguard the soil and water balance. In other cases, sportsmen may be anxious to preserve a special game animal or fish, and a reserve is established to provide it with a refuge and an undisturbed breeding area. A restocking of the surrounding game and fishing district is thus assured.

JEAN-PAUL HARROY,
in *International Conservation of Nature Bulletin*.

How to Meet an Elephant

Hints to motorists on what to do if they meet an elephant have been issued by the Uganda Government.

They are advised: DON'T blow your horn. This may annoy the animal. DON'T drive up to him before stopping. You may find you are in a herd and another has blocked the road behind you.

DON'T dash past an elephant. It may startle him, and he may chase you. Instead, stop and rev your engine. This will warn him tactfully and very often he will move away.

Signboards warning motorists: "Elephants have right of way on this road," have been erected in several places.

London Daily Mail.

Campaign to Save Storks

Luneburg, February 2.—Bird lovers have held a meeting here to plan an international appeal to save storks from extinction in western Europe.

International bird societies are to seek the co-operation of the French and Spanish Governments and various African States to ban the shooting of storks. The birds are protected by law in West Germany, but in France and Spain they may be shot.

Authorities of the bird sanctuary on Luneburg Heath plan a census of storks in 13 countries, the first in 23 years. Ornithologists believe that storks are dying out through increased cultivation of land and lack of suitable nesting places.

Barely 200 storks nested in south-west Germany last year. The last eggs hatched in Switzerland were in 1949, and in Sweden in 1953.

London Times.

This Bird can Whistle Beethoven

A Buderigar that whistles Beethoven—and even variations of Beethoven—is a star attrac-

tion at the American Museum of Natural History.

The bird's forte is whistling the first eight notes of Beethoven's Fifth Symphony but it can whistle when it is in the right mood, any variations on the same theme. At the end of its one-bird concert, the songster something adds two terse sentences: "Hello, baby," "I love you, too."

Buderigar is a bird that can be found in many parts of India.

Tilapia—Fresh Water Fish take to Salt

A curious experiment by which a fish, breeding naturally in fresh—or at most brackish—water, has been found to breed in pure sea water has been carried through lately at the Aquarium of the London Zoo. The species concerned is the mouthbreeder fish, *Tilapia mossambica*, whose original home is in the fresh and brackish waters of East Africa. It has been recorded as entering the sea, in its natural state, but not as breeding there.

In the London Zoo these mouthbreeders have been living and breeding for some time in the fresh water of the Tropical Hall, but recently a small shoal was transferred, gradually, from fresh water to pure sea water, and they can now be seen thriving in the Sea Water Hall.

In nature, they breed not only in fresh water but also in brackish water containing up to 30 parts a thousand of salt. In the Zoo, however, they quickly settled in and began to breed in the pure sea water, which contains 35 parts a thousand of salt.

This species is one that has in recent years begun to assume considerable economic importance. It was in 1939 that a fisheries overseer, Pak Mudjair, found a few specimens of the Mozambique mouthbreeder in the fresh water of a river near the south coast of Java. Nobody knows how they first arrived there from East Africa.

Since that time the fish has been spread by

fish culturists to a large number of tropical countries, as far apart as Malaya and the West Indies, Japan, Celebes, and Fiji. This great spread has been intentional, because this and related species are quick-growing prolific fish, which are well adapted to pond culture and form a valuable source of animal protein in countries where this is much needed.

In Java the fish is still referred to as Ikan Mudjair (Mudjair's fish) in honour of the man who first noted it in the waters of south-east Asia.

Many of these cichlid fish show interesting reproductive habits. When they are ready to breed the male fish assumes a more brilliant coloration and starts to dig a pit in the floor of river or pond. This he does by taking up mouthfuls of sand or shingle from a chosen spot and spitting them out elsewhere.

In a remarkably short time he has produced a bowl-like pit, which may be nine or 12 inches across and three or four inches deep. He then pairs with a female and fertilizes the eggs which she lays in the nuptial pit. As soon as they are laid and fertilized the female takes them into her mouth, where they hatch after five or six days. The young fish are retained in the mouth cavity for some days longer while they gradually use up the remains of their yolk.

The mother fish then lets them free, but does not forsake them, for when danger threatens they still have a welcome retreat in her mouth. As the young grow they tend to rely less and less on the mother and eventually disperse. The mother does not feed during the period of incubation.

The first mother fish to breed in salt water at the zoo has now hatched and released her brood, but others have followed her example and there are now three males each guarding a large and tidy pit in the shingle of the tank. In the open water above the nests the visitor can see one or two females with their mouths swollen by the load of eggs or newly hatched young.

Zoo Correspondent, "London Times."

The Scream of a Hare

In the days when Ben (a dog) was with us, chasing hares used to be one of his subsidiary activities. When out walking with him Aunt Miriam once had an experience which quite unnerved her for some moments. Ben suddenly darted behind a grass tussock, whereupon there came a loud, agonised scream. He had come upon a form containing three leverets and the doe. It was she who had given this scream as the intruder descended upon them and lifted up a youngster in its jaws. After voicing its distress, the doe fled in a wide circle, then stopped, watching the proceedings anxiously as Aunt Miriam endeavoured to extricate the leveret and, having done so, drag Ben away. In spite of the human presence and frantically barking dog the doe proceeded to return, sometimes pausing before coming on farther. She re-entered the form while my Aunt and the dog were still only a short distance from it.

Should a person approach a form without actually discovering its whereabouts, the doe, if she is feeding nearby, will feign indifference or run in another direction, a trick to lure the enemy from it which is common to many birds and mammals.

The hare will only scream when in acute danger or wounded, and it is a distressing cry to listen to. It was this scream that made me resolve to give up plucking them from burrows. On each previous occasion there had been no audible protest from my victims, only a great deal of vigorous twisting and kicking. Then one fateful day—for the local hares—as I pulled one from a burrow by the ears and held it up it uttered a loud scream fraught with anguish which I am sure no actress intent on having the members of her audience reach for their handkerchiefs could have bettered. Gently I placed the hare down by the burrow—which it promptly re-entered—and reached for my handkerchief, vowing as I wiped my eyes and blew my nose that never again would I wittingly cause a hare such distress.

From *Seal Morning*, By ROWENA FARRE.

Correspondence

Mirror Carp

Sir,

As a sequel to my short article on Stocking Up-country Streams, the following is of general interest.

My assistant and myself were standing near the Kotmale Oya on this estate, as the floods went down on the morning of the 28th December, when the watchman, his attention called by a dog eating something at the water's edge, went down, and found a big fish lying by the edge of the subsiding waters.

We examined it and found it a freshly dead MIRROR CARP measuring 38 inches in length. We were unable to measure its girth or weigh it, as the dog had mauled it too much.

There is no dam stocking Mirror Carp below the St. Clair or the Devon Falls, where this fish was found, so it must have survived one of these high Falls! From the size of scales I judge it must be a good age.

Mt. Vernon Estate,
Patana.

KENNETH MORFORD.

Wilpattu Revives

Sir,

On the 5th of October, 1957, we made a trip to Wilpattu. It was a time of drought and all the villus were dried up, the grazing grounds of the deer were parched and dry. We resided at Kalivillu Bungalow; around the bungalow there were many deer, spotted and red. They seemed to be feeding on something on the dry ground. Close inspection revealed madan fruit (*Eugenia jambolana*). Apparently the deer got most of their water and nourishment out of this. Deer were not the only visitors to these trees, for many birds, such as hornbill, bul-bul, parakeet, pigeon, iora, oriole, chloropsis, etc., visited it.

Next day feeling sorry for the animals we dug a hole in the dry villu into which water came, later we discovered the tracks of bear, deer, sambhur and wild-boar at the hole. In

Maradanmaduwa Tank there was a pile of dead fish, composed mostly of Tilapi (*Tilapia mossambica*) and Striped snake-head (*Ophcephalus striatus*). On seeing this I felt sorry for the fish-eating birds in the sanctuary, for even if the tanks filled during the rains, how could the fish come? On the 7th of October, I bade farewell to the dry and arid land which was Wilpattu.

On the 1st February, 1958, we revisited Wilpattu. You can imagine my surprise when I saw fish in every villu and little stream. There were tilapi, snake-head, carplet, climbing perch and archer-fish in almost every villu. In the road from Borupanwila to Nelunwila, which was partially covered with about three inches of water were many big tilapi. In October last year, I saw only perching birds, but now it was a paradise for waders. At almost every two yards of open plain there were snipe or sand-piper. The abundance of purple-coot and whistling teal was overwhelming; and of course, many of the other waders, such as stork, heron, lapwing, water-way, stone-curlew, stilt, etc., were present. Wilpattu had changed from an arid dry and dusty brown land to a rich, green and healthy land, when I bade farewell to it this time.

RANIL SENANAYAKE.

Fox Terrier and Ratsnake

Sir,

When I walked in my grounds recently with my dogs, smooth and wire-haired fox terriers, they encountered a ratsnake (*Zaocys mucosus*). One of the dogs seized it in the middle, and began shaking it vigorously, while the others danced round barking. The combatants were on a sloping bank, about 12 feet above the tennis-court. Presently they fell into the court, through a gap under the wire netting which surrounded it, with no change in their relative positions. The dog was enveloped in the coils of the snake, which was six and a half feet long. I hit the snake on the head with my walking

stick, and its movements ceased. I was surprised that the dog made no attempt to come away from the snake. It was then seen that it was gripped in a strangle-hold by the last two feet of the snake's tail, as shown in the annexed diagram. There was a complete circle round the dog's neck, and the terminal coil gripped the dog's muzzle, so that she could not open her mouth. Although the snake was dead a little force was necessary to undo the coils and liberate the dog.

Wall in his *Snakes of Ceylon* mentions the



ferocity of the ratsnake, when it cannot escape. It strikes at the face, and once bit a man in the shoulder through his clothes. There is no mention of this prehensile action of the tail end.

The dog was probably bitten at the angle of the jaw on the right, where an abscess the size of a walnut developed a week later.

Dr. LUCIAN DE ZILWA.

Halloluwa.

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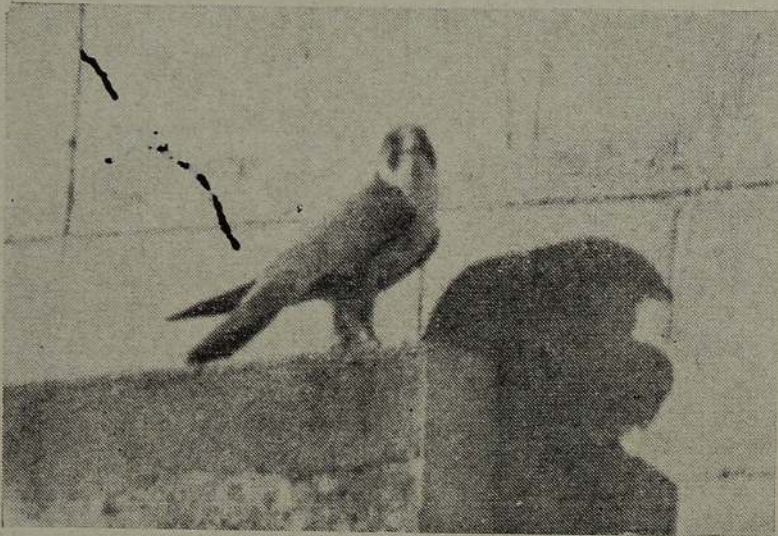
of postage, are now available from the Hony. Secretary.

Peregrine Falcon in Colombo Fort

On 15th December, 1957, Mr. R. W. S. Flindall reported having seen a Peregrine Tiercel on the National Mutual Building. During the first two weeks of observation it was watched resting on one of the highest cornices of the National Mutual building from a nearby window. It was from this window the accompanying photographs was taken by Mr. Flindall with an Exakta Varex Camera, using a 400 m.m. telephoto lens at a range of approximately 230 feet.

From the New Year to about the third week in January the bird's comings and goings were extremely erratic, although it could generally be seen with its kill, one of the many thousands of pigeons which frequent the Fort, on most mornings round about 8 a.m. It would then disappear for the day leaving the remains of the kill to the crows and would not be seen again until about 4.30—5.00 p.m. It appears this cornice had been chosen as a plucking ground, the bird moving off to spend the rest of the day elsewhere. Peregrines are most active in the early mornings and evenings, spending the remainder of the day in the shade.

When leaving the National Mutual building, it was noticed, the bird always flew in the direction of the harbour. On the 17th February, Mr. Flindall reported when he arrived at his office, he saw the Peregrine gliding in from Galle Buck over the Metropole Hotel, wheeling straight up to its normal perch. It was a constant source of amazement to Mr. Flindall that people passing up and down Queen Street, particularly in the mornings, were quite oblivious to the cloud of feathers which floated down when the Peregrine plucked its kill. On the 24th February Mr. Flindall reported he had not seen the bird for about four days, but it was obviously still about as there were feathers in the usual place. It was again seen regularly between 10th and 14th



Peregrine Falcon R. W. S. Flindall

March, then there was a break until the 26th March when the bird was observed coming from the direction of Beira Lake with a pigeon in its talons. It took about 15 minutes for the bird to be satisfied with a full crop, the remainder of the prey being left to the crows. It was finally seen on the 10th of April flying along the Galle Face Centre road and must have left shortly after this as it was not seen again.

This is a most interesting observation as a Peregrine is generally associated with the wilder areas and not with the centre of a busy city. It may be this bird made his landfall at Colombo on arrival and finding it was easy to obtain a living did not seek new pastures. Kestrels will often be seen on the Galle Face Green, quite oblivious to the traffic, while they are catching grasshoppers.

C. E. N.

Geese on Hambantota Lewayas •

Sir,

Mr. Douglas Raffel has reported the presence of geese on the Hambantota Lewayas in February, 1958. Unfortunately no birds were checked to confirm their identification nor have sights-records been able to give an accurate identification.

Mr. Raffel states that on 8th February, 1958, when shooting duck at Bundala, he saw a flock

of large pearly-grey birds at a distance of about 800 yards; beyond establishing the fact they were geese he was not able to identify the species. Again, the following morning at first light, he saw them. This time a shot was fired on the other side of the Lewaya and the flock came over him but flew in front of the rising sun which made identification impossible. They flew in a V formation appearing to have darkish grey bodies with darker underwings.

Mr. Raffel visited the lagoons again on 15th February; this time the birds went straight out to sea at the sound of the first shot. The argument amongst members of Mr. Raffel's party was that some thought the birds to be gray-lags whilst others favoured bar-headed geese, which have never been recorded in Ceylon. The Eastern gray-lag goose, however, has been recorded in Ceylon when Mr. E. C. Fernando collected one or two at Kesbewa in 1922. Since then there have been no further records.

This last season was an exceptional one for Pintail and Garganey which were present on the Hambantota Lewayas, literally, in their thousands. These very heavy invasions of ducks appear to take place in cycles of six to eight years, so it is possible the geese may come down with the ducks. The reasons for such influxes are not easily explained as, I believe, there was ample water throughout South India in the early part of the monsoon. It is probably due to an exceptionally good breeding season.

Should any members have seen the geese or, had the good fortune to shoot one, would they kindly give me full details.

C. E. NORRIS.

Pingarawa,
Namunukula.

Members' Advertisements in "Loris"

Sir,

It has occurred to me that if an advertisement column was opened in *Loris* for the use of members of the Society, it might prove a

useful source of income besides being a great help to members who wish to buy or sell items to do with sport or wild life, such as cameras, binoculars, camping equipment, guns, fishing tackle, or boats, etc. By advertising in *Loris* a member would be sure that his advertisement would circulate among those most likely to prove buyers. An arrangement might be made whereby the general public could advertise as well, at a slightly higher charge.

If you think this suggestion merits further consideration, perhaps you would bring it to the attention of the Society—possibly by publication in *Loris* of the above paragraph

DAVID L. EBBELS.

Bandarawela.

ED.—We shall be glad to receive quarter page advertisements from members at Rs. 10. See "Advertisement Rates" on first page.

BOOK REVIEW

The Seals and a Curragh

By R. M. LOCKLEY

(J. DENT & SONS, LONDON)

THE natural history of an animal can be dull stuff for anyone except a naturalist. [I have read a book on the American Mule-deer which was so badly written that it must have been frightfully dull stuff for even the most ardent of naturalists]. But this book on the Atlantic Seal isn't at all dull—not the way Lockley writes it. He takes us with him on a voyage of discovery and adventure; and we are with him when, quite accidentally, early one April morning he discovers an important and hitherto unknown hauling-out place and breeding ground of seals, somewhere on the wilder stretches of the Welsh coast. He writes, "Awed by the discovery of this hidden sanctuary I raised my head at last from contemplation of the ranks of recumbent sea-animals, and watched and listened to the smaller terrestrial sights and sounds . . . all around me was the fragrance of violets and primroses blooming between the green glistening spears of the blue-bell leaves. My feet rested upon a yellow-green plot of fine thyme and violets and moss, a little plateau on the cliff edge ornamented with cotton-wool tufts of rabbit fur and three buzzard's feathers." And we

are with him again when he returns to this beach which he has named the Red Wilderness, two years later. He has left the nearest port in his curragh, very early in the morning, lest the local fishermen nose out his destination; for seals in Britain are still wantonly killed by fishermen and by sportsmen, and it is therefore necessary to keep the secret of this breeding-ground. It dawns when he is out at sea: "The zenith lightened, the low-lying clouds which covered the mountains and the shore became dove-blue beneath, growing paler above. Slowly the tips were touched with crimson, and as I watched and rested, rocked by the current, I saw the sky flush with a rich unearthly beauty. The greys and the blues stole from the undersides of the clouds. The purple crept from the shadows of the wave-tops. Swiftly the colours in the sky swelled into gold and crimson, bright as a royal standard. Knowledge of Welsh sea-weather told me that the signs in the sky were unhealthy."

Sure enough. We are overtaken by a sudden storm that splits our sail from gaff to thwart, snaps off our steering paddle and is within an ace of sinking us. But we struggle through and land on the beach we were making for. Here we stay for a month, watching the seals. And as we watch them Lockley tells us, delightfully as always, about them. He points out that on warm days they get very sleepy;

that they can even sleep under water, coming up once every seven or ten minutes—and still fast asleep!—for a few deep breaths of air. He shows us a huge black bull swimming about off-shore, and explains that he's guarding this breeding-beach from rival bulls. Early in the autumn this bull had established his ownership of the beach; and as each cow-seal leaves her calf after the weaning and returns to the water he courts her and covers her. She then leaves for the feeding grounds for she has starved for the three weeks when she was on the beach nursing her calf. She leaves but the bull remains, guarding the beach, and waiting for the other females. Towards the end of our month on the beach we have the good fortune to watch a fight between two bulls, a fearful battle in which the black bull is driven away and the victor takes his place as master of the beach.

And there are the strange water-dances of the younger seals. This is how Lockley writes of one of them: "Below my perch in the heather the morning sea beckoned with little laughing cones of light and minute dancing waves of crystal. The tide was full. Two seals were playing in the water washing the brown base of the western cliff. They swam now abreast, now in line. One, by her small head, was a young maiden cow; her partner, by his side, bold profile and dark hue, an untried bull. For an hour I watched their graceful dances. . . . they swam effortlessly through the myriad ripples of waves hurrying from the bright sea to the shade of the cliffs . . . as the sun warmed the bay the ardour of their performance increased . . . with arms pressed tight to bullet bodies, propelled by graceful movements of the thighs they tore through the quivering water, now west, now east, now diving deep, now rising to the surface. Pursuit and evasion, pursuit and evasion, the young lovers' old game. She hid from him, undulating serpent-wise along the floor of the sea. But, keeping exactly above her, he matched her every curve and curtsey with his own, in a superb parallel. 'O, wildly labouring, fiercely fleet!' wrote Euripides in the Chorus

from *The Bacchae*, 'will they ever come to me, ever again, the long, long dances, on through the dark till the dawn stars wane?' Here in the dear lone lands untroubled by men I was witnessing the storm-swift joy of the wild seals and 'the dew was on my throat and the stream of wind in my hair' . . . and I was strangely happy and uplifted.' "

By the end of our month on this beach and by the end of this enthralling little book of about one and a half hundred pages, we have learnt all that is known today about the life and the behaviour of the Atlantic Seal. And we have also been told some of the many beautiful legends that have grown around these animals. These legends are told to Tessa, a little girl, half Siamese, half English, an evacuee from bombed-out London to a farm near the cliff-top. Lockley goes to the farm for milk for a seal-calf that has been abandoned by its mother, and Tessa returns with him, sees Billy, the calf, and promptly adopts him. And it is for Tessa the legends are retold, and we listen.

The curragh? This is a sort of elongated coracle used by the fishermen of Dingle, in Ireland. It is built of tarred canvas stretched over a light frame of laths. It has a single sail stepped far forward, no keel, and two pairs of oars—for emergencies. The one Lockley used was 25 feet long and only four feet in the beam. The Irish Sea-Fisheries Commission had given it to him for demonstration to the Welsh fishermen. These admitted he could handle the boat but firmly refused to grant that it was sea-worthy. I am not surprised!

The book is profusely illustrated; the photographs aren't especially good, but the black-and-white drawings—scraper-board work—are wonderful. I do wish that as many of our young biologists as possible will read this book. It will not only give them pleasure but also serve as a lesson in how this sort of thing should be done. For there is a very great need in this country for books on the natural-history of our own animals.

A. C. V. WEERAKOON.

NEW BOOK BY R. L. SPITTEL

WILD WHITE BOY

(Phoenix House, London—to be published 18th Sept., 1958.)

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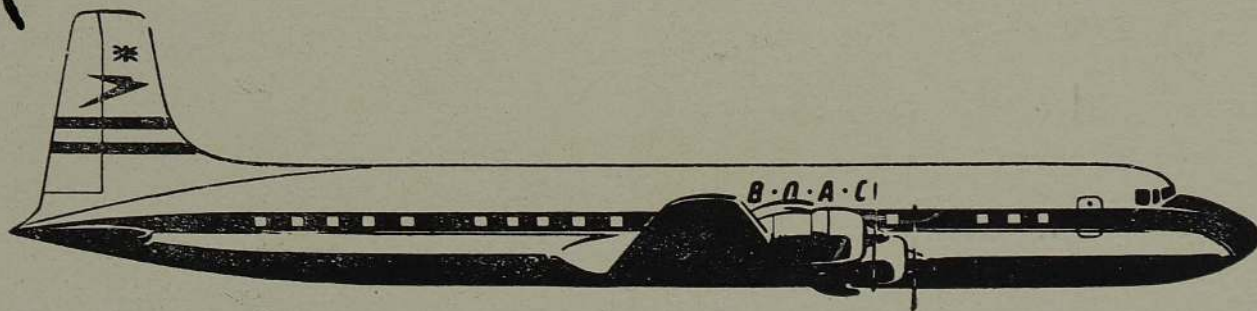
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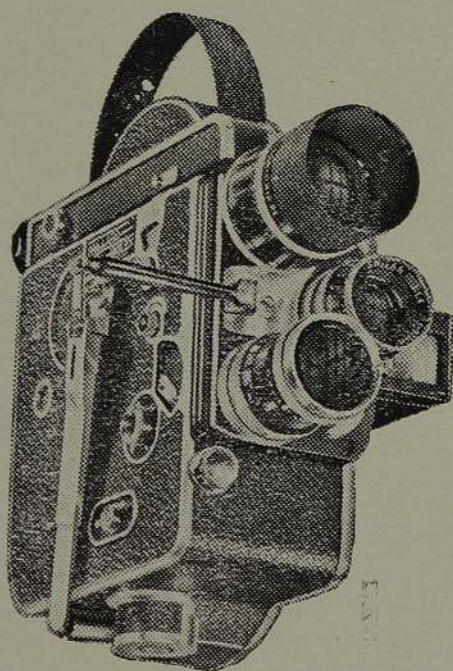
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