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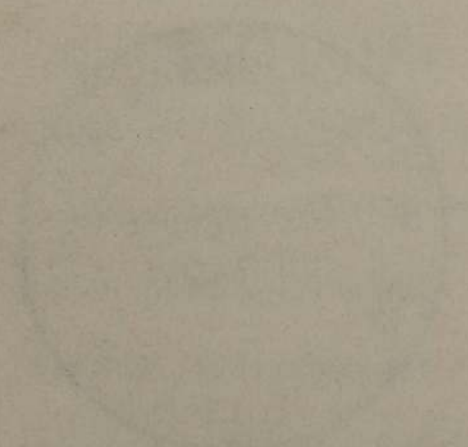
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Some Aspects of the Fauna of Ceylon

By

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With seven plates and nine text figures drawn by the author.

A lecture delivered at the Royal Asiatic Society (C.B.) on 28th May 1965.

The present paper brings to light new knowledge regarding the fauna of Ceylon which is revealed by correlating a series of new discoveries with those published in various books and journals during recent years. All classes of vertebrates are not dealt with in similar manner owing to lack of space, the subject being one that requires a large volume for adequate treatment. The name of each animal is in italics and that of its first describer is printed alongside in ordinary print in accordance with the International Rules of Zoological Nomenclature. A list of works consulted is given under "References to Literature" and an explanation of the plates is also appended.

I here wish to express my thanks to the former Acting Director Mr. N. Seneviratne and the present Acting Director of National Museums Dr. P. H. D. H. de Silva for permitting me to utilize photographs of specimens that were collected either by me or upon my instructions during my period as Director, to Mr. C. Lancelot Peris for the photographs depicted in Fig. 2 of Plate III and in Figs. 3 and 4 of Plate IV, to Mr. F. W. Obeyesekere for the photographs of the Sinhala game fowls and dog, to Mr. E. Ludovici for that of the Ceylon jungle cock in Plate VI, to Mr. P. Arjun Deraniyagala for the photograph of Fig. 6 on Plate IV, Mr. M. Panabokke for his kindness in showing me villages around Amparai and to Mr. Ranil Y. Deraniyagala for reading over the manuscript.

Since the geology of a country is an important factor in the evolution of its fauna and flora, it is necessary to commence by dealing briefly with some aspects.

The foliation trends of the Indian Archaean rocks form a clockwise circinate flowage pattern extending from South-eastern India into Ceylon (Arogyaswamy 1965).

The Island is a synclinorium of Archaean rocks and parts of it have undergone subsidence, elevation, and faulting to produce about four peneplains of which the lowest is submerged. The animal and plant fossils which they contain have been utilized for correlating Ceylon's

strata with those of other countries and also in subdividing these earth layers. For example, the Jurassic rocks of Ceylon are subdivided into two stages, the older being the Andigama, the younger the Tabbova. The Miocene rocks are divided into three, namely the Jaffna, Kudermale and Minihagalkanda stages, and finally there are the Pleistocene ones comprising an older or Hippopotamus stage, and a younger or *Elephas maximus* stage which are best preserved in the *Ratnapura Series* (Deraniyagala 1957).

The presence of Jurassic deposits both in North-western Ceylon and in the Ramnad district of India (Roy 1964) shows that the two were once connected, but since this Island lacks many of the consecutive deposits, it appears to have broken off from the mainland during this period. The two countries became reattached by early Miocene times but shortly afterwards they broke away again, and several such unions and separations have occurred. During each interval of isolation plants and animals had evolved new subspecies and species which had invaded the neighbouring country whenever the land connection was renewed.

Geographical isolation is one of the essentials for subspecies formation and in living things the amount of latent ability to undergo future modification is termed 'plastic' whereas a species that no longer responds to the environment and is unable to modify itself has reached the limits of its plasticity and should be designated as "constant" or "fixed".

Although geologists generally consider Ceylon to be a part of one of the most stable areas of the earth this view is only partially correct, and some parts of the Island have undergone alteration as will be seen from the following:—

- (1) Early records mention that there were about a hundred islands off its coasts (Fahien 410 A.C.) and also that there was a large island named Giri adjacent to it which had disappeared (Skanda Purana and the Dipavamsa).
- (2) Portuguese records mention heavy earth quakes with explosions and the formation of numerous fissures (Rodriguez 1616) and (Deraniyagala 1961).
- (3) The disappearance of many islands that appear in Dutch and early British maps has been studied and attention drawn to their instability, to the oscillation that is so evident towards the north-west of Ceylon (Deraniyagala 1955), and the elevation of the Negombo beach area.
- (4) The raised beaches from the Mundel and Eluvankulam areas to the north-west and others in the south-east (Deraniyagala 1955).
- (5) The ring of waterfalls in the highlands indicate that they have been produced by recent up thrust (Wadia 1941).

- (6) The river gravels in the north-western and northern provinces and pot holes especially in the southern and eastern provinces which are now remote from the rivers that had produced them (Deraniyagala 1947).
- (7) Submarine canyons at the mouths of such rivers as the Däduru, the Valavé, the two Maha Oyas, Galoya and the Mahavilli.
- (8) Borings in the Béré lagoon near Colombo have revealed alternate layers of marine, fluvial and swamp conditions of Pleistocene age (Deraniyagala 1958 a).
- (9) The rivers frequently display river captures and a change of their courses, e.g. Mahavilli and Valavé rivers.
- (10) The original beds of some of the larger rivers such as the Kalu and Kälani rivers are ten to twenty feet lower than the sea bottom from their mouths up to a distance of about a mile inland.
- (11) The abundance of thermal and mineral springs.
- (12) The presence of diamond, chalcedony and? natural glass.

Geological movements such as faulting, tilting, and dislocation that occurred during the last few geological periods are among the more important factors that have influenced evolution, especially after Ceylon had become isolated. The monsoons also exert a strong influence upon the plant and animal life of Ceylon. The south-west monsoon produces perennial streams in the wet zone, whereas the N.E. Monsoon being weaker, the lesser streams of the eastern dry zone run dry for several months each year. 'Convectional' and also 'depressional' rainfall might occur anywhere during the intermonsoon period, but the chief rainfall is 'monsoonal'. The two climatic phases of the Pleistocene namely the cool or *Ratnapura phase* and the semi-arid *Palugahaturai phase* that pervaded Ceylon also played important parts in evolution (Deraniyagala 1958 a).

The mountain forests of Ceylon can be sub-divided into those of the (1) *Basal wet zone* where there is considerable or heavy rainfall, and above this (2) *The mist and cloud zone* where there is an accumulation of cloud and mist.

As cloud cuts off much light in the areas where rhododendron and tree ferns flourish, the animals there often evolve subspecies that are more adapted for absorbing sunlight than those of the more exposed lower horizons where the sunlight is not so strongly blocked off. Humidity and temperature are of great importance. The river system is radial but it fails to support vegetation evenly throughout Ceylon. The wet zone is restricted to the south-western sector and eastwards half way across the Island and subjected to regular rainfall ranging from 75 inches to 200 inches annually, whereas the northern, eastern and south-eastern parts of Ceylon constitute the dry zone, where the

annual rainfall ranges from 75 inches downwards to about 50 inches or less and to the north-west and the south-east, there are two arid areas where the rainfall does not exceed 50 inches per annum. The *Canadian Forest Inventory of Ceylon* which was a Colombo Plan project has also indicated a narrow intermediate zone between the wet and the dry zones and has subdivided the vegetation into the following seven tracts:—

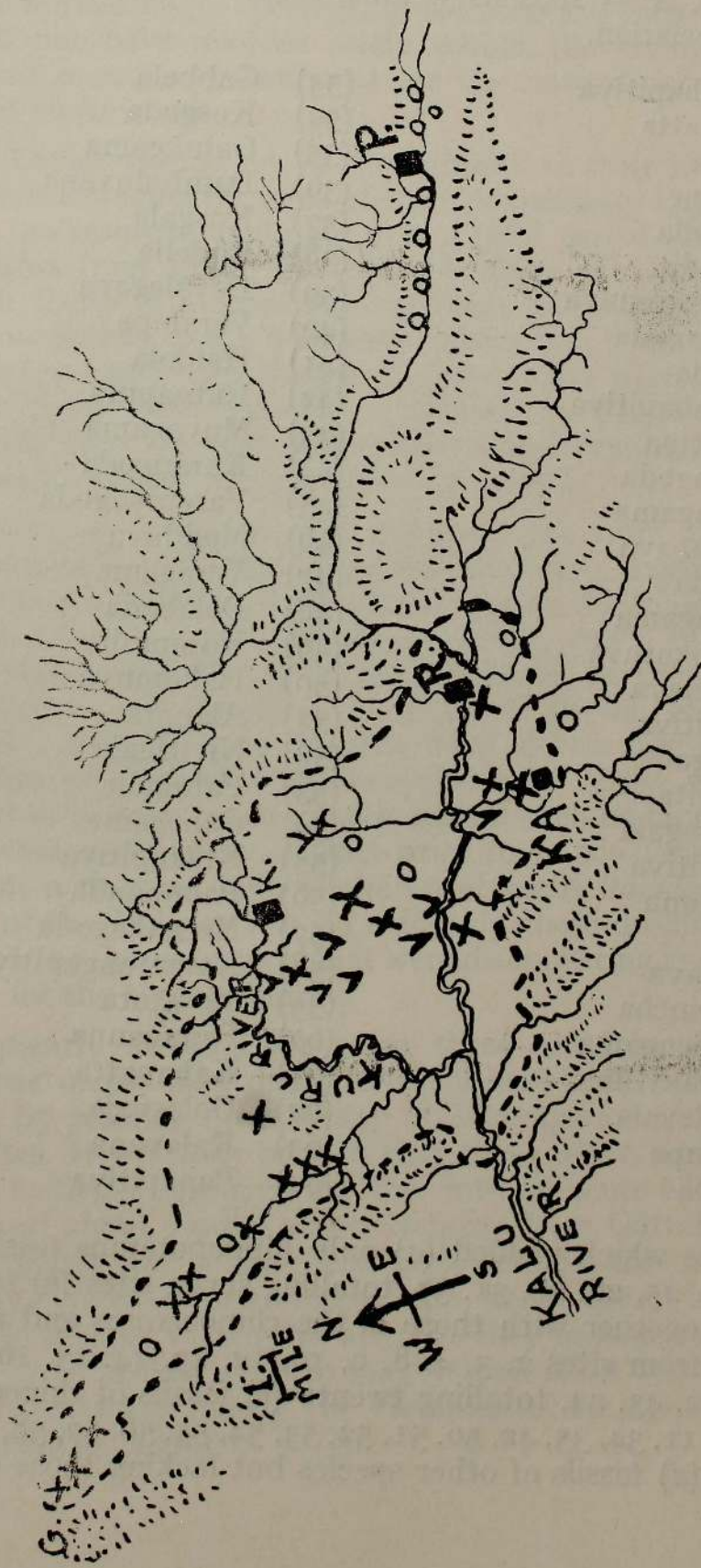
1. Tropical thorn forest to the south-east of Ceylon, and the north-western coastal belt.
2. Tropical dry mixed ever-green forest throughout most of the dry zone.
3. Tropical lowland ever-green rain forest which is intermediate between the wet and dry zones.
4. Lowland wet ever-green forest up to three thousand feet in which *Dipterocarps* are abundant.
5. The highland wet ever-green forest between three thousand and five thousand feet.
6. Tropical mountain forest over five thousand feet.
7. Grass land which is subdivided into "Savannah" at one thousand feet elevation and subject to prolonged drought, and in the Dry Zone of the lowland plains there are "Damana" in the low country dry park land, "Vila" grass land formed in the flood plains of rivers, and "Patana" restricted to the hill country which existed as:—

(a) Dry patana at one thousand five hundred to five thousand feet above sea level in the Uva basin, Rakvana and Deniyaya hills, and the Knuckles and Central highlands.

(b) Wet patana at about five thousand feet particularly at the Elk, Moon and Horton plains and at Bogavanthalava. All these areas have heavy rain fall.

Since each of these zones exerts its influence upon the evolution of the animals that it harbors, a species that is 'plastic' not infrequently forms three or even more sub-species in different parts of the Island. It is also noticeable that, certain animals which occur in the western half of Ceylon are missing from the eastern portion, e.g. fishes such as *Puntius pleurotaenia*, *P. nigrofasciatus*, *P. cumingi* and *Rasbora vatrifloris* and the amphibian genera *Nannophrys* and *Ichthyophis* are unknown from the eastern province. There might be two explanations for this strange feature. One is that these fishes required small perennial streams which can only be maintained by a prolonged rainy period. This condition obtains in the western sector, whereas the rainfall of the eastern part of Ceylon is inadequate. The other is that the water of the eastern sector might either lack or contain, minerals and trace elements that are not conducive to the thriving of a certain species. This view is supported by the fact that the eastern part consists mainly of Bintenne gneiss, whereas the western one comprises the Ratnapura and the Jaffna series.

Since numerous thermal and mineral springs exist in the eastern province, but none in the western, and since the sand of the east coast contains a preponderance of ilmenite a little zircon and a trace of monazite, whereas that of the west coast shows 20% to 40% of monazite (Wadia 1945) they suggest separate geological origins for the two areas (Deraniyagala 1947).



P. Deraniyagala del.
Fig. 1 *Hippopotamus lake*. The margin of the lake is indicated by a broken line which encloses a section of the Kalu river basin.

Fig. 1 the *Hippopotamus Lake* area of the *Ratnapura Series* is based upon fossils secured from sixty four sites that are listed below (Deraniyagala 1965).

G = Gättahätta, K = Kuruvita, KA = Karangoda, O = Rhinoceros fossil stations, P = Pälädulla, R = Ratnapura, V = Hippopotamus fossil stations, X = stations yielding Rhinoceros and Hippopotamus fossils in association.

- | | |
|---------------------|----------------------|
| (1) Dehigahapitiya | (33) Gabbela |
| (2) Gattahatta | (34) Kosgoda |
| (3) Nagoda | (35) Galukgama |
| (4) Minnana | (36) Dambuluvana |
| (5) Moragolla | (37) Kosgala |
| (6) Villegoda | (38) Radella |
| (7) Kandangamuva | (39) Devalegava |
| (8) Ahaliyagoda | (40) Veralupe |
| (9) Palegala | (41) Haldola |
| (10) Bulugahapitiya | (42) Ratnapura |
| (11) Talavitiya | (43) Muvagama |
| (12) Deheragoda | (44) Karangoda |
| (13) Paranagama | (45) Varaniyagoda |
| (14) Poharabava | (46) Modduva |
| (15) Ellavala | (47) Veragama |
| (16) Pahalagama | (48) Delaboda |
| (17) Mudunkotuva | (49) Kotamulla |
| (18) Teppanava | (50) Hakamuva |
| (19) Millevitiya | (51) Alapata |
| (20) Badalge | (52) Nivitigala |
| (21) Kuruvita | (53) Patakada |
| (22) Matuvagala | (54) Ganagama |
| (23) Gonapitiya | (55) Kuttapitiya |
| (24) Patagama | (56) Palmadulla |
| (25) Halpe | (57) Meegahagoda |
| (26) Batayaya | (58) Kamarangapitiya |
| (27) Karapincha | (59) Moratota |
| (28) Kahahengama | (60) Panavanna |
| (29) Koravakvilla | (61) Kahavatta |
| (30) Adandevala | (62) Dolosvala |
| (31) Dodampe | (63) Kalavana |
| (32) Kitulpe | (64) Panapitiya |

The sites which yielded (a) only hippopotamus fossils are numbered 20, 24, 25, 26, 28, 31, 37, totalling seven sites (b) fossils of hippopotamus together with those of the rhinoceroses and also of other animals are from sites 2, 3, 4, 8, 9, 10, 12, 13, 14, 15, 16, 23, 27, 29, 30, 36, 41, 42, 43, 44, totalling twenty (c) fossils of rhinoceroses only, from sites 5, 11, 34, 35, 42, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, totalling fifteen sites (d) fossils of other species but lacking those of either the

hippopotamus or of the rhinoceroses are from 1, 6, 7, 9, 17, 18, 19, 22, 23, 33, 39, 40, 45, 46, 47, 48, 49, 60, 61, 62, 63, 64 totalling twenty-one sites.

CEYLON'S LAKE PHASES

Since Ceylon's extensive aquatic fauna of vertebrates and invertebrates comprises many species that are identical with those of India they could not have evolved solely within the artificial reservoirs (tanks) that man has substituted for the natural lakes which had existed not so long ago.

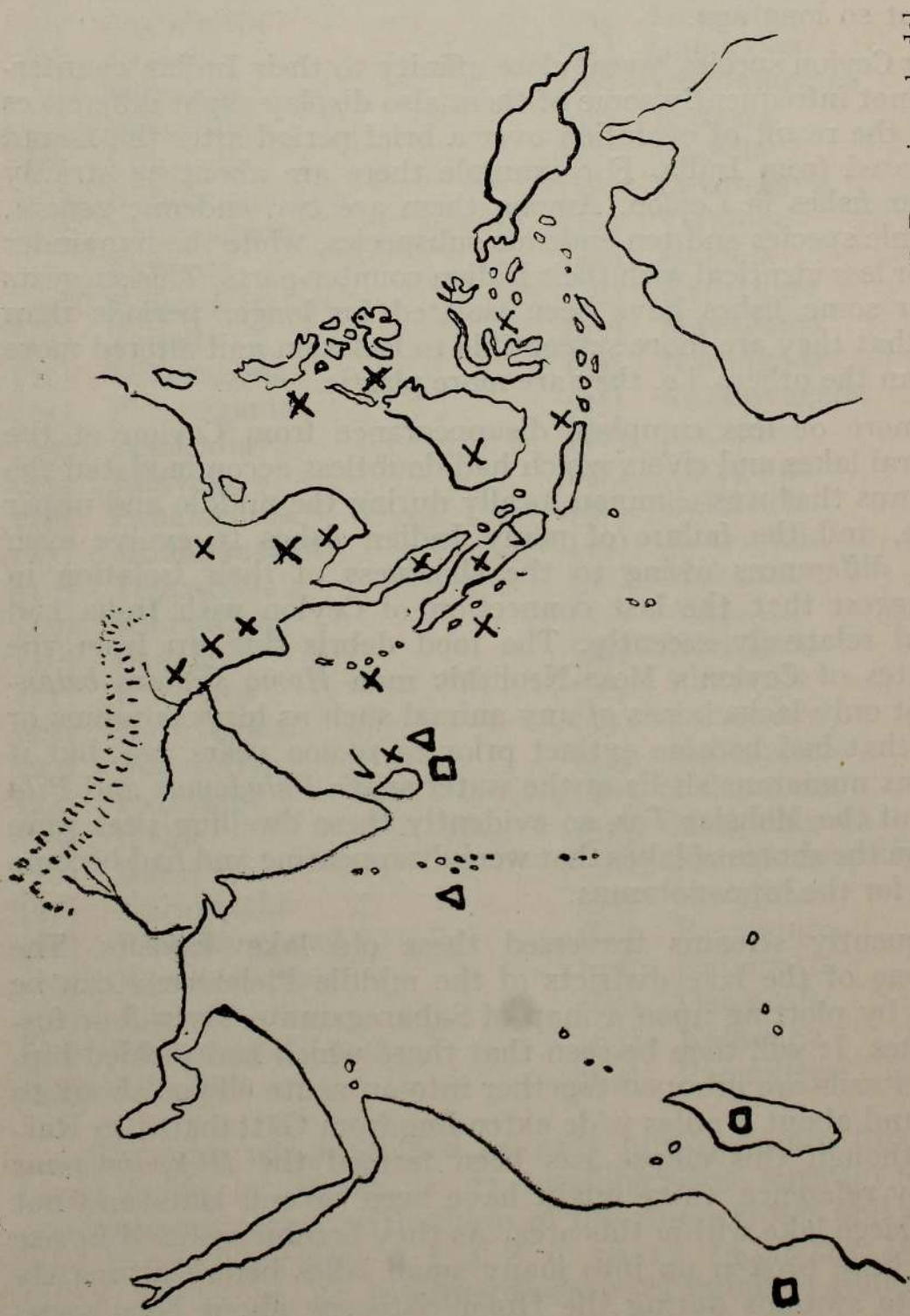
Many Ceylon species reveal close affinity to their Indian counter-parts but not infrequently some of them also display slight differences which are the result of evolution over a brief period after the Island had separated from India. For example there are about 54 strictly fresh water fishes in Ceylon. Among them are two endemic genera, nine endemic species and ten endemic subspecies, while the remainder are more or less identical with their Indian counter-parts. This suggests that either some fishes have been isolated for longer periods than others or that they are more susceptible to isolation and altered more rapidly than the others, i.e. they are more plastic.

The more or less complete disappearance from Ceylon of the large natural lakes and rivers which had doubtless accommodated the hippopotamus that was common locally during the middle and upper Pleistocene, and the failure of many Indian fishes to evolve even subspecific differences owing to the shortness of their isolation in Ceylon, suggest that the last connection of Ceylon with India had disappeared relatively recently. The food debris dug up from the dwelling sites of Ceylon's Meso-Neolithic man *Homo sapiens balangodensis* not only lacks bones of any animal such as hippopotamus or rhinoceros that had become extinct prior to 10,000 years ago, but it also contains numerous shells of the water snails *Paludomus* and *Pila* and bones of the Mahsier *Tor*, so evidently these dwelling sites were located upon the shores of lakes that were disappearing and had become inadequate for the hippopotamus.

Subsequently streams traversed these old lake deposits. The extent of one of the lake districts of the middle Pleistocene can be ascertained by plotting upon a map of Sabaragamuwa sixty-four fossiliferous sites. It will then be seen that those which had yielded hippopotamus fossils are grouped together into an acute ellipse about 19 miles long and about 7 miles wide extending from Gättahatta to Ratnapura. Although this ellipse has been termed the *Hippopotamus lake* for easy reference, there might have been several lakes and not merely one large lake within this area. As they became reduced in size they might have broken up into many small lakes before ultimately changing into swamps during the Holopleistocene about 8000 years ago (Deraniyagala 1965).

Timber from gem pits has been assayed by Dr. K. A. Choudhury of Aligarh Muslim University as having been submerged 47,000 years ago at Palmadulla and 7670 years ago at Ratnapura.

It is also reasonable to assume that during the Lake phase these extensive tracts of swamp and lake would have isolated populations of the smaller land animals for periods that were long enough to induce subspecific differentiation.



P. Deraniyagala del.

Fig. 2 A map depicting the discontinuous distribution of some Ceylon animals that are indicated as follows:
Tick the mountain lizard *Cophotis*;
Square the limless skinks of the subfamily Acontianinae;
Cross various subspecies of the Kabaragoya lizard *Varanus salvator*;
Triangle the snake *Aspidura*.

Discontinuous Distribution

Examples of discontinuous distribution eastwards are the fresh water fish *Belontia* Myers which only occurs in Ceylon and Malaya, the lizard *Cophotis* Peters which only exists on the highest mountains of Ceylon and Sumatra, and the Kabaragoya or water monitor lizard *Varanus salvator* Laurenti which ranges from Ceylon to China and the east Indies, as a number of subspecies. The forma typica is from Ceylon, other subspecies are *V. salvator andamanensis* Deraniyagala of the Andaman islands, *V.s. nicobariensis* Deraniyagala of the Nicobars and *V.s. macromaculatus* Deraniyagala of Assam. This lizard is unknown from west of the Ganges. The westward trend is indicated by the skinks of the subfamily Acontianinae that only occur in Ceylon, Madagascar and South Africa.

Since certain snakes which are unknown from India are restricted to Ceylon and the Maldive islands, and others to Ceylon and the Andaman islands, it is probable that they had travelled along the routes taken by the other reptiles mentioned above. Examples of such snakes are the genus *Aspidura* Wagler that occurs only in Ceylon and the Maldive archipelago, whereas the genus *Cylindrophis* Wagler occurs in Ceylon, Burma, Malaya, Indo-China and the East Indies up to the Celebes; both genera are unknown from India.

Among the Mammals is the swamp deer *Axis porcinus* (Zimmerman) of the Indo-Gangetic plain which does not occur in south India and the bat *Leuconoe hasseletti* (Temminck) of Ceylon which also occurs in Assam, Malaya, Siam, Sumatra and Java, while a plant with similar discontinuous distribution is *Kayea* Wall.

The island of Ceylon ranks as a faunistic province of the Oriental subregion which is part of the Paleotropical faunal region, and is termed "Ceylonese" as distinct from the neighbouring Indian, Indo-Chinese, Malayan and Celebesian ones.

Evolution

In India the extinct Shivalik fauna of the Pinjaur horizon had spread southwards but reduced its number of genera, from 67 genera in the Shivalik area to 13 in the Nerbudda and Godavari lake deposits until in its most southerly outpost, namely Ceylon, it had formed a secondary centre, for here the number of genera has increased to 21, consequently this extinct fauna is termed the extinct "Ratnapura Fauna". Oscillation of the Indo-Ceylon land bridge has prevented some of the waves of animals that had travelled down peninsular India from entering Ceylon continuously.

The Shivalik fauna of Ceylon had been isolated sufficiently long to evolve endemic subspecies, and species, and such periods of isolation have also enabled the living fauna of Ceylon to evolve many endemic

subspecies, species, genera and even subfamilies. A brief description of some of them is all that space will now permit.

Among Invertebrates the Oligochaete worms appear to have evolved the genera *Notoscolex* and *Megascolex* in Ceylon, which contain a larger number of their species than India. It is also seen that evolution within restricted areas occurs frequently throughout the Island and the endemic Ceylon forms in each class of animals are either as numerous as, or exceed, those that have failed to alter noticeably from their Indian counterparts.

Pisces. Comparison with the Indian fishes reveals that certain Ceylon fresh water fishes have a tendency to reduce the number of fin rays e.g. *Wallago attu* (Bloch et Schn.) and *Anabas testudineus* Bloch, and the perforated lateral line scales e.g. in the Cyprinidae to form subspecies.

There are several endemic genera e.g. *Malpulutta* Deraniyagala among the *Anabantids* and *Horadandiya* Deraniyagala among the *Rasborinae*.

The Ceylon species of *Garra* Ham. Buch. appears to possess its closest relative in the Himalayas and probably both are derived from a common ancestor.

Two endemic species of labeo, namely *Labeo fisheri* Jordan and Starks, and *Labeo lankae* Deraniyagala have evolved in Ceylon.

Microevolution

Instances from among some of Ceylon's endemic fresh water fishes are as follows:

(a) The Anabantid *Malpulutta kretseri* Deraniyagala occurs as the forma typica in the streams at Migahatenne in the western province and as a small subspecies *M.k.minor* Deraniyagala from Kuruvita in Sabaragamuva province.

(b) *Rasbora vateri floris* Deraniyagala exists as four subspecies. The forma typica from Gilimalē and Parakaduva in Sabaragamuva province. *R.v. ruber* Deraniyagala from Migahatēne to Valalvita in the western province. *R.v. rubrioculis* Deraniyagala from Akuressa in the southern province at an altitude of 500 ft. and *R.v. pallida* Deraniyagala from Kottava in the southern province.

(c). *Puntius titteya* Deraniyagala the forma typica from the low country below 200 ft. is smaller and less brightly colored than the mountain *rubripinnis* Deraniyagala the average total length of the former is 33 mm, of the latter 39.9 mm.

The Amphibia have evolved the endemic genus *Nannophrys* and the Reptilia various subfamilies, genera, species and subspecies especially among the agamids, skinks and snakes.

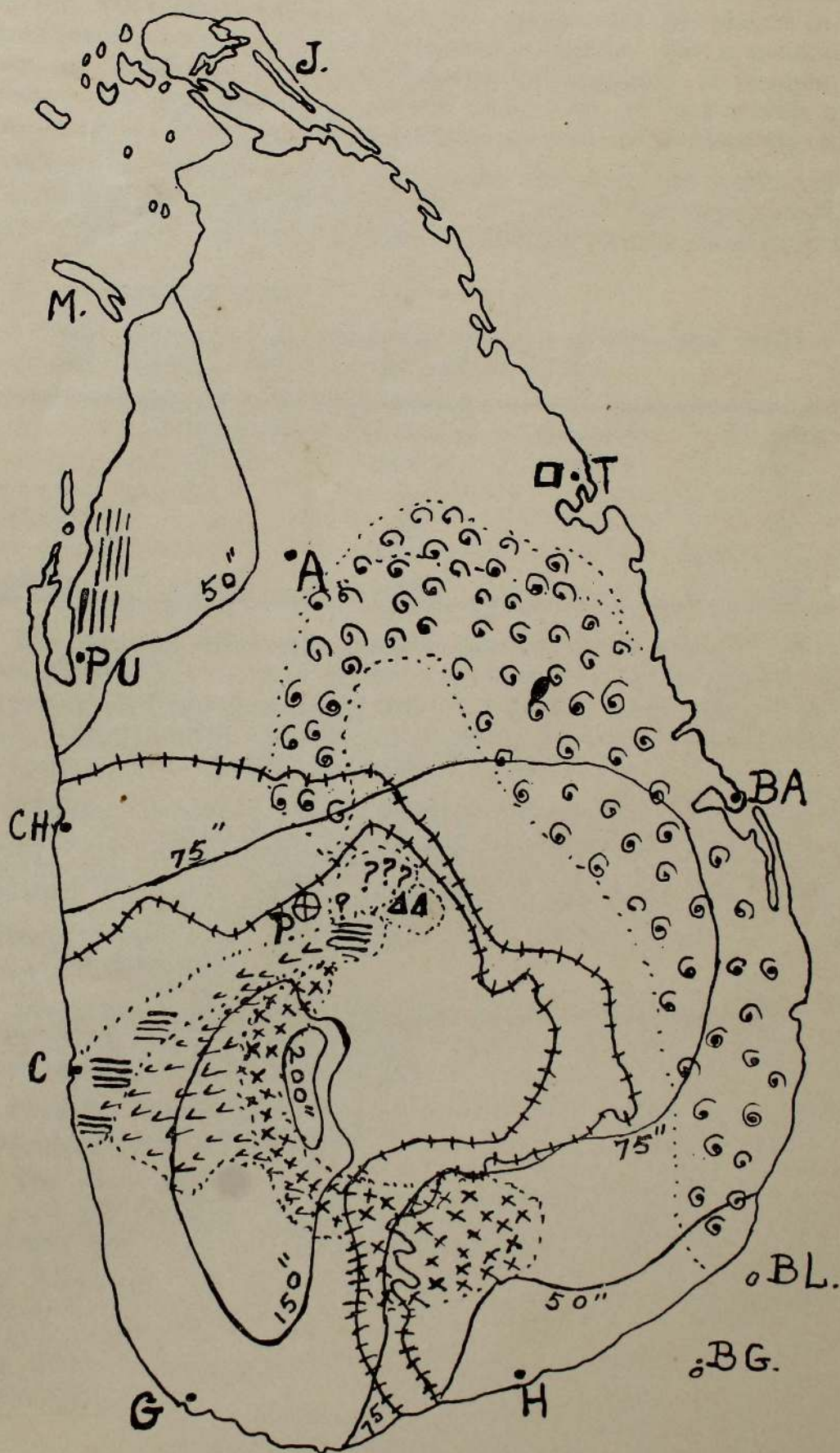
One of the more striking examples of such microevolution is afforded by the nine so-called limbless skinks of Ceylon of the sub-family Acontianinae. Some genera possess four toes, others three toes upon each limb, some two toes, some have four toeless limb buds or stumps, some lack the front limbs but retain toeless vestigial hind limbs, and some have lost all vestiges of limbs and even the ear aperture. This sub-family is of sufficient interest to merit more detailed description.

Chalcidoseps thwaitesi Günther which possesses four limbs with four toes upon each, is restricted to Kandy and Gammaduva. *Nessia* Gray with three toes upon all four limbs exists as *Nessia burtoni* Gray ranging from the hillocks of the coastal plain up to an altitude of 1,690 ft. above sea level and *N. didactyla* Deraniyagala which possesses two toes upon each limb is only known from Polgahavela at an altitude of 241 ft.

Evesia monodactyla Gray possesses four toeless buds and ranges from the hills and mountains of the Uva and Sabaragamuva provinces to the mountains of Kandy and Navalapitiya. The genus *Bipedos* Deraniyagala lacks the front limbs and the hind ones are toeless buds. There are two species, namely, *B. sarasinorum* (Muller) that occurs throughout the Eastern province and as far west as Dambulla, Polgahavela, Polonnaruwa and Galgamuwa and *B. smithi* Deraniyagala which is restricted to the mountains of Gammaduva. The snake-like *Anguinicephalus* Deraniyagala lacks all limbs and even the external ear openings disappear with age. There are three species, namely, *A. hickanala* Deraniyagala from Pomparippu and Kali Vila in Vilpattu, *A. layardi* (Kelaart) from Colombo to Polgahavela and *A. deraniyagalae* (Taylor) from Trincomalee.

The evolution of endemic subspecies amongst the larger reptiles of Ceylon is illustrated by the following (1) The Order *Testudinata* is represented by the (a) Emydidae with two living subspecies, one extinct and one recently extinct, one of these is endemic (b) the Trionychidae with a single endemic subspecies of *Lissemys punctata* while (2) The Order *Crocodylia* possesses two genera each with an endemic subspecies (Mertens et Wermuth 1960)*. These do not occur together although they inhabit both estuaries and fresh water. One is termed the swamp crocodile and generally frequents fresh water and buries its

* About ten years ago a world wide appeal to protect all Crocodilians was drafted out by me in English and translated by Professors Robert Mertens of Senckenburg Museum, Frankfurt, H. Wermuth of Berlin Museum, and Medem of Bogata University into various languages. It was distributed to various Governments and has met with a very satisfactory response.



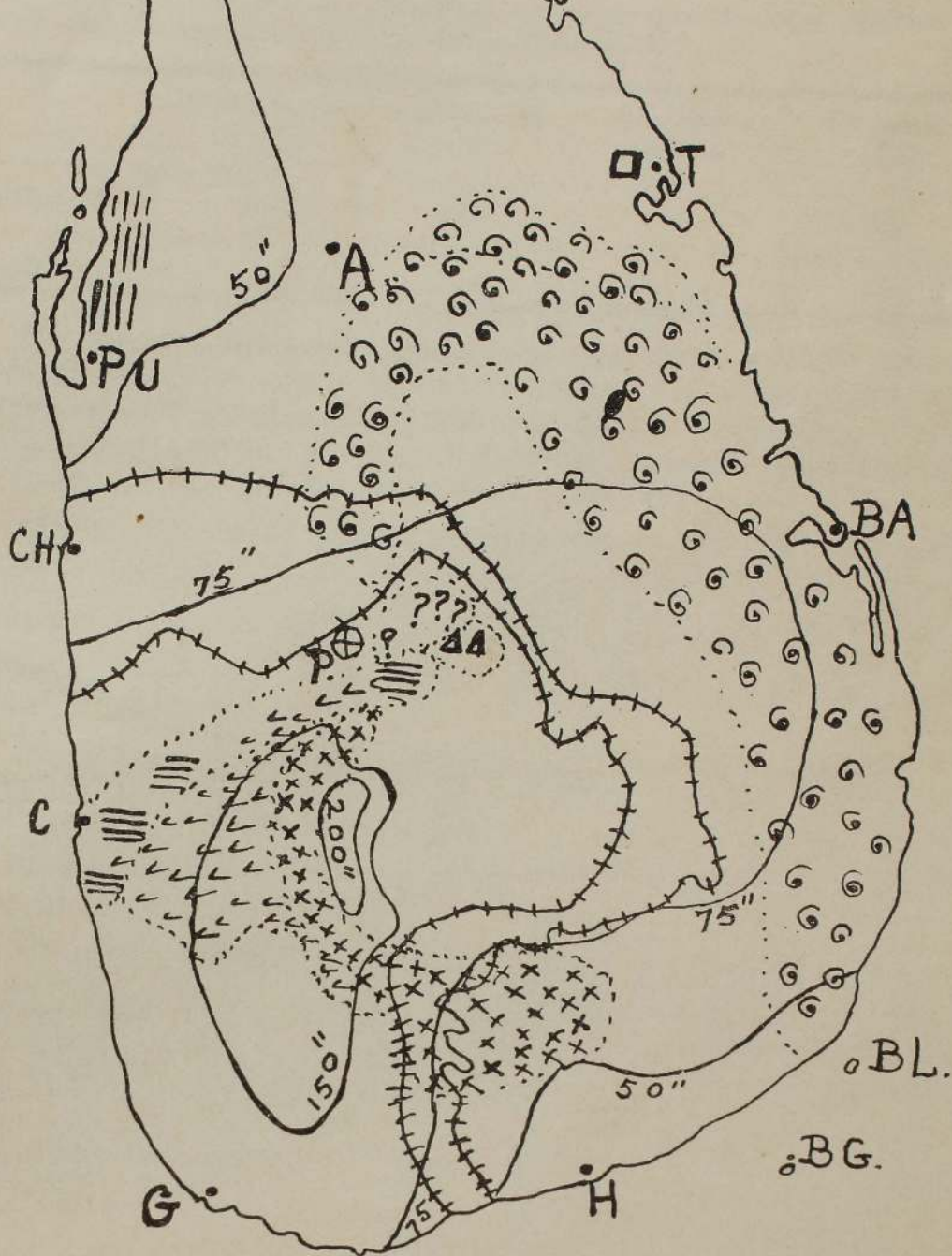


Fig. 3. A sketch map showing the approximate distribution of the Acontianinae in Ceylon. The annual rainfall in inches (isohyets) is shown as unbroken lines, the botanical zones are marked by lines with cross marks and are based upon the map published by Andrews in 1961.

The letters denoting place names are as follows:—A—Anuradhapura, BA—Batticaloa, BG—Great Basses, BL—Little Basses, C—Colombo, CH—Chilaw, G—Galle, H—Hambantota, J—Jaffna, M—Mannar, P—Polgahavela, PU—Puttalam, T—Trincomalee. The area each species occupies is denoted by a different method of marking according to the species concerned, but these boundaries are only imperfectly known.

- Anguinicephalus hickanela*—vertical lines
- Anguinicephalus deraniyagalae*—a square
- Anguinicephalus layardi*—horizontal lines
- Bipedos sarasinorum*—helicoid spirals
- Bipedos smithi*—triangles
- Chalcidoseps thwaitesi*—?marks
- Evesia monodactyla*—×
- Nessia burtoni*—V marks
- Nessia didactyla*—cross in circle.

eggs in the sand, the other is termed the estuarine crocodile and usually builds a mound nest of decaying vegetation. There are such marked differences in the boney platelets in the skin, as well as in other characters that the estuarine crocodile might well be placed in a distinct genus of its own termed *Oopholis* Schneider, but is generally known as *Crocodylus porosus minikanna* Deraniyagala. It frequently possesses post-occipital scutes; rarely enters the sea and travels up* rivers as far as Ratnapura and Alutnuvara 100 miles from the sea.

Why does it build mound nests along the west and south coasts and bury its eggs in the sand along the east coast? Are there two sub-species—and is the eastern crocodile a relatively narrow snouted form?

(3). Order *Squamata*

Ceylon possesses the following endemic genera and species of lizards and snakes exclusive of the marine snakes.

	<i>Number of species</i>	<i>Number of genera</i>	<i>Endemic genera</i>	<i>Endemic species</i>
Lizards	60	27	7	34
Snakes	83	45	5	34

The agamid subfamily *Lyriocephalinae* displays both discontinuous distribution as well as the evolution of two endemic genera. The genus *Cophotis* occurs only upon the highest mountains of Ceylon and in Sumatra while the other two genera, namely *Ceratophora* Gray and *Lyriocephalus* Merrem are endemic to Ceylon.

Among the snakes the burrowing ones of the genus *Rhinophis* Hemprich possesses eight Ceylon and two Indian species which fact suggests that it had evolved in Ceylon and later invaded India, and while this occurred a single species of the Indian genus *Platyplectrurus* Gunther had entered Ceylon where it has only had time to evolve subspecific differences.

The genus *Cylindrophis* Wagler possesses a single endemic species in Ceylon, is absent from India but has several species in Burma, and eastwards as far as the East Indies.

Ceylon's fauna presents various other interesting features some of which are now considered.

The class Reptilia contains species which in India ascend into the cool hill country e.g. the lizard *Sitana ponticeriana* Cuvier, the sand boa *Eryx conicus* Schneider and the saw scaled Viper *Echis carinata* Schneider, are restricted to the more arid parts of the coastal plain in Ceylon. The third is ranked as one of the man-killing species

**C. porosus* of Borneo lays its eggs in the mud at some distance from the water's edge.

in India, whereas in Ceylon its bite is rarely if ever fatal. The Ceylon cobra's venom has been tested in Paris and discovered to be also less potent than that of its Indian counterpart, but rechecking is necessary before this can be accepted as final.

The fact that the Ceylon swamp crocodile and cobra both possess more scales than their Indian counterparts, while the venom of both the cobra and the saw scaled Viper of Ceylon is less potent than that of their Indian relatives, suggest that these reptiles had invaded India from Ceylon so that the original parent stock has altered more rapidly in India than in Ceylon where these reptiles exist as endemic subspecies. Generally the venom of snakes from the more arid countries is more potent than that from snakes of moister lands.

The lizards and snakes display some of the most interesting features of any order in Ceylon. They occupy diverse habitats e.g. arboreal, volplaning, ground dwelling, fossorial and semi-aquatic, some have evolved bizarre regular sacs, nose horns, head horns, and crests. Bipedal gait is displayed by the subfamilies Lyriocephalinae and Sitaninae and also by the family Varanidae when they are either running away at full speed or watching an approaching animal. Another family displays all the series of evolution from species with five toed limbs to the limbless and earless snake-like ones. Some skinks also possess a transparent window-like disc in the lower eyelid, the snakes include species that either burrow, or are arboreal, or aquatic and one or two are capable of volplaning. Some possess grooved poison fangs while in others they are almost tubate. Ceylon possesses two species of lizards a *Nessia* Gray and a *Varanus* Merrem that have the mandibular halves separated at the symphysis as is usual in snakes (Deraniyagala 1955 Vol. II). It also harbors certain snakes such as the Boidae that possess vestigial hind limbs.

Aves Ceylon's ornithology is too well known to require a detailed account in this paper. A reference to the check list of Ceylon birds (Phillips 1953) reveals that aquatic species such as grebes, pelicans, ibises, storks, herons, ducks, rails, plovers, etc. are less apt to evolve endemic subspecies than the terrestrial ones. For example, a sample of 75 aquatic species and subspecies shows that only 4 are endemic, whereas among the non-aquatic birds out of 8 galliform birds 5 are endemic, 12 pigeons have 6 endemic, 11 owls have 5 endemic, 9 woodpeckers have 6, 11 babblers have 11 endemic, 10 weaver birds and munias have only 1 endemic, 6 drongoes have 5 endemic, 7 orioles and crows have 3 endemic, but out of 33 diurnal birds of prey only 3 are endemic. Excluding the subspecies there are 22 endemic species, some examples being, the Ceylon spurfowl *Galloperdix bicalcarata* (Forster) the Ceylon jungle fowl *Gallus lafayetti* Lesson which has progressed further to evolve two separate subspecies. *G.l. lafayetti* Lesson the common form, and *G.l. xanthimaculatus* Deraniyagala of the northern semi-arid area, the Ceylon blue magpie *Cissa ornata* (Wagler), the grackle

Gracula ptilogenys (Blyth), the white headed starling *Sturnus senex* (Bonaparte) the Red Faced Malkoha *Phaenicophaeus pyrrhocephalus* (Pennant), the green billed coucal *Centropus chlororhynchus* (Blyth), Palliser's Warbler *Bradypterus palliseri* (Blyth), the Parakeet *Psittacula calthropae* (Blyth), and several others.

CLASS MAMMALIA

Ceylon possesses nine terrestrial and two marine orders, and among the former are one of the smallest mammals known from Asia and also one of the largest. Both occur in the same area. One is the pygmy shrew with incisors that are pinkish in the living animal, the other is the very massive but tushless swamp elephant. There are no *Perrisodactyla* except for the two species of extinct *Rhinoceroses* and it is strange that no horse fossils have yet been discovered in Ceylon, although there are a number of extinct mammals, some of which were exterminated at a comparatively recent date.

1. The order *Lipotyphla* (Shrews) comprises the following endemic forms:—the family *Soricidae* comprises (a) the subfamily *Crocidurinae* with four genera in Ceylon. The genus *Suncus* has only one species with three endemic subspecies, the genus *Crocidura* has two endemic species, while *Feroculus* and *Solisorex* are endemic and monotypic.



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Fig. 4. *Podihik kura* Deraniyagala the smallest mammal known from Ceylon. 36 to 41 mm long from snout tip to anus and the tail is 22 mm long. Known from Madirigiriya, N. C. P.

(b) The subfamily *Soricinae* which often possess reddish tooth tips might be represented by a single, endemic, monotypic genus and species named *Podihik kura* Deraniyagala which possesses incisors that are pink when it is alive, and which might belong to this subfamily which occurs to the North and East of India but not in peninsular India itself. This matter however needs confirmation.

2. The order Primates as represented in Ceylon contains members of the Suborder Prosimiidea and the Suborder Hominoidea. The former has only the genus *Loris* in Ceylon, the latter comprises the following:—

(a) Family Cercopithecidae—An endemic *Zati sinica* with four subspecies.

(b) Family Colobidae—*Kasi senex* with five subspecies restricted to different areas and *Semnopithecus entellus thersites* which occurs in the dry zone of the low country, and in South India.

(c) Family Pithecanthropidae—*Homopithecus sinhaleyus* (Fig. 5a).

(d) Family Hominidae—*Homo sinhaleyus* (Fig. 5b) *Homo sapiens balangodensis* and the Vāddas.

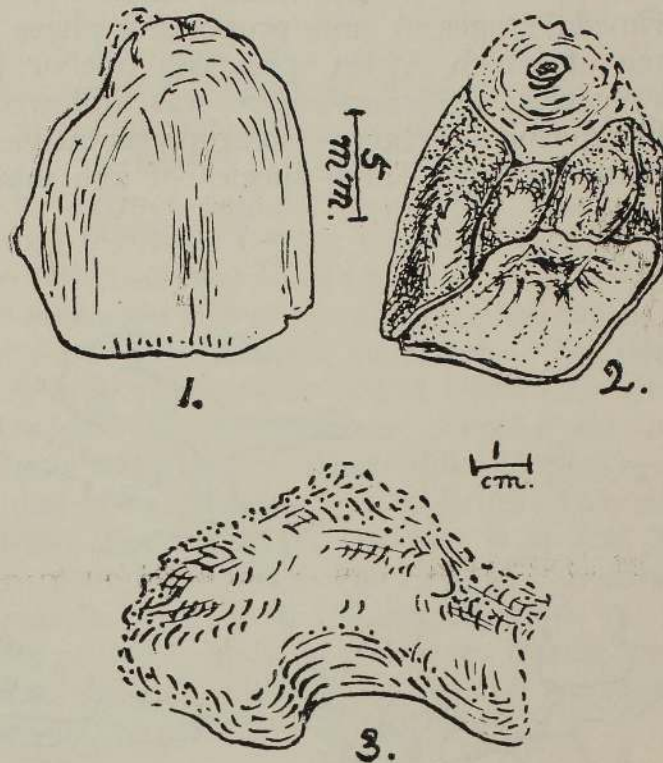
The Macaques of South India and Ceylon are placed in the long tailed genus *Zati* Reichenbach 1862. Ceylon possesses one species *Zati sinica* (Linné) which occurs as the following four sub-species

1. *Zati sinica sinica* Linné of the low country dry zone.
2. *Zati sinica aurifrons* Pocock from the western province low country wet zone and hill zone.
3. *Zati sinica opisthomelas* Hill from the mountains around the Horton Plains.
4. *Zati sinica longicaudata* Deraniyagala from the semi-arid area around Hambantota, Telulla and Kataragama to the south-east of Ceylon where the annual rainfall is mostly under 50 inches.

The genus *Kasi* Reichenbach 1862, or leaf monkeys contains one endemic species comprising the following five subspecies.

- (1) *Kasi senex senex* Erxleben is restricted to the dry eastern part of Ceylon and occurs from the coastal to the intermediate peneplains.
- (2) *Kasi senex harti* Deraniyagala is confined to the semi-arid north-western part of Ceylon.
- (3) *Kasi senex vetulus* Erxleben is in the wet south-western part of Ceylon.
- (4) *Kasi senex nestor* (Bennett) occurs in the wet area of the coastal peneplain of the western province north of the Kalu river and is the smallest sub-species.

- (5) *Kasi senex monticola* (Kelaart) inhabits the mountains at altitudes above 4000 feet. This is the largest sub-species.



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Fig. 5. Hominoid fossils from the gem sand of Ceylon.

1. and 2. the upper incisor tooth of *Homopithecus sinhaleyus*
3. the left brow ridge of *Homo sinhaleyus*. Both are "holotypes".

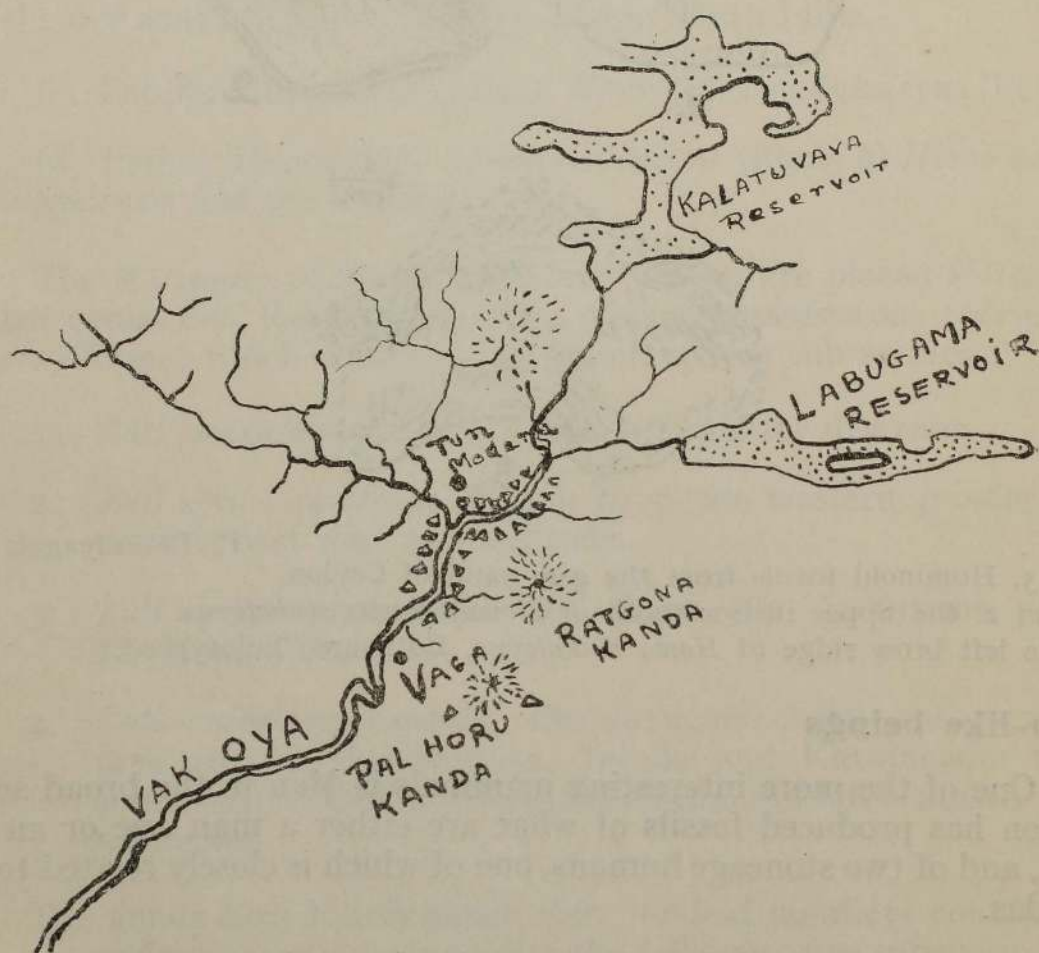
Man-like beings

One of the more interesting mammals is Man in the broad sense. Ceylon has produced fossils of what are either a man ape or an ape man, and of two stoneage humans, one of which is closely related to the Vāddas.

Since the associated fossil fauna of rodent, pig, elephant, hippopotamus and rhinoceros that usually occurs together with man apes and ape men in the fossil deposits of other countries, also exists in Ceylon, the probability that such man like beings had once inhabited Ceylon was forecast many years prior to their discovery (Deraniyagala 1939).

These beings differ from the true men *Homo* in that their nostrils were not located within an elevated nose, the chin was rounded and lacked a forward prominence, the brow ridges were often united and there was a posterior transverse ridge across the skull above the foramen magnum. Their bodies were more or less similar to that of *Homo* and all these beings had an erect carriage, bipedal gait, could run fast, and kick forward. They form the family Pithecanthropidae in

which the more primitive subfamily are the Australopithecinae which occur in the early Pleistocene cave deposits of South Africa as two genera possessing manlike bodies and apelike heads which is an advance from the earlier quadrupedal stages. A more progressive phase is seen in the Pithecanthropinae of which Africa possesses one or possibly two, and Asia three species. *Pithecanthropus* was followed by extinct forms of *Homo* but during a certain period representatives of all appear to have been contemporary. Three species of ape man are known



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Fig. 6. The open air habitation site of Balangoda man at Tun Modera and the cave site in Pal Horu kanda (Hill). The triangles indicate the areas that yielded pitted hammer pebbles.

from Java and China and with them were two giant man apes, namely *Meganthropus palaeojavanicus* von Koenigswald of Java, and the crag dwelling, carnivorous *Gigantopithecus blacki* von Koenigswald of China.

Extinct forms of *Homo* were contemporary with all these creatures during some phase of their existence and turning to Ceylon we find this same association of ape man with true man *Homo*. Two gem pits near Ratnapura have yielded one incisor tooth and the part of a

molar respectively of a Pithecanthropid which were found in the gem sand together with fossils of Hippopotamus, Elephant, Rhinoceros and Lion (Fig. 4 No. 1, 2). This being has been named *Homopithecus sinhaleyus* Deraniyagala. In another gem pit in the same area was found a left brow ridge of a species of *Homo* (Fig. 4 No. 3). As this fossil too occurred together with those of hippopotamus and an elephant which might be *Palaeoloxodon*, there is little doubt but that true man and pithecanthropid had lived side by side in Ceylon together with some of the extinct animals mentioned above. This discovery of pithecanthropid fossils in Ceylon bridges the great gap that had existed hitherto between Africa on the west and Java and China on the east. *Homo sinhaleyus* Deraniyagala the earlier of the two true humans is known only from a thick fossil brow ridge with a relatively small eye socket and more fossils might eventually prove that this race is neanderthaloid. The later stoneage people *Homo sapiens balangodensis* Deraniyagala were hunter-fishers who occupied open air dwelling sites that extended from a quarter of a mile upto two miles. One such site exists at Bellan Bāndi Pālāssa, another is at Tun Modera on the Vak Oya stream near Labugama. The cave in the adjoining hill termed Pal Horu Kanda, which is in Labugama estate was also inhabited by this race who probably took to the caves during the heavy rains. (Fig. 6). Remains of their kitchen debris and implements from the last two sites are shown on Plate II (Figs. 3, 4).

Beneath the sand in the bed of the Vak oya there exists a layer of ferricrete and an old leaf bed which contains pitted hammer pebbles and dimple pitted anvil-cum-grind stones, some of which were dug up by gem miners when dredging the stream bed. These finds from the Vak oya bed at Tun Modera and in the cave at Pal Horu Kanda indicate that a large colony of *H. s. balangodensis* had a settlement extending for over 2 miles into 1 mile and it might have been even larger. The almost total absence of vertebrate bones from this sample is of interest, but no definite conclusion can be reached until further excavation has been conducted. The leaf deposit in which the artifacts occurred in the Vak oya suggests that this settlement had been situated upon the margin of a lake in which leaves had collected over a part that became submerged. The rock shelters near Kuruvita were apparently also adjacent to what were then fast disappearing natural lakes which no longer harbored the hippopotamus, but had continued to be adequate for accommodating aquatic snails and fishes, long after this large mammal had become extinct. The absence of bones of extinct animals in these kitchen middens and the presence of decayed vegetation in deposits both in the earth and in stream beds

*The *Ramayana* references to man apes and "Hanu man" is of interest as "Hanu=sub or half and "Man"=man=subman or ape man. Was it possible that pithecanthropids existed in India into Ferrolithic and early Historic times? The discovery of two fossil Pithecanthropid teeth and also of the extinct stone age *Homo sapiens balangodensis* in Ceylon suggests that the Nittāvo might have been one of these beings.

e.g. at Tun Modera near Labugama, support the view that the lakes had begun to disappear finally during mesolithic times, about 8000 years ago (Deraniyagala 1964 a) (Plate II fig. 1.)

In this connexion the penultimate terrace of the Halpé Oya on the Bandaravella to Badulla Road at the 17th mile beyond the 17/20 culvert near the Halpé Estate Road in Halpé village, is also of interest. The exposure which is up-hill on the left, along the motor road to Badulla is about 30 feet above the present stream which now curves around an outcrop of rock. It had deposited pebbles in what was once a lake, as testifies a band of ferricrete which is strongly undulating as a result of upheaval. Below it is a mass of decomposing sand, clay and rocks while above it the torrent had first deposited a layer of quartz boulders that are each about $1\frac{1}{2}$ to 2 feet long. This layer is about 8 feet above the motor road. Pebbles that are about 10 to 6 inches long lie above this to a thickness of 2 feet and above them is a barren layer of sand which is $1\frac{1}{2}$ feet thick. Both the smaller size of the pebbles as well as the sand indicate that the stream was losing its velocity. With subsequent rejuvenation it again transported and deposited larger quartz pebbles that were from 6 to 10 inches long, to form a layer that is 2 feet thick until once again the velocity of the stream slackened and a layer of small pebbles that were 2 to 3 inches long collected to a thickness of 6 inches. Finally ordinary earth accumulated superficially to a depth of 2 feet. The exposure extends for about 200 yards along the road and traces of it appear in the paddy fields on the left (Plate II fig. 1.)

The meso-neolithic humans of Ceylon were protoaustraloids, termed Balangodans who had become extinct during early historic times, probably due to hybridizing with more civilised metal using invading races from India and the Malayan area.

This race flourished in Ceylon towards the final stages of the 'Lake' phase when the Island contained many natural lakes which had harbored the Hippopotamus at an earlier stage. *Homo sapiens balangodensis* as it is named, often displays a thick upper jaw with so long a distance from the nasal opening to the upper teeth (Nariale to prosthion) as to resemble an ape. The last or third molars were usually as large as the second ones and were invariably worn down through usage, the cheek bones were thick and the men were about 5 feet $8\frac{1}{2}$ inches tall. They manufactured numerous types of weapons from horn, bone and stone, and knew how to manufacture pottery (Pls. I, II) but no metal objects or trade goods have been secured from the four sites that have yielded skeletal remains of this extinct race (Pl. I) whose culture is the "Balangoda Culture" for which the term "Bandarawelian" is a synonym.

Since broken human bones occur among the consolidated heaps of broken animal bones or bone breccia (Plate I Fig. 7) it is probable that these are relics of cannibal feasts and that the 196th jataka story, the *Dipavamsa*, and other early works that mention the cannibals

of Ceylon, are correct. The description in the *Saravajnalankara* that there were "demons" in Ceylon that wore revolving discs in their ears is supported by the stone ear-stretcher dug up from the prehistoric site at Ravan Ella cave.

The discovery that *Homo sapiens balangodensis* had been using an assortment of stone artefacts of paleolithic, mesolithic and neolithic types supports the view that one of the components of this race had originated as far back as the Paleolithic of Ceylon which on paleontological evidence has been tentatively assigned to the third interglacial of the upper middle Pleistocene. The two groups of characters revealed by this extinct race indicate that it is the product of hybridization. However, it appears to be very close to the parent stock which had migrated from this area into New Guinea,¹ Australia and America where through admixture with other races, it had evolved into the races now considered peculiar to these countries. Ceylon possesses an abundance of pitted hammer pebbles which are also known to occur in India, Australia, Japan and America. The late Professor E.A. Hooton's views that (a) the human remains discovered at the same level as them in America appeared to be proto Dravidian and (b) also that the Lacandon Indians of Southern Mexico have "an almost pre Dravidian look" reminiscent of the Vaddas of Ceylon (Hooton 1933) support the view expressed elsewhere (Deraniyagala 1939) that the meso-neolithic stone age humans of Ceylon had provided one of the numerous streams of stone age Asian immigration into America.

In 1957 carbon 14 tests conducted in America had revealed that these skeletons dated back to 114 B.C. plus or minus 200 years (Deraniyagala 1957) and Kennedy's monograph on them that was published by the Trustees of the British Museum of Natural History (Kennedy 1965) states that they possess "certain biological features that distinguish them from other fossil hominids found thus far". It adds that the Vaddas and Balangodese bifurcated from a common parent stock several millennia prior to the occupation of Bellan Bāndi Pālāssa.

The following characters that suggest neanderthaloid affinities occur in some individuals of this race. A large glabella, a heavy frontal torus that is divided, a thick occipital torus, a gonial prominence, large pulp cavities in the molar teeth which are sometimes taurodont while the incisors are at times shovel shaped. The skull is dolichocephalic with large orbits, ill defined canine fossae, and with a great distance from the nariale to the prosthion in some males. (Deraniyagala 1957, 1958, 1963, and Kennedy 1965). The cranial capacity which is as low as 919.66 cc. in some females ranges as high as 1589.72

¹The dogs of Ceylon, New Guinea and the Congo, howl rather than bark and are probably from one original home which might well have been Ceylon.

The occurrence of light yellowish or reddish brown hair in Vadda children when about six years of age, and also the presence of pitted hammer pebbles in these countries support this view (Deraniyagala, 1963 a. p. 113).

cc. in some males. (Kennedy 1965). There are also other characters that are reminiscent of the Australian aboriginals on the one hand and of the Negroids on the other. (Deraniyagala 1957, 1958). However, the high degree of sexual differentiation suggests that *Homo sapiens balangodensis* is a very ancient race.

3. Order Rodentia. Among Rodents (a) the family Muridae possesses a single living endemic jerboa *Tatera ceylonica* Wroughton and a large extinct Pleistocene species *T. sinhaleyus* Deraniyagala. The Murinae contains 10 genera and 19 species and subspecies of which 5 occur in India, the others including the genus *Coelomys* being endemic (Appendix II). (b) Among the subfamily Sicurinae or diurnal squirrels four species of the giant squirrel of the genus *Ratufa* Gray 1867 are endemic to the Oriental region. Only *R. macroura* Pennant, occurs in Ceylon and comprises the following three subspecies *R.m. dandolena* Thomas et Wroughton which is common to both South India and Ceylon, and which had apparently invaded Ceylon where it frequents the dry zone and has also evolved two endemic subspecies namely *R.m. macrura* (Pennant) of the mountains and *R.m. melanochra* T. et W. of the wet zone.

The genus *Funambulus* Lesson, comprises five species that are endemic to the Indian subregion. The species *F. palmarum* (Linné) exists as five endemic subspecies in India and four endemic ones in Ceylon, namely—

F.p. favonicus T. et W. of the Western wet zone. *F.p. kelaarti* (Blyth) of the semi arid area of the lowermost peneplain from Puttalam eastwards and then southwards to Hambantota. *F.p. brodiei* (Blyth) of the northern part of the lowermost peneplain from Puttalam to Cheddikulam and northwards, and *F.p. olympius* T. et W. of the central hills.

The forest species *F. layardi* Blyth appears to have evolved from the parent stock of *F. palmarum* and exists as two endemic subspecies. *F.l. layardi* (Blyth) of the mountain zone and *F.l. signatus* Thomas, of the wet zone; *F. layardi* appears to have entered India during a subsequent reconnexion to evolve the subspecies *F.l. dravidianus* Robinson of the southern part of the Western Ghats of India. The Indian species *F. sublineatus* (Waterhouse) has invaded Ceylon where it has evolved the endemic subspecies, *Funambulus sublineatus obscurus* (Pelzeln et Kohl) in the wet zone from the sea coast into the mountain area.

(See Moore and Tate 1965 for maps and descriptions of squirrels).

4. Order Carnivora. Among the Carnivora the family Canidae possesses a single endemic jackal. *Thos aureus lankae* (Wrough-

*The pre-history section of the British Museum of Natural History examined bone samples from Bellan Bāndi Pālāssa. Femur B.P.2-21. gave a nitrogen quotient of 1.3 whereas rib B.P.3-27 (D) yielded only 0.25 thereby supporting my view based upon the skulls and artefacts, that this site comprises two habitation phases.

ton), the Ursidae comprise a recently extinct honey bear *Helarctos inornatus* (Pucheran) 1855, and an endemic subspecies of sloth bear *Melursus ursinus valaha* Deraniyagala. The Mustelidae possess a single endemic otter *Lutra lutra nair* F.Cuvier.

The family Viverridae is represented in Ceylon by the following three subfamilies: Namely the Viverrinae, Paradoxurinae and Herpestinae.

The Civet Cats of the genus *Viverricula* (Hodgson 1838) are represented by the single species *Viverricula indica mayori* Pocock 1933, the type locality being Maha Oya in the Eastern province. The subfamily Paradoxurinae or Palm cats is represented by the genus *Paradoxurus*, in which *Paradoxurus hermaphroditus* Pallas (1777) with the type locality in Pondicherry, ranges from as far north as the Nerbudda river, down to Ceylon. There is also the endemic *Paradoxurus zeylanensis* Pallas (1777). A specimen from Nuvaraeliya was termed *Paradoxurus zeylanicus* with varieties *fuscus* and *montanus* by Kelaart, in his *Prodromus Faunae Zeylanicae*. 1852.

The mongooses belong to the subfamily Herpestinae which contains the single genus *Herpestes* Illiger (1811). There is a group of large and another of small mongooses in southern Asia, and Ceylon contains representatives of both of them.

Herpestes vitticollis Bennett 1833 is the solitary representative of the large sized species, in fact it is the largest Asian member of the genus and ranges from the western Ghats of India, and Travancore into Ceylon. The type locality is Travancore, and the Ceylon, animal is considered to be inseparable from the Indian one. It possesses a well defined dark band along the neck, elongate foreclaws, and is noticeably overshot.

The smaller species comprise (a) *Herpestes edwardsi lankae* Wroughton 1915. The type locality is Cheddikullam in the Northern province of Ceylon. (b) *Herpestes smithi* Gray, 1835, occurs in Ceylon as the subspecies *H.s.zeylanicus* Thomas 1921. type locality Monkani, Eastern province. (c) The brown mongoose *Herpestes fuscus* Wroughton 1938, as four subspecies in Ceylon namely as *H.fuscus flavidens* Kelaart 1850. type locality Kandy, *H.fuscus macarthiae* Gray 1851 from Jaffna, *H.fuscus siccatus* Thomas (1924) Amparai eastern province and *H.fuscus rubidior* Pocock 1937 from Matugama in the Western Province.

The family Felidae or Cats possess representatives of four genera in Ceylon namely the extinct lion *Leo leo sinhaleyus* Deraniyagala of the upper Pleistocene which might have persisted into early historic times,* the Ceylon leopard *Panthera pardus kotiya* Deraniyagala, the

*The lion figures frequently in Sinhala ethnography, the tiger scarcely ever. The best examples are the two medieval stone sculptures of standing lions; each is about ten feet long and about five and a half feet high. One is at Polonnaruwa, the other at Padaviya tank. The approach to the summit of Sihagiri is also through the jaws of a gigantic couchant lion constructed in brick.

Ceylon wild cat *Felis chaus kelaarti* Pocock, the montane rusty spotted cat *Prionailurus rubiginosus phillipsi* Pocock, the low country *Prionailurus rubiginosus koladivius* Deraniyagala which is bluish-grey or agouti in general color (Pl. III figs. 1, 2), and *Prionailurus viverrina* (Bennett) the fishing cat which alone has not evolved subspecific characters.

5. Order Proboscidea. The elephant of Ceylon differs subspecifically from that of peninsular India since only 11% of its males possess developed tusks. This race is the forma typica *Elephas maximus maximus* Linné, whereas in the race from peninsular India *E.m. dakhunensis* Deraniyagala, 99% of the males are furnished with developed tusks. During the final stages of the "Lake phase" about eight thousand years ago the Ceylon race appears to have possessed a high percentage of tuskers, and this extinct race is *Elephas maximus sinhaleyus* Deraniyagala (Plate V, fig. 1).

An example of microevolution in Ceylon's largest mammal is *Elephas maximus vilaliya* Deraniyagala 1940, which is the giant race (Plate IV fig. 1), that is peculiar to the series of large swamps, termed "Vilas", that border the lower section of the Mahavili river (Plate IV figs. 1, 2, 3, 4). Sir Samuel Baker (1854, p. 129) was the first to notice the great size of these elephants H. Storey (1907, p. 108) suggested that they were a special breed inhabiting the swamps of this district, E. L. Walker (1923) a well known elephant shot agreed and added that they "far outweigh elephants of other districts", and U.S. Ambassador Mr. Phillip K. Crowe who saw them in 1954 gives a good description of them in his book "*Diversions of a Diplomat in Ceylon*" (Mc Millan & Co.).

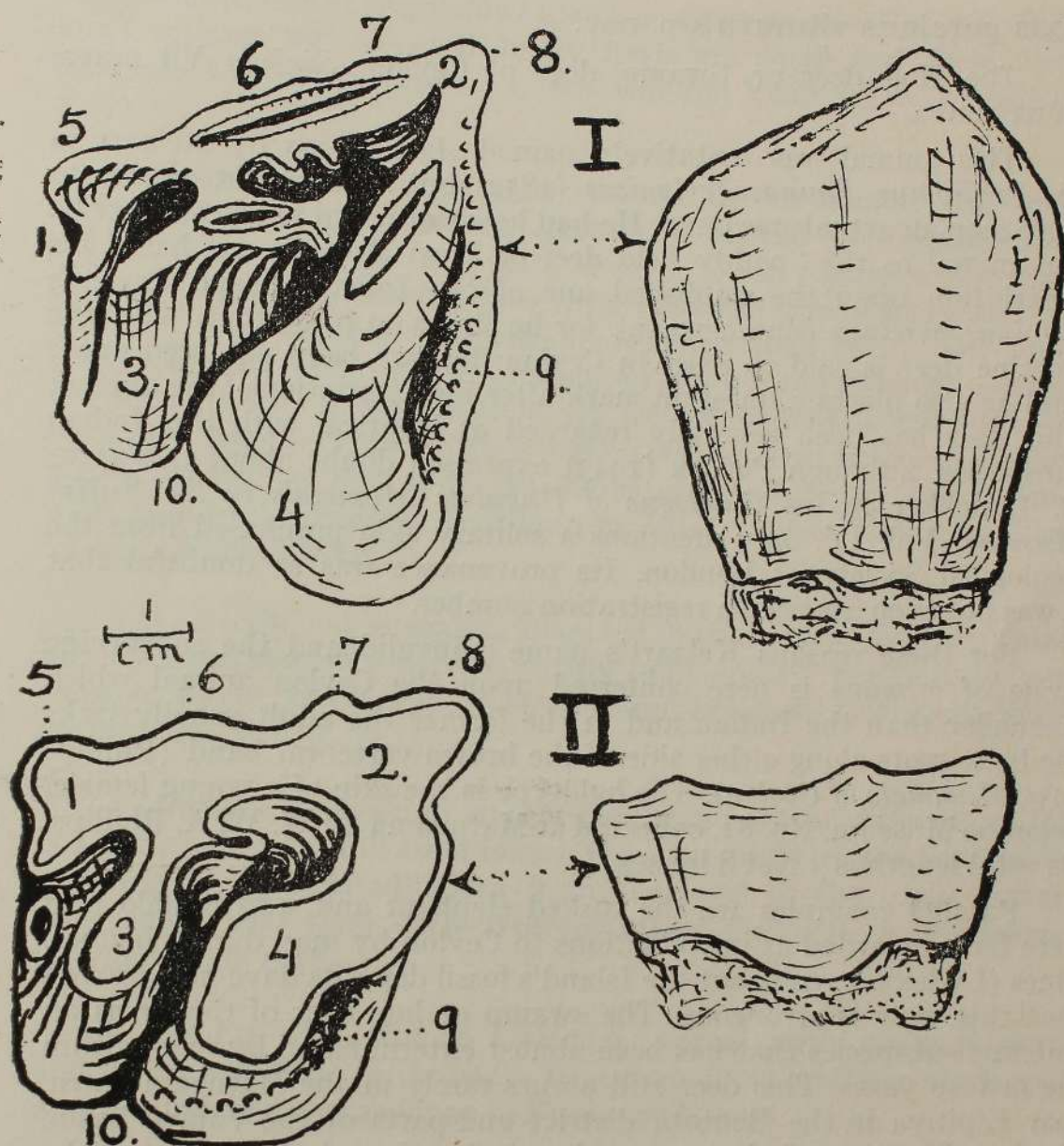
These swamp elephants are very bulky, with relatively large pads to their feet, the tusks are either wanting or completely hidden under the upper lip, there are large fleshy protuberances above the position of each, the trunk is very thick, and the shape of the adult skull usually differs from that of the common subspecies in sloping, backward more strongly and being proportionately more elevated.

The next two orders with representatives in Ceylon are:—

6. Order Perissodactyla represented only by the genus Rhinoceros with two extinct species namely (a) *Rhinoceros sinhaleyus* Deraniyagala, with low crowned molars and (b) *Rhinoceros kagavena* Deraniyagala, with high crowned molars (Fig. 7).

7. Order Artiodactyla the (a) Family Suidae with the small extinct *Sus sinhaleyus* Deraniyagala, the larger living *Sus cristatus zeylonensis* (Blyth) (Plate V fig. 3) (b) Family Hippopotamidae with the fossil six incised, large hippopotamus *Hexaprotodon sinhaleyus** Deraniyagala (Plate VI) and the families (c) Cervidae and (d) Bovidae with several endemic species and subspecies.

*Its nearest relative is *H. palaeindicus* (F. et C.), of the Nerbudda lake deposits.



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Fig. 7. Second upper molar teeth of two different individuals of the extinct Rhinoceros of Ceylon. To the readers left is the worn surface of wear, to the right is a side view of the upright tooth. All are to the same scale. A cm. scale is appended.

I. An almost unabraded upper second molar of *Rhinoceros kagavena*.

II. A worn upper second molar from a gem pit at Uyan vatta, Palmadulla, from a depth of 40 feet of *Rhinoceros sinhaleyus*.

1. Metacone
2. Paracone
3. Hypocone
4. Protocone
5. Metastyle

6. Mesostyle
7. Paracone fold
8. Parastyle
9. Cingulum
10. Median sinus or fossette
11. Crochet projecting into the median sinus.

***Axis porcinus vilmuva* ssp. nov.**

The Hog deer or Swamp deer of Ceylon, *Sinhala* Vil muva, *Gōna muva*.

This animal was tentatively named *Axis oryzus* by Kelaart in his *Prodromus Faunae Zeylanicae* (1852) but he does not appear to have seen an actual specimen. He had however heard villagers describe the animal as the "paddy field deer or Weel Mooha" and based his description upon the published one of the Indian subspecies *Axis porcinus porcinus* (Zimmerman), for he states on p. 83 that "The true Porcine deer is said to exist in Ceylon; but we have not seen one". And he also places a question mark after his description of the animal. This deer has been generally regarded as identical with the Indian subspecies, although Pocock (1943) expressed doubt about this view. R. Lydekker in his *Catalogue of Ungulate Mammals in the British Museum*, Vol. IV, only mentions a solitary skin purchased from the Zoological Society of London. Its provenance was so doubtful that it was not even assigned a registration number.

For these reasons Kelaart's name is invalid and the subspecific name of *vilmuva* is here conferred upon the Ceylon animal which is smaller than the Indian and in the former the adult usually lacks the light spots along either side of the brown vertebral band (Phillips 1935 *Mammals of Ceylon*). The holotype is the skin of a young female, Colombo Museum, No. 81, collected at Matugama by W. W. A. Phillips. Its total length is 3 feet 8 inches.

Parallel examples are the tusked elephant and wild buffalo that were both regarded as introductions to Ceylon by man during historic times (Lydekker 1924) but the Island's fossil deposits have now proved that this view is erroneous. The swamp or hog deer of Ceylon is an endemic subspecies that has been almost exterminated by man within the last 40 years. This deer still occurs rarely in the Matugama area, near Elpitiya in the Bentota district and parts of the Valavé basin. Man's cultivation of the swamp forests has forced this deer to take to the drier forests where it has hybridized with the spotted deer *Axis axis ceylonensis* Erxleben. The specimens of hog deer in the Ceylon Zoological Gardens hybridize freely with the spotted deer, a fact which was noted by Sterndale in 1884 in his *Mammalia of India*. With its short limbs and slow gait it also falls an easy victim to dogs and man, once it is forced on to firm ground.

Domestic animals of Ceylon

The indigenous domestic animals are the fowls, dog, cat, horse, pig, buffalo and neat cattle.

1. *The Game Cock* of Ceylon possesses either a walnut comb with a dent in front or a thin single comb without serrations. The tail is held somewhat above the level of the back. Not infrequently the feathering is of the "henney" variety, and the spurs are black which may be

due to an infusion of jungle-fowl blood as is also indicated by the single comb without serrations. Ordinary fowls are small and some have been noted as heavy layers e.g. the Ruhunu kikili (Plate VI, figs. 1, 2, 3).

2. *Dogs* appear to have been of three breeds namely one small and terrier-like, with pointed erect ears, curved or tightly curled tail and of slender build, and many dogs in forest villages to the north and south east are reddish-yellow with yellowish eyes or black and tan while their vocalization comprises more howls than barks. The other breed was more massive with strong jaws and the tail although curved, was not curled up tightly. Both breeds were short haired and possessed erect ears. Another type which is seldom portrayed in frescoes, approximates the mastiff type with pendulous ears and heavy head somewhat akin to the common bear-hunting breed in west Pakistan (Plate VI fig. 4 Plate VII fig. 2).

3. *Cat*—The cat is seldom depicted in the ancient Sinhala paintings; but the modern animal is lightly built and by comparison with those of Egypt and Europe is slender and possesses relatively longer limbs (Plate VII fig. 3).

4. *Horse*—As shown in ancient paintings and carvings the animal is a pony and not a full sized horse. The semi fossilized toe bone which was dug up at Anuradhapura from the level of the early pottery layer shows that these early representations are more or less correct (Deraniyagala 1958).

5. *The Pig* of Ceylon is a slender animal with elongate snout and concave outline to its back. Its colour is an uniform dark grey and the flesh is never as fat as in European breeds.

6. *Buffalo*—The domestic buffalo is closely akin to that of South India as far north as Madras. Its horns are short and semi-circular and it possesses grey fetlocks, whitish hair inside the ears and is smaller than the other domestic breeds of India.

7. *Neat cattle*—The neat cattle when uncontaminated by foreign blood are so small that they might almost be termed pygmies. They were restricted to the isolated villages in the Sinharaja forest but during the last war they were exterminated by meat vendors who purchased the animals at extremely low prices. In color they were either a uniform glossy black or uniform reddish brown. They stood about three feet high at the withers with a poorly developed hump and dewlap, large dew claws, short stumpy horns and a short tail with a ball-like switch that barely reached down to the hocks (Deraniyagala 1939 c).

Hybridization of domestic and wild species

(1) The birds have already received considerable attention since they have excited the sympathy of man by their bright colors and musical song. The outstanding cases for complete protection among them are the two subspecies of Ceylon jungle cock *Gallus lafayetti* Lesson, the lesser trogon, the Ceylon broad billed roller, the large black coot and the scale marked shrike. These birds are not found anywhere else in the world. Today with the spread of fire arms the jungle fowl is one of the first animals sought after by anyone in quest of "something" for the pot. The even greater threat to its existence is that its males hybridize with the domestic village hens although, it is not often that a village cock has an opportunity to mate with a jungle hen. Hybridization occurs fairly frequently, the progeny that have been hatched out by the village hen usually betake themselves to the forest and interbreed with the pure wild stock. This is a far greater danger than destruction of the bird through fire arms or traps. The hybrids which might have the shape of a pure bred bird will throw out a percentage of young which are similar to the domestic village fowl, others will show that they are just hybrids, and a few will resemble the pure wild stock and all will interbreed with the pure stock (Plate VI figs. 1, 2, 3).

(2) *Wild pig*—The wild pig *Sus cristatus zeylonensis* (Blyth) is another instance where such hybridization is occurring, but the process has not advanced as far as in the case of the buffalo, merely because domestic pigs were seldom kept in jungle villages because as their wanderings could not be controlled, they fell a ready prey to leopards. However with the recent wholesale slaughter of leopards, the colonists from other parts of Ceylon now take their pigs with them into forest colonies as they are no longer menaced, by leopards, and this hybridization problem is becoming acute. The hybrids at times are identical in appearance with the wild parent and can only be distinguished when mortally wounded. The pure bred wild pig when so injured is either silent or may grunt angrily when too crippled to charge its assailant, but it never squeals, whereas the wounded hybrid is as vociferous as the domestic animal when it is injured. Usually however the hybrid displays less hair, a shorter snout and tail, the hairy crest is restricted to the nape and shoulders and not continued onto the loins while the cross section of the tusk differs in possessing straight sides not concave ones. The pure wild animal always possesses tusks with such surfaces but hybrids also might inherit this character (Plate III, fig. 5).

3. *Buffalo*—The same fate has already overtaken the second largest mammal that is peculiar to Ceylon namely the wild buffalo *Bubalus bubalis migona* Deraniyagala. This animal occurs as a fossil in Ceylon and is smaller than its Indian relative but larger than the domestic buffalo, possessing heavier horns in which the tips are curved more forwards, in its heavier neck with a strong ridge between the shoulders, more elongate legs, more copious hair upon its head, neck and withers, a longer switch to the tail, the dung heaps are larger and mound like, the animals gait is smoother and the stride relatively longer. The adults are much darker in color* than the domestic animal, while the calves are a coppery or reddish brown and not grey or light colored as in the domestic breed. The pure wild buffalo bull is also generally prone to attack humans unprovoked, a fact noted by all sportsmen, prior to 1935. The present day hybrids are of more timid disposition, smaller in size, more squat in build and the calves are greyish or light colored. The average horn size calculated from a number of the largest Ceylon wild buffaloes compared with corresponding ones of the Indian animal is as follows:—

	<i>Average circumference of horn</i>	<i>Range of basal horn circumference</i>	<i>Height at withers</i>
INDIA	20 ins.	18 ins. to 22 ins.	64 ins.
CEYLON	13 ins.	13½ ins. to 15½ ins.	58 ins.

By 1937 the wild buffalo population of Vilpattu had hybridized beyond redemption since there were several villages in the centre of this reserve and a number of domestic animals with ropes round their necks usually formed part of a so-called wild herd. At that time the southern game sanctuary of Ruhuna or Yala had not yet been invaded by domestic animals, but over the past fifteen years many domestic buffaloes have entered it and have converted the Yala buffaloes also into a population of hybrids. In fact the real wild buffalo of Ceylon in its purity, is to all intents and purposes, extinct. Today, it will be impossible to retrieve the situation unless immediate steps are taken to secure what appears to be closest to the real unmixed wild stock and isolate them within an area inaccessible to domestic animals then rigorously destroy all progeny that show the least indication of being hybrids.

*The calves of the domestic buffaloes in the Amparai area of the Eastern Province are coppery in color due to a heavy admixture with *B.b. migona*.

Extinction

1. *The sloth bear* which is restricted to the more arid and remote parts of the coastal plains of the north, east and south once inhabited the Ratnapura area as the part of a mandible dug up from a meso-neolithic rock shelter at Kabaragalgé, Käkula, Hangomuva testifies (fig. 8).

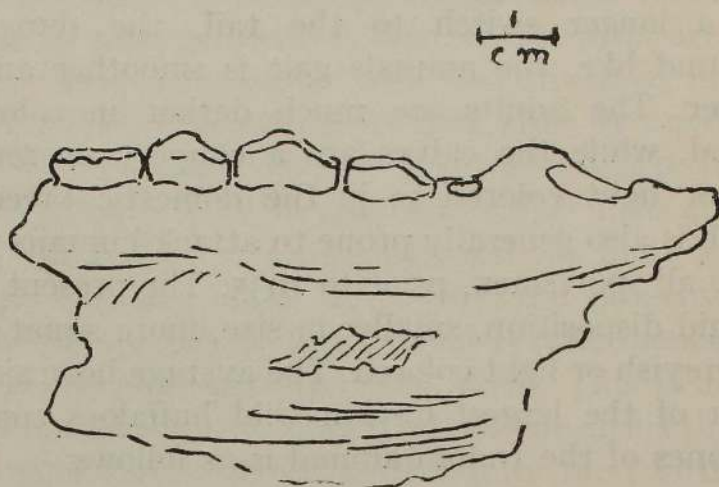


Fig. 8. The fragment of a mandible of *Melursus ursinus valaha* dug up with stone implements from Kabara cave at Käkula, Hangomuva near Ratnapura.

This specimen which occurred together with the shells of aquatic and arboreal nails, broken bones of various vertebrates and stone implements, is in the Ratnapura Museum collection. A mounted young specimen that had been shot at Mirigama in the Western Province in about 1890 also existed before the last war.

2. *Panther*. The type locality for Linne's *Felis pardus* of 1758 is given as "in Indis", not Egypt. It is the northern Indian subspecies the south Indian one is here assigned the name of *Panthera pardus longicaudata* (Valenciennes 1856). The British Museum skin described by R. I. Pocock in 1930 in the *J. Bombay Natural Hist. Soc.*, Vol. XXXIV, No 2, p. 311 from Kolar, East Mysore, is now designated its "type specimen". The black panther of Ceylon is never as black as the Malayan color variety *melas*. but is of a coffee color.

The name "leopard" is only applicable to the cheetah, and is a misnomer when applied to the panther. The Ceylon panther *Panthera pardus kotiya* Deraniyagala (1949) needs complete protection. Until recently it had been regarded as identical with the Indian subspecies. The Ceylon animal however never produces specimens that are blotched or marbled dorsally although this color variation is not uncommon in South India. There is also no tendency to develop a tuft at the tip of the tail, the skull is smaller, the black rosettes usually smaller and the tail proportionately somewhat longer than in the Indian animal, which

latter is of stockier build, as a comparison of the Ceylon animal in the illustrations in Storey and in Phillips with those of the Indian ones in Champion and in A. Denis clearly indicates. Besides these differences the Ceylon animal very rarely attacks man whereas the Indian one is frequently a man eater (vide accounts by Indian big game hunters and those by Sterndale 1884 and Lydekker 1924).

Prior to the last war a visitor to the forests of Ceylon could hear the various call notes of the panther throughout the day and the night. One of these was an often repeated Bouk! Bouk! Bouk!, another was what was generally termed "Sawing" and a reverberating, continuous ventriloquial growling with head held close to the ground. Today these sounds are very rarely heard. There are two explanations for this. One is that the panthers have become wary through being persistently shot at and have learned to hunt silently; the other, that there are no panthers to make any sounds. The presence of a panther is indicated at night by the alarm notes of the red-wattled lapwing, spotted deer, sambhur and during the day time by the coughing of the langur monkeys as well as by the above mentioned animals. Since these alarm calls are rarely heard either by night or by day, the number of panthers has undoubtedly decreased. The extravagant prices paid in Europe and America for a panther skin that used to be available at Rs. 15/- is the cause since the price of a panther skin coat comprising four skins in the U.S.A. is \$ 10,000. Many hundreds of skins are collected and smuggled out of the country, and today the method of securing a panther is by poisoning carcasses of other animals with insecticide and leaving them out as bait. Insecticide is easily procurable, whereas bullets or slugs are expensive, difficult to come by, and cause perforations in the skin. The check to this slaughter is propaganda in the Western countries. Where there is no demand there is no slaughter and public opinion should be fostered in western countries against the use of panther skins. It was in this same manner that they stopped the destruction of aigrettes which are being killed ruthlessly to supply aigrettes for the adornment of western women about thirty years ago.

Rigid prohibition of the export of hides and skins of all wild animals and the punishment of any person having such hides and skins in his possession without a permit to shoot the animals concerned are also essential measures in Ceylon. The leopard is essential in maintaining the balance of nature by thinning out the herbivores. Whenever these multiply unchecked after five or six years murrains arise which will desolate the wild life in Ceylon's sanctuaries far more than panthers will.

WILD LIFE PROTECTION

The idea that to kill large numbers of animals for pleasure is a laudable act became the vogue in the 19th century, when hunters from countries without large animals vied with each other as to who

could bag the most number of birds or mammals, or secure the largest trophies.

Ceylon's fauna had suffered badly in the past and is suffering today at the hands of foreign and local big game hunters, safari parties, sportsmen, sellers of skins and trophies, and professional collectors for foreign agencies. Today it is faced with speedy and total extermination of not only the larger animals but the smaller forms as well, due to the rapidity with which the country is being denuded of its forests. This deforestation forces animals of different zones to seek fresh and uncongenial surroundings where they soon die out. The rivers and other bodies of water suffer from silting due to the soil thus exposed being eroded and the malaria mosquito thrives in the water that has thus become shallow and sunlit. The different insecticides employed to check both this menace and various crop pests, kill off all the smaller fauna peculiar to Ceylon, which is scientifically as important or more important than many of the larger species.

Sir Julian Huxley (1960) has drawn attention to the part played by even the lowly termite which is the dominant element in the "conversion cycle" since it transports deep into the earth much vegetable material which is utilized in sustaining trees that form forests. If the forest is felled this cycle is broken at its very inception.

It is as important to safeguard Ceylon forests as its fauna for the latter is dependent upon the former. Since Carnivores prey upon herbivores the latter need first attention and, it is their sources of food and shelter that have to be safeguarded. The pig seeks nourishment from tubers that are underground as well as from plants and fruit, the elephant is as much a browser as a grazer and also digs up yams, monkeys depend mainly upon the larger trees for their fruit and tender shoots, birds also depend upon the trees as do a host of other animals such as reptiles and insects.

The wild buffalo, pig, and to a lesser degree the sambhur deer assist plant life by making numerous wallows in which the water is gradually impregnated with their excreta. After these wallows dry up they support a luxurious growth of vegetation.

Over crowding by the rapid breeding of certain animals is usually due to man upsetting the balance of nature. For example when many panthers were destroyed in the Yala area the deer increased to such an extent that they had to stand upon their hind legs in order to reach the leaves of fodder trees thereby producing clean cut, flat, under surfaces to the foilage of these trees at this height. The trees so trimmed afford an infallible guide as to whether a herbivorous species is in danger of over population. It is then necessary for the Sanctuary staff to 'prune' down the species in question to enable it to have an adequate supply of fodder. Such 'pruning' should be undertaken solely by the staff and not by sportsmen.

In most countries Wild Life protection conjures up a vision of protecting the big game and more brightly colored and attractive birds and mammals, but the subject is of far greater extent than this popular view of it. The term "Wild Life" should be regarded as a synonym for "Fauna" which will range from amoeba to man. The ordinary man speaks glibly of the cultural heritage of his country meaning thereby literature, painting, sculpture and architecture, but is generally quite unaware that the numerous living creatures peculiar to his country are of the greatest scientific and economic importance and form the "scientific" heritage which his generation should in duty bound safeguard as zealously for the use of posterity as the man-made objects of his country. The fact that a single small fresh water bivalve shell or fish exists in Ceylon's mountain streams and also in those of the Himalayas, but not in South India, throws light upon the cold climatic phase that had extended from the North towards the Equator and thereby enabled these Himalayan forms to enter Ceylon when it was connected with India. The failure of the black buck, nilgai, Indian tiger, and the King Cobra which are common in South India to enter Ceylon, is also evidence that they had reached South India after Ceylon had become an Island. The use of the venom of such deadly snakes as the cobra and the tithi polonga or Russell's viper for medicinal purposes in treating chronic nervous disorders and haemophilia or hereditary bleeding is by now fairly well known, although some years ago no one would have dared to use these deadly poisons on the human body. The eradication of pests of one country by employing an animal from another to prey upon it is also a modern development which is still in its early stage of research. Such instances will reveal the possibilities of utilising this heritage for valuable scientific and economic purposes however humble the animal may be. In fact almost microscopic animals, minute fresh water shrimps and shells are probably even more important than many of the larger animals in tracing former land connexions between Ceylon and other countries and also the climatic changes that have killed them off from the areas that they had once occupied and restricted them to their present limited areas e.g. the tree snail *Acavus* is known at Bellan Bāndi Pālāssa only from its prehistoric remains. Flora and Fauna protection should include all forms of life both botanical and zoological but it is here proposed to emphasize the zoological aspects.

The invertebrates although small and less spectacular than the vertebrates are of great importance. They can however be easily exterminated by such lethal agents as the introduction of foreign animals into Ceylon, the use of insecticide and stream pollution from human settlements and factories. The introduction of trout into the cool mountain streams of Ceylon was one of the earliest and worst agents of destruction to the smaller indigenous aquatic fauna in them, such as small fishes, shrimps and the like. Other foreign fresh

water fishes introduced into the warmer low country waters are also proving as devastating. A fishermen's haul from the North-Central province or elsewhere twenty years ago used to comprise about seven genera and fifteen different species; today his catch will consist largely if not entirely of the African fish *Tilapia*. In fact the time is not far off when the Museums of the world will be paying more than their weight in gold for specimens of some of the indigenous Ceylon fresh water fishes which will soon have disappeared for ever. The same can be said of the land snails of which Ceylon possessed many genera and species, that were not found anywhere else in the world. The Giant African snail which was introduced to Ceylon in 1908 has exterminated many so that their shells are now almost unprocurable. It is also certain that the introduction of the ferocious "piranha" and the worm-like "candiru" fishes from South America into Ceylon rivers will endanger human lives and every precaution should be taken to prevent such species from being imported for any purpose whatsoever.

Marine Life

The danger to marine animal life by man is also worth considering, although it would be urged that marine animals from Ceylon occur throughout most of the tropical waters of the Indian, Pacific and even of the Atlantic oceans. However international co-operation is very necessary in order to prevent the total extermination of several species. First there are the harpoon gun sports fishermen who have been depleting the reefs of their brightly colored tropical fishes. This destruction has already reached alarming proportions in many other countries which had advertised this sport in order to attract tourists and there is every indication that it will follow the same pattern in Ceylon unless taken in hand at once.

Foreign commercial companies have requested the export of only the choicest portions of the plastron or belly shield of the green turtle *Chelonia mydas* Linné for use in the preparation of turtle soup. Such wasteful destruction needs immediate attention. The steadily increasing demand for turtle eggs of all species along the coastal region is as serious a menace. Prior to the last world war few Ceylon people other than the fishermen would consume turtle eggs as both the turtle and its eggs were repugnant to the majority of the people of Ceylon, but today the eggs are as much in demand as in Africa or in any western country. The desirability of protecting the adult and also reserving stretches of sea beach for the nesting mothers is obvious. The protection of the leathery turtle which is killed for its oil which is utilized as a canoe varnish and of the dugong *Dugong dugon* Muller is also long overdue. This mammal occurs in all the Indian ocean countries from India to Australia and eastwards into the Pacific but its rapid decrease in Ceylon shows that its protection here is a matter of urgency. In former days it occurred throughout most of the lagoons

and estuaries of Ceylon but today it is restricted to the shallow sea between Mannar and Puttalam and possibly to a few estuaries on the East coast in areas uninhabited by man. Protection for sea turtles and the dugong was urged by me in 1939 (Deraniyagala 1939).

The larger forms that require international protection are the turtles, the dugong, dolphins and whales. Although Ceylon has not commenced whaling there is reason to believe that the whaling vessels of other countries do fish not far off Ceylon's coast, and it is necessary either to control or check this. For example the washing ashore in 1962 of four carcasses of the lesser piked whale, in April 1965 of a *Balaenoptera musculus* upon the north eastern coast, and on 11th January, 1966 a sperm whale with smashed head off Hikkaduwa might be due to such activity. The only feasible course would be to declare the Indian Ocean and the adjacent part of the Southern ocean a sanctuary for turtles, dugong, dolphins and whales (Deraniyagala 1965).

The reptiles of Ceylon have also been heavily affected by man. Within the last five years the common hard terrapin which until 1945 was a scavenger that had become a pest that crowded every ditch, invaded flower gardens and was frequently run over by vehicles on the high roads, has now been surreptitiously utilized for its meat by many eating houses and is in real danger of extinction. This applies to all the terrapins and tortoises of Ceylon. Also nearing extinction are the two endemic subspecies of crocodiles. Both appear in the world list of turtles and crocodiles prepared by Professors Mertens and Wermuth of Germany who are two of the greatest authorities on reptiles. Other animals which are being exterminated are the two varanus lizards. The larger of these is protected but is slaughtered all the same. This is the water monitor or the kabaragoya, prized by the leather trade of Europe as the "Ring Lizard" The other is its less attractively colored relative the land monitor which not only supplies excellent meat but also a very pliable and durable leather.

After these come two large harmless snakes. The first of these is the Ceylon Rat snake which is not only eaten by the itinerant Indian snake charmers but is killed by many people merely because it is a snake. The other is the Ceylon python which supplies ornamental leather. Both are peculiar to Ceylon and are valuable aids to man in that they feed on rodent pests such as squirrels and rats that damage grain, sugar cane and coconut plantations. There are also many beautifully colored snakes which are killed at sight by those who fear all snakes.

An appeal was made to the Wild Life Department in 1939 to create a special reserve for *Elephas maximus vilaliya* in these swamps. (Deraniyagala 1940) but it was not heeded. Another appeal made about twelve years later was also disregarded and a third appeal is now under consideration. In the meantime the herds of the common

Elephas maximus maximus Linné, have commenced invading these swamps due to the felling of the forests by man and hybridization is proceeding rapidly. A reservation to the east of Manampitiya embracing several of these swamps might not only save the hybrids of the giant elephant, but will protect the crocodiles and all the varied forms of life both aquatic and terrestrial, that frequent this interesting swamp area (Pl. IV, figs. 1, 2 and 3).

The rapidity of the elephant's extermination in Ceylon can be gauged from the following:

In 1730 elephant kraals were held upon the present Ridgeway golf links in Colombo, and it was barely a century ago that they were conducted near Veyangoda, while in 1815 one was held near Negombo. Today the elephant is restricted to the fragmentary rain forests of the central massif, the semi-arid northern and eastern portions of the coastal plain and the swamps of the Mahavilli river. The impending extermination of the elephant had been commented upon earlier (Deraniyagala 1940, 1948). One method of prolonging its existence would be to re-establish the Elephant Department that had flourished under the Sinhala Kings up to 1815 and to breed it in captivity. Another measure would be to introduce the animal into some extensive foreign forests e.g. in the Amazon area in South America where human expansion will not jeopardize its existence for yet awhile. (Deraniyagala 1955 (a) and (b)). This however should only be done after a preliminary introduction of a few elephants has shown that the animal will not be injurious to the fauna of the Amazon area.

Strict Nature Reserves

Twenty-six faunal parks and sanctuaries occupying 457.6 square miles are scattered throughout the Island so indiscriminately that the system needs reorganisation. The two main faunal parks and reserves are at Ruhunu park in the southeast with an area of ninety square miles, possessing two bungalows for visitors, and Vilpattu park to the northwest comprising 252 square miles and possessing three visitors bungalows. Both being in the coastal plain within the 50 inch isohyet, their fauna and flora are of the semi-arid zone type and similarly both are furnished with the bulk of the Wild Life Department's staff and visitors bungalows, whereas little attention is devoted to the montane and swamp species which are generally of greater scientific interest, and in graver danger of extermination due to deforestation and drainage schemes. Both *Swamp* as well as *Semi-arid* Reserves are as essential as the forested ones for fostering all forms of wild life in a scientifically planned scheme.

One improvement would be to enlarge at least one faunal park and sanctuary and extend it as a triangle with its base at the sea coast and its apex in the central massif, thereby enclosing sections of at least three faunal zones and four of the isohyets, namely those for

under 50 inches, 75 inches, 125 inches 150 inches, to over 200 inches of rainfall. One such reserve could be created by extending the Ruhunu park and sanctuary northwestwards towards the sources of the Kirindi and Valavé rivers upto the Sri Pādha or Peak Wilderness and the Horton Plains. Fishing which is permitted at present in the Horton Plains should be prohibited and all foreign fishes exterminated if possible. The size of the Vilpattu park¹ might be reduced and the redundant sanctuaries within any single zone abolished. The staff and funds thus saved could be diverted for the more efficient maintenance of the fewer but enlarged strict reserves that should be planned to contain a section of each faunal zone occurring in Ceylon.

The mainstay of the wild life of any country is its forests and swamps but man's need for timber and for the land that is now under both, is exterminating wild life with alarming rapidity. Two categories of timber feller present a serious problem. The first are timber poaching merchants, the second are villagers who fell forest trees over areas of about 200 acres each, burn them, sow millet or maize up on the ground thus manured with ashes, harvest the crop and repeat this "slash and burn" process elsewhere.

1. The first step to be taken is to demarcate a crown forest zone, one to two miles wide that will form the border of any strict nature conservation area. No timber should be felled from this zone under any circumstances and these zones should be under the charge of both the Wild Life and the Forest Departments.

2. The latter department should check rigorously any attempt at slash and burn (chena) plantation within crown forest.

3. The denuded areas should be re-planted with only indigenous Ceylon timber trees by the Forest Department as foreign trees such as blue gum, teak and conifers exercise a deleterious effect upon the fauna of Ceylon.

4. An Atlas of aerial photographs should be published annually by the Survey Department depicting every nature conservation area. This will enable the Government as well as the general public to ascertain whether any part of the reserved forest has been felled. The cost of such an Atlas will be negligible but it will check timber felling effectively.

Animals Needing Absolute Protection

1. **Mollusca** — Most terrestrial, arboreal and aquatic species. The Giant African snail *Achatina fulica* however should be exterminated.

1. The Vilpattu park is being sanded over so rapidly that it might not be able to support the larger animals thirty years hence. Some of the fodder could be saved for truly wild species by capturing or otherwise eliminating it's so-called wild buffaloes which are all hybrids with the domestic stock from the villages within the park.

2. **Insecta** — All moths and butterflies except those with larvae that are pests.
3. **Crustacea** — All species of the fresh water prawn genus *Macrobrachium*.
4. **Fishes** — All loaches, the endemic Rasborinae, the Cyprinodonts, all Cyprinidae under four inches in length, the mahsier *Tor longispinis* Gunther, *Labeo fisheri* Jordan and Starks, *Labeo lankae* Deraniyagala, the large speckled cat fish *Clarias nebulosus* Deraniyagala, the giant snake head *Ophicephalus marulius* ara Deraniyagala, *Channa orientalis* Bloch et Schneider and all the endemic Anabantids except the climbing perch.
5. **Amphibia** — *Ichthyophis* both species, frogs of the genus *Nannophrys* and all the tree frogs.
6. **Reptilia** — All tortoises, terrapins and sea turtles, the two crocodiles, all forest geckoes, all endemic Agamidae, all the Scincidae and the Varanids, all the burrowing or earth snakes of the family Anilinidae, the sand boa, python, rat snake, the flying snake *Chrysopelea ornata*, and the whip snakes. Vide detailed descriptions in the *A Colored Atlas of Some Vertebrates from Ceylon* Vol. 1. Fishes, Vol. 2. Tetrapod Reptilia, Vol. 3. Snakes.
7. **Aves** — The two subspecies of jungle-fowl—*Gallus lafayetti lafayetti* Lesson and *Gallus l.xanthi-maculatus* Deraniyagala the spur fowl *Galloperdix bicalcarata* Forster,
Eurystomus orientalis irisi Deraniyagala
Harpactes fasciatus parvus Deraniyagala
Fulica atra lankensis Deraniyagala
Lanius lepidotus Deraniyagala.
8. **Mammalia** — All pygmy shrews, the Ceylon bear, the Ceylon civet cat, the Ceylon palm civet or golden palm cat, the wild cat *Felis chaus*, the fishing cat *Prionailurus viverrinus*, the Ceylon panther, all cetaceans, the dugong and the pangolin.

Reappearance

The disappearance and reappearance of certain Ceylon animals might be due either to the changing of meteorological conditions or to the rapid spread of predatory animals. The subsequent increase of the animal that had become scarce, might be due to some other animal destroying the predator.

Among land reptiles the lizard *Cabrita leschenaulti lankae* Deraniyagala had not been seen since 1882 although the National Museum collectors have made a special search for it, and another lizard *Cophotis* that was fairly common until 1940 is now very scarce. The large increase in numbers of the bird *Centropus sinensis* Stressmann which feeds upon lizards and its export by professional collectors are probably responsible for the gradual disappearance of this slow moving species. The re-appearance of the broad billed Roller *Eurystomus orientalis irisi* Deraniyagala is one of the best examples from among the birds.

No specimen had been seen after 1896 and since it had not been secured by the Colombo Museum's Avifaunal Survey of Ceylon, Miese had considered the bird to be extinct. However, it reappeared in 1950 when a pair noted by Mrs. Iris Darnton from Mahaoya in the Eastern province were secured for the Colombo Museum. Examination proved the bird to be a subspecies peculiar to Ceylon (Phillips 1953) and it is now fairly common in this area.

Oceanic

Ceylon's position at the southern extremity of the Indian sub continent places it in an important position in the Indian ocean since it is separated from Africa, Australia, and Malaya by vast expanses of ocean that are more or less unbroken by frequent archipelagoes and large islands (Deraniyagala 1948). There is a periodical north ward drift of cool water from the Southern hemisphere and an upwelling of deeper cold water along the edge of the continental shelf which appear to be responsible for some interesting entries into the coastal waters of Ceylon. These changing currents cause fluctuations in temperature and salinity and are probably responsible both for the fluctuation in the numbers of the oceanic leathery turtle *Dermochelys coriacea* Linné that nests in Ceylon, and also for the holocausts of fishes that occur sometimes off the coasts of Ceylon and Malabar. For example large numbers of the puffer-fish *Diodon maculatus* were washed ashore along the West and South West coasts of Ceylon in November 1933 while about fifteen years later a similar holocaust of a species of *Lutianus* was observed in the waters off Malabar. The advent of the rare beaked whales *Mesoplodon hotaula* Deraniyagala and *Ziphius cavirostris indicus* (van Beneden) together with southern oceanic birds such as the flesh footed shear water *Puffinus carnipes* Gould suggests that they had all followed shoals of small fishes that were transported from the southern sub-temperate zone by currents of cold water.

Several other cetaceans also come up from the southern sub-temperate zone. Among these are the sperm whale, the pygmy sperm whale, the blue whale, and the hump-backed whale. The killer whale and the false killer whale are probably tropical races as in the case of the lesser piked whale, and this might be true of some of the beaked whales which

are also known from the Maldiv Islands (Deraniyagala 1939d). Among the animals that enter the continental shelf temporarily that are of special interest are the "Leptocephalus" or ribbon larvae of various eels which come up to the surface from the deeper water from beyond the shelf. They are assisted by a nocturnal upwelling of water which the larvae utilize to rise to the surface from about 12 p.m. until about 3 p.m.; other fishes that do so are the light-bearing Myctophiids.

At the Royal Society's Symposium on the Biology of the Southern Cold Temperate Zone which was held at Burlington House, London in December 1959, I stated that the "fluctuating hydrographic conditions of the Antarctic and southern sub-temperate zone might be responsible for the periodic advent into Ceylon and its seas of the animals from the above mentioned zones", and described the sudden and heavy mortality of extensive beds of the pearl oyster *Perlamater vulgaris* (Schumacher) the periodic arrival of southern fishes, birds and cetaceans, the holocausts of fishes off Ceylon and India and concluded that "apparently a strong northward migration of various species of cold and subtemperate animals occurs due to fluctuating hydrographic conditions in the Antarctic". (Deraniyagala 1960 *Proc. Royal Soc. B* Vol. 152 p.p. 634, 635) at that time it was not suspected that Antarctic water could invade the warm waters north of the equator. Four years later strong support was lent to my view when in August 1962 the British Research vessel "Discovery" discovered Antarctic intermediate water at station 12 in the Gulf of Aden (G.E.R. Deacon 1964 'With the "Discovery" in the Indian ocean' the international Indian Ocean expedition *Oceanus* Vol. X No. 3 March 1964).

This was further confirmed by the American research vessel Atlantis II: "colder subsurface water reached the surface by upwelling close to the Arabian coast" (R. Pockling and R. Risenborough 1964 Bird log data, *Woods Hole Oceanographic* No. 64-31 p. 2 Cruise 8 of Atlantis II).

Before concluding the section on marine fauna certain Anadromous and Catadromous fishes of Ceylon are worthy of mention. The herrings, sardines and sprats although generally associated with the sea, at times occur in fresh water, and some even ascend rivers up to 90 miles. Ceylon possesses a fresh water sprat *Ehirava fluviatilis* Deraniyagala, known from the Bolgoda lagoon of the Western province and Padavia tank of the Eastern province, the marine finless eels of the genus *Gymnothorax* possess a single representative—*G. polyuranodon* Bleeker which is known from the Kalu river near Ratnapura and also from 40 miles up the Gin river. The saw fish *Pristis microdon* Latham also ascends sixty miles up the Kalu river to Ratnapura and 90 miles up the Mahavili river to Alutnuvara in the Central Province. On the other hand the fresh water eels of Ceylon namely *Anguilla bicolor* McClelland and *Anguilla nebulosa nebulosa* McClelland spend most of their lives in fresh water but enter the sea to spawn, the former

travelling as far as the deep waters off Sumatra, which suggests that it has travelled back to its original home for this purpose. There are also various marine species from other areas which enter the seas around Ceylon. One of these from the Malayan region, is the 60 ft. long Whale shark *Rhinodon typus* Smith, the other is a particular color variety of the sea snake *Pelamis platura* Linné.

The persistent view that since Ceylon is an island the sea around it should abound with high quality edible fish is erroneous. The strong currents that sweep around Ceylon are too vigorous to permit large shoals of fishes to remain for a sufficient interval to make commercial trawling close to Ceylon, a paying proposition. The Island's two fishing banks, the Wadge and Pedro Banks, are in the relatively more sheltered waters to its northwest and northeast respectively, but even these were depleted after six or seven years of fishing for two or three months each year by the single government trawler "Nautilus". It is only when there are shallow water banks providing abundant fish-food or where the force of the currents is checked either within the shelter of larger bays as the Bay of Bengal or Arabian sea, or by archipelagos such as the Maldives and East Indies, that fishes will gather in shoals that will be sufficiently large to render commercial fishing remunerative.

Unless Ceylon's trawlers establish bases far afield and fish over a radius of over 1000 miles, as the Japanese do, commercial trawling is unlikely to be a source of heavy profit for any length of time.

Domestication—As man expands numerically, Ceylon's fauna and flora decreases and one method of ensuring survival is by domestication of some of the fauna. Five possible examples are subtended:—

- (1) Elephants breed readily in captivity and the young can easily be reared when given adequate vitamins and treated regularly for intestinal parasites.
- (2) The Axis and Sambhur deer are hardy, readily tamed and can be dehorned. As they breed fast they should form a valuable supply of meat and possibly of draught animals under selective breeding which might also produce polled (i.e. hornless) strains.
- (3) The hybridization of the wild pig with tamed imported pigs is of value in reducing the fatty tendency of the latter which is a shortcoming in pork required for conversion into ham.
- (4) Farming of crocodiles, terrapins and the two varanus lizards *Varanus bengalensis* and *V. salvator* could be made to pay. The first two are farmed successfully and profitably in America. As the food required by the varanids is no different to that needed by the first two, all four could be farmed simultaneously by the same farmer.

Animals regarded as Mythical and Legendary

- (1) The "Makara" is a mythical aquatic monster with piglike ears, heavy jaw, bicuspid molars, tushes, a short trunk curled upon its snout, elevated eyes and feet with toes or digits seperated. This is undoubtedly historic man's dimly remembered Hippopotamus that was familiar to his stone age ancestors. The Sinhala name for a large man-eating dolphin is "Makara komaduva". It is probably *Orcinus orca rectipinna* (Cope), the Pacific killer whale.
- (2) The Ceylon lion —Formerly regarded as legendary but now known from fossils.
- (3) The Ceylon Gaur—Formerly regarded as legendary but now known from fossils.
- (4) The short haired, reddish-brown bear that is still reputed to frequent the forests inland from Baguré, and termed the "Rahu valaha".
- (5) The Nittävo a naked, raw flesh eating, stone age race that were exterminated by the Vāddas towards 1800 A.C.

Fossils of hippopotamus, lion and gaur have been discovered in Ceylon since 1936 and the "Rahu Valaha" is undoubtedly the new species described from the eastern province of Ceylon by Pucheran of the Museum d'Histoire Naturelle in Paris in 1855 and cataloged in 1864 by Gray of the British Museum among those bears that possess six incisors upon both jaws and which lack a white 'V' up on the chest. Its six upper incisor teeth and short hair indicate that the specimen was not a sloth bear which is a long haired species possessing only four upper incisors.

The Nittävo still await discovery. They are stated to have possessed short powerful arms and hands with claw-like nails, their bodies were hairy, they were raw flesh eaters, and their only weapons were their nails and stones. Their speech was said to have been understood by a few Vāddas. When they met solitary humans they killed them by employing their long nails and while some traditions—e.g. in Panama, alleged that they were pygmies, others—e.g. near Madirigiriya, state that they were of normal size. As *Homo neanderthalensis* was also known to have possessed arms that were more powerful and relatively shorter than those of *Homo sapiens*, the Nittävo might prove to be an isolated race of *H. neanderthalensis*. The matter is more fully discussed by me in *Ceylon Today* Vol. XII No. 5 pages 15 to 21 of June 1963 and in the *Annual Journal of the Anthropological Society of Vidyodya University* of 5th December 1963 pages 12 to 18. The Nittävo have been identified by various writers as being bears, apes and even the Yanadis, an Indian tribe that inhabits the vicinity of Pulicat lake, in the Nellore district of Madras State.

None of them however possess short arms. The Yanadis not only do not possess hirsute bodies, but are described as having unusually long arms, nor can apes and bears run bipedally, use stones as weapons or subsist mainly upon raw meat, the polar bear alone being essentially carnivorous.

Probable new species or subspecies

There are also rumours of various animals alleged to have been seen by hunters during recent years:

- (1) A tortoise with protuberances marginally and colored like a star tortoise but with a strong musky odor and smaller and flatter in shape is known as the *Arakshaka ibba*. Skeletal fragments were recovered from Bellan Bandi Pälässa (Deraniyagala 1963).
- (2) A pygmy race of the crocodile *Crocodylus palustris*. from the upper reaches of the Valavé river and near Laggala, N. C. P.
- (3) A thick set stump-tailed, short limbed, slow moving, burrowing lizard which carries the head low and resembling some of the Egyptian and Australian skinks, has been reported from the sand dunes near Mannar. A specimen about 10" long, with the head about two inches, wide, the tail about $1\frac{1}{2}$ inches wide and about 4 inches long, was reported to have been noosed and later liberated, whereupon it crawled into a burrow.
- (4) Two species of sea snake from the lagoons of the Ruhunu game reserve.
- (5) The *Ruhunu gateya* or *Kuru parva*, a pygmy race of elephant that roams in herds. The animals are reputed to be bad tempered, as large as buffaloes, and with relatively large ears.
- (6) A large variety of the chevrotain *Moschiola meminna* (Erxleben).
- (7) A pygmy variety of the spotted deer *Axis axis* (Erxleben) termed *Hival Muva* Both 6 and 7 are said to frequent the upper reaches of the Valavé river.
- (8) Mr. G. C. Johnston informs me that a pinkish grey lizard about ten inches long which volplanes from tree to tree has been reported to inhabit islands in the lower reaches of the Mahavili river. It is probably a species of *Draco* and if new might be named *Draco lankae*.

Since the large rock gecko *Callodactylodes illingworthi* was discovered as recently as 1950 and the smallest Ceylon mammal *Podihik kura* in 1958 probably several such animals yet remain unknown to science.

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Appendix I

Minerals

1. **Diamond.** Earth movements broke up various strata and sometimes resulted in the formation of conglomerates which occasionally contain diamonds. The only known specimen occurred in ferruginous thorianite conglomerate of alluvial origin from Bambarabotuva in Sabaragamuva province. The diamond is small, transparent and tria-octahedral. It was discovered in the Colombo Museum collection by Dr. P. C. Zwaan in 1958 and recorded in the National Museums Administration Report. (Deraniyagala 1959).

2. **Natural Glass.** It is probable that natural glass which is proof of former volcanic activity occurs in Ceylon. Sinhala gem miners recognize seven varieties of Ceylon's natural glass which they term *Bim viduru*=earth-glass. Their colors may be either dull red, yellow, light green, faint green, dark blue or luminous cornflower blue. It occurs in the gem sand at about 15 feet below the surface and in association with fossils of extinct mammals of late middle Pleistocene and upper Pleistocene age. This glass contains spheroid gas vesicles and spicule-like structures. All are more or less transparent when fractured. Four specimens two of which were considered to be natural glass and one a tektite by me were secured from gem miners

and submitted to Dr. L. J. D. S. Fernando, the Government Mineralogist who reported that their refractive indices were 1.5, 1.51 and 1.52 respectively and considered them to be within the range of artificial glass. They were next dispatched to Dr. D. N. Wadia, F.R.S. of the Atomic Energy Department of the Government of India. He kindly had them examined by Dr. A. V. Sankaran who states in his report P. 14/66 that "The friable frothy nature of some (the colourless variety DP 696 in the present case) and absence of all typical forms in all, except one (DP699) produced by atmospheric flight, argue for local derivation". Its specific gravity is 2.34, its major elements as determined by spectrographic analyses are AL, Ca, Mg, Mn, Pb, Si, V. Ti. The minor ones are Be and Cu. However, he advises that the specimens be dispatched to the U.S.A. for more detailed investigation than is possible in India. This specimen was secured from the gem sand in a gem pit at Karangoda on the Kalu river near Ratnapura, from a depth of 15 feet. No Ni. was discovered in any of the specimens.

3. **Crystalline Coal.** Another interesting discovery is the presence of traces of crystalline coal in the Āndigama beds of Jurassic shale at Āndigama in the north western province. Specimens are in the Colombo Museum. (Deraniyagala 1939). An extensive investigation both of this area and of the sea bed adjacent to it, might yield coal and possibly oil in commercially workable quantities.

Appendix II



P. Deraniyagala del.

Fig. 9. *Gätamiya weragami* sp. nov

Order Rodentia

Family Muridae

Gätamiya genus novum

Small bush rats, tail completely covered with hair, tail length contained 1.6. times in that of head and body. Coat smooth and not bristly or spiny. Tips of first and fifth digits reach only half way down the basal phalanges of the other digits. Transverse lamellae present under each digit, planter pads six.

Differs from *Leggadilla* in not possessing a bristly or spiny coat, in having a completely hirsute tail, which is also shorter proportionately, and in its smaller size, Genotype *Gatamiya weragami* sp. nov.

The Short-tailed pygmy bush mouse

***Gätamiya weragami* sp. nov.** (Fig. 9).

Holotype. Sinhala name *Gäta gal miya*—pygmy rock mouse

Known from a single adult male that was run over by a car at 11 a.m. at Dasgiriya near Laggala in the North Central Province, on 24th April, 1965. The specimen will be deposited in the Colombo National Museum. An endemic genus and species that is probably diurnal. Locality 7°20' N. Lat. 80°50' E. Long.

This species is named for Mr. Harold Weragama, the Basnayake Nilamé of Maha Saman Devalé, Ratnapura in appreciation of his keen interest in the fauna of Ceylon.

Vibrissae fine and equal in length to postorbital part of head, eye large, ear moderate with rounded margin, its surface with fine hairs, the hair near tip of snout semi-erect, body hair smooth and without spiny bristles, limbs hairy down to the claws, middle hind toe with twelve transverse ridges ventrally.

Color dorsally greenish brown which extends down the sides and limbs, ventrally light yellowish grey, hands feet and claws pinkish.

Dimensions in mm. are as follows:—eye to snout tip 5, eye 3, eye to ear 5, ear height 5, ear length 5, upper arms 7, forearm and hand 11, thigh 6, knee to hock 10, hock to tip of middle toe 12, tail 25, head and body 42, axilla to groin 13.

This is the smallest mouse known from Ceylon.

Explanation of Plates

Plate I. The face and mandible of two different individuals of the meso-neolithic race of *Homo sapiens balangodensis* of Ceylon that were dug up at Bellan Bändi Pälässa in the basin of the Valavé river. Note the long distance from the nariale to the prosthion in the face and the large well worn, last molars or wisdom teeth in the mandible.

fig. 1. An amygdaloid (hand ax) of elephant bone.

fig. 2. A celt of sambhur antler nicked bilaterally for hafting.

fig. 3. A bone dagger with a '6' shaped sliver removed by employing a burin. The specimens shown in figs 1, 2 and 3 are from Bellan Bandi Pälässa.

- fig. 4. The face of Colombo Museum skeleton No. $\frac{BP3}{27e}$
- fig. 5. A sambhur antler digging stick from a cave at Telulla. Similar specimens were dug up at Bellan Bändi Pälässa.
- fig. 6. A mandible. Colombo Museum specimen. No. $\frac{B.P2}{17}$
- fig. 7. Consolidated bone breccia which contained fragments of human bone from the kitchen debris at Bellan Bändi Pälässa.

Courtesy Colombo Museum.

Plate II. Sections revealing the climatic changes in Ceylon during Meso-Neolithic times and stone implements and kitchen debris from Tun Modera and Pal Horu kanda cave.

- fig. 1. An exposure at Halpé at the 17th mile on the Bandaravela to Badulla road. Note the thin wavy ferrugineous layer at the shoulder level of the figure, above it are boulders and pebbles, then a layer of sand and above this a layer of small pebbles. Below the ferrugineous layer is clay and sand.
- fig. 2. Shows a white calcareous layer at a depth of two feet in the floor of Ravan Älle cave near Bandaravela.
- fig. 3. Pitted hammer pebbles and anvil-cum-grind stones dredged up from the leaf bed in the Vak oya at Tun Modera. A 5 cm scale is appended.
- fig. 4. A pitted hammer pebble, an unpitted one, four other stone artefacts and shells of the snails *Acavus* and *Paludomus* dug up from Pal Horu Kanda near Tun Modera. A 5 cm scale is appended. The specimens depicted in figs. 3 and 4 are in the Ratnapura National Museum. These belong to the "Balangoda Culture".

Figs. 2, 3 and 4 courtesy National Museums Department.

Plate III. Some Ceylon Mammals.

- fig. 1. An adult male rusty spotted cat *Prionailurus rubiginosus koladivius* Deraniyagala, weighing 7 lbs. Shot by Mr. E. Hart near Bellan Vila.
- fig. 2. A tamed three month old kitten of the same subspecies as in fig 1; from Gangodavila, seven miles south east of Colombo.
- fig. 3. A spouting Blue Whale *Balaenoptera musculus* Linné that was stranded alive at Kotiyar bay, Trincomalee in 1933.
- fig. 4. The same whale dead and bloated.

- fig. 5. A wild boar shot by the writer at Butuva in 1928 before it was declared a part of the Ruhunu Nature Reserve. Note the elongate snout, dorsal crest of hair, the body with strong bristly hair, and the elongate tail. All four characters are reduced in hybrid animals.

The Photo in fig 2 is by Mr. C.L. Peris the others are by the author.

Plate IV. Elephants and game sanctuaries.

- fig. 1. Skulls of three male elephants shot by the late Mr. E.L. Walker. The one on the left is that of a large rogue from the Kurunegala district, north western Province. The other two are those of Manampitiya animals. The one in the centre is the 'holotype' of *Elephas maximus vilaliya* Deraniyagala, and is in the Colombo Museum.
- figs. 2 & 3. Showing parts of the swamps or 'vilas' inhabited by these elephants. These have now been invaded by ordinary elephants.
- fig. 4. A view of a bank of the Mahavili river. Note the 'air holes' in the superficial covering of 'creepers' or lianes, upon the forest trees.
- fig. 5. Kali vila a brackish water lake produced by raised marine beaches in Vilpattu game sanctuary.
- fig. 6. Elephants in the Ruhunu (=Yala) game sanctuary. The photos in figs 3 and 4 are by Mr. C. L. Peris, the one in fig. 6 is by Mr. P. A. M. Deraniyagala, the others are by the author.

Plate V. Pleistocene Fossils from the gem pits of Ceylon.

- fig. 1. A tusk of *Elephas maximus sinhaleyus* Deraniyagala in the Deraniyagala collection at the British Museum of Natural History. Photograph by Mrs. Margaret Illingworth. A 10 cm. scale is appended.
- figs. 2,3,4. The left mandibular ramus of *Hexaprotodon sinhaleyus* Deraniyagala from a gem pit at Ellavala. The specimen is Colombo National Museum. No. F 62.6.40. A 5 cm. scale is appended.

Courtesy Colombo Museum.

Plate VI

- fig. 1. A jungle cock from the Yala area of South Ceylon. Photograph by Mr. E. Ludovici.

fig. 2. A henny Sinhala game cock with a *Miris* comb. Compare it with that of the jungle cock in fig. 1.
Second prize winner at the All Ceylon Poultry Show of 1965.

fig. 3. A henny Sinhala game cock with a walnut comb that is dented in front.

First prize winner at the All Ceylon Poultry Club Show of 1965.

fig. 4. A Sinhala bitch.

First prize winner at the All Ceylon Canine Club Show. The owner of the animals shown in figs. 2, 3 and 4 is Mr. F. W. Obeyesekere.

Plate VII

Some gleanings from the Amparai area in the Eastern province. Photographs by P. E. P. Deraniyagala.

fig. 1. A mud hut in the village of Kahana near Mullégama beyond Namal oya populated by Sinhala refugees who had fled from Uva province, during the rebellion against the British in 1818. Some of their domestic implements here depicted are a wooden mortar, a pestle, a gourd vessel, and half of a circular grinding stone. The pottery is manufactured by the coil method.

fig. 2. Their dogs and cats have not interbred with other stock, since none have been introduced from elsewhere. The dogs (Fig 2) are either brown-red or black and tan, the nose is reddish or black, the eyes are frequently light yellowish in color, the tail is either curved or coiled and the young puppies display a dark median band extending from the nose to the neck as in New Guinea dogs.

fig. 3. The domestic cats are rather high upon the leg and of wiry build. Several displayed a light patch surrounded by darker coloring upon each ear, four dark line extending from the forehead to above the shoulders, two cheek bands, three or four dark 'V' shaped bars across the throat, spots upon the body, striped limbs, faint dark rings along the tail and two black ones near its tip. Such individuals are probably hybrids with the low country rusty spotted jungle cat, *Prionailurus rubiginosus koladivius* which the villagers here term the 'Balal Diviya'. Although such markings occurred upon the specimen here figured the camera has failed to depict them.

- fig. 4. A sambhur hind, a poacher's victim that had escaped after being mortally wounded, had made its way to a stream and died there. The track of a large stag which had accompanied her was also visible about two yards away. So extensive is the shooting in this area that no pig, mongoose, jackal, bear or panther had approached the carcase which was bloated and putrid. The eyes alone had been pecked out by crows. The animal had probably been killed four days prior to being discovered by me.
- fig. 5. Poachers have denuded many reservoirs of their edible birds such as teal, leaving only those that are unpalatable owing to the fishy odor of their flesh. A mixed breeding colony of four such species upon the dead trees in the water at the far end of Namal Oya reservoir was visited by me in a canoe on 21st April, 1966. The nests were in tiers and are shown as dark masses in the photograph. The mature young were larger than their parents and many fell into the water but swam back and climbed up onto their trees, while some of the younger ones were drowned. Most of them regurgitated their crop contents upon us when our canoe approached the trees. Their food consisted almost entirely of the carplet *Puntius chola* (Ham. Buch.). Many rotten carcasses of young birds were seen either hanging by the neck among the twigs or floating under the nest trees.

The species that were nesting are listed in the order of their abundance, the most common one being *Phalacrocorax niger* (Viellot) the lesser cormorant. The next was *Phalacrocorax fuscicollis* Stephens the Indian cormorant, the next *Anhinga melanogaster* Pennant the darter or snake bird, while the least common one was *Egretta intermedia intermedia* (Wagler) the medium egret. Pelicans were also common but were not nesting. There were about 1,500 nests of the above named birds in this colony.

I am very grateful to Mr. Merrill Panabokke for assisting me to visit these two sites.

Addendum

In Plate V the distal halves of the first and second incisors of *Hexaprotodon sinhalensis* have been transposed. This error was corrected subsequently. In this hippopotamus the third incisor is larger than the first, the second is greatly reduced, and their sockets form an inverted 'V'.

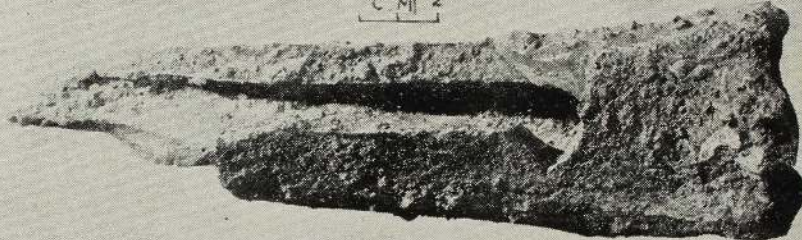
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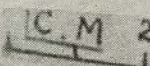
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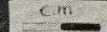
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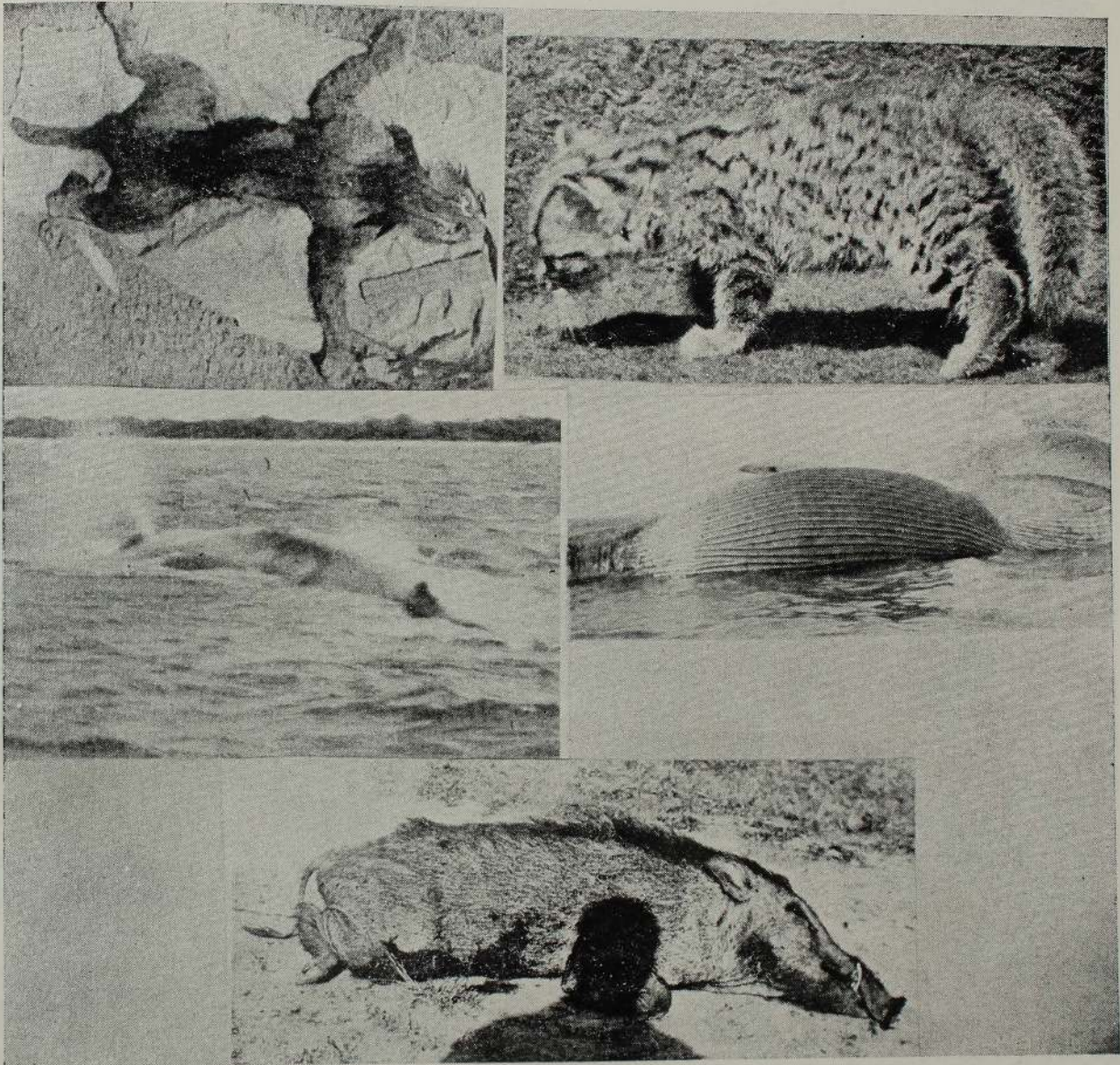


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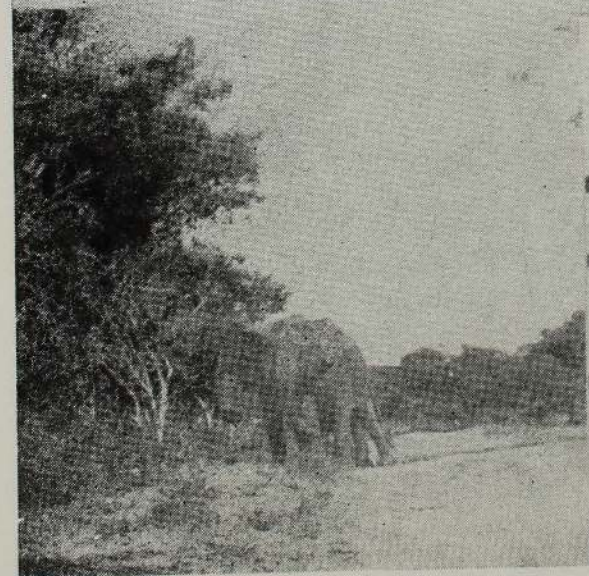
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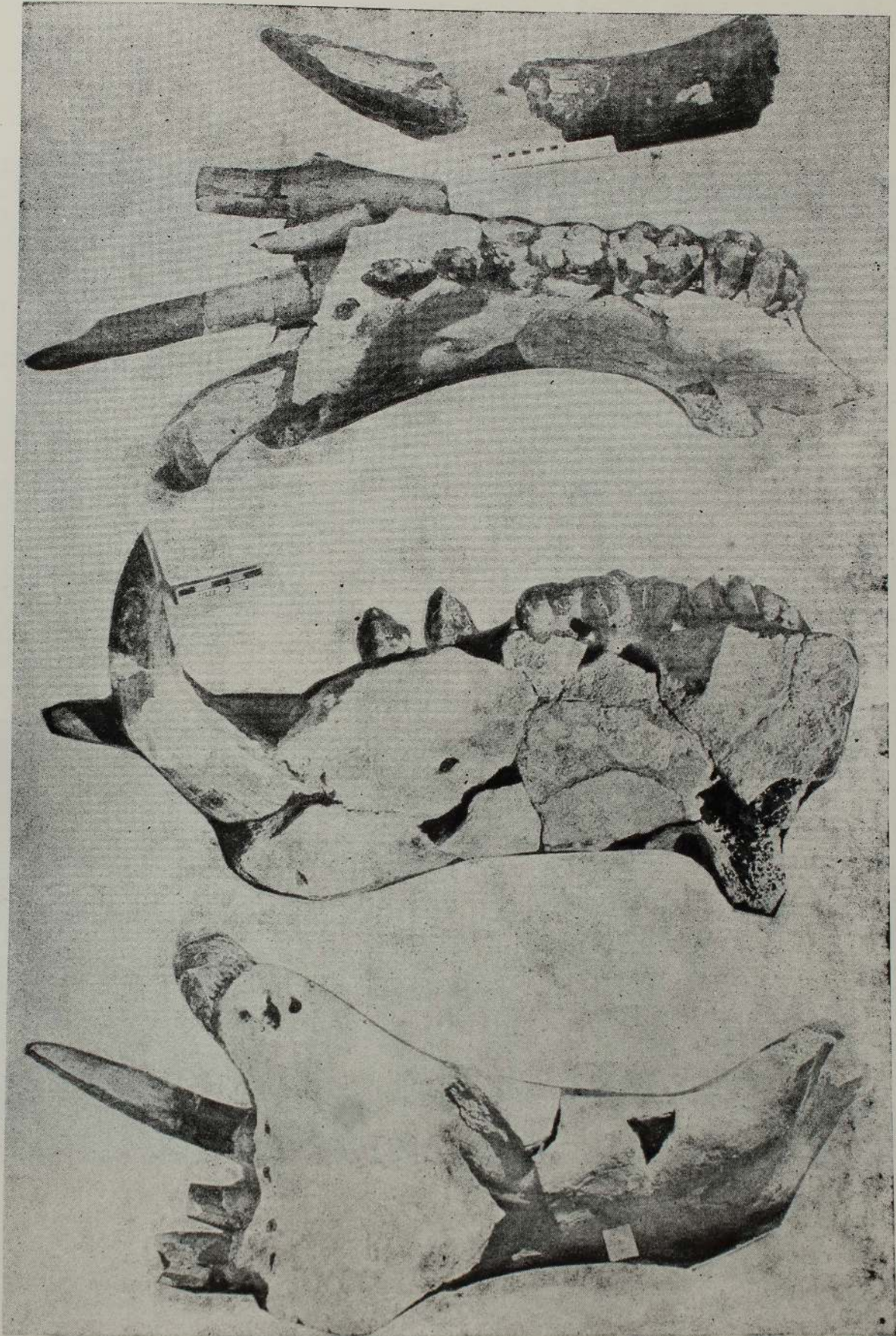


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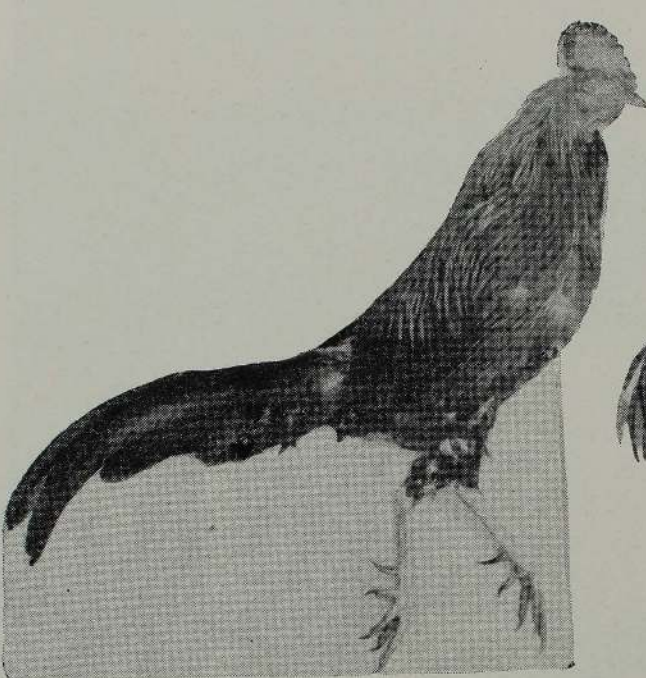
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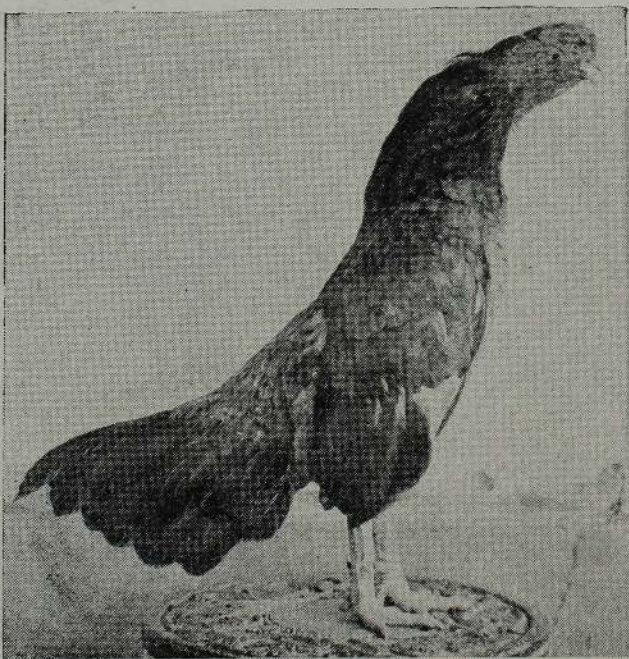
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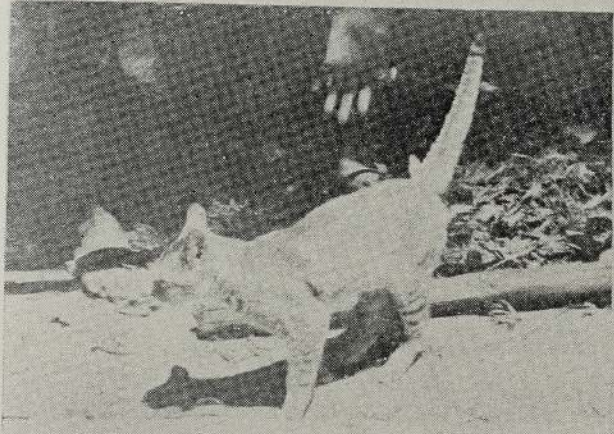
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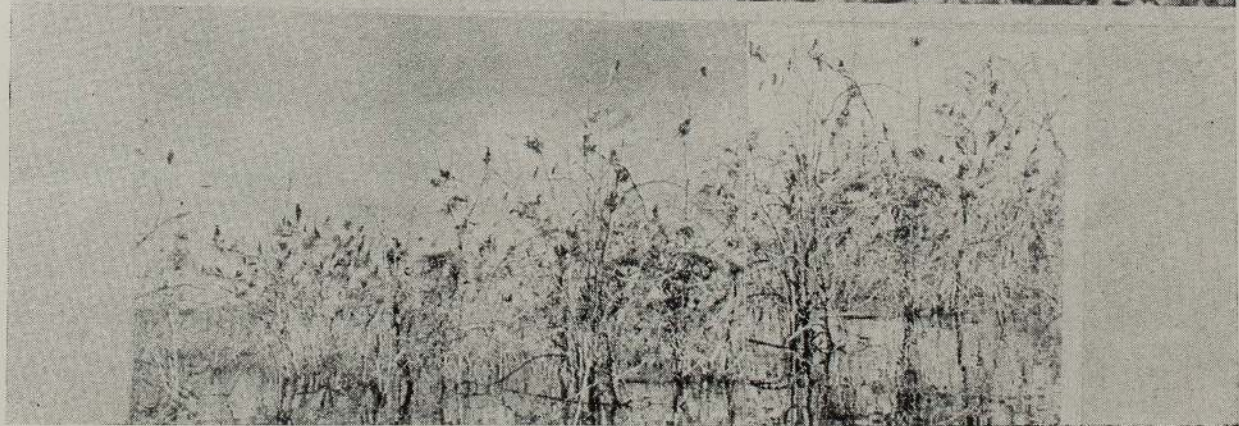
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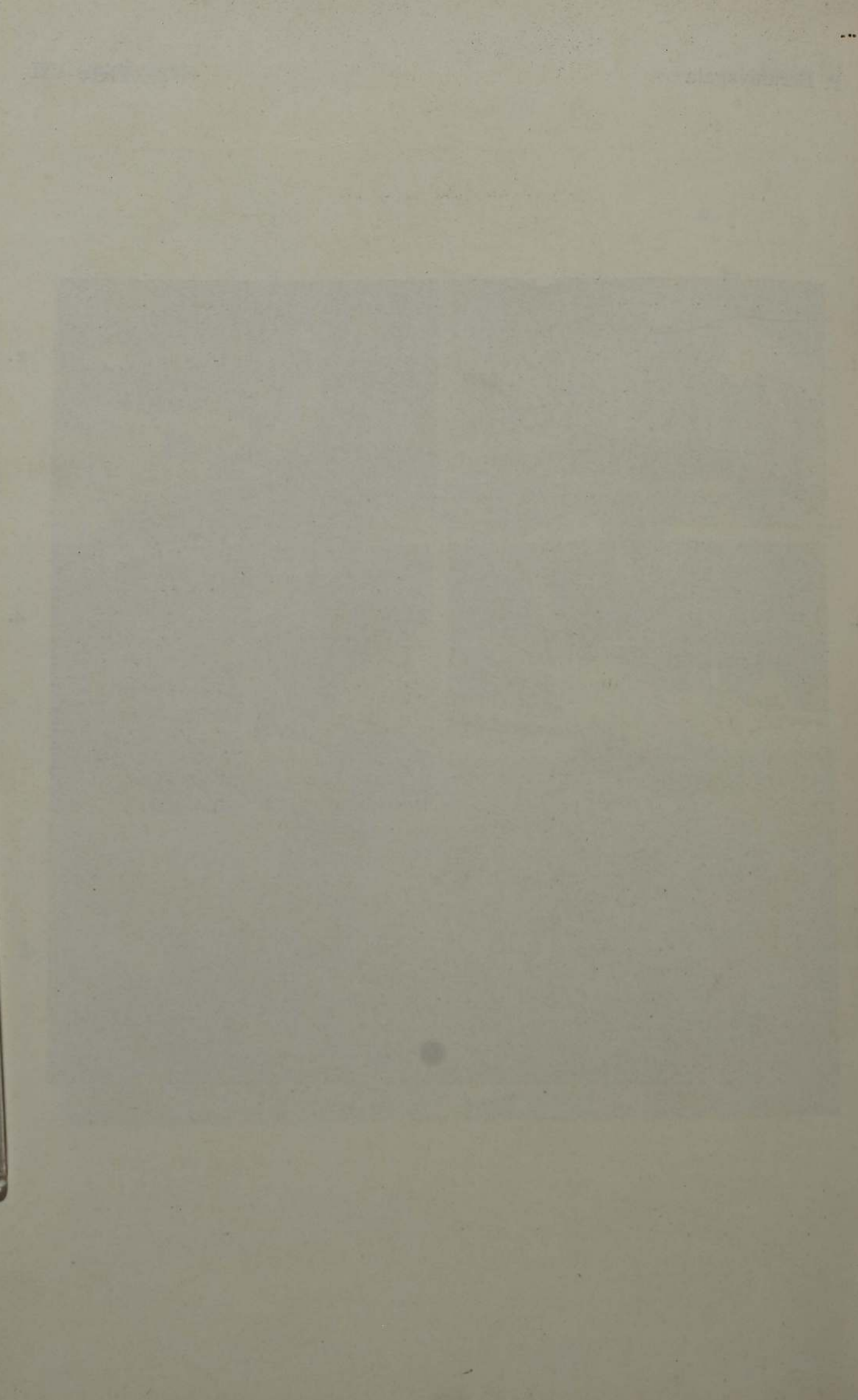


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Moonstone Motifs

By D. T. DEVENDRA

In my article entitled "The Symbol of the Sinhalese Guardstone" published in *Artibus Asiae* (Vol. XXI, 1958, pp. 259-268), I equated the device on our guardstones with the Auspicious Vase. I proposed that the change of the device did not interrupt the continuity of the symbolism which, therefore, remained constant. My thesis has received support from a former Archaeological Commissioner, Prof. P. C. Sestieri¹. My interpretation differed from that of Dr. S. Paranavitana, as evinced in two of his articles contributed to the same journal and entitled, "The Significance of Sinhalese 'Moonstones'" (Vol. XVII, 1954, pp. 197-231) and "Śaṃkha and Padma" (Vol. XVIII, 1955, pp. 121-127). In the first named article Dr. Paranavitana has discussed at great length the symbolism suggested by the moonstone motifs and by the features elsewhere in the same architectural scheme. I propose, in the present article, to offer in interpretation of the architectural section comprising the moonstone and the first flight of steps. This interpretation differs from that of Dr. Paranavitana and therefore would provide additional material towards a study of one of the most beautiful works of our ancient art—the Moonstone.

Moonstones datable from legends inscribed on them have been found in this country² but scholars tend to regard those free-standing Nāgārjunakoṇḍa examples or the Amarāvati reliefs of the half lotus as more or less the datum line for the feature. Except perhaps for one, all the moonstones at Nāgārjunakoṇḍa are plain.³ The exception has a single band of animals on its border.⁴ The reliefs at Amarāvati are wholly lotiform. The function of the lotus piece in the Amarāvati reliefs cannot be conclusively admitted as the same as of the free-standing Nāgārjunakoṇḍa plain stones whose purpose is distinctly clear of any ambiguity.

1. *East and West* (New Series) Vol. II, No. 4 (Dec. 1960), p. 268 ff.

2. *Ceylon Journal of Science*, Sec. G., Vol. II, p. 28. A couple of years ago an inscribed moonstone came to light in an excavation southward from the Mahāthūpa in Anuradhāpura. The Brāhmī script used in the legend is undoubtedly earlier than that used in the above. My eye-copy of the legend reads *U-ra-ma-ya-sa-ra-ya*, beyond which the characters are fragmentary, illegible and one or two of them seem to be of a later period, probably insertions.

3. Archaeological Survey of India, Memoir 54 (A.H. Longhurst), p. 8 and Memoir 71 (T.N. Ramachandran), p. 13.

4. Memoir 71 (cited above), p. 13 and Pl. XII B.

In Ceylon there is a variation in the two characteristics. That is to say, our earliest moonstones had neither the lotus nor the animals. They were apparently plain ones as at Nāgārjunakoṇḍa and the decorative features were gradually introduced in the later examples. The most highly ornate ones have generally been dated in the 8th-10th century. Those reflecting the latest changes belong to the 18th century. Degaldoruva provides the best of these latter.

Why were our earliest stones plain? Only one reason seems indicated. The moonstone was strictly a doormat, and no more. The *Mahāvamsa* (Ch. XXXI, v. 61) fittingly expresses this idea.

*Laṃkāḍīpamhi samale sabbāni ratanāni pi
Sopāṇante pātikam pi nāgghant' aññesu kā kathā?*

(‘Nay, but all the jewels in the whole island of Laṅkā are not of so great worth, as the stone-slab at the foot of the steps’—Geiger’s trsl. The Pali word *pātikā* has been rendered as “Moonstone” in the Pali Text Society’s dictionary.)

The slab, plain or decoratively beautified, was meant for the feet to be wiped on. That was its function and its homely use is borne out by the position given it in the plan.

It has been pointed out, from the example of the common wheel, that an ordinary object could well acquire a symbolism. This, of course, is acceptable although illustrations cannot be very many. But, at the same time, all evidence points to the circumstance that the wheel expresses the symbolism right from its first use. It did not collect the idea in its progress in art.

In a sense, one may cite the opposite case wherein the artist has used meaningful emblems quite irrelevantly at ancient sites in Anurādhapura. The *chatta* (parasol), an emblem of the Buddha and of the Cakravarti, has been recklessly given to the foliate vase, lion groups, plural-headed *nāgas*, and a device like an addorsed pair of strike-a-lights bound by a floral band in the middle.⁵ There are more facetious examples from the same city, where one finds the lotus *makara*, lion and almost a twin brother of Kuvera (if not the god himself) sculpted on lavatory stones.⁶

Why a utilitarian object can acquire a symbolism, or a symbolic device is given cavalier treatment, could also be explained by the

5. See op. cit. at ft. nt. 2, Pls. IX (fig. 2), XI (fig. 1), XIII (fig. 2) and Vol. I of same title, Pl. XLVII, as well as my *Classical Sinhalese Sculpture*, figs. 6, 10, 12, 14, 20, 21, 32, 110-112.

6. Archaeological Survey of Ceylon, Memoir, I, Pls. 39 (figs. 106, 107) and 44 (fig. 121).

attitude of the artist when given free play. He then submerges the symbol in the decorative. Ornamentation rules his passions.

A study of the pieces from Amarāvātī stūpa should be convincing of the fact that the uppermost motive was unconnected with anything hidden. I shall draw my examples from the most comprehensive work (in recent years) on this ancient site, that is, Douglas Barrett's *Sculptures from Amarāvātī in the British Museum*, published (1954) by the Trustees of that museum.

A detailed examination is invited of Pls. XX(b) and XLVI(b)—Early Phase—XXI-XXIV and XXX—Middle Phase—and XXVI, XXVII and XXXI—Late Phase. This examination will show that the outer band of the lotus has, in some cases, been finished off with a decoration. Some motifs are pure design, some vegetal, some quadrupeds (including mythical) mixed with vegetal. The interesting point about these particular motifs is that they have been used elsewhere, too, as when the lotus is absent. An example is the roundel in Pl. XXXIII. The use of the identical form of ornamentation in two different situations at the same site should enable us to glimpse the mind of the artist. If, then, a symbolism is imagined for such motifs when on the moonstone that symbolism must be applicable with equal validity to their appearance in the absence of the lotus. Such a reconciliation cannot be proposed with any convincing strength. Furthermore, as if to emphasize the impracticability, we note an unrelated assortment of beasts among those here appearing: humped camel, deer, winged lion. Not to a single one of this trio can a symbolism be assigned.

How came, then, a string of running animals into the moonstone's outermost band? If we apply our minds to two particular pieces the artist's answer to the question seems revealed. The pieces are in Pls. XLVI(b)—Early Phase—and III(a)—Late Phase. In the Early Phase piece a band of spirited quadrupeds is shown running round the pillar, below half lotuses but as part of the design. The Late Phase example shows a moonstone (simulated) outside but clearly related to the design is a frieze of ten running animals. The camel, elephant, winged lion and deer are the four beasts here delineated.

Now, it does not need much thinking to absorb the animal band into the outermost decoration of the lotus, to which they are contiguous in the two examples above cited. And, as I have already proposed, the beasts convey nothing of symbolism.

The use of quadrupeds can also be illustrated from Pls. VIII(b), X, XIX, XX(a), XLIV, and XLV. Pls. X and XI show men leading the beasts as in XXXVIII. That the use is purely decorative is further strengthened by these examples. If, in spite of my proposition, it is still maintained that a symbolism does underlie the application of such

animals to the moonstone, then it is fair for me to invite proof from the plastic arts of the transitional stages by which the physical passed on to the metaphysical.

It has to be accepted that the lotus was the first ornamental feature to appear on the Ceylon moonstones, but at what point of time the plain face gave way to it has not been stated by any authority. Perhaps the change took place when the rectilinear wingstones of the first flight of steps evolved into the wingstones with the lotus and scroll. It is remarkable how deceptively like a *makara* this lotus on the wingstone appears at a first glance. The *makara*, then, is but the next natural stage to the lotus on this member.

What is the significance of the lotus on the moonstone? The flower here has to be considered not in isolation, as when used on the lavatory stones. It is the same as is used for the Buddha in the shrine ahead which is the goal of the person who steps on the moonstone. In their inter-related positions the significance of the flower must be similar at either point of appearance. The moonstone's lotus must be symbolically kin to the lotus seat or pedestal of the Buddha in the image-house. The moonstone is trodden on by mere mortals, and so is its lotus. If the flower serves the Buddha, it must be in a way that the use is not too far removed to men from that same use.

The lotus symbolizes the perfection of purity in our art. Physical purity, in the concrete, is acquired by ablution. Would it be too far-fetched to regard the flower here as a medium of physical cleansing in the abstract? When a person treads the lotus, the feet are symbolically laved. In like manner it is on a washed and cleansed seat or pedestal that the Buddha of the shrine has been placed. The most beloved and honoured flower of the waters is the most fitting to convey such an abstract idea. Unless, therefore, we interpret it in its two positions in this light no reconciliation seems possible in an apparently conflicting situation.

It seems that 11th-13th century provides us with a clue to the function of the moonstone. At the principal entrance to the ancient Daḷadā Maḷuva (Sacred Quadrangle) in Polonnaruwa there is to be seen a shallow rectangular stone which was found juxtaposed to and in line with the first tread of the flight of steps. It is unique of its kind for Ceylon.⁷ Its purpose is clear, for it has been hollowed out to contain water and is provided with an outlet. This is the *pādoṇi* which is found on ancient sites but on a side of the entrance and standing by itself. In such cases water was taken out in some vessel and poured on the feet by one standing on a slab (the moonstone) before the steps are

7. Annual Report of the Archaeological Survey of Ceylon for 1936 (A.H. Longhurst), paragraph 25.

mounted. But the ritual ablution was emphasized differently at the Daḷadā Maḷuva. It passed through the same stages, but possibly without using the hands to ladle out water.

The feet would have been automatically washed in the water trough (as commonly as today) by being immersed and rubbed against each other; the trough was too involved with the adjacent slab for the handling of its water. This would imply that the feet were washed twice, once in the abstract by stepping on the lotus, and next by actual action. If the lotus on the moonstone had been invested with any greater dignity, it would have disappeared from the stone as readily as the figure of the bull was removed at this time when Śaivism was honoured here in mediaeval times. (In passing, there is one moonstone with the bull known to me in the same city. It is a very weathered one of limestone and, at the time I examined it, was lying in the Niśsaṅka Malla palace area or the Promontory, close to the Rest House. It could, of course, be a survival of the Anurādhapura period.)

The symbolic washing of feet is, in my opinion, further suggested by a figure on the face of a wingstone at the entrance to the Laṅkātilaka in the same city. The figure is of a *nāgī* who stands on a rectangular lotus pedestal. Herein the connection with the lotiform pedestal cannot be explained away except in this function.

It seems to me that this idea of ritual ablution on the moonstone was understood at some stage in the artistic elaboration—that is, if a sole instance is admissible in support. This instance is provided by the very weathered Oggomuva moonstone (Mātalē District) which is not sufficiently known.⁸ On one of its bands there is the unmistakable jar represented in the centre. From its mouth issues a foliage scroll each way. The jar had no place in the scheme of ornamentation unless it has been meant to express the idea of water within it. That is, if it did imply an inner meaning (as I think it did) and was not merely a decorative motif like some of the others. These I now propose to discuss.

The other motifs on the moonstone are representative of flora and fauna. The artist, as it were, has been thinking in terms of an extension of the idea of water from a single flower of the water. That is to say, of a precise sheet of water such as a lake. We shall advert to this later on.

The four commonest animals deserve our notice at this point. Dr. Paranavitana's arguments against these representations as directional in significance are very convincing.

8. op. cit. at ft. nt. 2, p. 155 and Pl. LXXXI.

The animals, however, are the most dignified quartet of our common fauna the lion, even though not surviving in Ceylon, is yet the king of the beasts; it is also tied up with an epithet for the Buddha. Thus it could not be left out.

In this manner has the artist represented a large world of the waters—the forest throbbing with life in its creeper, in the winging geese, in the vigorously moving life. The movement and direction of the course of the animals have been taken to account but, it seems to me, without justification. In some of the Nāgārjunakoṇḍa friezes we see animals moving as spiritedly but from right to left. We have, in a frieze in Lomas Rishi cave, an elephant frieze moving from opposing directions, each queue facing the other at the centre. In a frieze in the southern section of Darius's Palace in Persepolis we note a vigorous lion frieze. On the top section of the doorway of the Nillakgama Bodhighara in Ceylon are a spirited rider, at each point, on a rearing steed. These instances should suffice to show that animals were represented as full of life and as no wooden effigies, rather than with any particular meaning implied in their movement.

It is no dead world which has been presented to us. It is also a rare world which the artist has not himself seen but has read of, and that is suggested by his use of the horned lion (Nāgārjunakoṇḍa). Who knows, then, but that he had in mind a vision of the most wonderful of lakes, Anotatta, in the Himalayas where the gods come? Anotatta is the magic lake of waters whose quality is unsurpassed—the purest, coolest, sweetest and bluest of waters; waters which give rare *iddhi* powers to those who use them, waters used by the Buddha himself.⁹ Is it so difficult to conceive of the man of art as giving abstract expression to views such as these passing across his mind's eye?

These are not the only bits of life he fashioned for us. He added others, no doubt to give variety. On the face of a wingstone on a ruined site between the Thūpārāma and the Mahāthūpa is a fine scene of forest inhabitants (hermits, layfolk, monkey group).¹⁰ Two of the animals on a unique moonstone at Sāssēruva are a ram (?) and a dog.¹¹ The buffalo, deer and boar are shown on a Nāgārjunakoṇḍa moonstone.¹²

Such inferences are tempting but difficult to present in convincing strength.

9. See *Dictionary of Pali Proper Names* (G.P. Malalasekera), s.v. Anotatta.

10. See my work cited at ft. nt. 5, figs. 49, 50.

11. Annual Report of the Archaeological Survey of Ceylon for 1895 (H.C.P. Bell), p. 12.

12. op. cit. at ft. nt. 4, p. 13.

Apart from the above, two of the Nāgārjunakoṇḍa features call for our notice. One is the *makara* wingstone found at a site.¹³ Now this appears quite late in Ceylon as already noted by me. What significance could the *makara* have had at Nāgārjunakoṇḍa then? Apparently none. Hence it was not picked up by the Ceylon artist—assuming he post-dated his South Indian fellow.

The animal band on the Nāgārjunakoṇḍa moonstone is the second curious feature. Not only does it seem to be a sole example but it has been an annex in the sense that it had been worked in three separate sections and fitted into the moonstone. Could it be an afterthought? If so was it at the vihāra connected with the monks from Ceylon? Where precisely was the idea born? Do we see the germ of the idea of animals at Oggomuva where an inscription of the 2nd century A.D. has been found—although the epigraphist is not committed to relating it to the moonstone found on the site?¹⁴

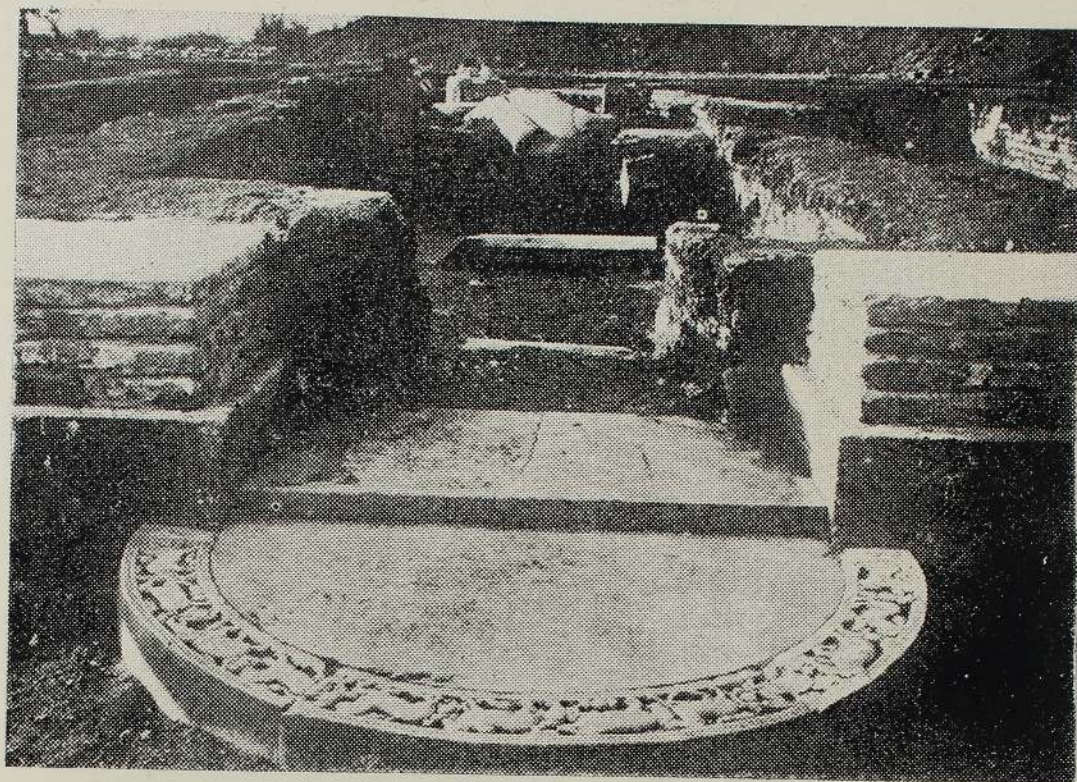
In the answers to these questions, it seems to me, lies the solution of the problem: Where was created the Moonstone as a thing of beauty?

I shall conclude with the shape of the moonstone. This shape underwent natural modifications with time until the elongated semi-elliptical came to be favoured, as if for relief from the wearisome monotony of the semicircle. The semicircle will be admitted to be the most fitting prefix to the rectilinear treads of a stairway. No doubt the doormat could look a square, a rectangle or even a triangle, in outline. There can be no hard and fast rule about it but that of one's personal taste. The rectilinear pieces would be stiff, except (so one may imagine) in the hard air of a desert region into which the clean straight lines cut superbly. So you find them favoured in the Arabian tradition or even in ancient Persia, Assyria and Babylon, where the building stood clean and square to high heaven. But with us farther east, where the vegetation is lush and cursive forms proliferate, the softer curves were always preferred. Against the linear treads it is natural to set contrast. And so the semicircle with its diameter aligned to the lowest tread of the stairway came to the artist's mind in preference to the complete circle, which would have been as unpleasing to the eye as the dangling participle to the fastidious writer. We must

13. *ibid.* p. 18 and Pl. XXV.

14. As ft. nt. 8: "A fragmentary inscription of the second century is found at the place; but there is nothing to indicate that the moonstone was contemporary with this record. However this moonstone, in my opinion, can be ascribed to an earlier date than that of the well-known specimens at Anuradhāpura" (S. Paranavitana).

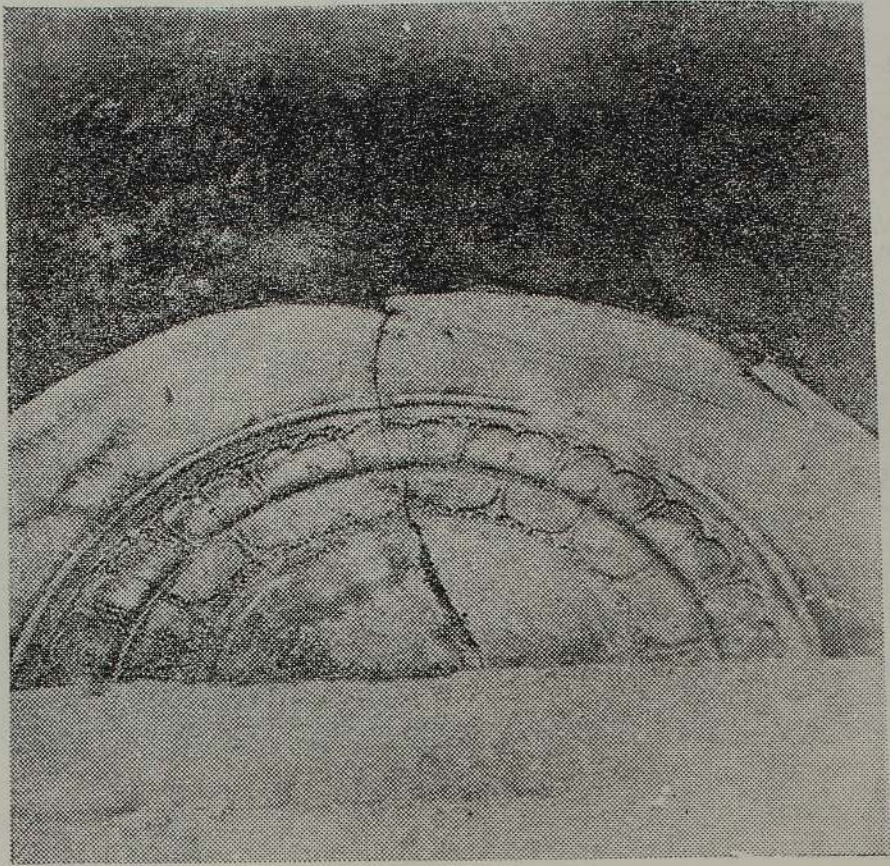
note that the outward curve was always retained even though it came to be elongated in the course of time. Many other changes were then seen in the other features. For instance, the animals came to be used in permutations and combinations, their places were changed, or they were even removed. But the cursive shape of the stone never yielded place to the hard square, rectangle, triangle or any other straight-sided design. Thus it seems to me, can the semi-circle be explained as an expression of the aesthetic. And it added charm to one of the most beautiful creations of the ancient Sinhalese artist—the Moonstone.



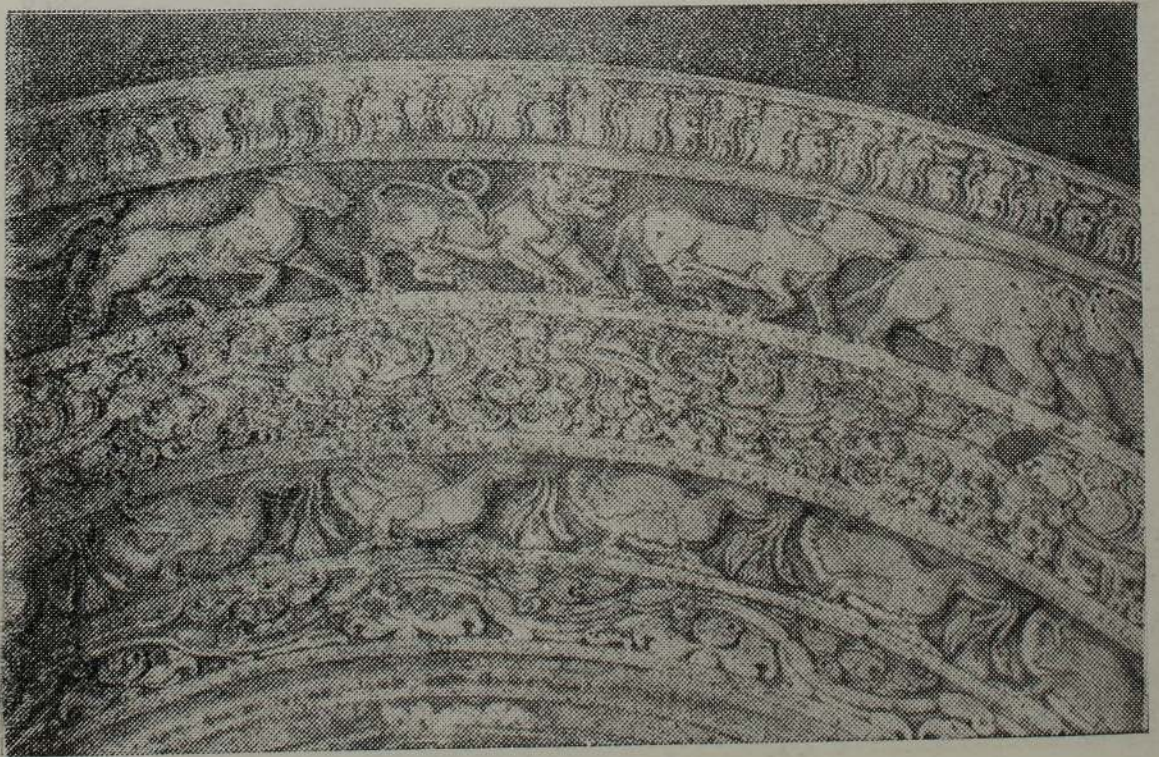
Nāgārjunakoṇḍa Moonstone at site No. 6. Note the outermost band, fitted in three sections. (Copyright: Archaeological Survey of India.)



Moonstone impression, inner yard, Northern (Abhayagiri) Thūpa, Anuradhāpura. As noted in the Annual Report for the Financial Year 1963-1964, it was one of three such, each of staggering size with a diameter of about 26 ft. 6 in. (Copyright: Archaeological Survey of Ceylon.)



Moonstone, Ratana Pāsāda, Anuradhapura. (Author's photo)



A section of the most highly ornate of Ceylon's Moonstones, Queen's Pavilion, Anuradhapura. Latest date 10th cent. (Author's photo.)



A twelfth cent. Moonstone at the Vaṭa-dā-gē (east, inner), Polonnaruva.
(Photo: Dr. R. H. de Silva)



Moonstone, inner shrine, Degaldoruva, 18th cent. (Author's photo)

Influence of Portuguese on the Sinhalese Language

By

Professor D. E. HETTIARATCHI, Ph.D.

The Sinhalese language had as its basis a middle Indian Prakrit (or probably more than one Prakrit, spoken by the early immigrants who came from different parts of North India) which submerged the language spoken by the then indigenous population of Ceylon. That early form of Sinhalese predominantly Middle-Indo-Aryan in character, went on developing, earlier under the influence of Pali and Sanskrit, and in course of time, also under the influence of Dravidian, primarily Tamil. Thus up to the advent of the Portuguese in the 16th century the Sinhalese vocabulary consisted of the inherited, semi-loan or loan forms of Prakrit, Pali or Sanskrit words, loans from Dravidian and a certain percentage of indigenous words. In the writings of the 16th, 17th and 18th centuries, particularly in books like *Rājāvaliya* and the *Haṭana* poems, one notices a considerable number of loan words like: *adāgaya* (dagger), *ōruppuva* (orphanage), *ōlandēsi* (the Dutch), *kaṇṇipittā* (*capitão*—captain), *kaṇṇipittāmōr* *capitão-mor*—commander of militia), *jagadarāva* (*jacatra*), *janarāl* (General), *Kustantīnu* (Proper Name), *turampēttu* (*trombeta*—trumpet, bugle), *pādiriyā* (priest, father), *pān* (*pão*—bread), *pidālguvā* (*fidalgo*—nobleman), *purutukāl* (Portugal), *yēsu* (*devi*) (Jesus), *laṃsa* (*lanço*—lance) and *visurē* (*visorey*—viceroy).

Although many more words of Portuguese origin can be cited from Sinhalese literary works, it is in the spoken form of Sinhalese that numerous Portuguese loans are met with. While some of these borrowings have found a permanent place in the language, others have already disappeared or are on the decline. Father S. G. Perera in his articles on the *Portuguese Influence on Sinhalese Speech*¹ observes: "The Portuguese soldier and the lascareen likewise were comrades-at-arms, and shared the dangers and privations of war as well as its triumphs and spoils. Portuguese soldiers served under Sinhalese *Disāvēs*. The Portuguese, moreover, lived in such terms of intimacy with the Ceylonese, that they intermarried with them without it ever entering their heads to think themselves demeaned thereby..... But the greatest force at work to bridge the gulf between East and West was Christianity. Nothing levels men like a common religion. The Portuguese did not merely "convert". They also fraternised. Conversion brought the Sinhalese closer to the Portuguese and it also dealt the first blow on caste. Once begun, the influence of the Portuguese passed far beyond the pale of the converts. It manifested itself in every depart-

1. Ceylon Antiquary and Literary Register Vol. VIII; Part I; July 1922; p. 45 ff. Part II, p. 126 ff.

ment of line, and thus affected the common speech. The Portuguese language could not affect the Sinhalese grammar or syntax. It affected the vocabulary. There is, however, no record of Portuguese being spoken quite so largely then as English is now, nor does it appear that Portuguese books had any great circulation in Ceylon. The language that was spoken was not book-learned, but picked-up by the direct method from the surroundings. Without a standard to go upon, without a literature, language naturally deteriorates, and frequent communications between the Portuguese and the Ceylonese tended to introduce vernacular idiom into the spoken Portuguese, just as much as Portuguese words into the Sinhalese spoken in the forts and camps. . . . It was mainly through this Ceylon Dialect that Portuguese words infiltrated into colloquial Sinhalese". (pp. 47-48).

In all the ports where Portuguese called, there arose in the 16th century a simplified form of Portuguese² called Indo-Portuguese, Ceylon-Portuguese, Malaio-Portuguese etc., that promoted understanding among different nations and served as a medium of communication.

In the 17th century the language situation became more complicated because of the appearance of the Dutch, the English, the Danish, the French and the Spanish, on the political horizon. Nevertheless the Portuguese language that had gained currency survived the onslaughts made by the other languages, continued for sometime and began to decline from the 19th century. Till then Portuguese had been the medium of communication between the European nations and the native populations of different lands.³ Even the kings of Ceylon seem to have corresponded with the Hollanders in 1646 and 1656 in Portuguese.⁴ The Hollanders are said to have attempted to combat the use of Portuguese in Ceylon and Java, without much success. It is

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2. H. Schuchardt: *Zeitschrift für romanische Philologie* XIII. Monsenhor Sebastiao Rodolfo Dalgado: *Dialecto Indo-Portugues de Ceilao*, Lisboa, 1900. Adolf Coelho: "Dos dialectos romanticos ou neo-latinos na Africa, Asia e America" in *Boletim da Sociedade de Geografia de Lisboa*—2nd series (1880) pp. 156-167; with the bibliography of texts of the dialects in 3rd series (1882) pp. 462-466.

Leite de Vasconcelos: *Esquisse d'une dialectologie portugaise* (Grammatical summaries of the dialects of Diu, Damão, Bombay, Goa, Mangalor, Cananor, Mahe, Cochim, Ceylon etc. pp. 162-183; with the bibliography of texts of the creoles of India and Ceylon, pp. 53-4, 72-3.

Leite de Vasconcelos: *De Campolide a Melrose*, pp. 165-173. (Portuguese Literature of Ceylon, in the 19th century).

William Buckley Fox: *A Dictionary of the Ceylon Portuguese, Sinhalese and English Languages*, Colombo Wesleyan Mission Press, 1819.

3. David Lopes: *A Expansao Da lingua Portuguesa no Oriente nos Seculos XVI, XVII e XVIII*, Barcelos 1936, p. 26.
4. *Ibidem* p. 24.

said⁵ that the Governor of Batavia confessed in 1674 that the Dutch considered it a distinction to be able to speak Portuguese. Fr. S. G. Perera states:⁶ "The early British officials were constrained to learn this dialect and it became the medium of communication between the British officials and the people of the country. Robert Knox conversed in Portuguese with the Dutch Officials in Dutch times. . . . When Governor North sent his embassy to Kandy a Portuguese-Sinhalese interpreter accompanied the party".

To this day Portuguese has survived as creoles, the chief of them being those of Ceylon, India and Java. It is such creoles that permitted the entry of so many Portuguese terms into the languages of the East. It was the political domination, commerce and the missionary activities of the Portuguese that contributed numerous additions to the vocabularies of Asiatic languages. Even when the Portuguese power fell, the missionaries proceeded with their activities and continued to exert their influence on language.

Professor David Lopes, in describing the nature of the Portuguese speakers in India, says⁷ that there were three types of them:

- (1) those who had been born in Portugal, and those who were born of Portuguese parents in India;
- (2) those who descended from Portuguese fathers by Indian mothers, and speaking Portuguese; and
- (3) those who were Indians by nationality, but wrongly calling themselves Portuguese because of their education in Portuguese by their fathers or others dominating them.

Accordingly there were three varieties of Portuguese speech spoken in India: (1) a pure variety used by the people of the first category; (2) a semi-corrupted variety, characterized by incomplete conjugations, and spoken largely by people of mixed origin, and (3) a completely corrupted variety spoken by the Portuguese of mixed origin, and primarily by the coloured people. The third variety of Portuguese differed from the second by its total lack of conjugations and by the use of particles like *—lo* and *ja* to form the future and the preterite forms of verbs. Because of the defective nature of that third variety of Portuguese, it is said that it was considered inadequate for correspondence and for discourse, and even the coloured people used the second variety when they prayed to God. It was largely that second variety of Portuguese that was used even by the English, the Danish, the Dutch and the French when they could not communicate with the natives in their respective languages.

5. Ibidem, p. 67.

6. Ceylon Antiquary and Literary Register, Vol. VIII, July, 1922; p. 48.

7. David Lopes: "A Expansao Da lingua Portuguesa no Oriente nos Seculos XVI, XVII e XVIII, Barcelos, 1936, p. 53 ff.

It is said⁸ that the Dutch parish priests had to know Portuguese even in the territories governed by the East India Company. This observation seems to have been true of Ceylon too. Even in Batavia up to 1808, divine service has had to be conducted in Portuguese in one of the churches.

Schuchardt has made a notable contribution to the study of Portuguese creoles⁹ in different parts of the world. He has written even on the Indo-Portuguese dialect of Ceylon. Woodhouse dealt with that work in 1884 in his "Influence of the Portuguese and Dutch Languages on the Sinhalese and the Tamil"—*Orientalist* (Vol. I, p. 223 & II, 155). Monsenhor Dalgado dedicated his entire life to the study of the linguistic relationship between Portugal and the Far East.¹⁰ Dr. Mariano Saldanha, his successor to the Chair of Sanskrit at the University of Lisbon, gives a long account of Dalgado's studies in respect of the Indo-Portuguese dialects of Ceylon, Negapatao, Goa, Bombaim and Damao. The two outstanding works of Dalgado are *O Glossário luso-asiático* and *A Influência do vocabulário português em linguas asiáticas*, which are considered to be monuments of erudition.

The first of those two works is a Dictionary¹¹ in two volumes containing largely terms borrowed into Portuguese from languages spoken in territories occupied by the Portuguese, and certain terms met with in such territories. Among the words discussed and of interest to those in Ceylon, are the following: *achar*, *adigar*, *agra* (= *ākara*), *aludá* or *alvá*, *ambalao*, *ananas*, *anda*, *andor*, *apuami*, *arache*, *aruco* (= *aḍukku*), *aruto* (= *aḍuttu*), *atacorla* (= *atukōrāla*), *atapatu* (= *atapattu*), *bangaçal*, *Bicarna-singa* (= *Vikramasinha*), *cabaia*, *caju*, *canacápole*, *cardamomo*, (*cardamom*), *catamaran* (= *Tamil kattumaran*), *chaliá*, *champana* and *cham-pao* (= *sambān*, *hambam*), *chandala*, *chávena*, (*Malay chāvan*, *Chinese chā-kvān*), *chingala* (= *Sinhala*), *chunambo*, *corla* (= *kōralē*), *dágaba*, *dissava*, *divali*, *dubaxi*, *duriao* (*Malaio-jav. durian*), *fanao*, (= *panam*), *ganga* (*Ganges*), *garaveto*, *gopura*, *gorca*, *gotra*, *gudao*, *Hindu*, *Jadaca* and *Jedaca* (= *yakdessā*), *jagra* (*jaggery*), *jogue* (= *yogi*), *judun* (= *yodun*), *mandapa*, *mangostao*, *marala* (*death-duty*), *maturance* (= *mahaterunnānse*), *motiar* and *mutiar* (*Mohottiyar*), *Muçulmano*, *muni*, *murdanga*, *Nirvana*, *pagode*, *palanquin*, *palará*, (= *pallara*), *Pali*, *panca*, (= *paṃkā—fan*), *pandar* (*Baṇḍāra*), *pandito*, *pango* (*division*), *paniá* (= *paṇikkīyā*), *Papaia* (*Papaw*), *Parabrahma*, *Paramiçura*, (= *Parameśvara*), *parau* and *paro* (*paddah-boat*), *paravenia*, *pardexis*, *pariá* (= *parayā*), *pataia* (= *Drav. pattāyam*), *pijama*, *pimenta*, *Pimpôlo* (*Pipal tree*), *purana*, *rabana* (*Malay rabāna*), *rakchasa*

8. Ibidem p. 63.

9. Ibidem p. 84, p. 85.

10. Ibidem p. 86.

11. Published by Academia Das Sciencias de Lisboa, Vol. I, Coimbra 1919, Vol. II, Coimbra 1921.

(demon), *raja*, *rala*, *Rambutao* (= *Rambutan*), *rupia* (Rupée), *sari*, *sati* (Suttee), *Sudra*, *Sufi*, *Tantra*, *terunanse*, *topaz* (= *Tupphahi*), *tupeti* (= *Tuppotti*), *tutanaga*, *velipara* (Beli-pattā), *veneziano* (gold coin), *vidana*, *vihara*.

Although words like *accāru*, *aluvā*, *hambam*, *tupphahi* etc., are generally considered to be Portuguese borrowings in Sinhalese, they have really been borrowed from various other languages like Persian, Arabic, Malay and Sanskrit, and Portuguese is only the medium through which those words have found their way into Sinhalese, e.g. Sinhalese *hambam* or *sambān* is from Malay *sampan* from Chinese *sam-pam*.

The second work referred to above, viz. *A Influencia do vocabulario portugues em linguas asiaticas* has been adapted and translated into English by Anthony Xavier Soares under the title "*Portuguese Vocables in Asiatic Languages*".

In determining the origin of the so-called Portuguese borrowings in Sinhalese, several factors should be taken into consideration before drawing a conclusion. Despite the seeming resemblance between a Sinhalese word and a Portuguese word, the two may have come from entirely different sources, or one may be a borrowing of the other. Cf. Port. *Rancho* 'crowd, group' and Sinh. *ramcu*; Port. *aluarço* 'delight, tumult' (De Queros—Conquista de Ceilao p. 256) and Sinh. *olvarasam*; (Cf. Port. *alvoroçar* 'to stir up, rejoice'). It is important to ascertain what the earliest occurrences of each pair of words in the respective languages are, their relative chronology, and the sources of the words if determinable. Sometimes a so-called Portuguese tatsama word may resemble its Dutch counterpart far more than the Portuguese one, and the word may have been borrowed either from Dutch into Ceylon Portuguese (CPort.) and through CPort. into Sinhalese, or from a corrupt form of CPort. e.g., Sinh. *kōppa* 'cup', Dutch *kop*, *kopje*, Port. *copo*, CPort. *copa*; Sinh. *istōppu(va)* 'verandah' = Dutch *stoep*, CPort. *estopo*; Sinh. *orlōsu(va)* 'watch' = Dutch *horloge*, Port. *o relógio* (where 'o' is the definite article), CPort. *orlozo*. Establishing the identity of a word, and tracing the course of development it has followed are helpful in determining the nature of a loan-word. As the spelling of words as well as their pronunciation change from time to time, it is also important to study how the Portuguese words were spelt and pronounced during the 16th and the 17th centuries. Cf. Sinh. *visurē* 'viceroy' = Old Port. *visorey*, Modern Port. *vicerei*; Sinh. *sumāna* 'week' = Old Port. *somana*, Mod. Port. *semana*; Sinh. *bavtisma* 'baptism' = Old. Port. *bautismo*, Mod. Port. *baptismo*. It is very necessary to study also the phonological changes that the Portuguese vocables have undergone in being adapted to suit the genius of the Sinhalese language. As the Portuguese words infiltrated into Sinhalese through the corrupt colloquial speech, and were not borrowed direct either from books or from natural speakers of Portuguese, the study of

the Ceylon Portuguese usage is also very helpful in determining the course a Portuguese word has followed in passing into Sinhalese. As was noticed above, not infrequently Portuguese is only the medium through which a word having a different origin has been borrowed into Sinhalese. The vicissitudes such words have gone through are also important in tracing the history of such borrowings in Sinhalese.

Thus the task of establishing the Portuguese origin of a word is one beset with pitfalls. Even Rev. Fr. S. G. Perera who enjoyed a high reputation for his learning in Portuguese, was very cautious in presenting his list of 363 words in his article on the Portuguese Influence on Sinhalese Speech. He states :¹² "The following list makes no pretension to linguistic research, but merely to give a list of words apparently of Portuguese origin, noted from time to time. I have included in the list all words which appear to bear indications of having passed through the Ceylon Creole even though ultimately traceable to an Indian Vernacular and occasionally to the Dutch".

Mudaliyar Abraham Mendis Gunasekara had included in his Comprehensive Grammar of the Sinhalese Language (published in 1891) a list of 231 words said to be 'naturalised and derived words from Portuguese'. Most of those except some whose origin is not beyond doubt, are found included in Fr. S. G. Perera's collection. The Portuguese Vocables in Asiatic Languages, published in 1936 as an English rendering of Monsenhor Dalgado's *A Influencia do Vocabulario Portugues em Linguas Asiaticas*, besides adding valuable notes and comments, includes many new words not contained in the earlier collections, e.g. Sinh. *altār(aya)* 'altar' Port. *altar*; Sinh. *massabādu* 'lowly, ignoble' Port. *amancebado*; Sinh. *ānju(svarayc)* 'angel' Port. *anjo*; Sinh. *arūda* 'the Rue herb' Port. *arruda*; Sinh. *viskōttu* 'biscuits' Port. *biscoito*; Sinh. *kantāru(-karanavā)* 'to sing, chant' Port. *cantar*; Sinh. *sipayi* 'indigenous soldier disciplined and dressed in the European style', Anglo-Indian *sepoy*, Port. *cipai*; Sinh. *kumandanti* 'commander' Port. *comandante*; Sinh. *kontrātu(va)* 'contract' Port. *contrato*; Sinh. *diyābuvā* 'devil' Port. *diabo*; Sinh. *debarādu* 'double', 'two-fold', Port. *dobrado*; Sinh. *govārnadōru* 'Governor' Port. *governador*; Sinh. *mōsam* 'monsoon' Port. *monçao*; Sinh. *rōnde* 'patrol, going round' Port. *ronda*; Sinh. *ṭānki(ya)* 'cistern, tank, artificial reservoir of water' Port. *tanque*; Sinh. *tumba(ya)* 'biar for the poor' Port. *tumba*.

Most of the Portuguese borrowings I have come across are included in the lists referred to above. A few more may, however, be added anew.

Sinh. *āsiyānu* 'Asian' Port. *Asiano*; Sinh. *āsiyātika* 'Asiatic' Port. *asiatica*; Sinh. *baṅgasāla* 'ware-house' Port. *bangaçal*; Sinh. *(bottam-)kāsa(ya)* 'button-hole' Port. *casa (de botão)*; Sinh. *sambōla* 'a dish mainly with red onions' probably from Port. *cebola* 'onion'

12. Ceylon Antiquary and Literary Register, Vol. VIII, Part I, 1922, p. 49.

Cf. *cebolada*; Sinh. *kuspidēra* 'spittoon' Port. *cuspidadeira*; Sinh. *distrikka(ya)* 'district' Port. *destricto*; Sinh. *ispiritālaya* 'hospital' CPort. *espartal*; Sinh. *hōlandēsi(yā)*, 'Hollander, Dutchman' Port. *holandes*; Sinh. *indiyānu* 'Indian' Port. *Indiano*; Sinh. *jēttu(va)* 'appearance, dexterity' Port. *jeito*; Cf. *jeitoso* 'comely, graceful'; *yudev* 'Jew', Port. *judeu*; Sinh. *lāmpu(va)* 'lamp', Port. *lampa*, *lampada*, Port. *lampo*; Sinh. *layitan* 'a military officer' Port. *leytao*; Sinh. *maññokkā* 'Manioc' Port. *mandioca*; Sinh. *misama* 'mission' Port. *missão*; Sinh. *ōlanda(ya)* 'Holland', Port. *Olanda*; Sinh. *ōlandēsi* 'Hollander' Port. *olandesi* Sinh. *pagāva* 'illegal payment', 'bribe', from Port. *pagar* 'to pay'; (Cf. 'fez paga' gave pay—Conquista Temporal e Espiritual de Ceilão by Fernao de Queros, 1916 page 436). Sinh. *pañkādu* 'boastful and challenging utterance' probably from Port. *pancado* Cf. *à pancada* 'to the point of striking'; Sinh. *padāsa(ya)* 'slice, piece, portion' Port. *pedaço*, CPort. *padaço*; Sinh. *polīsi(ya)* 'Police' Port. *policia*; Sinh. *pōcci(ya)* 'pot', pitcher', Port. *pote*; Sinh. *salvadōru*, *salpadōru* 'a family name' Port. *salvador*; Sinh. *sōru* 'serum', 'serous fluid', Port. *soru*; Sinh. *tilintādi(ya)* 'a bell sounded in the evening' prob. from Port. *telintar*, *tilintar* 'to sound the bell'; Sinh. *tōntu* 'giddy, dizzy' Port. *tonto*; Sinh. *vāra(-kam)* 'season when the sea is rough' prob. from Port. *vara* 'typhoon, roughness of the sea during a season'; Sinh. *vāyin* 'wine' Port. *vinho*, CPort. *vein*; Sinh. *vijēdōru* 'family name' Port. *vigiador*.

Apart from hundreds of Portuguese words borrowed into Sinhalese, a considerable number of Sinhalese words¹³, particularly place names, were also borrowed by the Portuguese. A careful comparative study of such borrowings and adaptations both from Portuguese into Sinhalese and from Sinhalese into Portuguese should throw much light on the speech-habits and the sound systems of the two peoples and of their languages.

13. Cf. Port. *garaveto* 'post, station or guard-house on the borders of a kingdom or town' (Conquest of Ceylon—English translation p. 100 note 1) = Sinh. *kāḍavat*; Port. *agra* 'fields where precious stones were dug' = Sinh. *ākara*; Port. *mutiar* 'clerk' = Sinh. *mohottī*; Port. *xendy* 'hair tied into a knot on the top of the head' = Sinh. *konḍe*, Tamil *konṭai* (Conquista de Ceilao p. 64—English translation Vol. I p. 83); Port. *anasrāla* 'keeper of the records' = Sinh. *sannas-rāla*; Port. *outo* 'kind of tax on land' = usually one tenth of the produce = Sinh. *otu*; Port. *bulat-urullua* 'offering of betel leaves' = Sinh. *bulat-hurulla*; Port. *maralla* 'death duty' = Sinh. *marāle*; Port. *angabada* 'poll-tax' = Sinh. *ānga-badda*. Port. *valle-panam* 'taxes' = Sin. *vari-panam*. Port. *vascarua* 'Name of a place' = Sin. *vaskaḍuva*; Port. *passadun* 'Name of a Corale' = Sinh. *pasdun*; Port. *Putalao* = Sinh. *Putalama*; Port. *Mabague* 'Place Name' = Sinh. *Mābāge*; Port. *Quimdegora* (Place Name) = Sinh. *Kiñdigoda*; Port. *Gulymale* 'Place Name' = Sinh. *Gilīmālē*; Port. *Meracolane* = Sinh. *Nuwarakalāva*; Port. *Ina-uāca* = Sin. *Denavaka*.

Some of the phonological changes that the Portuguese words generally undergo in being adapted into Sinhalese are noted below:

(1) The Portuguese words that end in a consonant are made to end in a vowel by the addition of a new vowel, e.g. Port. *dedal* 'thimble' Sin. *didālaya*; Port. *cruz* 'cross' Sin. *kurusi(ya)*, *kuruse*; Port. *emperador*, *imperator* 'emperor' Sin. *emparadōru*.

(2) As most Sinhalese words are vowel-ending those Portuguese words that end in a vowel are borrowed with the final vowel, e.g. CPort. *birlo* 'bobbin' Sinh. *bīralu*; Port. *grade* 'crailing' Sinh. *garādi*; Port. *cravo* 'clove' Sinh. *karābu*; Port. *doce* 'sweets' Sinh. *dōsi*; Port. *Queijo* 'cheese' Sin. *kēju*; Port. *trigo* 'wheat' Sinh. *tiriṅgu*; Port. *vidro* 'glass' Sinh. *vīduru*; Port. *vinacre* 'vinegar' Sinh. *vinākiri*.

(3) Very often in adding the Nominative Singular endings—*-a* or *-ā* to Portuguese loan words ending in *-a*, *-e*, or *-o*, a *-y* or *-v*—is usually added for the sake of euphony, e.g., Port. *carreta* 'cart' Sinh. *karetta(ya)*; Port. *escola* 'school', Sinh. *iskōla(ya)*; Port. *alfinete* 'pin' Sinh. *alpenetti(ya)*; Port. *diamante* 'diamond' Sinh. *diya-manti(ya)*; Port. *sino* 'bell', Sinh. *sīnu(va)*; Port. *saco* 'sack, bag', Sinh. *sākku(va)*; Port. *espaço* 'space', Sinh. *ispāsu(va)*; Port. *soldado* 'soldier', Sinh. *soldādu(vā)*; Port. *sapateiro* 'shoe-maker', Sinh. *sapa-tēru(vā)*; Port. *pato* 'duck' Sinh. *pātta(yā)*.

(4) As the Sinhalese words do not often end in *-u*, certain Portuguese words that are spelt with a final *-o* are made to end in *-a* in Sinhalese, e.g. Port. *avano*, *abano* 'fan', Sinh. *avāna*; Port. *sarampo* 'measles' Sinh. *sarampa*; Port. *bautismo* 'baptism' Sinh. *bavtisma(ya)*.

(5) The nasalized *-ão* occurring at the end of Portuguese words is usually represented by the bilabial nasal *m* or the dorso-velar *ŋ* or *m*. e.g. CPort. *godão* 'store' Sinh. *gudama*; Port. *leilão* 'auction' Sinh. *lellama*; Port. *rolão* 'Pollard' Sinh. *rulam*; Port. *cidrão* 'citron', Sinh. *sidaram*; Port. *pregão* 'banns' Sinh. *peragam*.

(6) Sometimes a medial consonant, generally a surd, is doubled in being adapted into Sinhalese, e.g. Port. *alfinete* 'pin' Sinh. *alpenettiya*; Port. *arco* 'arch' Sinh. *ārukku(va)*; Port. *bico* 'beak, point', Sinh. *bīkku*; Port. *capado* 'castrated' Sinh. *kappādu*; Port. *chita* 'chintz' Sinh. *cītta*.

(7) Two contiguous vowels, (usually a diphthong) are represented in Sinhalese, by one vowel, generally long, e.g. Port. *beira* 'bank, shore', Sinh. *bēre*; Port. *inteiro* 'entire' Sinh. *intēru*; Port. *janeiro* 'January' Sinh. *janēru*; Port. *pedreiro* 'mason' Sinh. *pedarēru*; Port. *peneira* 'a sieve' Sinh. *penēra*; Port. *leilao* 'auction' Sinh. *lellama*; Port. *couve* 'cabbage' *gōvā*; Port. *biscoito* 'biscuits' Sinh. *biskōttu*; Port. *queijo* 'cheese' Sinh. *kēju*; Port. *quente* 'heat' Sinh. *kēnti* 'anger'; Port. *quarto* 'quarter' Sinh. *kārtu(va)*; Port. *quaresma* 'Lent' Sinh. *korosme*; Port. *pascoa* 'Easter' Sinh. *pāsku(va)*; Port. *meas* 'stockings' Sinh. *mēs*; Port. *taipe* 'wall' Sinh. *tāppa*.

Where two such vowels do not coalesce, or the diphthongs are not represented by one vowel, a glide sound is inserted between the two vowels, e.g. Port. *diamante* 'diamond' Sinh. *diyamanti*(ya).

(8) Dissimilar vowels in Portuguese are often assimilated in being adapted into Sinhalese e.g. Port. *alfinete* 'pin' Sinh. *alpenetti*; Port. *verruma* 'gimlet' Sinh. *burume*; Port. *quaresma* 'Lent' Sinh. *korosme*; Port. *lazarro* 'leper' Sinh. *lāduru*; Port. *minuto* 'minute' Sinh. *minittu*(va).

(9) The labio-dental spirant *f* is made into a bilabial stop *p* e.g. Port. *garfo* 'fork' Sinh. *gāruppu*, *gāruppu*; Port. *forno* 'oven' Sinh. *pōranu*(va); Port. *forma* 'form' Sinh. *pōrama*(ya); Port. *forca* 'gallows' Sinh. *pōraka*(ya); Port. *reformado* 'reformed' Sinh. *reparamādu*; Port. *cafre* 'caffer' Sinh. *kāpiri*; Port. *frasco* 'flask' Sinh. *parasku*(va).

(10) Clustres of consonants wherein at least one consonant is a semi-vowel are usually separated by a Svara-bhakti vowel being interposed between the two consonants e.g. Port. *grosso* 'coarse' Sinh. *gorōsu*; Port. *colchão* 'mattress' Sinh. *kuliccama*; Port. *lacre* 'sealing wax' Sinh. *lākiri*; Port. *padrão* 'pattern' Sinh. *paturama*; Port. *trunfo* 'trump-card' Sinh. *turumpu*(va).

Certain Portuguese words in being borrowed into Sinhalese, seem to have been influenced by Analogy. Thus Port. *dobrado* 'doubled' > *dobarādu* > *debarādu* on the analogy of words like *de-denā* meaning 'two persons'. Port. *pregão* 'proclamation, banns' > *peragam* > *peranam* 'announcement of names in advance'. Port. *medidor* 'measurer', surveyor' > *medidōru* > *minindōru*, probably under the influence of *minum* 'measuring, surveying'.

Occasionally the meaning of a Portuguese term seems to have been rendered first into Tamil and then that Tamil rendering seems to have gained currency in Sinhalese as well. Thus Port. *mosquetaria de pe*¹⁴ 'musket on supports' and *mosquetes de pe*¹⁵ 'foot musket' seem to have been translated into Tamil as *kāl-tuppākku*, and that seems to have been borrowed into Sinhalese as *kāla-tuvakku*¹⁶.

As a result of the enormous influence exerted by the Portuguese language and culture on Ceylon during the 16th, 17th and 18th centuries, numerous cultural borrowings have gained entry into our vocabulary relating to nearly every aspect of culture. Some examples are cited below:

14. *Conquista Temporal e Espiritual de Ceilao* by Fernao de Queroz, 1916, page, 366.

15. *Ibidem* p. 77.

16. Vide note 3 on page 99 of Fr. S. G. Perera's English translation of the above work.

Among objects or things met with in everyday life are the following:—Sinh. *accāru* 'pickle' (Port. *achar*); *almāri* 'cupboard' (Port. *armario*); *kabākuruttuva* 'ladies' blouse' (Port. *cabaia + curta*); *kamisaya* 'shirt' (Port. *camisa*); *kalisam* 'trousers' (Port. *calção*); *kēju* 'cheese' (Port. *Quejo*); *kōppa* 'cup' (Port. *copo*, CPort. *cofa*); *gāñcu* 'hook' holdfast' (Port. *gancho*); *gāruppu* 'forks' (Port. *garfo*); *gōvā* 'cabbage' (Port. *couve*); *tiriñgu* 'wheat' (Port. *trigo*); *tuvāya* 'towel' (Port. *toalha*), *dōsi* 'sweet-meat' (Port. *doce*); *parāskuva* 'bottle, flask' (Port. *frasco*); *palañgāna* 'a kind of plate, bowl' (Port. *palangana*); *pi piñña* 'cucumber' (Port. *pepino*); *pīkudu* 'liver' (Port. *figado*); *puyara* 'powder' (Port. *poera*); *bottama* 'button' (Port. *botão*); *bottam kāsaya* 'the button-hole' (Port. *casa de botão*); *banku* 'bench' (Port. *banco*); *maññokka* 'manioc' (Port. *mandioca*); *mēs* 'socks, stockings' (Port. *meias*); *lēnsu* 'handkerchief' (Port. *lenço*); *vinākiri* 'vinegar' (Port. *vinacre*); *viskōttu* 'biscuits' (Port. *biscouto*); *vīduru* 'glass' (Port. *vidro*); *saṭattuva* 'shoe' (Port. *sapato*); *sākkuva* 'pocket' (Port. *saco*); *sāya* 'skirt' (Port. *saiya*); *salāda* 'salad' (Port. *salada*).

Among terms referring to arts and crafts, building operations, parts of a house, implements used in various crafts, and other things having to do with the economic life are:

iñjinēru 'engineer' (Port. *engineiro*); *pedarēru* 'mason' (Port. *pedreiro*); *saṭatēru* 'shoe-maker' (Port. *saṭateiro*); *reparēru* 'repairer' (Port. *repareiro*); *pintāru-karanavā* 'to paint' (Port. *pintar*—to paint, *pintado*—painted); *ārukku* 'arch' (Port. *arco*); *kustūra* 'junction, joining' (Port. *costura*); *kānu* 'drain' (Port. *cano*); *tāppa* 'wall' (Port. *taipa*); *kulunu* 'pillar, column' (Port. *coluna*); *janēla* 'window' (Port. *janela*); *burumaya* 'borer, gimlet' (Port. *verrumba*); *didāle* 'thimble' (Port. *dedal*); *lellama* 'auction' (Port. *leilao*); *rēnda* 'revenue, rent' (Port. *renda*); *baṅgasāla* 'store-house' (Port. *bangaçal*); *kaldērama* 'cauldron' (Port. *caldeirão*); *tōmbu* 'land register' (Port. *tombo*).

The terms used in the observance of the Catholic religion are very largely Portuguese in character. e.g. *kurusiya* 'cross' (Port. *cruz*); *sakramēntuva* 'sacrament' (Port. *sacramento*); *bavtisma* 'baptism' (Port. *bautismo*), *baptism*; *nattal* 'christmas' (Port. *natal*); *kantāru karanavā* 'to sing, chant' (Port. *cantar*); *bensāru-karanavā* 'to bless' (Port. *benção*,—blessing, *abençoar*—to bless); *vāspāra* 'evening prayers' (Port. *vespera*); *bispo* 'bishop' (Port. *bispo*); *bentiñña* 'scapular' (Port. *bentinho*).

The personal names, particularly in the coastal areas, are predominantly Portuguese in character. Even the names of certain families are strongly suggestive of Portuguese influence. e.g. *viyayadōru* (cf. Port. *vigiador* 'one who watches or looks after'); *amadōru* (cf. Port. *amador*); *doluwīra* (cf. Port. *d'Oliveira*). Thus Portuguese makes a fascinating study to the linguist as well as to the student of Ceylon's history and culture.

Studies of Ceylon in Czechoslovakia

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Dr. Jindrich Uzel, a famous Czech naturalist and ardent admirer of the East, later on Professor of Zoology at the Technical College in Prague, was one of the first reputed Czechs who came to Ceylon. His first voyage to Ceylon (1901-1902) came about under unusual circumstances. At that time he was a young scholar of ability longing for a journey to tropical regions, but without the hope of being able to procure the necessary financial means. He sent an advertisement to a well-known foreign botanical journal with an announcement that he was seeking a suitable companion for a planned voyage to India. And he got a prompt reply. Dr. John Willis, the then Director of the Royal Botanic Gardens at Peradeniya, who was acquainted with the prolific scientific papers of the young naturalist, responded and rendered him all necessary help for his travel as well as during his stay in Ceylon.

Prof. Uzel came to Ceylon once more, in 1909-1910, when he was appointed Assistant Entomologist in the Gardens. In this capacity he had done much to combat disastrous pests of coffee and tea plants, a favourite subject of his studies. When he came back to Prague, he brought with him a vast collection of insects and other zoological specimens that roused vivid interest among Western scholars. These form, even now, a substantial part of the National Museum's collections.

During his second stay in Ceylon, Prof. Uzel met three other countrymen of his: Dr. Otakar Pertold and two Czech painters, Jaroslav Hnevkovsky and Otakar Nejedly, later on Professor at the Academy for Painters in Prague. Both artists were very busy in Ceylon and they brought back with them abundant artistic material; they also published two books of *Memoirs of Ceylon*.¹ Their paintings manifest their deep impressions of luxuriant tropical nature, monumental architectural remains and enchanting scenes of everyday life. Together with sketches of Prof. T. F. Simon, a well-known Czech engraver who spent a short time in Ceylon during his round-the-world voyage, they are a pride of leading Czechoslovak galleries.

Ceylon was depicted in a number of books, novels and essays of Czech travellers, writers and journalists who visited the island for various reasons.² To go to another cultural domain, Ceylon has been always closely bound with the study of Buddhism which has a long and

fruitful tradition in Czechoslovakia. The Prague University, one of the oldest universities in Europe, became an important centre of Buddhist studies under Prof. Moritz Winternitz. Here also worked Prof. Vincent Lesny, whose voluminous Czech work on Buddhism attracted lively interest as soon as it was published (1921) and, much enlarged later, in 1948.³

In spite of all these singular achievements, however, there has been only one Czech scholar who ranks among the leading European experts and ardent exponents of Ceylonese culture in the West. His name is Otakar Pertold.

Otakar Pertold was born on 21st March 1884 in Jaromer, a small community in north-east Bohemia. The boundless energy that marks all his activities was probably an inheritance from his father, a chemist and pharmacologist. The interest in natural sciences naturally was roused in his father's laboratory, and a fruitful blend of this interest with humanistic arts studied later, formed one of the main features of his scientific outlook. After studies of classical antiquity, philosophy, Oriental languages and sciences (especially Astronomy), Pertold took his Ph.D. at the Charles University in Prague in March 1908. He made several journeys abroad to extend the scope of his previous studies. Among his teachers were Wilhelm Geiger and Paul Deussen in Germany, Hendrik Kern in the Netherlands and Lionel D. Barnett in England.

In London he came for the first time in touch with Sinhalese. At once he set about studying the language and in a short time he was able to compile a handwritten catalogue of Sinhalese Manuscripts of Nevill's Collection kept in the British Museum.

In 1909 he came for the first time to India with the intention of studying the religious situation there as well as to improve his knowledge of both ancient and modern Indian languages.⁴ It was by no means a pleasure trip for him as he had to find all the travel expenses from his own moderate savings, occasionally augmented by extra sums from newspaper articles.

In his wanderings through India, especially the south, where his proper research work had begun, he chose the most direct way of approach to his task. He searched through the "*forgotten corners of India*"⁵ and often lived among the tribesmen off the beaten track in order to pursue his keen interest in primitive cults and beliefs amongst remote communities.⁶ In big cities, on the other hand, he turned to the rich sources of libraries and to renowned scholars.⁷

At the beginning of 1910, Dr. Pertold came to Ceylon. Here he found a fertile soil for his studies in Comparative Religion. Armed with a considerable knowledge of Sanskrit and Pāli as well as spoken Hindustānī and Tamil, he was soon able to master Sinhalese, both

classical and modern. Throughout these studies he was greatly helped by Abraham Mendis Gunasekara, Interpreter Mudaliyar to the Registrar-General of Ceylon, who became his close friend and authoritative instructor.⁸ Thus he was able to travel far and wide across the Island without the need of an interpreter. "I was much helped owing to the fact that I brought with me the knowledge of the Island's history and culture", writes Prof. Pertold in his book *The Pearl of the Indian Ocean*, "but, above all, I got as much assistance as possible because I understood the Ceylonese people. I knew one language and I mastered the other one quickly. The people, the names, the inscriptions on magnificent historical monuments as well as on shabby stands—all that spoke to me, nothing was dumb. What that means can be understood only by those who had travelled through a dumb countryside without the slightest inkling of what is going on around them, without even knowing what is the meaning of words directed to them". In view of his limited financial means he decided to buy a bullock-cart in which he was able to carry all his equipment with him; but very often he preferred to go on foot to be 'inside' the things he wanted to study. On his wanderings he succeeded in collecting valuable materials for further work which formed a solid basis for all his later books and papers on Sinhalese culture written in English, German and Czech.⁹ Dr. Pertold divided his time equally among various people of Ceylon. He made friends with Roḍiyas, lived among the Vāddās, was instructed in Buddhism by leading members of the Order. He remembers in warm terms the hours spent with the Ven. Vaskaḍuvē Subhūti. "I have happy memories of the time spent at the Vaskaḍuvē monastery. I lived there and ate the food received by the Bhikkhus from the villagers. I shall never forget the noble Elder, at that time already approaching the end of his worldly life, how he ardently expounded to me the depths of Buddhist Metaphysics from morning till night for many days, those mysteries recorded on countless palm-leaves kept in the Library that was rich both in ancient manuscripts and in modern European books on Buddhism". (*The Pearl of the Indian Ocean*, p. 158.) He affectionately recollects, among others, Ven. Kalyāna Tissa, Chief Incumbent of Paramānanda Vihāra in Colombo, one of his best personal friends and resourceful advisers who accompanied him also during his second shorter sojourn in 1921. At that time, Dr. Pertold was appointed the first Consul of the Czechoslovak Republic in Bombay and, using this opportunity, he again visited Ceylon, and also spent some time in Burma.

From 1919, Dr. Pertold was acting as a Lecturer, later on (1927), as Assistant Professor and finally (1934), as Professor of Comparative Science of Religions at the Philosophical Faculty of Charles University in Prague.¹⁰ It would take too much space to enumerate his other activities, and honours conferred on him by various scientific bodies and prominent institutions.¹¹ He was the first to start lectures in Sinhalese, Tamil and Hindī in Prague¹² but, as time went by, Prof.

Pertold inclined more and more to the intricate problems of Ceylonese folk-religions and ethnographical researches. Besides his purely scientific works, his books of travels deserve one's attention. In his *The Pearl of the Indian Ocean*, written in Czech¹³, Prof. Pertold had embodied in 941 pages¹⁴ practically all his reminiscences of Ceylon, adding expositions of Ceylon's history and religious life.

Thus, on 21st March 1964, when Prof. Otakar Pertold celebrated his 80th birthday in full mental and bodily liveliness, he could proudly look back upon his vast and significant activities which made him dear to a large number of his pupils, friends and admirers. In his person, Ceylon has won a great friend and staunch propagator in the best sense of the word. Under his inspiring guidance, Czechoslovakia has inaugurated an enlightened tradition of Ceylon studies with a free scope of successful continuation.

- (1) Otakar Nejedlý, *Malířovy dojmy a vzpomínky z Cejlonu a Indie* (A Painter's Impressions and Recollections from Ceylon and India), Praha 1916, 1928, second edition, newly published in a condensed form in 1960.
Jaroslav Hnevkovský, *Malířovy listy z Indie* (Letters of a Painter from India) in 2 Vols., Praha 1927, which are, however, concerned more with Ceylon than India.
- (2) Some of the most popular can be mentioned here: A. V. Novák, *Povídky z Cejlonu* (Tales from Ceylon), Praha 1930, and *Cejlonem a Indii* (Through Ceylon and India) by the same author.
Jaroslav Prikryl, *Putování po Cejlonu a v nejjiznější Indii* (Wanderings through Ceylon and Southernmost India), Praha 1934. Norbert Fryd, *S pimplaty do Kalkaty* (With Puppets to Calcutta, but also to Ceylon, Java and India), Praha 1960, 1962 (2nd edition).
- (3) Besides learned papers and popular treatises there are also Czech translations of Pāli works, not to mention a large amount of books written by Czech Buddhists up to the beginning of World War II.
- (4) He studied Pehlevi and the religion of the Pārsīs in Bombay, Mahāyāna Buddhism with Professor Denison Ross in Calcutta, and the religion of the Sikhs in Amritsar and Hardwār. He read difficult Sanskrit texts with Pandits in Bombay and Benares, and Tamil in South India.
- (5) He gave this title to one of his books, *Ze zapomenutých koutů Indie* (From the Forgotten Corners of India), 502 pp. Praha 1927. Another work with a more personal touch was published in 1919, *Jihoindické vzpomínky* (South Indian Reminiscences).

- (6) Besides the book *Cesty po Hindustánu* (Travelling through Hindustan), Praha 1916, many articles in Czech and foreign journals, such as: *The Problem of the Aboriginal Element in the Native Population of India*. Travaux de l'Institut international d'anthropologie. II^e session à Prague, 1925.
The Origin of the Idea of a Universal Saviour, Dr. Modi Memorial Volume, pp. 465-474. Bombay, 1930.
The Liturgical Use of Mahuda Liquor by Bhīls (with two plates). Archiv Orientální III, No. 2, pp. 400-407. Prague 1931,
 Methods of Recording the Religions of the Primitives, and the Religious Folklore. Congrès international des sciences anthropologiques et ethnologiques. Compte rendu de la première session. London, 1934, p. 293. The Religious Aspect of the Difference between Natural and Violent Death, l.c. p. 300.
 Local Conservation of Religions as Means of Interpreting Prehistoric Finds. Congrès international des sciences anthropologiques et ethnologiques. Compte rendu de la deuxième session. Copenhagen, 1939.
- (7) The main bulk of his Indian studies deals with Jainism; let us name at least some of his most important contributions to this subject: The Place and Importance of Jainism in the Comparative Science of Religions. Yashovijaya-Jain-Granth-Mala, Bhāwnagar, 1922. The Idea of God in Jainism. The Jaina Gazette, Vol. XIX, No. 4, pp. 97-109; No. 5, pp. 134-143; No. 6, pp. 156-161. Madras, 1923. Dzinisticka kosmologie (The Jaina Cosmology. The World and the Order in it from the Jaina Aspect. With English Summary). Acta Universitatis Carolinae, Philosophica, Vol. 3, No. 2, p. 33-90, Prague, 1958.
- (8) From among his other Sinhalese teachers let us mention Pandit Batuvantudave, an exceptionally talented linguist, whose father had played a prominent role in the Sinhalese renaissance.
- (9) The English papers include:
 Garā and Girī, the Obsolete Gods of the Sinhalese; being an attempt to trace the primitive Ceylonese religion in the present folk-religion of the Sinhalese and in the religion of the Veddas. Actes du IV^e Congrès international d'histoire des religions. pp. 86-88 (only an abstract from a Czech work, see below). Leiden, 1913. The Pilli Charm. A study in Sinhalese Magic. Journal of the Anthropological Society of Bombay, Vol. XII, No. 5, pp. 594-609, (1922).
 A Protective Ritual of the Southern Buddhists. l.c. No. 6, pp. 744-789.
 Foreign Demons. A study in the Sinhalese Demon-Worship. Archiv Orientální I No. 1, pp. 50-64 (1929).

- A Short Sinhalese Ritual of Seven Steps. *ibid* I, No. 2, pp. 191-198.
- The Conception of the Soul in the Sinhalese Demon Worship. *ibid*. I, No. 3, pp. 316-322.
- A singular Sinhalese Mask in the collection of "Náprstkovo museum" in Prague, *ibid*, No. 3, pp. 350-353.
- The Ceremonial Dances of the Sinhalese. An inquiry into the Sinhalese folk-religion. *ibid*. II, Np. 1, pp. 108-137; No. 2, pp. 201-254; No. 3, pp. 385-426, with 45 plates (1930).
- The Legend of the Princess Ratnāvalī, as a Problem of the Popular Sinhalese Religion. *ibid*. VI No. 1, pp. 5-14 (1931).
- Sinhalese Amulets in Leiden and London MSS. *Atti del XIX Congresso Internazionale degli Orientalisti*, pp. 424-427 (Roma 1938).
- Demon and Hero. *Archiv Orientální* XVII No. 2, pp. 239-250 (1949).
- Can we trace any Remains of the Indian trading Caste among the Sinhalese of Ceylon? *Archiv Orientální* VII No. 3, pp. 418-422 (1935).
- Papers in German:
- Der singhalesische Pilli-Zauber, *Archiv für Religionswissenschaft* Bd. XVI pp. 52-56 (1913).
- Die Ceylonische Göttin Pattinī. *Archiv Orientální* XIII pp. 201-224 (1942).
- Papers in Czech:
- Společenské roztržení Sinhalců (Social Stratification of the Sinhalese). *Vestník České Akademie* XX pp. 1-24 (1911).
- Ceylonská božstva Gará a Girī (Ceylonese God Garā and Girī). *ibid*, XXI, pp. 1-63 (1912).
- Parittam; pirit. *ibid*. XXIII (1914).
- Prispevky ke studiu lidových náboženství cejlonských. Část I. Sinhalské amulety, talismany a rikadla (Inquiries into the Popular Religions of Ceylon. Part I: Sinhalese amulets, talismans and spells). *Sbírka pojednání a rozprav filosofické fakulty Karlovy university*, Vol. VI, 80 pp. (Praha 1925).
- Problem sinhalstiny (The Problem of the Sinhalese Language). *MNHMA* pp. 249-263 (Praha 1926).
- Dábelský tanec na Cejlone (Devil Dancing in Ceylon). *Nový Orient* IV, pp. 4-5, (1949).
- Některé zvyky a obrady při pěstování ryže na Cejlone (Customs and Rites accompanying the Cultivation of Rice in Ceylon).

Zprávy Anthropologické společnosti, Vol. IV, pp. 4-7 (Praha 1951). Na ceylonských plantážích (On Ceylonese Estates). Nový Orient VII, pp. 2-3 (1952).

Umělecko-remeslné zpracování kovu na Cejlone (Artistic Metal Craftmanship in Ceylon). Československá ethnografie I pp. 59-69 (1953).

Zbytky starého zemědělského obhospodarování pudy na Cejlone (Survivals of some ancient Ceylonese methods of agriculture), *ibid.* I, No. 2-3, pp. 174-182.

Rodijové. Príspevek k ethnografii Cejlonu (Rodiyas, A contribution towards the ethnography of Ceylon). Národopisný vestník československý, XXXIII, pp. 1-35 (Praha 1953).

- (10) He retired from the post in 1954.
- (11) In May 1964, Prof. Pertold was awarded a High State Medal by the President of the Republic for his distinguished scientific achievements.
- (12) Apart from translations into Czech from Pāli, Tamil, Bengali and Burmese, Prof. Pertold has also published a voluminous Czech Manual of Hindustani (Prague 1930, 1939 2nd edition) which was used as a text-book also abroad. Another work of this kind appeared under the title "Hindustani rozmarrah" in the journal Nový Orient (1947-49). It contains a concise outline of grammar accompanied by numerous lessons in everyday conversation and exercises.
- The lectures in Sinhalese were started by Prof. Pertold at the Prague University in 1952.
- (13) Perla Indického Oceánu (Praha, 1926, 1933 2nd edition, 1936 3rd edition), recently published in an abridged form for the youth: Vzpomínky z Cejlonu (Reminiscences from Ceylon), Praha, 1960, 119 pp.
- (14) With more than 400 admirably good photographs and numerous drawings produced by the author himself.

OBITUARY

D. P. E. HETTIARATCHI

By the death, in December 1964, of Muhandiram D. P. E. Hettiaratchi, the Ceylon Branch of the Royal Asiatic Society has lost a veteran member of 44 years with Life Membership since 1935. He was a man of wide interests in history, antiquities, numismatics, bibliography etc., on which he contributed numerous articles. He was an assiduous collector of books on Ceylon and coins, his library not being second to any other private library in the island. It contained rare books and pamphlets on Ceylon, some ola manuscripts and even newspaper cuttings and book covers. Where a copy of a printed or unpublished book was not available to him, he made a full copy in manuscript, often presenting such copies to valued friends who shared his academic interests.

At the age of 20 years Muhandiram Hettiaratchi had joined the Public Service and when he retired in 1948 after a full term, it was from the office of Additional Assistant Registrar-General. After his retirement he found greater leisure to devote himself to academic activities right to the end of his life.

Muhandiram Hettiaratchi had a collection of all literary works of the late James D'Alwis whom he greatly admired as a true scholar that Ceylon produced. He had a manuscript copy of this scholar's unpublished "History of Ceylon", the existence of which is unknown to many today. It is worthy to be considered for publication by the Ceylon Historical Manuscripts Commission or other institution.

During the last couple of years of his life, Muhandiram Hettiaratchi turned bibliographer. He bound his many pamphlets into volumes of convenient size.

Muhandiram Hettiaratchi's contributions to the JRAS (CB), "The Ceylon Antiquary and Literary Register", "The Baptist Messenger" and other publications are briefly listed below:

(1) The Approaching Centenary of a "Jungle" Church. Hanwella.—*The Baptist Messenger*, XXII (2nd February 1918).

(2) An "Uncommemorated" Ceylon Worthy: The Rev. James-Charter, the first Baptist Missionary.—*The Baptist Messenger*, XXII, 5 & 6 (May and June 1918).

(3) The Church at Kotikawatta (a Retrospect), Part I: The Rev. Ebenezer Daniel, the apostle of Lanka.—*The Baptist Messenger*, XXIII, 5 and 6, May and June 1919, Part II; The Rev. Soman Isaac Whytonadan, 1818-1869.—*The Baptist Messenger*, XXIII (8 August 9th November and 12 December 1919); XXIV, 2 (February 1920).

- (4) The Barnes Buddha.—*The Ceylon Antiquary*, V, I (July 1919).
- (5) Mr. Alexander Oswald Brodie.—*The Ceylon Antiquary*, VI (January 1921).
- (6) Books on Ceylon.—*The Ceylon Antiquary*, VII (July 1921).
- (7) Chief Justice Sir A. H. Giffard of Ceylon and the "Habeas Corpus Act".—*The Ceylon Antiquary*, VIII (January 1923).
- (8) First Mail Coach in Asia.—The Colombo-Kandy "Royal Mail".—*The Ceylon Antiquary*, VIII, 4 (April 1923).
- (9) More about Major Davie.—*The Ceylon Antiquary*, VIII, 2, (October 1922).
- (10) Governor North and the First English School in Ceylon.—*The Ceylon Antiquary*, IX (January 1924).
- (11) The Chief Executioner of Major Davie's Detachment.—*J.R.A.S., C.B.*, XXIX, No. 76 (1923).
- (12) Note on Greeving's Diary.—*J.R.A.S., C.B.*, XXIX, 77 (1924).
- (13) Johnston's Expedition to Kandy in 1804.—*J.R.A.S., C.B.*, XXX, 78 (1925).
- (14) Some Literary Undertakings of the late Simon Casie Chetty.—*J.R.A.S., C.B.*, XXX, 80 (1927).
- (15) Numismata Zeylanica. On a Newly discovered type of "Laksmi" Plaques, Part I.—*J.R.A.S., C.B.*, Centenary Volume (1845-1945), New Series Vol. I (1950).
- (16) Numismata Zeylanica Addendum to Part I of the article "On a Newly discovered type of "Laksmi" plaques"—*J.R.A.S., C.B.*, N.S., I, (1950)—*J.R.A.S.*, New Series Vol. II (1952).
- (17) A Note on an Unpublished Pallava coin.—*J.R.A.S., C.B.*, New Series, IV (1955).
- (18) A Note on two uninscribed coins of the Buddhist Cakram Type.—*Sir Paul Pieris Felicitation Volume* (1956).
- (19) The Symbols on the "Buddhist" Svastika Coins of Ceylon (posthumous article)—*Paranavitana Felicitation Volume* (1965).

P. D. R.

Book Reviews

A Comparative Dictionary of the Indo-Aryan Languages

Fascicles II-VII (inclusive)

R. L. TURNER

(London, Oxford University Press, 1965)

The Royal Asiatic Society (Ceylon Branch) is grateful to the publishers of this comparative dictionary for making available the fascicles as these are issued. Up to date 7 such Volumes have been received. Fascicle I has already been reviewed in the Journal of the Royal Asiatic Society—Volume VIII, Part II (1963). The present review relates to Volumes II to VII. The total number of head words contained in these Fascicles is 9762 ending with the word Matsyahāra. The work is continuing. Another 4 or 5 fascicles may be expected in the course of 1966.

The work no doubt is a colossal undertaking by one of the most erudite living scholars on the Indo-Aryan Languages. He has presented to the world of scholarship the knowledge so systematically and scientifically accumulated during a lifetime by laborious study and research. These Volumes maintain a precision in detail and a high standard difficult to emulate.

The particular interest the Dictionary provides for the students of Sinhala linguistics lies in the comparative data relating to other Indo-Aryan Languages. As a source of ready reference it is a mine of linguistic knowledge. What is more important, it will provide further avenues of research into the history and etymology of words of the Sinhala language. Thus the evidence for giving new interpretations and amending those already given can be found here.

Some of the material contained herein throws fresh light regarding the history and influence on linguistic development. This is new knowledge. It gives in a consolidated form the related words in prakrit as well as the other modern Indian languages. The influence from other indigenous languages can also be understood. It contains a Sinhala equivalent related to such terms. It has an added interest in that under each of the head words appear the ancient derivatives wherever possible together with its modern form. This fact is of particular value to the students of Sinhala linguistics. To a specialist it is of immense benefit. And if a Sinhalese scholar can devote the time and the labour it would be fully worth his trouble if he were to select out of the entries printed in these fascicles the material that pertains

to the Sinhala language. The suggestion is to begin the preparation of a Dictionary with the modern Sinhala word as the head word. The old Sinhala word and the relative prakrit word together with the oldest Indo-Aryan form itself can be listed. This would in fact be a presentation of the material contained in these Volumes in reverse sequence.

Mention may be made of the following head words as examples:— Nos. 4458, 5760, 5776, 5822, 5853, 5903, 5906, 5983, 6001, 6789, 8292, 9577, 9171, 9471 and 9717.

The original intention of the Editor was to complete the Dictionary in about 8 or 9 Fascicles. At the rate of progress made so far the end appears to be in sight and the scholars are no doubt awaiting the results with special interest. It is very likely that the work will run beyond the expected number of Volumes. The remaining fascicles will be reviewed in this Journal from time to time as and when these are received.

NANDADEVA WIJESKERA.

A Comparative Dictionary of the Indo-Aryan Languages

O. U. P., London

Fascicle VIII, 1965 and IX, 1966

R. L. TURNER

Readers of the R.A.S. Journal would have already seen the reviews of the Fascicles I to VII. Vol. VIII begins with the word 'matha' and ends with the word 'liksagrahana' and Vol. IX commences with the word 'likha' and ends with the word 'siti'. This specialized Dictionary is now nearing completion and it is a pleasure to see the same erudite scholarship persisting throughout the work. The richness of the material and the scientific presentation of data make this Dictionary a storehouse of linguistic information. No Institution of higher learning nor any library can afford to be without a complete set of these Fascicles. The full value of this work will be appreciated when the Fascicles are bound into one Volume. A feature that needs to be emphasised once more is the usefulness of this Dictionary to research students in Sinhala linguistics. Old Sinhala and modern Sinhala words are listed to show how these are derived from ancient Indo-Aryan

roots. In this process of evolution intermediate stages can be detected as the related prakrit forms as well as the forms borrowed from other sources are recorded under each head word. Reference to publications are also made. All this has been so systematically carried out with a care and precision that does real credit to the author's maturity of scholarship.

The head words so far listed in all the nine Volumes number 12,439 packed into 720 pages. The long awaited publication may be completed during this year. This itself is an achievement when it is realised that the work is the effort of one scholar. It is a life time labour which shall remain like his other compilation a monument more lasting than even the previous Dictionary because its appeal is direct to all linguistic groups of the Indo-Aryan family.

NANDADEVA WIJESEKERA.



Vishveshvaranand Indological Journal

Vol. I No. 1—March 1963

Vishveshvaranand is an old Institute dealing with vedic research. The Journal is making its appearance once again and is hoping to present the results of researches in the entire domain of Indian culture, viz., language, literature, religion, philosophy, history, archaeology, technical science, fine arts, etc. It will also include sections on critical editions from original manuscripts, translations of abstruse texts, etc.

This Volume contains several papers of special interest running to nearly 200 pages altogether. The traditional view is stated in most instances and the subjects are further examined in the light of further fresh knowledge shed on the various themes. This is really the highest service rendered by this Journal, since by this means knowledge is kept fresh. It is not easy to single out anyone as of special interest. The scholar is therefore invited to read them and judge for himself.

The Journal contains 14 main articles, book reviews, news and notes and a critical study of a text.

NANDADEVA WIJESEKERA.

**The Art and Architecture of the Gampola Period
(1341-1415 A.D.)**

NANDASENA MUDIYANSE

(Published by M. D. Gunasena & Co., Ltd. Price Rs. 12/-)

The text is contained in 110 pages. 90 pages deal with Inscriptions. 20 Plates present 48 figures. Although the Gampola period is so close to modern period uncertainty exists about the literary works and buildings attributed to these times. Moreover, very little appears to be known about the temples and works of art.

In the first instance this book attempts to fill this gap in our knowledge through a study of the material and literary remains attributed to the Gampola period of Ceylon History. The author argues from literary and architectural information to define the landmarks and progressive attainments. In this process Indian examples are cited for evaluation and dating purposes. The Dravidian influences, both direct and indirect in the form and spirit of religious beliefs are compared. The devale and the deities presiding over each devale are mentioned and their juxtaposition with the temples for the worship of the Buddha is indicated.

The careful analysis of the artistic and plastic values of the images has enabled the author to fix the sculpture and painting to an evolutionary stage of the indigenous tradition. The architectural orders though influenced by outside influences have managed to preserve much of the local values. A map showing the archaeological sites would have helped the reader and also added to the value of the work.

NANDADEVA WIJESKERA.

A Critical Pali Dictionary

Vol. II, Fascicles 1 & 2, published by

The Royal Danish Academy of Sciences and Letters

Lexicography as a science was not unknown to the ancient Indian literature. "Nighanṭu-Sātra", as lexicography was called by Indians, went to make one of the six divisions of Vedic knowledge. Dictionaries were known as "Kośa—Grantha" too in later works. Pāli lexicography which was undoubtedly a prototype of the Indian art of dictionary

science, was known in Ceylon even from the very beginning of Buddhist literature in this land. The two Niddesa books which serve as commentaries to "Suttanipāṭa" bear the characteristic features of lexicons of older type.

An advanced stage of Pāli lexicography can easily be traced to the Vevacanāhāra chapter of Nettippakaraṇa and Peṭakopadesa. Abhidhamma books also contain the dictionary method of dealing with words. Commentaries of Buddhaghosa and Dhammapāla are good specimens of the early stage of Pāli lexicography. The earliest and the most authoritative Pāli Dictionary is the "Pāli Nighandu" or "Abhidhānappadīpikā" which stands to the credit of erudite Pāli scholars of the Polonnaruva period of Ceylon. The reputed author of this work, Ācariya Moggallāyana Thera, has followed the method of Amarasiṃha's Sanskrit Dictionary, later known as Amarakośa, in fulfilling the long-felt need of a lexicon for Pāli students. Both these books are written in verse-form for memorising was the only educational system of that time.

The next stage of the evolution of Pāli lexicography in Ceylon is marked by two more systematic works namely Ekakkhara-kosa and Abhidhānappadīpikā-Sūci in both of which words are arranged in the alphabetical order. A new era dawned in this particular connection when Theravāda Buddhism migrated to the West through the strenuous efforts of erudite Western scholars, who came especially from England and Germany. Not only the Tripiṭaka but also extra-canonical works were translated into English and German.

Such was the enthusiasm aroused by this new scholarship that Pāli, the canonical language of the Theravāda, was given a prominent place in the universities of those countries and the urgent need arose in regard with promoting the Pāli studies. The need for a Pāli dictionary was felt and Robert Caesar Childers, a consummate orientalist as he was, edited and published the first Pāli Dictionary in 1872.

Professor T. W. Rhys Davids, who came to Ceylon as a civil servant, in his curiosity to learn this "strange" language took up to its study so sincerely that when he returned to his motherland he was one of the best, if not the best, Pāli scholar in England. He not only founded the Pāli Text Society but also undertook the translation of original Buddhist Texts into English. His "magnum opus" was the "Pāli Text Society's Pāli-English Dictionary" which won the appreciation of all oriental scholars throughout the world.

A new era of Pāli lexicography has dawned by the compilation of the remarkable work under the title "A Critical Pāli Dictionary". It is undoubtedly the highest attempt in this particular field. Pāli

lexicography will be at its highest by the completion of this gigantic work. This work was originally started by V. Trenckner, an Indologist of a very rare type. Qualified to handle such a great work, this consummate orientalist has spared no pains to establish his task on a sound and scientific footing. The plan and the method of dealing is so elaborate that the explanation given to a word covers not only the whole history and the philological explanation thereof but also the references and compounds where that particular word appears as the first member. The derivation of each word is given clearly. Unfortunately the original editor has passed away and the heavy responsibility of proceeding with the task so earnestly begun by their predecessor, had fallen on equally qualified scholars of the calibre of Dines Andersen and Helmer Smith.

The value of the book is enhanced by the incorporation of the material collected by the late German orientalist who is universally accepted as the father of comparative philology. The publishers of this work might have been discouraged by the death of these supporters and the work might have come to a crucial point but for the timely action taken by a Board of International Pāli scholars who have come to their rescue. Under their able editorship the Royal Danish Academy of Sciences and Letters have been able to publish the book upto the fascicle 2, Vol. II. The fascicle I of this volume runs from "ā" to "ādikappika" and the 2nd fascicle from "ādikappika" to "āpattikusala". The energy exhausted and time spent on this work are fully justified as the parts so far published want nothing for their completeness.

In the words of a great lexicographer—Anybody familiar with this sort of work will know what care and patience, what scholarly knowledge and judgement are involved in the collection of such material, in the sorting, the sifting and final arrangement of it, in the adding of cross references, in the consideration of etymological puzzles, in the comparison and correction of various or faulty readings and in the verification of references given by others or found in indexes. The editors have fulfilled this to the highest satisfaction of all.

For all this the users of this work will have to be grateful to all those who contributed their mite to make this task a success.

MIRISSE GUNASIRI (THERO).

Studies in Ceylon Church HistoryW. L. A. DON PETER, *M.A., Ph.D. (Lond.)*(Catholic Press, Colombo, Ceylon, 1963; $5\frac{1}{2} \times 8\frac{3}{4}$ inches;
170 pages; index; 9 plates)

This book contains a series of studies pertaining to early Church history, with main emphasis on the Catholic Church in Ceylon. The author, The Rev. Dr. Don Peter, has divided his work into fourteen parts. The Volume, as the Preface states, is virtually a reprint of independent essays which appeared in various journals, with some parts published for the first time. Repetition and overlapping are therefore inevitable. The reader will however, find no cause to cavil or criticize on this score.

If, in this modern and advanced age of thinking, dispositions in the matter of religion and creed are apt to kindle emotion, how much more difficult it must be to focus and bring into correct perspection what was done in the name of religions in past ages, and in the heat and burden of building Empires long centuries dead. Looking down the stream of Time—whether in its attachment to Catholicism or Protestantism, one might say as Swift does somewhere: “We have enough Christianity to hate each other, but not enough to love each other”. And, so too, with other religious path man has sought for himself.

Given the complications the subject presents, this book if read dispassionately, will be welcomed by many a reader. The author has made an objective study of the subject, and it is extremely interesting to go back with him as cicerone learning of the labours of so many ascetically inspired men, seeing many landmarks in the elements of topographical history connections with the Church, and picking up threads of social history woven in between them all. Assiduous attention to annotations in this book, reflects painstaking research by the author, and renders the publication valuable to the student.

This book is recommended as an impressive piece of scholarship. The slight savour or propaganda here and there by high-lighting persecution, and trial and hardship, is the only criticism on it.

R.L.B.

The Tribal World of Verrier Elwin

An Autobiography—Oxford University Press—1964, pp. 356
with index, 20 illustrated pages. Rs. 20/-

This Volume presents the life, struggle and work of a man who came to India as a missionary and lived as a great scholar, author and above all champion of 25 million tribal people. Verrier Elwin, the author, portrays himself against the canvas of tribal humanity in their underdeveloped natural environment revealing much that is unknown about himself, the tribal people and Indian life. The record may be divided into three phases, pre-Independent India, Independent India and post-Independent India.

He was a brilliant student in his early days although poverty oppressed him all the time. The gift of inborn intellect won for him a double first at Oxford and then a coveted scholarship. It was his reading that made this possible. Although he was the son of a bishop very soon he rebelled against his church and his own Government. Later, he became an Indian citizen. It is during the 1st phase that he was under close watch by the British Raj and subjected to considerable humiliation and emarrassment by the Government and other officials and Forest Officers.

He dedicated himself to the task of changing the course of tribal life, their status and future well-being. His approach was through self-sacrifice and suffering with the people for the people. At the same time his love of poetry, philosophy and religion paved the way for a detailed study of tribal life—their customs and feelings, social systems and organisation, sexual adjustments, traditional values, actions and reactions to the new pattern of civilization. During this phase he came to know every person of some importance, politicians, statesmen, authors and travellers. He admired Gandhi and lived as an inmate of his Ashram. Tagore's poetry appealed to him most. Nehru's philosophy and attitude to tribal life helped him to evolve a policy for their future welfare.

When India became free he came into prominence as the champion of the 25 million men and women of India about whom there was none more qualified to speak. His point of view came to be understood and appreciated. The reader can feel this process of evolution

as he reads through the details preserved in this book. Verrier Elwin became a real anthropologist but with a difference. He was a philanthropologist. He had travelled the length and breadth of India, covered its forests, sailed its rivers, climbed its mountains, adapted its life and philosophy.

He has recorded all these with a sincerity and feeling that is genuine and true. "I lived for many years in the forest in a rather odd way not because it was 'Indian' but because I liked it. If I eat Indian food today, I am not making a gesture but I have it simply because I enjoy rice and curry and Indian sweets". He travelled also in Africa to study its primitives and in Ceylon he expressed himself strongly about the appalling conditions of the Veddas.

He married a tribal girl from India and found the elusive happiness through love and the tribal way of life. He loved children. "Children have always been among the chief loves of my life". He had a strong liking for Buddhism and the doctrine of love appealed to him. This is what he writes about Lila his Indian wife. "She is the moon and I the man in the moon". "There is no greater fulfilment than the love of wife and children who love you in return".

He concludes the wonderful narrative "In this life we must do what we can; we may not reach to the heavens, but there is plenty to do on earth".

NANDADEVA WIJESKERA.

Vishveshvaranand Indological Journal, Vol. 1, No. 2 and Vol. 2 Part 1.—Published by Vishveshvaranand Research Institute, Hoshiapur, Punjab, INDIA, 1963 and 1964.

Vol. 1, No. 2 of this journal devoted to Indological research has come out in print as the Autumn Equinox Number. A highly recognised research magazine as it is, it should be sincerely expressed that this second number too preserves its stamp of genius, in letter and spirit both. Scholars specialised in various provinces of research have contributed very interesting articles. These papers are the reports of the marvellous results attained by the writers by their respective studies.

This part starts with "Vedic Textuo—Linguistic Studies" by Dr. Vishva Bandu, one of the leading research scholars of India. This is an exegetical treatment of RgVeda continued from Vol. 1, No. 1 of this journal. The writer delves deep into the subject and leaves no

stone unturned to collect material for this particular study. Numerous foot-notes add lucidity to the points raised for discussion. Dealing with RgVeda 1, 70, 3 in this instalment the author shows his marvellous skill to comment on the oldest literature in the world.

Dr. Miles Dillon's article "Celt and Hindu" runs to twenty one pages of research and sincere study of the linguistic relationship between Irish and Sanscrit. Perhaps this is the best attempt so far made in this field of research. The writer succeeds in this attempt to prove that there are in India and Ireland many coincidences the scholar as well as the historian could hardly ignore. His conclusion is that there are many common elements between the Celtic group of languages and Sanscrit.

Dr. M. D. Pandit from Baroda University deals with word-structures under Panini's Sutrās or grammatical rules and technique and their representation in terms of N-S symbols. In fact, Panini, the greatest dictator of language ever born, was of opinion that all words came from the dhātus and went to the extent of forming even particles of one letter out of a root. The writer of this learned article proves quite skilfully that the entire analysis of the word-formation goes to suggest that Panini's genuine attempt was to show that a form or word must be constituted of a nucleus and a satellite, that is to say a prakṛti and a pratyaya.

Messrs. Kapil Dev Shastri, Satya Vrat, V. G. Rahukar, V. S. Agrawala, G. M. Panse, Ram Gopal, Kathi Kumar Datta Shastri and B. Ch. Chhabra are among other contributors to this issue of this journal and all of them have presented to the student and the scholar much food for thought in their respective fields of study.

Vol. 2, Pt. 1 of the same journal preserves the standard as the previous numbers. It carries numerous articles of linguistic value. Dr. Vishva Bandhu's article on "Vedic Textuo-Linguistic Studies" is continued in this number. The first instalment which has undoubtedly earned high recognition appeared in a previous number. Both these articles together with its remainder would be very useful if published together in book-form for the benefit of the students of Indology. Altogether twenty papers are published in this issue each of them coming from the most famous scholars in the field. Each article adds something new to set the reader thinking.

Dr. J. Gonda in his paper "Gifts and Giving in the RgVeda" makes a close scrutiny of the verbal root and verbal formations of that Indo-Aryan root Veda—to give invariably found in almost all the classical Aryan languages. One may suggest that this article might

have been more comprehensive had the author taken the trouble to go a bit further to compare and contrast the words found in Buddhist Pali Texts and their commentaries.

These two issues of the Vishveshvaranand Indological Journal published by the Vedic Research Institute, are certainly a great help to the scholar and student of Indology in the East and the West as well. They are the living records of results attained by great scholars who have burnt mid-night oil to render this selfless service to the linguistic and spiritual side of learning. The students of Indology wait impatiently to see this work continued steadily for the revival of India's past glory.

MIRISSE GUNASIRI (THERO).

Annual Report for 1964

Meetings and Papers:—The last Annual General Meeting was held on 23rd October 1964, and three Council Meetings were held in 1964.

At the conclusion of the Annual General Meeting the President read a paper entitled "Letters and Reports on Ceylon Affairs 1795-1800" in the Madras (Egmore) Record Office.

Lectures:—Seven lectures were delivered under the auspices of the Society during the year under review—The *First Lecture* was by Dr. Heinz Modé, Ph.D., Professor of Oriental Archaeology, University of Halle, German Democratic Republic, on "Folk Culture of Ceylon and its connection with India" on Thursday 30th January 1964. The *Second Lecture* was by Dr. Ivo Fiser, Professor of Indology, University of Prague, on "Studies of Ceylon in Czechoslovakia" on Thursday 12th March 1964. The *Third Lecture* was by Professor S. A. Imam of the Department of Arabic, University of Ceylon, on "Sarandib as Viewed by Early Arabs" on Friday 15th May 1964. The *Fourth Lecture* was by Hon'ble Dr. Justice H. W. Tambiah, Q.C., on "The State and Government During the Polonnaruwa Period" on Friday 17th July 1964. The *Fifth Lecture* was by Professor Aghenanda Bharati on "Buddhism in the United States: Academical Lay Approaches" on Monday 10th August 1964. The *Sixth Lecture* was by Dr. W. Balendra on "The Authenticity of Early Christianity in Ceylon" on Friday 18th September 1964. The *Seventh Lecture* was by Mr. D. T. Devendra on "Moonstone Motifs" on Friday 18th December 1964.

Membership:—The Society now has on its roll 548 members, of whom 6 are Honorary Members, 126 Life Members (Resident and Non-Resident) 370 Ordinary Resident Members and 12 Ordinary Non-Resident Members.

The above include 34 new members admitted during the year under review.

Council:—Vacancies on the Council were filled by Mr. S. J. Kadirgamar and Mr. D. T. Devendra in place of Messrs. M. St. S. Casie Chetty and Wilmot A. Perera.

Mr. P. R. Sittampalam and Mr. K. M. W. Kuruppu were re-elected as Jt. Hony. Secretaries and Al-Hajj A.H.M. Ismail was re-elected as Hony. Treasurer.

Govt. Grant:—A sum of Rs. 6,000/- was received from the Government by way of Grant for the financial year 1964/65.

Library:—During the year under review, 26 books were added to the Library by purchase, and 18 miscellaneous journals and periodicals were received as donations from local and foreign Institutions and individuals.

308 journals and periodicals were received in exchange for the Society's Journal. A list of all such purchases and donations is published annually in the Society's Journal.

Publications:—Journal Vol. 9 Part 1 (New Series) is being printed and will be released to the members very shortly.

C. A. Lorenz Manuscripts:—The Asia Foundation very generously donated Rs. 2500/- for the purchase of the C. A. Lorenz collection of manuscripts from Mr. Guy O. Grenier.

Sri Lanka Sahitya Mandalaya:—At a Special Meeting of the Council held on 4. 6. 65, the Council unanimously nominated the Ven. Mirisse Gunasiri Thero as the representative of the Society in the Sri Lanka Sahitya Mandalaya for the period 3rd May 1965 to 2nd May 1968.

Library Books:—It has been found that members who borrow books from the Society's Library do not all return the books within the time specified in rules 44 and 45, and this has caused inconvenience to other members. It is therefore kindly requested that members should note to return the books within the time allowed.

1. P. R. SITTAMPALAM,
 2. K. M. W. KURUPPU,
- Jt. Hony. Secretaries.*

Colombo, 10th November 1965.

Honorary Treasurer's Report for 1964

The Statements of Accounts for the year ended 31st December 1964 have been duly audited, printed and circulated among the members.

The Balance Sheet for 1964 discloses an Excess of Expenditure over Income Rs. 1151.21. •

The Bank Balances were:

1. State Bank of India	.. ..	Rs. 12,197.90
2. Ceylon Savings Bank	.. ..	Rs. 3,162.89
3. Chalmer's Oriental Text Fund	.. ..	Rs. 2,722.52
4. Chinese Records Translation Fund	.. ..	Rs. 4,436.80
5. Society Medal Fund	.. ..	Rs. 2,440.09

Receipts last year by way of Annual Subscription amounted Rs. 2,249.50.

Arrears of Subscription recovered amounted to	.. ..	Rs. 549.50
Entrance fees	.. ..	Rs. 187.50
Fees paid in Advance	.. ..	Rs. 349.00
Life Membership fees	.. ..	Rs. 508.00
Sale of Journals	.. ..	Rs. 1,806.40
Donations—Asia Foundation	.. ..	Rs. 2,500.00

A sum of Rs. 867.18 was expended on purchase and binding of books.

Out of the sum of Rs. 2,500/- received from the Asia Foundation as a donation, Rs. 2,000/- was spent for the purchase of the C. A. Lorenz collection of Manuscripts and the balance Rs. 500/- has been reserved for the purchase of a cabinet for the Manuscripts, and for binding the Manuscripts.

6 members were removed from the roll of members for non-payment of subscriptions, and consequently a sum of Rs. 273/- was written-off as irrecoverable.

A sum of Rs. 3,493.16 due as subscription for 1964 and a sum of Rs. 3,358.75 due as subscription for 1963 and earlier, remained unpaid.

Attention must be invited to the neglect of a large number of members who have delayed payment of their subscriptions. Every effort has been made by writing to the defaulting members on several occasions and pressing for payment of the arrears. Efforts, however, to cover the arrears of subscription are being continued. Defaulting members are not allowed the use of the Library, and Journals of the Society are also not made available to them until they have paid their subscriptions.

The Society would be greatly obliged if members would pay their annual subscriptions regularly and promptly, and thus avoid the need for unnecessary expenditure on postage for reminders.

A. H. M. Ismail,
Hony. Treasurer.

Colombo. 31. 10. 65.

ROYAL ASIATIC SOCIETY

Balance Sheet as at

LIABILITIES	Rs.	Cts.	Rs.	Cts.
Accumulated Fund :				
As at 31st December, 1963	20,988	08		
Less: Excess of Expenditure over Income	1,151	21	19,836	87
Current Liabilities :				
Messrs. Pope & Co.	300	00		
Subscriptions and Entrance Fees paid in advance	349	00		
B. F. Stevens & Browns	1	22		
Sale of Journal Vol. VI (Special Number)	462	25	1,112	47
Provision:				
Printing of Journals			5,500	00
Sundry Funds—per Contra:				
<i>Society Medal Fund</i>				
As at 31st December, 1963	2,369	14		
Add: Interest for year	70	05	2,440	09
<i>Chinese Records Translation Fund:</i>				
As at 31st December, 1963	4,307	65		
Add: Interest for year	129	15	4,436	80
<i>Chalmers Oriental Text Fund:</i>				
As at 31st December, 1963	2,556	10		
Add: Sale of Extended Mahavamsa	90	00		
Interest for year	76	42	2,722	52
			Rs.	
			36,048	75

R. L. BROHIER,
President.

A. H. M. ISMAIL,
Honorary Treasurer.

Colombo, 18th October, 1965.

(CEYLON BRANCH)

31st December, 1964

ASSETS	Rs.	Cts.	Rs.	Cts.
Fixed Assets :				
<i>Furniture & Fittings</i>				
As at 31st December, 1963 ..	6,329	16		
Less: Depreciation ..	313	95	6,015	21
Current Assets :				
<i>Sundry Debtors</i>				
Subscription due for 1964 ..	3,493	16		
Department of Cultural Affairs ..	1,500	00	4,993	16
<i>Cash and Bank Balances</i>				
State Bank of India ..	12,197	90		
Cash in Hand ..	55	29		
Stamps in Hand ..	24	89	12,278	08
<i>Ceylon Savings Bank</i>				
As at 31st December, 1963 ..	3,070	79		
Add: Interest for year ..	92	10	3,162	89
Sundry Funds—per Contra:				
<i>Ceylon Savings Bank</i>				
Society Medal Fund ..	2,440	09		
Chinese Records Translation Fund ..	4,436	80		
Chalmer's Oriental Text Fund ..	2,722	52	9,599	41
			Rs.	
			36,048	75

REPORT OF THE AUDITORS

We have examined the above Balance Sheet as at 31st December, 1964. We have obtained all the information and explanations we have required. We have not seen confirmations from the members for subscriptions in arrears. Subject to this and to our Report of even date, in our opinion the above Balance Sheet correctly exhibits the position as at 31st December, 1964, according to the information and explanations given to us and as shown by the financial books.

POPE & CO. }
Auditors.
Chartered Accountants]

Colombo, 18th October, 1965.

Receipts and Payments Account for

[illegible]

(CEYLON BRANCH)

the Year Ended 31st December, 1964

PAYMENTS			Rs.	Cts.	Rs.	Cts.
By General Account :						
Salaries .. .. .	..	..	3,780	00		
Audit Fees .. .. .	..	..	338	00		
Printing and Stationery .. .. .	..	..	505	93		
Lectures and Meetings .. .. .	..	..	762	00		
Postage .. .. .	..	..	294	40		
Bank Charges .. .. .	..	..	11	10		
Bonus to Peon .. .. .	..	..	15	00		
Cycle Allowance .. .. .	..	..	60	00		
Maintenance of Typewriter .. .. .	..	..	36	00		
Income Tax paid .. .. .	..	..	81	00		
Debit Tax .. .. .	..	..	8	68		
Commission on Sale of Journals .. .. .	..	..	147	17		
Staff Loan .. .. .	..	..	400	00		
Deposit of Sale of "Extended Mahavamsa" .. .. .	..	..	90	00	6,529	28
„ Purchase of Collection of C.A. Lerenz Manuscripts .. .. .	..	..			2,000	00
„ Government Account:						
Purchase of Books .. .. .	..	..	517	93		
Binding .. .. .	..	..	202	50		
Printing of Journals .. .. .	..	..	146	75	867	18
„ Bank Balances as at 31st December, 1964 :						
State Bank of India .. .. .	..	..	12,197	90		
Ceylon Savings Bank .. .. .	..	..	3,162	89		
Cash in Hand .. .. .	..	..	55	29		
Stamps in Hand .. .. .	..	..	24	89	15,440	97
„ Refund of Subscription .. .. .	..	..			30	00
				Rs.	24,867	43

Income and Expenditure Account for

EXPENDITURE		Rs.	Cts.	Rs.	Cts.
To	Salaries	3,780	00		
	Arrears written off ..	273	00		
	Bank Charges ..	11	10		
	Maintenance of Typewriter ..	36	00		
	Lectures and Meetings ..	762	00		
	Cycle Allowance ..	60	00		
	Printing & Stationery ..	505	93		
	Bonus to Peon ..	15	00		
	Debit Tax ..	8	68		
	Income Tax ..	81	00		
	Commission on Sale of Journals ..	147	17		
	Audit Fees ..	338	00		
	Postage ..	294	40	6,312	28
	Depreciation ..			313	95
	Purchase of C.A. Lorenz Collection of Manuscript ..			2,000	00
„	Government Grant Account:				
	Balance Loss Transferred ..			367	18
	Refund of Subscription ..			30	00
	Subscription 1963 and earlier written off ..			3,358	75
				Rs. 12,382	16

(CEYLON BRANCH)

the Year Ended 31st December, 1964

INCOME		Rs.	Cts.	Rs.	Cts.
By	Annual Subscriptions ..	6,120	00		
	Entrance Fees ..	187	50	6,307	50
	Donation by Asia Foundation for the Purchase of C.A. Lorenz Manuscripts ..			2,500	00
	Savings Bank Interest ..			92	10
	Life Membership Fee ..			508	00
	Sale of Literature ..			1,806	40
	Miscellaneous Receipts ..			16	95
	Excess of Expenditure over Income ..			1,151	21
			Rs.	12,382	16

Government Grant Account for

	Rs.	cts.
To Purchase of Books	517	93
„ Binding	202	50
„ Printing	146	75
„ Provision—Printing of Journal for 1964	5,500	00
	Rs. 6,367	18

(CEYLON BRANCH)

the Year Ended 31st December 1964

	Rs.	cts.
By Grant	6,000	00
„ Excess of Expenditure over Grant—Transferred to Income and Expenditure Account '	367	18
	Rs. 6,367	18

Office-Bearers 1964/65

Patron

His Excellency Mr. William Gopallawa, Governor-General.

President

Dr. R. L. Brohier, D.Litt., O.B.E., F.R.I.C.S., F.R.G.S.

Vice-Presidents

1. Dr. N. D. Wijesekera, M.A., Ph.D., Commissioner, Official Language Department.
2. Mr. C. B. P. Perera, O.B.E., B.Sc.
3. Dr. C. E. Godakumbura, M.A., Ph.D., D.Litt.

Ex-Presidents

1. Dr. P. E. P. Deraniyagala, D.Sc., M.A., A.M., F.C.P.S., F.Z.S.
2. Dr. S. Paranavitane, D.Litt., Ph.D., C.B.E.
3. Rt. Rev. Dr. Edmund Peiris, O.M.I., D.D., B.A., Bishop of Chilaw.

Members of the Council

1. Sir Nicholas Attygalle, F.R.C.S., F.R.C.O.G., D.Sc., Vice Chancellor, University of Ceylon.
2. Dr. G. C. Mendis, B.A., Ph.D., D.Litt.
3. The Honourable Dr. Justice H. W. Tambiah, Q.C., Ph.D., B.Sc., LL.B.
4. Ven. Mirisse Gunasiri Thero, B.A.
5. Mr. W. J. F. La Brooy, B.A.
6. Mr. S. J. Kadirgamar.
7. Mr. A. R. Tampoe.
8. Dr. W. Balendra, F.D.S., L.M.S., M.R.C.S., L.R.C.P.
9. Mr. D. T. Devendra, B.A.
10. Mr. D. C. R. Gunawardena, B.A.
11. Mr. S. A. Wijayatilleke, B.A.
12. Prof. J. L. C. Rodrigo, M.A., C.M.G.

Jt. Honorary Secretaries

1. Mr. P. R. Sittampalam.
2. Mr. K. M. W. Kuruppu.

Honorary Treasurer

Al-Hajj A. H. M. Ismail, J.P.U.M., M.A., LL.B.

Abstract of Proceedings

Minutes of the Meeting of the Council of the Ceylon Branch of the Royal Asiatic Society held on Friday 17th April 1964.

Present.—Dr. R.L. Brohier, D.Litt., *O.B.E.*, in the Chair and 10 members:—

Vote of Condolence.—The President moved a vote of condolence on the death of Miss E. Muller, Asst. Librarian of the Society. In proposing the vote of condolence the President outlined the invaluable services rendered to the Society by Miss Muller and the President and the members of the Council of the Society directed the Hony. Secretary to convey their sincere condolences to the members of the late Miss Muller's family. The vote of condolence was passed in the usual manner.

1. Minutes.—The Minutes of the Meeting of the Council held on 22nd November 1963, which had been previously circulated, were read and confirmed.

2. Business arising from the Minutes.—The President explained the steps he had taken along with the other members of the delegation appointed by the Council in connection with the proposed reorganisation of the National Museum Library, and undertook to communicate further with the Permanent Secretary to the Ministry of Cultural Affairs as regards this matter. Dr. N.D. Wijesekera declined to go on any further deputations to the Minister of Cultural Affairs and asked to be excused.

3. Election of New Members.—All the candidates listed below who had paid the requisite membership and entrance fees in advance as required by the rules of the Society, were duly elected members of the Society:

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| 1. Mr. V. Perumal (Non-resident Life Member); | 8. Mr. T.B.H. Abeyasinghe; |
| 2. The High Commissioner for Australia in Ceylon; | 9. Mr. G.P.S.H. de Silva; |
| 3. Mr. K. Selvarajah; | 10. Miss C.D.K. Beatrice; |
| 4. Mr. U.V. Seetaramaiya (Non-resident ordinary); | 11. Mr. T.W. Hoffmann; |
| 5. Mr. R.P.D. Rajapakse; | 12. Mr. A. Welikanna; |
| 6. Mr. Mohamed Rafeek; | 13. Mr. R.K.M.G. Fernando; |
| 7. Mr. G.D. Perera; | 14. Miss V.K. Edusuriya; |
| | 15. Mr. D. Dissanayake; |
| | 16. Mr. L.A. Kulasuriya; |
| | 17. Mr. H.A.D. Wijeyesekera. |

4. Purchases.—List of books purchased since the last Council Meeting of 22.11.63 was tabled. The Hony. Secretary was directed to write to the Ministry of Cultural Affairs requesting them to put the Society in their list of those to whom the Ministry's publications should be sent free of charge.

5. Donations.—A list of donations received since the last Council Meeting of 22.11.63 was tabled. The Hony. Secretary was directed to thank the donors for their donations.

6. Prof. Dr. Otokar Pertold.—Council resolved that Prof. Pertold of Prague University, Czechoslovakia, be nominated as an Honorary Member of the Society in appreciation of the services rendered by him to Ceylon by his

researches on the Folklore history of Ceylon at the Annual General Meeting, and in the meantime to write to him offering the Society's greetings on the occasion of his 80th Birthday Anniversary, and expressing the Society's appreciation of his research work on Ceylon.

7. Arrears of Subscription.—It was agreed that the amounts outstanding against the undermentioned members being arrears of membership subscriptions due, be written-off and that Mr. D.G. Meegoda's name be removed from the roll of members of the ground of default in the payment of subscriptions.

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| 1. Mr. D.L. Welikala (deceased) | Rs. 15.00 |
| 2. Miss E. Muller (—do—) | Rs. 30.00 |
| 3. Mr. D.G. Meegoda | Rs. 60.00 |

8. Paper for publication in the Society's Journal.—Dr. B.L. Panditaratne's article on "Some Thoughts on Defining the Nature of Urban Development and Characters: The Bases for a Town Classification in Ceylon" was referred to the President for report on its suitability for publication in the Society's Journal.

9. Exchange of Publications:

1. Hindi Publications of Agra University—Council decided to call for their recent publication before making a decision as regards exchange arrangements.
2. Council resolved to exchange the Society's Journal with the Vishveshvaranand Indological Journal.
3. Council resolved to send our last Journal and call for their Journal in exchange—State Public Library, International Exchange Section, Leningrad.

10. Book Reviews:

1. Studies in Ceylon Church History by Revd. Dr. W.L.A. Don Peter, O.M.I.,—Referred to the President for Review.
2. Vishveshvaranand Indological Journal—Vol. 1 No. 1—Referred to Dr. C.E. Godakumbure for Review.
3. The Adyar Library Bulletin Vol. 25 Parts 1-4—Council decided to acknowledge receipt only.
4. A Comparative Dictionary of the Indo-Aryan Languages, Fasc. 3 and 4 referred to Dr. C.E. Godakumbure for Review.
5. A Critical Pali Dictionary, Vol. 2 Nos. 1 and 2—Council decided to send the two books to Ven. M. Gunasiri Thero—for Review.

11. Purchase of Books.—From among the books suggested by members for purchase, the Council authorised that purchase of the following books:—

1. British Governors of Ceylon—H.A.J. Hulugalle.
2. Ceylon—A Pictorial Survey of the Peoples and Arts—M.D. Raghavan.
3. Ceylon by Prof. Pakeman.

12. Donation of an Epidiascope and Screen to the Society by the Asia Foundation.—Mr. P.R. Sittampalam, Hony. Secretary reported to the Council the present position regarding this matter and the steps he had taken.

13. Amendments and Revision of the Rules and Regulations of the Society.—A Sub-Committee consisting of three members—Dr. N.D. Wijesekera;

Rt. Revd. Dr. Edmund Peiris, *O.M.I.*, and Dr. W. Balendra was appointed to revise the existing Rules and Regulations and to submit the same for consideration at the next meeting of the Council.

14. Matters Pertaining to Staff.—Council authorised the grant of an allowance of Rs. 20/- per mensem as from 1st April 1964, to the Clerk and Librarian of the Society, the grant of the above additional allowance being subject to review by the Council on a later occasion.

Minutes of the Meeting of the Council of the Ceylon Branch of the Royal Asiatic Society held on Friday 21st August 1964.

Present.—Dr. R.L. Brohier, D.Litt., *O.B.E.*, in the Chair and 9 members.

1. Minutes.—The Minutes of the Meeting of the Council held on 17th April 1964, which had been previously circulated, were read and confirmed. Proposed by Dr. W. Balendra and seconded by Rt. Revd. Dr. Edmund Peiris, *O.M.I.*

2. Business arising from the Minutes:

Item 2 of Council Meeting of 17.4.64.

Mr. D.C.R. Gunawardena suggested that the Society should be in touch with the proposed reorganisation of the Libraries and the proposal to build a Public Library on the old Garden Club premises. The President stated that the position as regards the reorganisation of libraries was being watched.

3. Election of New Members.—The applicants listed below, were duly elected members of the Society. Proposed by Dr. G.C. Mendis and Seconded by Mr. D.C.R. Gunawardena.

1. Mr. H.W. Jayawardena (Life Member) 2. Mr. S. Devendra
3. Mr. Vincent Panditha 4. Mr. R. Cappellato 5. The Librarian, Public Library 6. Miss M.D.L. Goonetilleke 7. Mr. B.J. Seneviratne 8. Mr. M.K. Dayaratne 9. Mr. Muni Kundanmal 10. Mr. N. Saratchandra 11. Mr. K.P. Ratnam 12. Mr. J.W.P. Somapala 13. Mr. W.W. Mutturajah 14. Mrs. O.M.S.R. Wijekoon 15. Mr. D.S. Mettananda 16. Mr. M.L. Marasinghe (Non-Resident) 17. Mr. K.M.W.S. Dassanayake 18. Mr. D.V.L. Jayatunga.

4. Purchases.—List of books purchased since the last Council Meeting of 17.4.64 was tabled. The Council once again directed that the prior approval should be obtained from the Special Committee before purchasing books.

5. Donations.—A list of donations received since the last Council Meeting of 17.4.64 was tabled. The Hon. Secretary was directed to thank the donors for their donations.

6. Papers submitted for reading at the Society's Meetings.—Dr. P.E.P. Deraniyagala's—"The Fauna of Ceylon". The President said he would see Dr. Deraniyagala regarding the paper.

7. (a) Dr. W. Balendra's paper—"The Authenticity of Early Christianity in Ceylon". It was decided that Dr. G.C. Mendis be requested to go through the paper and if it is recommended by him Dr. Balendra be permitted to read the paper.

- (b) Mr. D.T. Devendra's paper—"Moonstone Motifs". Council suggested that it would be better if the paper could be expanded. Mr. Devendra clarified the position with regard to the reading of his paper and it was decided that the paper should be referred to Mr. D.C.R. Gunawardena.

8. Society Medal.—Deferred for the next Council Meeting and also decided to circulate among the members of the Council the terms and conditions regarding the award of the Society Medal.

N.B. "In April 1946 Lady Hilda Pieris, the widow of the late Sir Paul E. Pieris donated a sum of Rs. 3000/- to establish a fund in memory of the late Sir S. Christoffel Obeyesekere who was for many years a member and Vice President of the Society, in order to award a medal called the Royal Asiatic Society (Ceylon Branch) Medal, from time to time at the Council's discretion to such member as in its opinion has made a contribution towards furtherance of the Society's objects, which merits special recognition. *It was Lady Pieris's desire that the maximum period during which the Medal may remain unawarded should not exceed three years*".

9. Upham's Demon Worship in Ceylon.—The Photostat copy of "Upham's Demon Worship in Ceylon" sent by the Govt. Archivist in replacement of the Society's copy which had been misplaced was tabled and it was accepted.

10. Draft amendments of the Rules of the Society.—The subject of Draft Amendments of the Rules of the Society was not taken up and it was deferred for the next Council Meeting.

11. Translation of Articles in the R.A.S. (C.B) Journals.—Permission was granted to the following applicants subject to the conditions laid down by the Council for such translations.

- (a) *Official Language Department:*

To translate and publish "A Grammar of the Sinhalese Language"—Geiger.

- (b) *The Registrar, Vidyodaya University of Ceylon:*

1. "Professions and occupations in Buddha's Time" B.C. Law.
2. "The Mahabharata Legends in the Mahavamsa" Dr. G.C. Mendis.
3. "Professions and Occupations in the Early Sinhalese Kingdom"—C.W. Nicholas.
4. "Some Lesser Known pre-Christian Ruins"—C.W. Nicholas.

- (c) *The Editor Historical and Literary Review, Vidyalandara University, Kelaniya:*

"An Examination of the Political Troubles that followed the Death of King Parakrama Bahu I"—B.J. Perera.

12. Reading Room Facilities.—The request of Mr. S. Devendra, Instructor Lieutenant, Naval Educational Services Centre, Royal Ceylon Navy, seeking permission for reference and reading to some of his officers in the Society's Library during the period 1.8.64 to 30.11.64, was granted.

13. Exchange of Publications.—Council directed that the "Hindi and Philological Institute" of Agra University and "Vishveshvaranand Vedic Research Institute" be placed on the Society's free exchange list.

14. Book Review.—

1. "*The Tribal World of Verier Elwin*".

It was decided to refer the above book to Dr. N.D. Wijesekera, for review in the Society's Journal.

2. "*Vishveshvaranand Indological Journal*" Vol. 1 No. 2 and Vol. 2 part 1.

It was decided to refer the above two volumes to Ven'ble M. Gunasiri Thero for review in the Society's Journal.

15. Purchase of Books.—Authority was granted to purchase the following books:—

1. Bibliography on Ceylon by Edith W. Ware.
2. Stupa in Ceylon—Sinhalese Edition.
3. Leonard Wolf's Autobiography—Vol. 1 and 2.
4. Angkor—George Coedes. Translated and edited by E. Floyd.
5. Hindu Colonies in the Far East by R.C. Majumdar.
6. State and Government in Ancient India by A.S. Altekar.
7. Linguistic Comparison in South East Asia and the Pacific by H.L. Shorto.

16. Any other business.—

- (a) *C.A. Lorenz Manuscripts:*

President is corresponding with the Asia Foundation and the Ministry of Defence and External Affairs regarding the position of the above with funds donated by the Asia Foundation.

- (b) Hony. Secretary Mr. P.R. Sittampalam tabled correspondence regarding financial aid from the Asia Foundation to purchase an Epidiascope and Screen for the Society.

- (c) *Rev. Hikkaduwe Uditha Thero, Vidyodaya University of Ceylon:*

Permission was granted to translate and publish Dr. Paranavitane's article "Sigiriya the Abode of a God King" in their Journal "Sahitya Vahini" subject to the conditions laid down by the Council for such translations.

- (d) It was decided to have the necessary cards printed for issue of Library Books.

- (e) Council put off for further consideration the acceptancy for publication of Mr. A.M. Caldera's maps.

Minutes of the Meeting of the Council of the Ceylon Branch of the Royal Asiatic Society held on Friday 2nd October 1964.

Present.—Dr. R.L. Brohier, D.Litt., O.B.E., in the chair and 12 members.

Vote of Condolence.—The President moved a vote of condolence on the death of Mr. J.D. de Lanerolle, the Editor-in-Chief of the Sinhalese Dictionary and a former member of the Council of the Society. In proposing the vote of condolence the President outlined the invaluable services rendered by the late Mr. Lanerolle to the Society. The President and members of the Council directed the Hony. Secretary to convey their sincere condolences to the members of the late Mr. Lanerolle's family. The vote of condolence was passed in the usual manner.

1. Minutes.—The Minutes of the Meeting of the Council held on 21st August 1964, which had been previously circulated were read and confirmed. Proposed by Dr. G.C. Mendis and seconded by Dr. W. Balendra.

2. Business arising from the Minutes.—

Item 6 of Council Meeting of 21.8.64:

Dr. P.E.P. Deraniyagala's paper on "The Fauna of Ceylon"—The President informed the Council that Dr. Deraniyagala was ill and away from the island and that he would deal with the matter on Dr. Deraniyagala's return to Ceylon.

Item 16 (a) of Council Meeting of 21.8.64:

President read a letter received from the Asia Foundation agreeing to finance the purchase of the C.A. Lorensz Manuscripts. The Council wished to get the word "Student" mentioned in the letter of Mr. R. Heggie, clarified.

Item 16 (b) of Council Meeting of 21.8.64:—

Mr. P.R. Sittampalam Hony. Secretary, explained the position regarding financial aid from the Asia Foundation for the purchase of an Epidiascope and Screen for the Society, and also he said that the Asia Foundation was not agreeable to pay the customs duty for the import of the Epidiascope and Screen. Mr. Sittampalam said that he would therefore write to the Import Controller and try to have the import duty waived.

3. Election of New Members.—The applicants listed below, were duly elected members of the Society. Proposed by Dr. G.C. Mendis and seconded by Al-Hajj A.H.M. Ismail. 1. Mr. A.D. Hettiarachchi, 2. Ven. B. Siri Sivali Thero, 3. Mr. A.D. Hemachandra, 4. Mrs. B.D. Brohier, 5. Mr. A.E.A. Bartholomeusz.

4. Annual General Meeting.—The date 23rd October 1964 fixed for the Annual General Meeting was confirmed.

5. Nomination of Office-Bearers for the ensuing year.—

Ordinary Members of Council:

Mr. M. St. S. Casie Chetty retired at his own request by seniority and Mr. Wilmot A. Perera retired at his own request by least attendance.

Mr. S.J. Kadirgamar and Mr. D.T. Devendra were nominated to the Council to fill the vacancies caused by Mr. M. St. S. Casie Chetty and Mr. Wilmot A. Perera. Proposed by Prof. J.L.C. Rodrigo and seconded by Dr. G.C. Mendis.

Jt. Hony. Secretaries:

Mr. P.R. Sittampalam and Mr. K.M.W. Kuruppu were re-nominated. Proposed by Prof. J.L.C. Rodrigo and seconded by Dr. G.C. Mendis.

Hony. Treasurer:

Al-Hajj A.H.M. Ismail was re-nominated. Proposed by Prof. J.L.C. Rodrigo and seconded by Dr. G.C. Mendis.

- 6. (a)** Hony. Treasurer read the report and Statements of Accounts for the year 1963, which were accepted for submission at the Annual General Meeting. Proposed by Dr. G.C. Mendis and seconded by Mr. S.A. Wijayatilake.
- (b)** Hony. Secretary read the Annual Report for 1963—The Council directed it to be amended.

7. Sanction for payment of bill.—Bill submitted by Messrs. Pope & Co., for Rs. 338/- for auditing the Society's accounts was tabled and the payment was passed. Proposed by Dr. G.C. Mendis and seconded by Mr. P.R. Sittampalam.

Hony. Secretary Mr. P.R. Sittampalam was requested by Council to write to M/s. Pope & Co., with regard to some items which are not well clarified in the Statements of accounts.

8. Society Medal.—A sub-Committee consisting of the President, Prof. J.L.C. Rodrigo, Mr. S.A. Wijayatilake, Ven. M. Gunasiri Thero and Hony. Secretary was appointed to recommend the award of the Society's Medal.

9. Hony. Member of the Society.—The nomination of Prof. O. Pertold as an Hony. Life Member of the Society was approved for submission at the Annual General Meeting for election.

10. Arrears of Subscriptions.—Authority was granted to write-off a sum of Rs. 60/- due by the late Mr. J.N. Arumugam, a sum of Rs. 45/- due by the late Mr. S.J. Gunasegaram and a sum of Rs. 48/- due by the late Mr. J. D. de Lanerolle.

Minutes of the Annual General Meeting of the Ceylon Branch of the Royal Asiatic Society held on Friday the 23rd October 1964.

Present.—Dr. R.L. Brohier, D.Litt., *O.B.E.*, the President of the Society presided. A large gathering of members and visitors were present.

Vote of Condolence.—A vote of condolence was passed in the usual manner on the death of the following members of the Society during the years 1963 and 1964:—

Miss E. Muller, Mr. A.B. Perera, Mr. C.V. Bhatt, Mr. A.N. de A. Abeyasinghe, Mr. W.H. Perera, Mr. J.N. Arumugam, Mr. J.D. de Lanerolle, Mr. S.J. Gunasegaram, Very Revd. Fr. Peter A. Pillai, Mr. D.L. Welikala and Mr. E. Reimers.

BUSINESS

1. Minutes.—The President called upon Mr. P.R. Sittampalam, the Hony. Secretary, to read the Minutes of the last Annual General Meeting held on 20th September 1963, which was read and confirmed.

Mr. S.A. Wijayatilake proposed the adoption of the Minutes, which was seconded by Mr. J.L.N. Perera.

2. Annual Report.—The President moved the adoption of the Annual Report which had been printed and circulated among the members.

Mr. D.C. Gunawardena proposed that the report be adopted which was seconded by Mr. Dharmasena Dissanayake.

3. Audited Statement of Accounts and Hony. Treasurer's Report.—The President invited comments and then moved the adoption of the Statement of Accounts and the Hony. Treasurer's report which had been printed and circulated among the members.

Mr. M.F.S. Goonetilleke proposed the adoption of the Statement of Accounts and the Hony. Treasurer's report, which was seconded by Dr. K.T.W. Sumanasuriya.

4. Donations.—The Hony. Secretary announced the names of the donors from whom donations of books had been received since the last Annual General Meeting and stated that the names of the books would be available at the Society's Library for perusal by members.

5. Acquisitions.—The Hony. Secretary tabled a list of books which had been purchased, and stated that the list would be available at the Society's Library for perusal by members.

6. Announcement of New Members.—The Hony. Secretary announced the names of 12 members who had been admitted since the last Annual General Meeting.

7. Election of Prof. O. Pertold as an Hony. Life Member of the Society.—The President proposed that Prof. O. Pertold of the University of Prague be elected an Hony. Life Member of the Society which was accepted by the Society unanimously.

8. Election of Office-Bearers.—Mr. M.F.S. Goonetilleke proposed and Dr. K.T.W. Sumanasuriya seconded the election of Mr. S.J. Kadirgamar and Mr. D.T. Devendra as members of the Council in place of Mr. M. St. S. Casie-Chetty and Mr. Wilmot A. Perera who had retired.

They were declared duly elected.

9. Hony. Secretaries.—Mr. P.R. Sittampalam and Mr. K.M.W. Kuruppu were re-elected as Joint Hony. Secretaries of the Society.

Proposed by Mr. M.F.S. Goonetilleke and Seconded by Dr. K.T.W. Sumanasuriya.

10. Hony. Treasurer.—Al-Hajj A.H.M. Ismail was re-elected as the Hony. Treasurer of the Society.

Proposed by Mr. M.F.S. Goonetilleke and Seconded by Dr. K.T.W. Sumanasuriya.

11. Presidential Address.—The President Dr. R.L. Brohier thereafter read his paper on "Letters and Reports on Ceylon Affairs. 1795-1800" in the Madras (Egmore) Record Office.

12. Vote of thanks to the Lecturer.—Dr. G.C. Mendis proposed a vote of thanks to the Lecturer. The President in winding up the proceedings, thanked the members for their presence. The meeting was then declared closed.

Minutes of the Meeting of the Council of the Ceylon Branch of the Royal Asiatic Society held on Friday, 15th January 1965.

Present.—Dr. R.L. Brohier, D.Litt., O.B.E., in the chair and 13 members.

1. Minutes.—The Minutes of the meeting of the Council held on 2nd October 1964, which had been previously circulated were read and confirmed. Proposed by Dr. G.C. Mendis and Seconded by Mr. S.A. Wijayatilake.

2. Business arising from the Minutes.

Item 6 of Council Meeting of 2.10.64:—

President undertook to contact Messrs. Pope & Co., and find out whether they could clarify the items queried.

3. Election of New Members.—The applicants listed below, were duly elected members of the Society. Proposed by Dr. G.C. Mendis and Seconded by Mr. C.B.P. Perera. 1. Mr. H.O. Todd, 2. Mr. M.K. Sirinus, 3. Rev. Bro. Anslem Calixtus, 4. Mr. M.R. Fernando, 5. Mr. M.S.M. Hussain, 6. Mr. P.K.C. Wijesekera, 7. Mr. J.E.P. Deraniyagala, 8. Mr. K.T. Wimalasekera, 9. Mr. R.B.L. St. John, 10. Mr. S.I. Chelvathurai.

4. Donations.—The Hony. Secretary was directed to thank Mr. N.T.K.G. Senadeera for his donation of "Some Lesser-known Ancient Sites in Ruhuna".

5. Translations of Articles.—It was decided to draw up a form which should be completed by those who undertake to translate and publish the Society's articles requiring the publishers to send three copies of the published translations to the Society's Library.

6. Dr. W. Balendra's paper.—Dr. Balendra's letter was tabled and the President said that Dr. Balendra's paper was meant only for reading and not for publication. If however Dr. Balendra wished that the paper should be published, the usual procedure should be followed, that the manuscript should be submitted to 3 members of the Council one after the other for perusal and report. Accordingly the following members were nominated for the purpose: Mr. D.T. Devendra, Dr. G.C. Mendis and Rt. Revd. Dr. Edmund Peiris, *O.M.I.*

7. Resignation.—The resignation of Mr. A.L. Loos was accepted.

8. Society's Journal for 1964.—

1. Presidential address which was delivered by Dr. R.L. Brohier at the last Annual General Meeting and the manuscript embodying "Letters and Reports on Ceylon affairs 1795-1800" in the Madras (Egmore) Record Office which were gifted to the Society by the President were handed over to Mr. W. J. F. La Brooy for perusal and report as to whether the manuscript would suffice for publication as the Journal for 1964.
2. Council nominated the following members to go through and report on Prof. Imam's paper on "Sarandib as Viewed by the Early Arabs": Dr. N.D. Wijesekera, Dr. H.W. Tambiah and Prof. J.L.C. Rodrigo.
3. Mr. D.T. Devendra's article "Moonstone Motifs" was accepted as it had been already approved for publication before it was read before the Society.
4. Council nominated the following members to go through and report on Dr. Ivo Fiser's paper "Studies of Ceylon in Czechoslovakia": Mr. C.B.P. Perera, Mr. D.T. Devendra and Ven. M. Gunasiri Thero.

9. Purchase of books.—

Council approved the purchase of the following books:

1. History in Stone—by Raven-Hart
2. Monastic Buddhism by N. Dutt
3. Buddhist Monarchism by S. Dutt
4. Buddhist Monks and Monasteries of Ancient India by S. Dutt
5. History of Ceylon—Sinhalese edition
6. Dr. N.D. Wijesekera's recent books.

10. Any other business.—

1. Hony. Secretary was requested to write to Mr. A.E. Buultjens thanking him for his donation of Lorensz's letter.
2. An increment of Rs. 7/50 was granted to office peon with effect from January 1965.

Minutes of the Meeting of the Council of the Ceylon Branch of the Royal Asiatic Society held on Friday, 2nd April 1965.

Present.—Dr. R.L. Brohier, in the chair and 12 members.

1. Minutes.—The Minutes of the meeting of the Council held on 15.1.65 which had been previously circulated, were read and confirmed.

Proposed by Dr. G.C. Mendis and Seconded by Dr. N.D. Wijesekera.

2. Business arising from the Minutes.—

(a) *Item 5 of C.M. of 15.1.65.*

Mr. H.D.J. Wijayawardena's letter which had been submitted at the Council Meeting of 15.1.1965 and deferred for consideration at the next Council Meeting was taken up and read. After a discussion a sub-committee consisting of Dr. N.D. Wijesekera, Mr. D.C.R. Gunawardena, Mr. D.T. Devendra and Mr. K.M.W. Kuruppu was appointed to go into the following matters raised by Mr. Wijayawardena in his letter of 20.10.1964. Viz:

1. 14 days notice should be given of the Annual General Meeting.
2. Publish the Annual Reports in Sinhalese also.
3. Talks before the Society should be in Sinhalese also.
4. Ordinary members who have paid their subscriptions for more than 20 years to be made Life-Members, and make its report to the Council.

(b) *Translation of articles:*

Item 6 of C.M. of 15.1.65

The following sub-committee viz. the Hon. Dr. H.W. Tambiah, Q.C., Dr. N.D. Wijesekera and Mr. P.R. Sittampalam was appointed to draw up a suitable form which should be signed by those who obtain the permission of the Council to translate and print articles published in the Society's journal.

(c) *Item 7 of C.M. of 15.1.65*

Dr. W. Balendra's letter with regard to his paper on "The Authenticity of Early Christianity in Ceylon" tabled at the last Council Meeting was taken up. The report of the three members of the Committee appointed to report on the paper were tabled, and it was decided to advise Dr. Balendra that his paper cannot be accepted for publication in the Society's journal.

3. Election of new members.—The following were duly elected members of the Society: 1. Mr. D.T.M. Senarath, 2. Mr. P.T. Perera, 3. Miss O.V. de Z. Gunaratne 4. Mr. D.W. Liyanage.

4. Purchases.—It was reported to the Council that the following books were purchased:—

1. Ceylon—History in Stone—R. Raven-Hart.
2. Early Sinhalese Sculpture—Nandadeva Wijesekera.
3. The Ceylon Journal of Historical and Social Studies. Vol. 7 No. 2.
4. Sanskruti—Vol. 12 No. 1.

5. Donations.—The following donations of books were tabled:

1. A Short History of Hinduism in Ceylon.
Donated by Mr. C.S. Navaratnam
2. Dictionary of the Sinhalese Language—Part 10.
Donated by Ceylon University Press.

The Hony. Secretary was directed to thank them.

6. Payment of the sum of Rs. 6546/50 to Colombo Apothecaries' Co., Ltd., for printing the Society's Journal Vol. 8 part 2 was approved.

7. Dr. R.L. Brohier's manuscript.—The report of Mr. W.J.F. La Brooy was read. After discussion it was resolved that the manuscript be referred to the Rt. Revd. Dr. Edmund Peiris and Mr. D.C.R. Gunawardena for further report on its suitability for publication as a Special Number of the Society's journal.

8. Award of the Society Medallion.—Report of the sub-committee that the Society's Medallion should be awarded to Dr. G.C. Mendis at the next Annual General Meeting of the Society was unanimously accepted by the Council.

Proposed by Dr. H.W. Tambiah and Seconded by Rt. Revd. Dr. Edmund Peiris, *O.M.I.* Also the Secretaries were authorised to take steps to obtain a further set of six medallions from Spink & Son Ltd., London.

9. Cataloguing of Library books.—The report of the sub-committee to employ a suitable extra clerical assistant was approved.

Proposed by Dr. G.C. Mendis and Seconded by Dr. H.W. Tambiah.

10. The president undertook to write a suitable letter to Mr. S. F. de Silva, Ambassador for Ceylon in China on his suggestion that certain publications of the Society should be donated to the Institute of Archaeology, Peking.

11. Micro Methods Ltd.,—Purchase of "Ceylon Observer, Colombo 1873-1875" was considered not necessary as these could be obtained from the Govt. Archives.

12. Mr. B. J. Perera's letter.—Council directed the Hony. Secretary to write or contact the Commissioner of Archaeology in order to get a full set of Epigraphia Zeylanica as an extra set and also to purchase more copies of "The History and Culture of the Indian People" Bharatiya Vidya Bhavan.

13. Mr. K. M. W. Kuruppu's letter to translate and publish Society's publications.—Permission was granted on the same terms given to the others. Mr. Kuruppu was requested to submit a list of the publications which he wishes to translate and publish.

14. Book Review.—"A Comparative Dictionary of the Indo-Aryan Languages Fasc. 5 was handed over to Dr. N.D. Wijesekera for review. Council directed the Hony. Secretary to get back the copies of "A Comparative Dictionary of Indo-Aryan Languages" Fasc. 1, 2, 3 and 4 from Dr. C.E. Godakumbure if he has not yet reviewed them.

15. (a) The list of books offered for sale by Mr. A.R. Tampoe was tabled and the Council decided not to purchase them. The President said that he wished to donate some of the books mentioned in the letter which are in his library.

- (b) The President requested the Hony. Secretary to read the letter sent by Messrs. M.D. Gunasena & Co., Ltd. The Council was pleased to receive the offer and the President directed the Hony. Secretary to thank Messrs. Gunasena & Co., Ltd., for their generous offer, and also requested him to prepare a list of the books and send it along with the letter.
- (c) Dr. H.W. Tambiah wished to know about the translation of Tamil Inscriptions. This was discussed and a sub-committee consisting of Dr. H.W. Tambiah, Dr. N.D. Wijesekera, Mr. D.T. Devendra, Dr. R.L. Brohier and Mr. K.M.W. Kuruppu was appointed to see the new Hon'ble Minister of Education and Cultural Affairs regarding this matter.
- (d) Mr. D.T. Devendra's suggestion that an exchange of the Journals of the Siam Society of Bangkok, Thailand, for the journals of the Royal Asiatic Society was discussed, and the Council directed the Hony. Secretaries to obtain from the Siam Society further particulars for the purpose of exploring the possibility of arranging for the exchange of journals.

Minutes of the Meeting of the Council of the Ceylon Branch of the Royal Asiatic Society held on Friday the 9th July 1965.

Present.—Dr. R.L. Brohier in the Chair and 12 Members.

1. Minutes.—The Minutes of the Meetings of the Council held on 2.4.65 and 4.6.65 which had been previously circulated, were read and confirmed.

Proposed by Dr. N.D. Wijesekera and Seconded by Dr. G.C. Mendis.

2. Election of new members.—The following were duly elected members of the Society:—

1. Mr. L.A. Adithiya 2. Mr. G.P.V. Somaratne 3. Mrs. P.S. Ranawake
4. Mr. K.M. Don Wimalasena 5. Mr. D.B. Fernando 6. Mr. M.K. Syed Ahmed 7. Mr. B. Galahitiyawa.

3. Purchases.—It was reported to the Council that the following books approved by the Committee were purchased.

1. A Manual of Sanskrit Phonetics by C.C. Ulhenbeck
2. Mimamsa—The Vakya Sastra of Ancient India, Vol. 1 by G.V. Devas-thali
3. Artibus Asiae—Vol. 26 No. 3 and 4
4. India in Ceylonese History Society and Culture by M.D. Raghavan
5. Epigraphia Zeylanica—Vol. 5 parts 1 and 2
6. The History and Culture of the Indian People—Vols. 2-6 by R.C. Majumdar
7. Sculptures from Amaravati in the British Museum by D. Barrett
8. Bibliography on Ceylon by Edith Ware

4. Donations.—The following donations of books were tabled:—

1. The American Historical Review—A Quarterly Vol. 20 No. 1; Vol. 68 Nos. 1-4; Vol. 69 Nos. 1, 3 and 4; Vol. 72 Nos. 2-4.
2. American Historical Association—77th to 79th Annual Meetings.

3. Greek and Roman Contacts with Ceylon donated by Rt. Revd. Dr. Edmund Peiris, *O.M.I.*
An Official Handbook—Denmark donated by Danish Embassy.
Social Life in Ancient India donated by Academic Publishers.
Encyclopaedia of Buddhism donated by Dept. of Cultural Affairs.
Buddhist Annual 1965 donated by Messrs. M.D. Gunasena & Co., Ltd.
5. Tabled report of the deputation to the Hon'ble Minister of Education and Cultural Affairs regarding the delays in editing rock inscriptions and other lithic records Report read and Council decided to send a copy of the report to the Hon'ble Minister.
6. Tabled report of the sub-committee in connection with the letter of Mr. H.D.J. Wijayawardena.—Council instructed the Hony. Secretary to write to Mr. Wijayawardena informing that his suggestion has been accepted by the Council and will be incorporated in the Rules of the Society.
7. Tabled report of the sub-committee on translations of the Society's publications.—Council accepted the report and decided that translations will be permitted to be published with a printed note that the Royal Asiatic Society does not accept responsibility for the correctness of the translation.
8. Tabled Mr. S. Ratnanather's article on "Yanadi of India. Are they kin to the Legendary Nittaevo of Ceylon?"—Council decided that the article should be referred to Dr. R.L. Spittell for his observations and thereafter to Mr. S.J. Kadirgamar and Dr. W. Balendra.
9. Tabled acknowledgements received from His Eminence Thomas Cardinal Cooray and His Lordship the Rt. Revd. Dr. Edmund Peiris, *O.M.I.*, Bishop of Chilaw to the Society's letters of congratulations.
10. The Hony. Secretary was requested to call for the return of books borrowed by members who had not returned them within the specified time.
11. Tabled letter from Mr. Philip Fitzhugh Stryker, in connection with a Map of Ceylon.—Council resolved that it was not needed as copies are available in the Ceylon Govt. Archives.
12. Permission was granted to Rev. K. Vimalanana Thero to translate and publish "Tantri Malai" in R.A.S. Journal No. 63 provided he was agreeable to comply with the Society's terms.
13. Book review.—Council directed that "A Comparative Dictionary of the Indo-Aryan Languages" Fasc. 2, 3, 4 and 6 and "Vishveshvaranand Indo-logical Journal" Vol. 1 No. 1 to be sent to Dr. N.D. Wijesekera for review and that "Ceylon Today and Yesterday" to be sent to Rt. Rev. Dr. Edmund Peiris for review.
14. Vote of Condolence.—The President moved a vote of condolence on the death of Dr. O. Pertold, an Hony. Life Member of the Society. The President and Members of the Council directed the Hony. Secretary to convey their sincere condolences to Dr. Ivo Fiser. The vote of condolence was passed in the usual manner.
15. Mr. K.M.W. Kuruppu's letter requesting permission to publish in Sinhala J.R.A.S. Vol. 6 (Special Number) Historical Topography of Ancient and Medieval Ceylon by C.W. Nicholas was tabled. The Council decided that the translation should be done by the Society out of the proceeds of the sale of Journal.

Minutes of the Meeting of the Council of the Ceylon Branch of the Royal Asiatic Society held on Friday the 24th September 1965.

Present.—Dr. R.L. Brohier in the Chair and 9 members.

1. Vote of Condolence.—The President moved a vote of condolence on the death of Sir Kanthiah Vaithianathan, a former Hony. Secretary of the Society. The President and members of the Council directed the Hony. Secretary to convey their sincere condolences to Lady Vaithianathan and the other members of Sir Kanthiah's family. The vote of condolence was passed in the usual manner.

2. Minutes.—The Minutes of the Meeting of the Council held on 9th July 1965 which had been previously circulated, were read and confirmed. Proposed by Dr. N.D. Wijesekera and Seconded by Mr. C.B.P. Perera.

3. Business arising from the Minutes.—

(a) Hony. Secretary was requested to draw the attention of the Hon'ble Minister of Education and Cultural Affairs to the memorandum dated 26th May 1965 asking for the implementation of the Minister's suggestion that representatives of the Society, the Archaeological Department and the University of Ceylon should be called for a meeting to examine the question of the delays in editing rock inscriptions and other lithic records, and also to suggest a further interview.

(b) The Hony. Secretary was requested to advertise for an Asst. Librarian.

4. Election of new members.—The following were duly elected members of the Society:—

1. Mr. H.A.P. Abeyawardena 2. Mr. S.A. Hathwaick 3. Rev. Fr. M.G.F. Peiris 4. Mr. C.G. Weeramantry 5. Mr. K.M.U. Jayanetty 6. Mr. R.C. Mac Dougall (Non-Resident).

5. Purchases.—It was reported to the Council that the following books approved by the Committee were purchased:—

1. Hindu Colonies in the Far East—R.C. Majumdar
2. Sanskruti—Vol. 12 No. 3
3. Artibus Asiae—Vol. 27 Nos. 1 and 2

6. Donations.—The following donations of books were tabled:—

The American Historical Review—A Quarterly Vol. 69 No. 2

The Modern Review—Vol. 41 Nos. 1-6; Vol. 42 Nos. 1-6; Vol. 43 Nos. 1-6; Vol. 45 Nos. 1-6;—Donated by Rt. Rev. Dr. Edmund Peiris, O.M.I.

Buddha Varsa Nirnaya—Donated by Mr. S.D. de Lanerole

Tanks and Rice—Donated by M/S. M.D. Gunasena & Co., Ltd.

Dictionary of the Sinhalese Language—Part II Donated by the Ceylon University Press.

7. Rules of the Society.—The amended draft rules were tabled and after discussion accepted by the Council. The Hony. Secretary was directed to circularise it to all the members of the Society before holding a Special General Meeting for the adoption of the amended rules.

8. Report of the sub-committee in connection with Dr. R.L. Brohier's Manuscript on "Letters and Reports of Ceylon Affairs 1795-1800 in the Madras (Egmore) Record Office".—Tabled reports of the sub-committee. The Council decided to publish it as the Journal of the Society for 1964, together with the proceedings of the Society for the year 1964, omitting publication of the list of the Society's members. With regard to the Journal for the year 1965 it was decided to announce that there will be included a chapter entitled "Notes and Querries".

9. Permission was granted to Muhandiram P.F. Abeyawickrema to translate and publish Dr. W.A. de Silva's article on "Bali Ceremonies" in R.A.S. (C.B) Journal Vol. 22 No. 64 provided he agrees to comply with Society's terms and conditions.

10. Council approved the purchase of the following books.—

1. History of Indian Political Ideas by U.N. Ghoshal
2. Manasara—Edited by P.K. Acharya
3. Architecture of Manasara—Edited by P.K. Acharya

With regard to Dr. S. Paranavitane's request to purchase a full set of 1 inch to 1 mile maps of Ceylon and a list of Villages—Council directed the Hony. Secretary to write to the Surveyor General's Office to ascertain the cost for the supply of a complete set of linen-backed maps and to the Director of Census and Statistics with regard to the supply of a set of Village Lists.

With regard to the purchase of a copy of Ethel Coomaraswamy's English Translation of Mahavamsa and Dipavamsa, Mr. D.C.R. Gunawardena generously offered a copy for the Library.

11. A sub-committee consisting of Dr. N.D. Wijesekera, Mr. D.T. Devendra and Mr. S.A. Wijayatilake with Mr. K.M.W. Kuruppu as Secretary was appointed to look into matters involving the principles that should underlie the purchase of books for the Library and the disposal of some of the existing books.

Any other business.—Dr. P.E.P. Deraniyagala's article entitled "Some Aspects of the Fauna of Ceylon" was tabled for consideration as to whether it should be published in the Journal. Council appointed Mr. C.B.P. Perera and Mr. S.J. Kadirgamar to report on it.

Minutes of the Meeting of the Council of the Ceylon Branch of the Royal Asiatic Society held on Wednesday the 10th November 1965.

Present.—Dr. R.L. Brohier, D.Litt., in the Chair and 14 members.

1. Minutes.—The Minutes of the Meeting of the Council held on 24th September 1965 which had been previously circulated, were read and confirmed.

Proposed by Mr. D.C.R. Gunawardena and Seconded by Dr. N.D. Wijesekera.

2. Election of New Members.—The following were duly elected members of the Society:—Proposed by Dr. G.C. Mendis and Seconded by Mr. D.C.R. Gunawardena:

1. Mr. Austin Jayawardena, 2. Mr. W.B. Ratnayake, 3. Mr. S.D. Wijesinghe, 4. Mr. S.B.W. Fernando, 5. Mr. D. Mallawa Arachchi, 6. Mr. M.S.M. Refai.

3. Purchases.—It was reported to the Council that the following books approved by the committee were purchased:—

1. Cambridge History of India—Vol. 6. The Indian Empire by H.H. Dodwell.
2. India under the Kushanas— B.N. Puri.
3. The History and Culture of the Indian People Vol. 10 (British Paramountcy and Indian Renaissance—Part 2) R.C. Majumdar.
4. Introduction to Comparative Mysticism—Marquette.

4. Donations.—The following donations of books were tabled:—

1. New Oriental No. 2 (1965) Donated by Dr. Ivo Fiser.
2. Return to Righteousness—A Collection of Speeches, Essays and Letters of the Anagarika Dharmapala—Donated by Dr. A.W.P. Guruge.
3. Encyclopaedia of Buddhism—Fasc. 4—Donated by the Director of Cultural Affairs.

5. Annual General Meeting.—The date 3rd December 1965 fixed for the Annual General Meeting was confirmed.

6. Nomination of Office-Bearers for ensuing year.—The question of the nomination of Office-Bearers was considered by the Council and the following nominations were made:—

President.—

Dr. G.C. Mendis, in place of Dr. R.L. Brohier, D.I.itt., who retires under Rule 17.

Proposed by: Mr. A.R. Tampoe and

Seconded by: Mr. C.B.P. Perera.

Vice-President.—

Hon. Dr. Justice H.W. Tambiah, Q.C.

Proposed by: Mr. K.M.W. Kuruppu and

Seconded by: Mr. S.A. Wijayatilake, in place of Dr. N.D. Wijesekera who retired under Rule 18.

7. Ordinary Members of the Council.—

Dr. N.D. Wijesekera was nominated as a member of the Council, in place of Dr. G.C. Mendis who was nominated President. Dr. K.W. Goonewardena was nominated a member of the Council in place of Hon. Dr. Justice H.W. Tambiah, Q.C., who was nominated Vice-President. Mr. W.J.F. La Brooy retired by seniority and Mr. S.J. Kadirgamar retired by least attendance. Mr. M. St. S. Casie Chetty and Mr. S.C. Fernando were nominated to the Council to fill the vacancies caused by Mr. W.J.F. La Brooy and Mr. S.J. Kadirgamar. Proposed by Hon. Dr. Justice H.W. Tambiah, Q.C., and Seconded by Prof. J.L.C. Rodrigo.

Jt. Hony. Secretaries.—

Mr. P.R. Sittampalam and Mr. K.M.W. Kuruppu were re-nominated. Proposed by Hon. Dr. Justice H.W. Tambiah and Seconded by Dr. P.E.P. Deraniyagala.

Hony. Treasurer.—

Al-Hajj A.H.M. Ismail was re-nominated. Proposed by Hon. Dr. Justice H.W. Tambiah and Seconded by Dr. P.E.P. Deraniyagala.

8. (a) The Hony. Treasurer read the report and Statements of Accounts for the year 1964, which were accepted for submission at the Annual General Meeting. Proposed by Hon. Dr. Justice H.W. Tambiah and Seconded by Mr. D.C.R. Gunawardena.
- (b) The Hony. Secretary read the Annual Report for 1964, which was accepted for submission at the Annual General Meeting. Proposed by Dr. G.C. Mendis and Seconded by Mr. A.R. Tampoe.

9. **Sanction of payment of bill.**—Bill submitted by Messrs. Pope & Co., for Rs. 335/- for auditing the Society's accounts was tabled and the payment was approved.

10. **Tabled report of the sub-committee appointed by the Council to look into matters involving the principles that should underlie the purchase of books for the Library and the disposal of some of the existing books, magazines etc.**—and it was accepted with an amendment that the existing books, magazines etc., are not to be donated to any institution but to be sold after submitting a list of such books to the Council.

11. **Arrears of Subscriptions.**—Authority was granted to write-off the names of members who are in arrears of subscription prior to 31st December 1963 and to advise them by registered letters.

12. **Tabled Prof. D.E. Hettiaratchi's article on "Influence of Portuguese on the Sinhalese Language"** and it was referred to Dr. N.D. Wijesekera and Dr. G.C. Mendis for report.

13. **Mr. S. Ratnanather's article on the "Yanadi of India. Are they kin to the Legendary Nittawo of Ceylon?"**—Council decided not to publish it in the Society's Journal.

14. **Book Review.**—Council directed that "A Comparative Dictionary of the Indo-Aryan Languages", Fasc. VII to be handed over to Dr. N.D. Wijesekera together with previous reviews on the same subject to enable him to make a composite review.

15. **Council directed the Secretaries to request the Ven. Dr. H. Ratnasara Thero, Ph.D., (London) Lecturer in Education at the Vidyalkankara University, Kelaniya to deliver a lecture on "Pirivena Education in Ceylon" on Friday 3rd December 1965.**

16. **Any other business.**—

- (a) Mr. B.V. Sirinivasa Rao's paper on "A Short History of Lakkanna Dandanayake" referred to Dr. G.C. Mendis and Dr. Lakshman S. Perera for report.
- (b) Tabled quotation of Colombo Apothecaries' Co., Ltd., for printing the Journal 1964. Council directed the Society's Journal for 1964 be priced for Rs. 10/- per copy.
- (c) The Council approved the appointment of Miss Lilamani Wickremaratne as Assistant Librarian of the Society on a monthly salary of Rs. 80/- as from 11th November 1965.

**PUBLICATIONS RECEIVED IN EXCHANGE
PERIOD 1-10-63 TO 30-9-64**

America

- Academy of Natural Sciences
Philadelphia (1) Proceedings—Vol. 115 (1963).
(2) Notulae Naturae—Nos. 358-362.
- American Oriental Society .. Journal—Vol. 83 Nos. 1-4.
- California Academy of Sciences .. Occasional Papers—Nos. 35-46;
Proceedings—4th Series Vol. 28 and Index
Vol. 30 Nos. 7-9; Vol. 31 No. 11-19; Vol. 32
No. 11-16.
- Smithsonian Institute Miscellaneous Collections—Vol. 145 No.
5-7; Vol. 146 No. 3; Smithsonian Contri-
butions to Astrophysics—Vol. 4 No. 6;
Vol. 5 and 6; Vol. 8 Nos. 1 and 3; Bulletin
178 Index to 1-100; 187, 189 No. 33-38;
190—Annual Reports of 1962-1963; Bureau
of American Ethnology—Bulletin 186 No.
63-67.
Anthropological Papers No. 3, 5, 6, 8, 9, 11,
15 and 16.
- Johns Hopkins University .. American Journal of Philology—Vol. 84
No. 2-4 and Vol. 85 No. 1.

Australia

- Royal Society of New South Wales Journal and Proceedings—Vol. 97 Parts 1-5.
- Royal Geographical Society of
Australia Vol. 63 (1961-62).

Ceylon

- Archaeological Commissioner .. Administration Report for 1962-63; Epi-
graphia Zeylanica Vol. 5 Part 2.
- Department of Commerce .. Ceylon Trade Journal—Vol. 28 Nos. 6-12.
- Department of Census and Statistics Statistical Abstract of Ceylon 1963; Ceylon
Year Book—1962 (Sinhalese, English and
Tamil);
Census of Commerce—1961.
- Dutch Burgher Union of Ceylon .. Journal—Vol. 53 Nos. 3-4.
- Geographical Society of Ceylon .. The Ceylon Geographer—Vol. 14 Nos. 1-4
and Vol. 15 Nos. 1-4.
- Information Department .. Ceylon Today—Vol. 12 Nos. 8-12 and Vol.
13 No. 1.
- University of Ceylon Review—Vol. 20 Nos. 1 and 2.

Czechoslovakia

- Czechoslovakia Oriental Institute Archivi Orientalni—Vol. 31 Nos. 2-4 and
Vol. 32 Nos. 1-2.

Denmark

- Det Kongelige Danske Videnskaber-
nes Selskab Historisk Filologiske Meddelelser—Bind
40 Nos. 2-4.

England

- Eastern World Vol. 17 Nos. 9-12 and Vol. 18 Nos. 1-8.
- India Office Library Reports for 1961, 1962 and 1963.
- Imperial Chemical Industries .. Endeavour—Vol. 22 No. 87 and Vol. 23
Nos. 88 and 89.

- Institute of Historical Research .. Bulletin—Vol 36 No. 94; Vol. 37 No. 95; 42nd Annual Report and Thesis Completed 1963.
- John Rylands Library .. Bulletin—Vol. 46 Nos. 1 and 2.
- Royal Asiatic Society (Great Britain and Ireland) .. Journal 1964 Parts 1-4.
- Royal Anthropological Institute.. Man—Vol. LXIII Arts 150-266 Vol. LXIV Arts 1-129.
- Royal Commonwealth Society .. Journal Vol. 6 Nos. 4-6; Vol. 7 Nos. 1-4.
- Royal Geographical Society .. Journal—Vol. 129 Parts 3-4; Vol. 130 Parts 1 and 2.
- School of Oriental and African Studies .. Vol. 26 Part 3; Vol. 27 Parts 1 and 2.
- France**
- Societe Asiatique, Paris .. Journal—Tome CCL Nos. 3 and 4 and CCLI Nos. 1 and 2.
- Germany**
- Baessler—Archiv Beitrage Zur Volkerkunde, Berlin .. Neue Folge Band IX, Heft 1 and 2; X Heft 2; XI Heft 1 and 2.
- Holland**
- Koninklijke Instituut Voor Tarl Land—En Volkinkunde .. Bijdragen—Deel 119 Nos. 3 and 4; Deel 120 Nos. 1 and 2.
- Koninklijke Nderlande Akademie Van Wetenschappen, Afd. Letterkunde .. Mededelingen—Deel 26 Nos. 71-2 and Deel 27 Nos. 1-5.
- Rijksherbarium, Leiden Verslagen, Omtrent Rijks Onde Archieven.. Tweede—Serie 35.
- Hungary**
- Magyar Tudomanyos Akademia .. Acta Orientalis Tomus 16 Fasc. 2 and 3; Tomus 17 Fasc. 1 and 2.
- India**
- Academy of Tamil Culture .. Vol. 10 No. 4 and Vol. 11 Nos. 1 and 2.
- Adyar Library and Research Centre .. Vol. 27 Parts 1-4 and Vol. 28 Parts 1-2.
- Asiatic Society, Bengal .. Journal—Vol. 2 Nos. 2-4; Vol. 3 Nos. 3 and 4; Vol. 4 No. 2.
- Deccan College Library .. Vol. 21-23.
- Director-General of Archaeology .. Ancient India—Bulletin of the Archaeological Survey of India Nos. 18 and 19.
- Indian Historical Quarterly .. Journal—Vol. 38 Nos. 2 and 3.
- Indo-Asian Culture .. Vol. 12 Nos. 1-4 and Vol. 13 No. 1.
- Kuppuswamy Sastri .. Journal—Vol. 30 Parts 1-4.
- Maha Bodhi Society, Culcutta .. Maha Bodhi—Vol. 71 Nos. 9-12 and Vol. 72 Nos. 1-6.
- Mysore Economic Review .. Vol. 48.
- Oriental Institute, Baroda .. Journal—Vol. 12 No. 4; Vol. 13 Nos. 1-3 and Gaekwad's Oriental Series No. 139, 140 and 142.
- Soil and Water Conservation of India .. Journal—Vol. 10 Nos. 3 and 4 and Vol. 11 Nos. 3 and 4.

Vishveshavarand Indological
Journal Vol. 1 Nos. 1 and 2; Vol. 2 No. 1.

Italy

Instituto Italiano per Medio Ed.
Extremo Oriente East and West—Vol. 14 Nos. 1 & 2.
Historical Institute, S.J., Archivum
Historicum Societatis Anno—32 Fasc. 62 and 63.

Japan

Japanese Association of Indian and
Buddhist Societies Journal—12 Nos. 1 and 2.

Moscow

Societe des Naturalistes de Moscow Mockobckoto—Nos. 4-6 (1963) Nos. 1-3
(1964).

Rumania

Studia Universitatum Victor Babes
Et Bolyai Series—I-2 (1963)

Sarawak

Sarawak Museum Journal—Vol. 11 Nos. 21 and 22.

Unesco

- (1) Courier—September—October 1963
January—February 1964; May 1964;
July-August 1964.
- (2) Bibliography of Scientific Publica-
tions—Vol. 9 Nos. 10-12; Vol. 10 Nos.
1-10.
- (3) Arid Zone—Nos. 21-24.

Viet-Nam

La Societe Des Etudes Indo-
Chinoises Bulletin 38 Nos. 1-4.
L'Ecole Francaise D'Extreme
Orient Bulletin—Vol. LII; LI; XLIII; L.

**PUBLICATIONS ADDED TO THE LIBRARY
DONATIONS 1-10-63 TO 30-9-64**

Colombo Apothecaries' Co. Ltd.	..	A Bibliography of Ceylon Coins and Currency.
Don Peter, Rev. Dr. W.L.A. Director of Cultural Affairs	..	Studies in Ceylon Church History. Kohombakankariya (Sinhalese). Gok Kalawa (Sinhalese). Nuthana Sahitya Vichara (Sinhalese).
Dictionary Dept. University of Ceylon	..	Dictionary of the Sinhalese Language Part 9.
Fernando, W.N.H.	..	Thambapanni (Sinhalese)
Ministry of Culture, Singapore	..	Social Transformation in Singapore.
Paranavitane, Dr. S.	..	Marriage of Queen Ulakudaya (Sinhalese).
Perera, Wilmot A.	..	Papers on Chinese Travellers (Typed Copy).
Sirinivasa, Rao. B.V.	..	Glories of the Later Veerashaiva Rulers of the Sangama Dynasty of Vijayanagar Empire. (Typed Copy).
Tampoe, A.R.	..	Some Extinct Elephants—Their Relatives and the Two Living Species. Literature and the Ceylon Civil Service. Leopold Ludovici and His Times. Loris—Vol. 7 Nos. 5 and 6; Vol. 8 Nos. 1-4. A Trip to Tissa Ceylon. Canon Ekanayake of Colombo. Masks and Mask Dancing in Ceylon.
United Arab Republic Embassy, Ceylon	..	The Tragedy of Palestine.

PURCHASES 1-10-63 TO 30-9-64

Artibus Asiae	..	Vol. 25 No. 4; Vol. 26 Nos. 1 and 2.
Altekar, A.S.	..	State and Government in Ancient India.
Ceylon Historical and Social Studies Publications Board	..	Journal—Vol. 6 No. 2 and Vol. 7 No. 1.
Dharmaratana Thero, Rev. Pandit H.	..	Tamil Influence on Sinhalese Language (Sinhalese).
Hettiarachchi, Prof. D.E.	..	Sinhalese Encyclopaedia—Vol. 1.
Hulugalle, H.A.J.	..	British Governors of Ceylon.
Jayatilleka, K.N.	..	Early Buddhist Theory of Knowledge.
Jeffries, Sir Charles	..	Ceylon—The Path to Independence.
Pakeman, S.A.	..	Ceylon—Nations of the Modern World.
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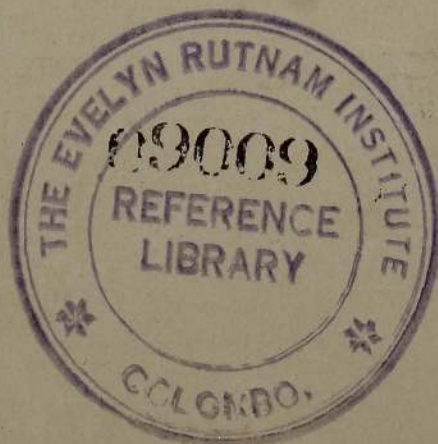
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