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**JOURNAL**  
OF THE  
**CEYLON BRANCH**  
OF THE  
**ROYAL ASIATIC SOCIETY,**  
1889.

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**VOLUME XI.**  
**No. 39.**

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*EDITED BY THE HONORARY SECRETARY.*

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The design of the Society is to institute and promote inquiries into the History, Religions, Languages, Literature, Arts, and Social Condition of the present and former Inhabitants of the Island, with its Geology and Mineralogy, its Climate and Meteorology, its Botany and Zoology.

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\* Wrongly printed in the text as pages 1, 6, 10, 17, and 22, respectively. The first 32 pages of this Journal should read 151 to 182.



## ERRATA.

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The first 32 pages have been wrongly numbered. They should read 151 to 182.

Page 186, line 33, *omit* "and **N.**"

Plate facing page 186, *for* type "O" *read* "N."

Page 204, line 29, *for* "labial margin" *read* "orbital margin."

Page 209, line 20, *for* "1.—Visible" *read* "1.—Distinct."

Page 209, line 21, *for* "2.—Visible" *read* "2.—Indistinct."

Page 230, headline, *for* "Vol. X." *read* "Vol. XI."

In the alternate headlines of pages 263-277, *for* "No. 39.—1891" *read* "No. 39.—1889."



JOURNAL  
OF THE  
ROYAL ASIATIC SOCIETY,  
CEYLON BRANCH.

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A VISIT TO RIṬIGALA, IN THE NORTH-CENTRAL  
PROVINCE.

By A. P. GREEN, Esq., F.E.S.

(*Read December 28, 1888.*)



HIS isolated mountain is a conspicuous object from many of the tanks and bunds of the North-Central Province; and is especially noticeable from the great embankment of Kaláwewa, forming a fine background to the beautiful view eastward over the tanks and forest. Its position is between the two main roads which diverge near Dambulla to Trincomalee and Anurádhapura respectively, and it may be reached from either of them by minor roads from Habarenna and Kekiráwa.

Our visit was made in July last year, and we found the country suffering from the effects of a long spell of dry weather, which considerably diminished our hopes of making a good collection of plants and insects. We left Kekiráwa in the afternoon, the little-used road taking us northward for some four miles, with the mountain well in front all the way. We then turned eastward, skirting its southern side



for about four miles more, arriving at the village of Galapitigala at nightfall after a very hot walk.

Some preparations had been made for our reception, the Arachchi, at the head of most of the inhabitants, turning out to meet us, and we found a house lined with white cloths set apart for our use. The village seems an interesting one, and is prettily situated,\* standing about a hundred and fifty yards from the road, whence it is approached by a small jungle path, and about the same distance on the other side from a large but nearly empty tank, which serves to irrigate a few small paddy fields. Cotton is grown by the villagers, and rough cloths made from it by the women, who were good-looking, and appeared much more intelligent than the men.

Early the next morning we started for Ritigala, and after skirting the tank we passed for some two miles through the usual low scrubby jungle below the eastern side of the mountain. We then turned westward so as to reach the northern side, from which point alone it can be ascended; and after about a mile through higher forest we arrived at the foot.

Extensive ruins are here met with, of which we first became aware by crossing the bund of a large pokuna, now breached and nearly empty. This is faced throughout with large chiselled stones arranged stepwise, and much of it is in good preservation. Ascending from this, on an elevation immediately above, are the remains of several buildings. One which stands in a compound with a wall of hewn stone round it is 65 ft. long by 48 ft. in breadth. The work of this and the other buildings is quite plain and entirely without ornamentation.

From this group of buildings there runs up the hill for nearly a quarter of a mile a straight causeway, 5 ft. wide, well paved, with large flags, and bordered by kerbstones, at

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\* These measurements are from a report by Mr. D. G. Mantell, made in August, 1878.



the top of which one comes upon a second group of buildings called by the natives the "*máligáwa*." The highest of these ruins is the smallest and in the best preservation; it is 28 ft. square, and built to face the points of the compass. The stones of which it is constructed are very massive: we measured one, and found it to be 17 ft. long by  $3\frac{1}{2}$  ft. broad and 2 ft. in thickness. A very strong water-course (at the time of our visit nearly dry) conducts a stream to the pokuna at the foot of the hill.

We found that huts had been prepared for us among the lower groups of ruins, and after a breakfast here and a rest we started for the summit. The villagers were evidently much surprised at our going further, and it was difficult to persuade them to accompany us, the hill having a bad reputation for both bears and evil demons. But a guide was necessary, as the path is very slightly defined; and we eventually succeeded in obtaining a few of the bolder sort to venture among these dangers.

For nearly half-way up the ascent, mainly through a valley covered with huge boulders and under high forest, was not difficult; the latter half, however, is very steep, though nowhere dangerous; and we found ourselves at the summit in the evening after about two hours of pretty stiff climbing.

On a small level space just below the actual top, on the east side, and well protected from the south-west wind, which blew furiously, we found a few sticks, the remains of the surveyor's hut, which we repaired and soon converted into a comfortable shelter with the aid of some talipots.

The temperature was delightfully cool, and the view from the trigonometrical pile magnificent in every direction, the large tanks of Minériya, Kaláwewa, and the Nuwarawewa at Anurádhapura being plainly made out; but the wind, which was felt here with terrific force, soon made us beat a retreat to the more pleasant shelter of our camp. The height of the pile is given as 2,506 ft. Round the rock on which it stands are the remains of a solid stone platform. The mountain forms two masses with a valley between, and we found that



we were on the southern portion. The sides are everywhere covered with dense forest, and the way we came is said to be the only access to the top. A drawback to our position was soon found to be the fact that the only water obtainable was 500 ft. lower down, where the Déwa-ēla takes its rise. The villagers reported that the place was guarded by bears, and our coolies in consequence evinced great reluctance to visit such dangerous quarters, and would only venture accompanied by an armed escort. Of course no bears were found, though the tracks of a recent visitor were pointed out by our guide. The water lay in a small muddy-looking pool overhung by rocks and bushes. Lighted by the blaze of several large fires, with the dark forest in the background, our little camp looked quite picturesque, and if any sleepy inhabitants of the villages in the plains below noticed the glare on the summit, they probably thought the demons of the hills were making a night of it.

A cool night, and a refreshing sleep in spite of the hardness of the ground, determined us to stay another day in this delightful climate, and we spent it most agreeably in collecting plants and insects. Coolies were sent down for provisions, and many of the villagers finding no harm had come to us, joined the party, so that by nightfall there was quite a gathering on our little piece of ground. The fires were again lighted and rice cooked, and there was much singing and talking far into the night.

A fair collection of the smaller kinds of insects, principally beetles, was made, some of which have not yet been identified, but most of them are identical with species belonging to the lower hill country of the Mátalé and Kandy Districts, though not found in the intervening plains. Three species of *Cicada* were taken, two of which have been sent to Calcutta for identification.

The next morning all went down leisurely, and the foot of the hill was reached before midday. The afternoon was spent in examining the ruins and in chasing the large and beautiful butterflies, which flew in numbers up and



down the bed of the stream at the bottom of the pokuna, many of which, extremely rare elsewhere, appeared quite common in this spot. Especially were we delighted to see the lovely *Killima philarchus* joining in this gay crowd, at times spreading wings to the sun on a stone or large leaf—a blaze of glorious blue—and anon alighting with closed wings on some twig in the position so closely resembling a dead leaf as almost certain to deceive the eye even when gazing full upon it.

It is a weird and melancholy spot to pass a night in. The lofty forest trees overspreading the ruins make the place dark and gloomy, and the night, though hot, was very rough, with high and gusty winds, which treated our frail hut of sticks and dry leaves with scant respect.

The little pool remaining at one corner of the pokuna was visited by elephants during the night.

A good dinner somewhat relieved the feeling of oppression in the place, but we slept but little, and were glad to leave early the next morning and make our way back to Galapitāgala and Kekirāwa.

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## NOTE ON THE BOTANY OF RITIGALA.

By HENRY TRIMEN, Esq., M.B., F.R.S., &amp;c.

*(Read December 28, 1888.)*

THE main object of my ascent of Ritigala was to investigate its vegetation and collect specimens of its plants. I had often, during my journeys along the North road, looked with interest at the striking outline of this fine hill, and determined to take the first opportunity that offered of examining its flora, which I knew had never yet been seen by botanically trained eyes, and at length I availed myself of some leisure in July, 1887, and of Mr. Green's companionship. Unfortunately, owing to the prolonged drought for several previous months, vegetation was then in a very torpid state. Many trees and shrubs were dried up and nearly bare of leaves, and very few were in flower or seed; thus some were undeterminable, and the present notes give doubtless but an imperfect account of the flora. Another visit is needed soon after rains to complete our knowledge of the botany of this hill, but so far as it goes the following may be considered to convey an accurate idea of the subject.

Though actually itself of no great altitude, Ritigala is the highest ground intervening between the central mass of the Ceylon mountain system and the very similar hills of Southern India. From its complete isolation and abrupt rise on all sides, directly from the low-country, it presents a more imposing appearance than would be expected from its real height (2,506 ft.); and this is always over-estimated by those endeavouring to fix its altitude by the eye alone.

The nearest ground of equal height is to the south, about 40 miles, in the foot-hills of North Mátalé, where, however,



the hills run up to over 4,000 ft. and thus enter our real mountain zone. None of the numerous other hills which stand up out of the great forest-covered plain of central Ceylon attain so great a height as Riṭigala; the peak called "Friar's Hood," in the Eastern Province (2,147 ft.), being the nearest approach. The hills known as "Westminster Abbey" (1,829 ft.) and "Gunner's Quoin," in Tamankaduwa (1,736 ft.) come next; and the better known ones, Dambulla, Sigiri, and Míhintálé, are all much below this last elevation.

Now, though the botany of these lower rocky hills is often very interesting, and they are the home of many curious, rare, or very local species, the general character of their vegetation does not differ in type from that of the great dry forest tract spread out around their bases; and it was one of the principal points of the ascent of Riṭigala to find out whether, as reported, there occurred any vegetation of a different character at its summit. It was the confirmation of the rumour, that the cap of Riṭigala really does present a characteristic little oasis of vegetation distinct from the dry-country type surrounding it, that has made it worth while to write this botanical addendum to Mr. Green's Paper.

The interest of this remarkable little flora lies in its very small extent. It all occurs, I suppose, within 100 ft. of the summit, and though I am unable to give its actual area, it cannot be many acres, as the ascent is steep. In this small space are found a number of species belonging to the flora of the wetter districts of Ceylon, and it is obvious that their existence here must depend on an atmosphere often heavily charged with moisture. The complete isolation of this summit causes it to be frequently surrounded with and bathed in mist, especially during the south-west monsoon, which is a time of drought over the country below. It is indeed striking evidence of this to observe that, at this comparatively low elevation, the branches of the stunted trees are draped with pendent masses of *Meteorium* moss and lichens, like those on our high mountains.

It would scarcely be expected that at 2,500 ft. the trees



themselves would be actually *montane* species, and accordingly we find that the components of the forest round the trigonometrical pile on the summit are representatives rather of the flora of the upper zone of the moist low-country tract—*e.g.*, of the hills in the neighbourhood of Kandy—than of the higher hills; still they are, for the most part, different from those of the low-country round. An euphorbiaceous tree, *Cleistanthus pallidus*, and a myrtaceous one, an *Eugenia*, apparently a variety of *E. amœna*, are especially abundant, both also occurring in the North Mátalé hills. Another eugenia, *E. zeylanica*, is also common, along with *Walsura Gardneri*, *Erythroxyton obtusifolium*, and *Pittosporum zeylanicum*.

But if the trees are those to be expected at the elevation where they grow, the smaller plants associated with them are of a type one is accustomed to find usually at greater heights in the hill districts. This is particularly the case with the orchids, which are plentiful on the branches of the trees. Of these I noted *Dendrobium Macraei*, *Eria Lindleyi* and *E. muscicola*, *Saccolabium niveum* and another species, a variety of *Cirrhopetalum Macraei*, *Sarcochilus serrœformis*, and of ground orchids *Disperis zeylanica* and the “Wanaraja,” *Anæctochilus regalis*. Several low-country species were also observed. The humidity of the spot is further evidenced by numerous ferns, but among them is nothing of much interest. Two filmy-ferns, however, were collected: one, *Hymenophyllum Neesii*, occurring in large sheets; *Lastrea Blumei* seemed the most abundant fern.

Though several of the plants collected presented certain local peculiarities, I met with one only which appears to be certainly new to the Ceylon flora. This was a species of *Coleus*, which grew straggling over some steep rocks near the summit. It presents no great beauty, but is, I believe, hitherto unknown to science, and I propose describing it under the name of *Coleus elongatus*.\* A remarkably small-

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\* Described in Journ. Bot., XXVII., p. 165. (London, 1889.)



flowered variety of *Thunbergia fragrans* also occurred in several places on the summit, which I have not met with elsewhere, and have named var. *parviflora*.\*

The general vegetation of the forest-covered sides of the mountain presents no features of special interest. There are some magnificent specimens of wild mango (*Mangifera zeylanica*) at the lower part, and some fine trees of *Ficus infectoria* and other figs. • Aralu (*Terminalia Chebula*), Wewarane (*Alseodaphne semecarpifolia*), Hampirila (*Mallotus philippinensis*), Galkaranda (*Canthium didymum*), and *Diplospora Dalzellii* were some other trees noticed; and, by the ruins at the foot, *Balsamodendrum caudatum*. A remarkable feature in the undergrowth for the greater part of the ascent was the vast abundance of the rubiaceous shrub *Lasianthus strigosus*, not an unfrequent plant in our forest land, and with a general tendency to occur gregariously, but never before seen in such quantity. Other plants worth notice on the ascent were “Binkohomba” (*Munronia pumila*), *Excoecaria crenulata*, *Rhipsalis Cassytha*, and a “Nilu” (*Strobilanthes*) with an ill-smelling leaf, but not in flower and thus not to be determined.

At the very summit of the hill, among the stones at the base of the trigonometrical pile, I collected a plant, not in flower, of the *Acanthaceæ* Order, which I am not at present able to determine. Plants were however successfully brought to Pérádeniya, and are growing vigorously here; they may be expected to flower in due time, and may prove to be another addition to our flora.†

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\* Described in Journ. Bot., XXVII., p. 165. (London, 1889.)

† These have not yet (November, 1891) flowered in the Gardens, though they have attained a large size.



ETYMOLOGICAL AND HISTORICAL NOTES ON  
RITIGALA.

By D. M. DE ZILVA WICKREMASINGHE, Esq.

(Read June 19, 1889.)



It is established on the authority of the “Mahá-wansa” and of other histories of Ceylon that the locality known under the name of *Ritigala* was one of the principal places of abode of the aborigines of Ceylon, the *Yakku*; and that it is of equal antiquity with other stations, Lag-gala, Log-gala, Dumrak-gala, &c., traditionally connected with them. But whether the locality was known as *Riti-gala* at the time of the Wijayan settlement, or whether it was so named by the Áryan immigrants, is a question for determination.

If we suppose that the mountain and its neighbourhood were known as *Ritigala* at the date of Wijayo’s landing, it follows that *Ritigala* was a word belonging to the language of the aborigines, not to the invaders.

I am not aware of the existence of any writing to prove this supposition, though in old Sinhalese works, such as the “Kuvéni Asna,” the name of the mountain is given as *Ritigala*. Had we the Sinhalese *Atuwá*, from which the authors of the “Maháwansa” and “Dípawansa” took their historical materials, we could probably arrive at the truth.

The name, as it is written at present, admits of three derivations, all of which tend to show that it is a compound of two words—one traceable to an Áryan origin, the other either to a Dravidian or an Áryan source.

The first derivation is as follows:—The Sinhalese word *riti*, some suppose to be a *tat-bawa* (derivative) from the Páli *aritta*: others suppose it to be a native *nípan* word. In



either case it means “long pole.” *Gal* is said to be taken from the Tamil *kal*, “rock.” It seems, however, to be cognate to the Áryan word *giri*, “rock.” The name would mean then “the rock (as steep and erect as a) long pole.” The steep aspect of the insulated rock rising out of the flat country makes it probable that the ancients gave this locality the simple rustic name of Riṭigala. Thus Kurunégala was called *Hasti-ṣaila-pura* (“elephant-rock-town”) from a rock resembling an elephant which overlooks the town.

The second derivation suggested is, that the rock received its appellation from *riṭi* trees (*Antiaris innoxia*) then growing upon it. As an instance of similar formations of names, a recent example may be given. The Sinhalese commonly call a museum *Kaṭu-gé*. Why? Not because the *gé*, “house,” is made of *kaṭu*, “bones,” nor because it is as white as bones, but because it contains bones. This may be taken as a fair example, showing clearly the natural tendency of the mind of the uneducated to give obvious names to things.

The third derivation to be considered is this:—The Sinhalese word *riṭi* may be derived from, or be kindred to, the Páli *ariṭṭha*, “dreadful,” *gala* coming from the Tamil *kal* or Sanskrit *giri*, “rock.” In this connection we have the authority of Mahánámo, the compiler of the first part of the “Maháwaṅsa,” who calls this mountain *Ariṭṭha-pabbata*, “dreadful rock” (chap. X., 63), and of the author of the “Samantakúṭa Varṇaná,” who gives it the name of *Ariṭṭha-ṣéla*, “dreadful rock.”

Whence then did Mahánámo get this name? It is admitted that he derived almost all the materials for his “Maháwaṅsa” from the more ancient records, such as the Sinhalese *Aṭuwá*. Hence, considering that he speaks at length of Páṇḍukábhaya’s encampment on the mountain, it must be presumed that the writings from which he collected his information alluded to the mountain by name. It seems, therefore, possible, not to say probable, that the name of the mountain was then, as it is now, *Riṭi* joined to some word meaning



“rock” or “hill”, and that Mahánámo translated it by the Páli word *Arittha*, meaning “dreadful” joined to *pabbata*, the Páli word for “rock,” *aritttha* being the word in the Páli most nearly approaching the original in sound and possibly in meaning.

All this tends to show that *Ritigala* is one of the oldest historical words in the Sinhalese language, and hence of great importance from a philological point of view.

I do not know enough of the Dravidian languages to enable me to say whether or not the word *riti* is derived from a Dravidian source. But in the absence of proof of such a derivation I would adhere to the opinion that the word *Ritigala* has an Áryan origin. And, if so, as the word seems to be of pre-Wijayan date, it follows that the so-called *Yakku* of Lanhá had an Áryan element in their language.

In describing the position of places in Ceylon, a “Kadaimpota” and a newly-discovered “Rájáwaliya” (lately added to the Colombo Museum Library) call this place *Ritigaldanaruwuwa*, and class it as an ancient and important town in the Ruhuna (?) division of the Island.

That the ancients knew of the botanical and mineral wealth of the place may be inferred from the superstitious account given of it in the above-mentioned “Kadaimpota,” as quoted below:—

රිටිගල් නම් පඵනගෙක. කලුකොහොවිල පොකුණක් ඇත. එහි පුරාතන පුඩාවක් රන්රන් වමාරන්ගෙය. එම රිටිගල සන්රුවන් ලණ පදුරක් ඇත. තුදුස්මහරට කඩඉමට ලක්කස් අක්කර කෙටු ගිලාසනමගයන් සිව්දිග පිහිටුවනලද්දේය.

*Ritigal nam parwatayeka. Kalukohowila pokunak eta. Ehi puratana pudawek ratran vamáranneya. Ema Ritigala sat ruwan unapanthurak eta. Tudus maha rata kada imata lakshayak akshara ketu silastambhayan siwdiga pihituanaladdéya.*

[There is] a rock by name *Ritigál*, wherein is a pond containing *kalu-kohowila* [a species of *aracæe* ?].

A leech in it formerly disgorged gold. In the same *Ritigala* there is a bush of golden bamboo. At the four quarters are planted monoliths, which are inscribed with a *lac* of characters, for the purpose of marking the boundaries of the fourteen great territories.



As I said at the beginning that Riṭigala was one of the principal seats of the aborigines previous to the arrival of Wijeyo, I cite the following passage from the “Samantakūṭa Varṇanā,” which describes some places (amongst them *Riṭigala*) where the original inhabitants, called *Yakkus*, resided at the time of the first visit of Gautama Buddha to Ceylon in the ninth year after his attainment of Buddhahood [*circa* 569 B.C.].

රමෙම නද්‍ය රතනදීපවරමගි ලඞ්කා  
 • ලොකානුධාන හරිඛණ්ඩකයකඛද්‍යසෙ  
 ඔදුම්බරෙ සුමනකුටක නඞුලෙයෙ  
 සෙලෙසු මාරගිරි මිසස කරිඞ්ඞාමෙ.

යෙකෙකුදුපි සනති ගිරයො වනරමණෙයො  
 ගමනානදී ගිරිගුහා සිකනා නලාව  
 නඞ්ඞා වසනති රඞ්ඞාඞ්ඞාඞ්ඞාඞ්ඞා  
 පාණනිපාන නිරනා සඞ්ඞාඞ්ඞා.

Rammê tadâ Ratanadîpa waramhi Lanḡā  
 Lókâbhidhâna Harikhaṇḡaka Yakkha dâsé  
 Ôdumbaré Sumanakûṭaka Taṇḡuleyyé  
 Sélésu Mâragiri Missaka Riṭṭha námé

Yeññépisanti girayó wanarâma ñeyyâ  
 Gaṅgâ Nadî giriguhâ Sikatâ talâca  
 Tattha wasanti rabhasâ pharusâ-tiruddâ  
 Pâṇâtipâta niratâ saṭhakûṭa yakkhâ.

At that time the Yakkús, who were wicked, abusive, very cruel, and cunning, and who were continually engaged in taking away animal life, haunted the mountains Lanḡa [Lag-gala], Lókâ [Log-gala], Harikhaṇḡaka [Hirikaḡa], Yakkhadâsé [Yakdessa], Odumbaré [Dimbula], Sumana-kûṭa [Samanalakanda], Taṇḡuleyya, Mâragiri [Maragala], Missaka, Aritṭha-séla [Riṭi-gala], and such other rocks which grace the woods; and [they also haunted] rivers and streams, caves and sandy plains, of the delightful Island of Gems [Ceylon].

Besides these notices of the antiquity, the mineral and botanical wealth, and the situation of Riṭigala, we have in the “Mahâwaṅsa” (chapter X.) a graphic description of a battle which took place on it between Pândukabhâya and his uncles about 437 B.C. The following is Turnour’s translation of the passage referred to:—



Conducting her [Chétiyá, the widow of Jútindharo, a Yakkho, who was killed in a battle fought at Siriwatthúpara] to the Dhúmarakkho mountain, he [Pandukabháya] obtained a great accession of warlike power, by making her his battle steed. There, at the Dhúmarakkho mountain, he maintained his position for four years. Departing from thence with his forces, he repaired to the mountain Arittho [Ritigala]. There preparing for the impending war, he remained seven years.

Leaving two uncles (Abhaya and Girikaṇḍaka), the other eight uncles, uniting in hostility against him, approached that mountain Arittho. Throwing up a fortification at Nagaraka, and conferring the command (on the person selected), they surrounded the Arittho mountain on all sides.

The prince having consulted with the Yakkhini, in conformity with her advice he sent forward a strong party (in the character of a deputation), placing in their charge his insignia of royalty, as well as the usual offerings made as tribute, and his martial accoutrements; and enjoined them to deliver this message (from him): "Take all these things: I will come to ask your forgiveness."

When this party had reached its destination, shouting "I will capture them, forcing their camp," mounting his yakkha mare, and surrounded by his whole army, he (the prince) [Pándukábhaya] threw himself into the midst of the fight. The Yakkhini set up a loud shout. His (the prince's) army without, as well as (the deputation) within (the enemy's camp) answered with a tremendous roar. The whole of the prince's army having slaughtered many of the enemy's men, as well as the eight uncles, they made a heap of their (decapitated) heads. The commander (of the enemy's army) having fled, and concealed himself in a forest, from that circumstance that forest is called the Sénápati (commander's) forest.

Observing the skulls of his eight uncles surmounting the heap of heads, he remarked: "It is like a heap of Labu (fruit)." From this circumstance (that place) was (from Nagaraka) called Labugama.

"Thus this Pándukábhaya, the victorious warrior, from thence proceeded to the capital of his maternal great uncle Anurádho."

The *Yakku* of Ritigala were afterwards much favoured by the king for the assistance they rendered him in his wars. He conferred high offices on the *Yakku* chiefs, and treated them respectfully. With his death the *Yakku* seem to have lost their influence and to have been gradually driven even from their habitations by the increasing Sinhalese population. Thus, in later days, when Buddhism was firmly established in Ceylon, Ritigala, from which the *Yakku* had



already been ousted, was selected as a suitable spot to build viháras on.

The king Suratissa, who reigned between 247–237 B.C., erected the “*Laṅka Viháré*” at the foot of the Aritṭha mountain (“*Maháwaṅsa*,” chap. XXI.).

The following century, it is recorded that the king Lajjitissa (109–119 B.C.) built another, and called it the “*Aritṭha Viháré*” (*Ibid.*, chap. XXXIII.).

Nearly a thousand years later Sena (838–58 A.D.) added to the Riṭigala sacred buildings :—

And the king Silámégha (Séna) built, as it were by a miracle, a great viháre at *Arritṭha pabbatta*, and endowed it with great possessions, and dedicated it to the Pansukulika\* brethren. And he gave to it also royal villages and honours, and a great number of keepers for the garden, and servants and artificers. (Chap. L., 63, 64.)

Even at the present day the ignorant villagers in the neighbourhood of Riṭigala believe that the mountain is inhabited by *Yakku*, and hence they dare not take anything away from the place through fear of incurring the wrath of the *Yakku*.

It is said that one day a man from a village close by lost his way, and was benighted in the jungle just below the mountain. Seated under a tree he was surprised to hear the barking of dogs, the crying of children, and all the bustle of a busy village. A little while after a *Yaká*, in the form of a man, came to him with a *chulu* light in hand and offered him a large quantity of rice and curry with plantains, oranges, &c. The *Yaká* then told the man to eat his fill, but enjoined him, rather fiercely, to depart before dawn of day in the southern direction, and take nothing away from the spot. The man, through sheer fright, could not then eat the ample repast laid before him, but afterwards, when he was left alone and his fear had subsided, he ate as much of the food as he could. Before daybreak he got up and, as was directed, took a southern direction,

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\* An order of bhikkus who strictly follow the theory regarding the dress of Buddhist monks, that it should be made of dirty rags taken from a dust or refuse heap or from a cemetery, and pieced together.



which brought him back to his village. He related all that had happened to him the previous night to villagers, and there was much alarm that day in the village lest some evil might befall them.

The following interesting account, by Mr. C. A. Murray (when acting as Government Agent, North-Central Province), of a trip to Ritigala, as given in his Diary for October, 1889, is inserted by permission :—

*October 29, Tuesday.*—Made an early start, riding for the top of Ritigala. We were able to take our horses for three miles to the ruins of the large pokuna. This pokuna is situated at the base of the hill, and is made out of a natural hollow formed by three hills. The open side is banked up. It covers almost four or five acres, and must have been 30 ft. deep when full; the sides are stopped with long dressed stone, almost all in position, but the lines are uneven. A fine clear stream flows through it. At one entrance to the pokuna there is a large platform all covered with trees. From the pokuna there is a fine paved footway, 3 ft. broad, about quarter of a mile long, leading to the site of a palace, the ground plan of which is still plainly visible in the large slabs of stone. Broad slabs raised 2 ft. from the ground mark where the verandah was, with a flight of four stone steps leading down, in a good state of preservation. \* \* \* \* \*

On the slope of the hill above the pokuna is a large "Galge" with a broken image of Buddha, and close by is a pit containing a quantity of old flat tiles kept as a reserved stock to be drawn on when required.

From the pokuna to the top of the hill is a mile and a half, and the new path has been made within half a mile of the top. The new path, from the commencement where it branches off from the village road, is three miles long. It was easy climbing up to where the path was finished, but after that it was a case of swarming up the face of rocks and climbing over huge boulders. We reached the flat surface where the bungalow is to be erected, commanding a fine view of the country.

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PADDY CULTIVATION CEREMONIES  
 IN THE FOUR KÓRALÉS,  
 KÉGALLA DISTRICT.\*

By H. C. P. BELL, Esq., C.C.S., *Honorary Secretary.*

THRESHING AND MEASURING PADDY.



WHEN the paddy crop is ripe and is ready for the sickle, a lucky hour is named, and the cultivator (*goyiyá* ; *andakárayá*), after bathing and putting on a clean cloth and eating *kiribat*, enters the field, and at the set time cuts three ripe ears of paddy.

These, with a scrap of iron, are wrapped in three *divikaduru* leaves and are carried on his head to the threshing-floor (*kamata*).

A hole is there dug in the centre of the *kamata*, about three or four inches in depth, and the three ears and iron are buried in it. Over the hole is placed a round stone (called *mutta*) or a "king cocoanut" (*ran tembiliya*), and the *kamata* cleared of grass with a mamoty.

The crop is then reaped and stacked on the dam of the field (*ketakandu-godakaraṇawá*). If the corn cannot be threshed

\* The subject has been so fully dealt with in previous Papers printed in the Society's Journal that this Note may appear superfluous. It is inserted merely to supplement the information contained in Mr. R. W. Ievers' Paper in the Journal for 1880, covering ground not touched therein. The Papers already written for this Society on "Paddy Cultivation Ceremonies," Sinhalese and Tamil, will be found in Journal R. A. S., C. B., Vol. VI., No. 21, 1880 (Ievers) ; Vol. VIII., No. 26, 1883 (Bell), and No. 29, 1884 (Lewis). See also a Paper in the Journal of the R. A. S. of Great Britain, Vol. XVII., new series, p. 366 (Le Mesurier), and the "Orientalist," Vol. 3, pp. 99-103 (Bell).



the same day for want of a lucky hour, a small dam (*liyadda*) in the field which is not damp is selected, the cocks (*keṭa-kandu*) are removed there, and heaped into ricks or stacks (*wāṭa-malu*).

At the lucky hour for threshing (which always occurs in the evening) the paddy is taken from the *wāṭa-malu* and tied into small bundles, and carried on the head to the *kamata*. Sometimes the paddy is put on the *kamata* in semi-circular shape, or, as the natives say, "like a rainbow or half-moon" (*rēna-kanda-ekatukaraṇawá*); and sometimes heaped in the centre (*koléṭa-ekatukaraṇawá*) after a diagram has been drawn with ashes on the threshing-floor.\*

The paddy is then tossed and mixed together with hands (*kola-waḍanawa*). But if it is a large stack two "teams" of buffaloes (*dekerella*) are yoked together to thresh the paddy: otherwise one team suffices. The boys who are employed to drive the buffaloes over the paddy (*kola-maḍawanawá*, *goyan-maḍawanawá*) are first fed. Should the animals void their dung whilst being driven the boys are taught to take a little straw and hold it on both the upturned palms of the hands to the sterns of the buffaloes (to prevent the dung falling on the straw and fouling the paddy), and to throw it over the other side of the *wáriya-kanda*. They are very particular in this respect until the whole threshing is over.

Two or three *pé* after first driving the buffaloes over the paddy, what has worked to the edge of the threshing-floor is tossed with the *deṭi-goyiyá*, or flail, on to the heap in the centre (*wāṭa-kaḍanawa*), and the buffaloes again driven over it.

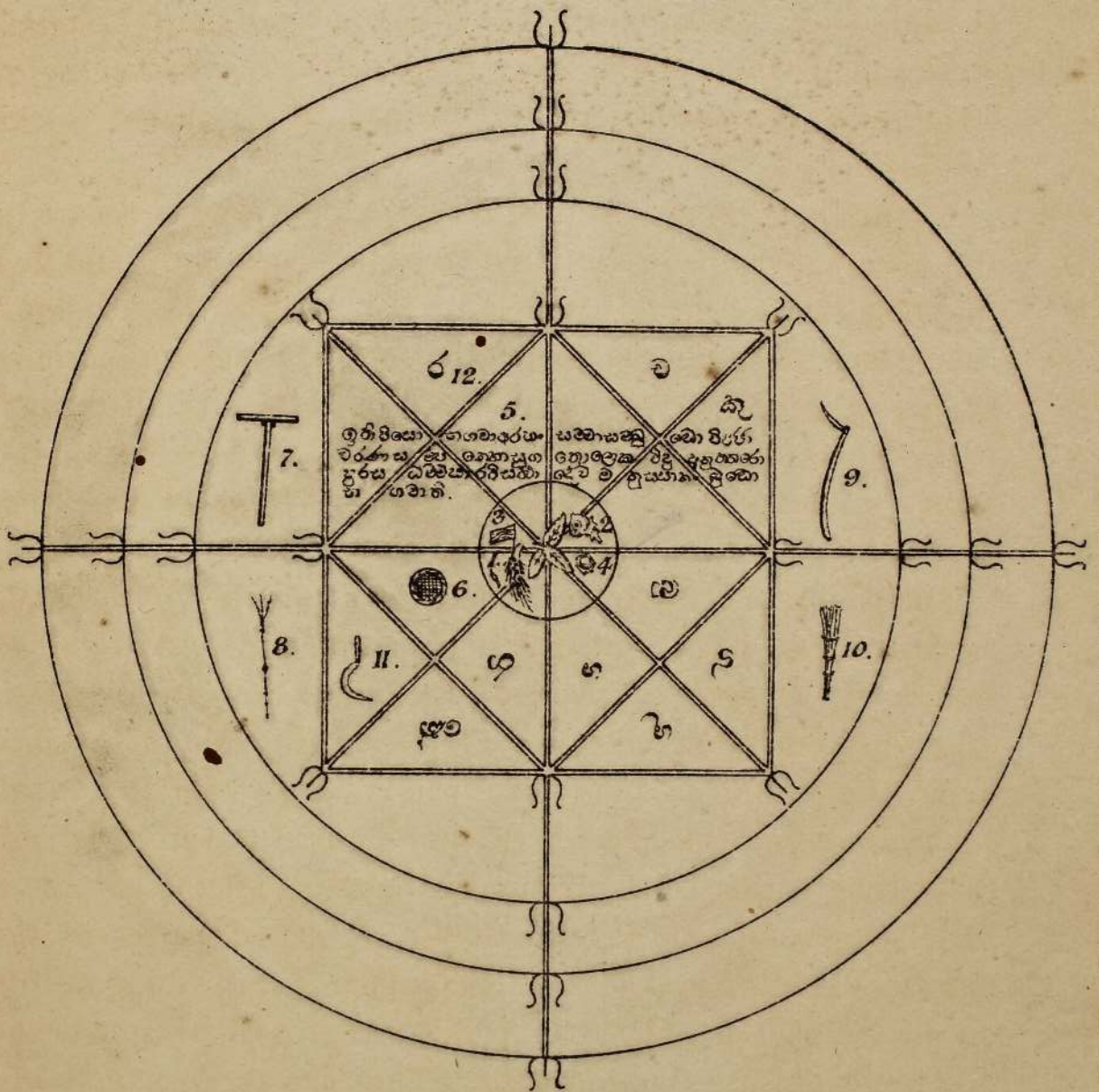
After threshing for some time several men (according to the number of men employed), picking up a little straw on their flails, and placing them on their shoulders, walk round repeating the *kalawīti-kíma* or threshing-floor refrain ("Deṭi deṭi kumana deṭi," &c.), whilst the buffaloes are moving.

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\* Plate I.—This diagram differs from that given by Mr. Ievers chiefly in having only *three* concentric circles instead of seven. Three seem so universally the number drawn that it is possible Mr. Ievers may have been misled in making his diagram contain more circles.



N<sup>o</sup> 1.



FOUR KORALEES, KEGALLA DISTRICT.

- 1. Divikaduru kola (3) Goyankaral (3) Yakadakeli (1) in arakwala
- 2. Katu Hakgediya
- 3. Kohomba lella } at the centre.
- 4. Mutta
- 5. Navaguna-gathawa
- 6. Laha or Goyiya
- 7. Goyi-lemma
- 8. Manatta
- 9. Uknunudetta alias Detigoyiya
- 10. Bolaatta
- 11. Deketta or Liyannawa
- 12. First letter of each of the 9 planet names.







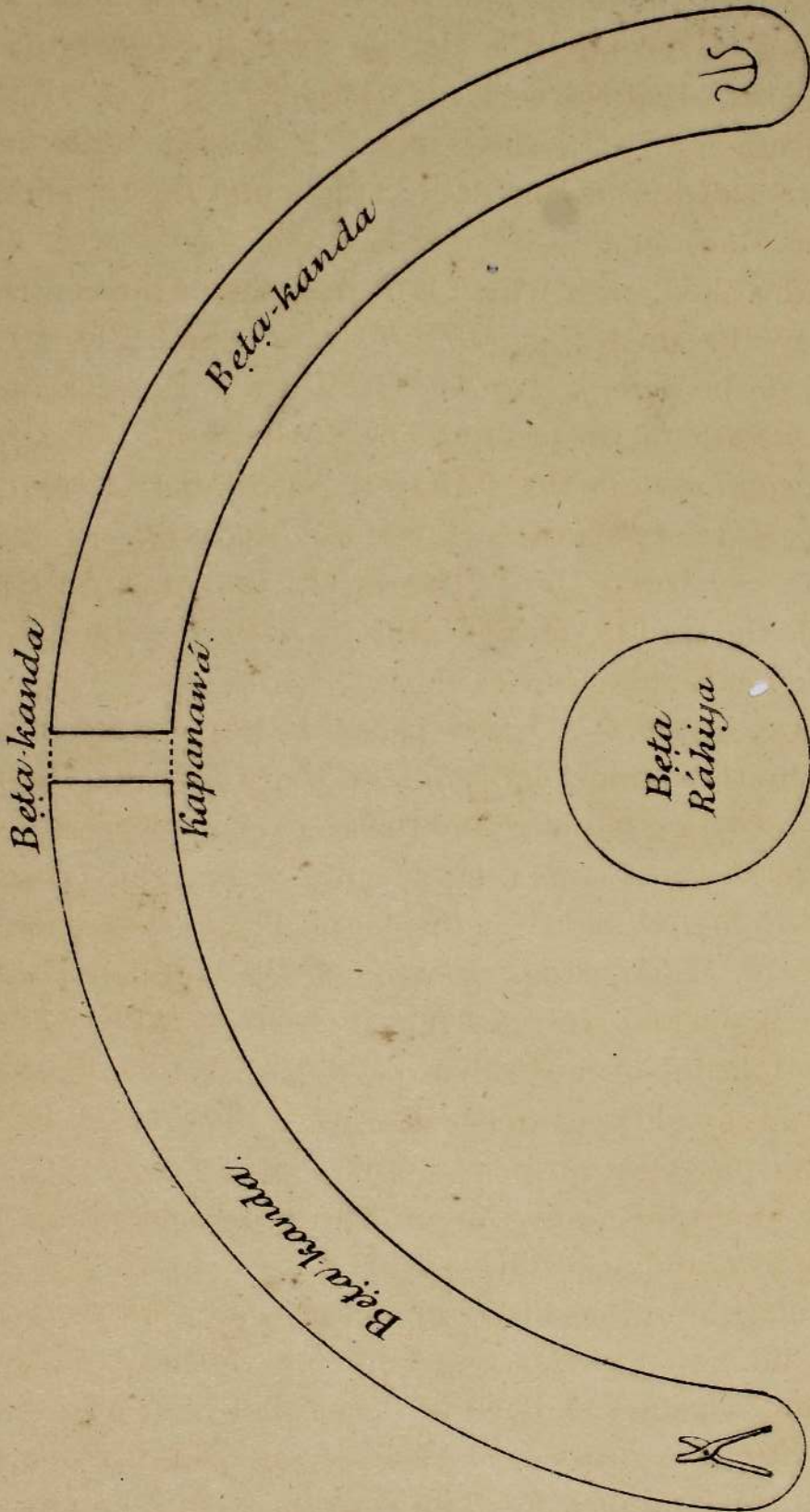




No 2.

KĒGĀLLĀ DISTRICT.

FOUR KORALS





When this is over the paddy on the borders of the threshing-floor is tossed again on to the centre heap with flails, and the buffaloes a second time driven over it (*anbaruwan-dakkanawá*), so that the corn may be threshed well. When the corn is sufficiently threshed, straw is tossed with flails (*meḍuwan-halabánawá*) on to the bank round the threshing-floor (*wáriya-kanda*).

The unthreshed corn which still remains in the centre is then finally threshed (*goyikama-lánava*), and the straw thrown on to the *wáriya-kanda*. If it is a large stack there are three *meḍuwan* or preliminary tossings of the straw before the *goyikama* or threshing; if an ordinary stack two *meḍuwan*; if a very small stack one *madun* only.

After the *goyikama* the buffaloes are untied and driven away, and the paddy fanned with a *katupilla* branch to remove the chaff and other rubbish.

Next with the *poró-lélla* the paddy is heaped up in the centre of the threshing-floor (*ráhi-karaṇawá*), and a twisted rope made of straw is put round the heap of paddy (*ráhiya*). A small quantity of ashes, small chips from the *ból-atta*, from the *deṭi-goyiyá*, and from the *goyi-lélla* or *póruwa*, and a small quantity of hair from the tails of the buffaloes (*anbaruwó*), are taken and wrapped in a little straw called *áṇḍiya* and kept on the top of the heap of paddy (*áṇḍiya-tiyanawá*), and the heap of paddy covered with straw. The same day (if there is no *rikta* or unlucky hour), or the next day, the *ráhiya* is uncovered and the paddy grains spread on the *kamata* to dry, and again heaped up.

At the lucky hour the cultivator takes the winnow (*yatura*) into his hand, bows down six times before the heap of paddy, kneeling on two sides of it, and at each bowing three times (*nawamudun-waṇḍinawá*). After taking paddy from the *ráhiya* into the winnow he then spreads it on the *kamata* (*beta-garanawa*) in a line, called *beta-kanda*,\* “in the shape of a rainbow or half-moon” (*beta-kanda-bandinawá*), and

\* Plate II.



two other persons, one on each side, pass backwards and forwards down the line of paddy thus spread and winnow off chaff and dirt. Each time fresh paddy is brought and spread by the *goyiyá* on the line the fanning is repeated by the two men.

When the *ráhiya* is exhausted, with the *póruwa* the paddy on the edges of the *beta-kanda* is heaped up to the top of it (*beta-mudun-karanawá*), and other good paddy scattered about near gathered with the *póruwa* and put on it (*beta-kanda bolatiyanawá*), the rubbish and chaff being gathered and heaped separately (*ahakaṭa bol-tiyanawá*) on the *kamata*.

After that, upon the first end of the *beta-kanda* the shape of *aṇḍuwa* (pair of pincers) is drawn on the paddy with the corner of the winnow, and at the other end a trident (*súlama*; *tri-súlama*) is drawn with the same corner of the winnow. Then taking the measure (*laha goyiyá*) into his hands, the cultivator goes to the place where the *ráhiya*, or heap of paddy, was and bows three times, and from there to the first end of the *beta-kanda*, where he again bows three times, and thence to the other end, bowing three times finally.

When this is over, holding the measure with one hand so as to just touch the paddy in the *beta-kanda*, and taking a handful of paddy in the other hand, he drops a few grains upon the *laha* measure whilst carrying it round the *beta-kanda* from the first end (*beta-yállanawá*; *andun-nawanawá*).

When this is finished he cuts a passage with the *goyi-lélla* through the centre of the *beta-kanda* and through it throws *bol-atta*, *man-atta*, *pórúlélla*, *katu-atta*, *ukunu-ḍetta*, ashes, and water, from the outside; then passing through, he bows three times on either side of the passage through the *beta-kanda*, and further three times at each end of it, and commences to measure the paddy. Going to the first end of the *beta-kanda* a *laha* of paddy is measured and covered up with the winnow so that its broad part may touch the *beta-kanda*. Leaving it there he again sweeps the *kamata*. After that the *laha* measure of paddy is uncovered and set apart for the gods (*deyiyaṅṭa-tiyanawá*) and the remaining paddy is measured and heaped up.



From this heap the “seed-paddy” is measured at first. Thus, if one *péla* extent was sown, twelve *lahas* of paddy will be measured and set apart as “seed paddy.” Next the Government tithe is measured: the remaining paddy is then divided between the landowner and the cultivator. From the cultivator’s share another three *lahas* of paddy have to be measured and added to the twelve *lahas* of “seed paddy,” making in all fifteen *lahas*. The *laha* measure of paddy set apart in the commencement is given over to the man who charmed (*ken-kara-sorá*) the paddy field.

If the land was cultivated in *anda*—i.e., for half-share—the cultivator must do all the work, including transplanting. If cultivated jointly with the landowner, the landowner should do half of the work, including half of the transplanting. If the cultivator alone transplants the paddy of the whole land he is entitled to get from the landowner half of the “seed paddy” sown on the land.

Thus, if the extent of the land is one *péla*, the cultivator, for transplanting the whole, would get five *lahas* of paddy, besides vegetables, curry-stuffs, &c.

These charges are usually paid to the cultivator by the landowner whilst the transplanting is going on, though occasionally kept back to be given after the crop is threshed.

The chaff heaped up in the *kamata* goes to the cultivator. The straw is entirely at the disposal of the landowner.



ESSAY ON THE CONSTRUCTION  
OF ZOOLOGICAL TABLES, WITH A TABULAR  
DIAGNOSIS OF THE SNAKES OF CEYLON.

By AMYRALD HALY, Esq.,

*Director, Colombo Museum.*

*(Read January 26, 1888.)*

“The only possible check I can see to the progress of Science is, that the works on it are becoming too voluminous; it is becoming scholastic; life will be too short to learn it, and no time will be left for discoveries.”—  
Mr. JUSTICE GROVE, *Speech at the Royal Academy Dinner, 1881.*

ON COMBINATIONS OF STRUCTURES.



IN the mountains north of the Cape there is an animal known as the brindled gnu, thus described by Cuvier in the “Régne Animal”:—  
“A monster composed of different animals. It has the body and crupper of a small horse, covered with brown fur; the tail is furnished with long white hairs like that of a horse, and on the neck is a handsome straight mane, white at the bottom and black at the end of the hairs. The horns, approximated and enlarged at the base like those of the buffalo of the Cape, descend outwardly and turn up at the point. The muzzle is large, flat, and surrounded with a circle of projecting hairs; under the throat and dewlap is a second black mane. The feet have all the lightness of those of the stag.”

This combination of the head of the ox, the tail of the horse, and feet of the stag, can scarcely fail to strike any one on seeing a good figure of this animal or a mounted specimen in a museum. I believe, however, this impression of



monstrosity, as Cuvier terms it, in this particular instance arises solely from the fact that we are all familiar from childhood with horses, oxen, and deer. The brindled gnu is by no means an inharmonious combination, and if we were not so familiar with the above-named animals it would strike no one as being a monster; in fact, it is no more so than any other species. *All animals are combinations of structures; indeed, if they were not so, a zoological diagnosis would be an impossibility.*

Take the case of a species made up, so to speak, of other species, with which people in general are not so familiar; say, any species of the genus *Brotula* amongst fish. Many would probably think the fish an ugly one, but would neither regard it as a harmonious or inharmonious combination. Show one of this genus, however, to an Ichthyologist, and he would at once recognise the union of the body, vertical fins, and scales of the sole, with the head and barbels of a catfish and the jugular ventrals of the cod.

These combinations are frequently dwelt upon by John Hunter. It is thus he describes the capybara:—"This animal is about the bigness of a half-grown sheep; the hair is thin and strong, like that of the agouti or of the hog; the head is like the head of the guinea-pig; the ears are those of the same animal; the toes are strong and broad like those of a stork; the spleen is very near the shape and situation of the human; the pancreas is more like that of the human than in most animals."

Cuvier and Valenciennes, speaking of the barbel, say:—"Le genre des barbeaux va également nous montrer la même puissance dans les combinaisons diverses avec lesquelles la nature a su travailler les êtres nombreux qu'elle a placés sur notre planète." ("C. et V.," vol. XVI., p. 90.)

In classifying flies, Latreille adopted various plans of arrangement, varying according to the different weight that may be attached to the different characters. At one time he is chiefly guided by the antennæ, at another by the mouth parts, at another by the nature of the metamorphoses, and



with each different arrangement different families are at one time brought into close connection and at another widely separated.

Alexander Agassiz, in speaking of the sea-urchins, says:—  
“The sum of possible combinations is so great that it would take no less than twenty years, at the rate of one new combination a minute, for ten hours a day, to pass them in review. We have not more than 2,300 species actually representing for the *Echini* the results of these endless combinations.”

CONCERNING THE PRINCIPLES ON WHICH THE  
FOLLOWING TABLES ARE CONSTRUCTED.

Linnaeus chose an easily-seized character on which to found his main divisions. Thus, in classifying fish he arranged them in orders according to the presence or absence and the position of the ventral fins. When the ventrals were placed forward on the throat, as in the cod, they were said to be jugular; when on the breast, as in the perch and great majority of spinny-finned fishes, thoracic; and when on the belly, as in the carp, abdominal. In the eels they are wanting.

Cuvier, following Artedi, divided the bony fish into two orders: the spiny (*Acanthopterygii*) and the soft-finned (*Malacopterygii*), according to the character of the vertical fins.

Agassiz proposed another character, that of the scales, and in this way divided the bony fish into two groups: those with scales having a serrated edge and those with scales having a smooth edge, *Ctenoid* and *Cycloid*. Now it is evident that if the bony fish are arranged on any one of these systems, the student, on consulting a list of them, would at once have a definite piece of information; if they were arranged on the Linnæan system he would see at a glance what fish had the ventrals in the same position; if on either of the other systems he would be equally able to see in what fish the fins are spiny or soft, or the scales ctenoid or cycloid.



Let us suppose the thoracic ventrals to be represented by the letter *a*, the abdominal by *b*, the jugular by *c*; the spiny vertical fins by *a*, the soft by *b*; the ctenoid scales by *a*, the cycloid by *b*; then we could see the relationships of all known bony fish to each other, with regard to these particular characters, by constructing a table like the following:—

	Ventrals.	Vertical Fins.	Scales.
Perch	... <i>a</i>	... <i>a</i>	... <i>a</i>
Wrasse	... <i>a</i>	... <i>a</i>	... <i>b</i>
Gray Mullet	... <i>b</i>	... <i>a</i>	... <i>b</i>
• Carp	... <i>b</i>	... <i>b</i>	... <i>b</i>
Cod	... <i>c</i>	... <i>b</i>	... <i>b</i>

The letter *a* might, however, represent far more than the mere position of the ventrals: it might stand for those in which the membrane is supported by one spine and five branched rays placed on the thorax; *b* for those which have the same character but which are placed on the abdomen, and so on. And the same principle can be applied to all the other parts, external or internal, of fish or any other animals. This is the application of the “Natural Method” to the parts of animals considered separately. The “Natural Method” is thus defined by Cuvier:—“There is but one perfect method, which is the natural method. We thus call an arrangement in which beings of the same genus will be closer together than those of all other genera, genera of the same order than those of all other orders, and so on.”

The theory of the construction of such tables is perfectly simple. The student, having provided himself with a collection of some group of animals, either from all parts of the world where they are found or from some particular locality, studies first one part, such as the wing in birds or ventral fin in fish, and groups those species together which agree in having those parts of the same character; he then proceeds to the consideration of the other parts, one by one, until he has exhausted all the characters employed in the diagnosis of the particular group he is describing. Then, as in the little table above, each different type of wing or fin, or any



other part, is expressed by a suitable formula, and these formulæ are arranged in vertical columns.

#### ON THE UTILITY OF ZOOLOGICAL TABLES.

“I believe,” says Professor Babbage, “my early perception of the immense power of signs in aiding the reasoning faculty contributed much to whatever success I may have had.” Such is the testimony of one of the greatest of mathematicians to the power of signs. Professor Owen long ago pointed out the need in which the anatomist stands of using formulæ :—“The entomologist has long found the advantage of such signs as ♂ ♀, signifying male and female, and the like, and it is time that the anatomist should avail himself of these powerful instruments of thought, instruction, and discovery, from which the chemist, the astronomer, and the mathematician have obtained such powerful results.”

Formulæ are used by Zoologists to a certain extent. As Professor Owen has said, it would be almost impossible to compare the descriptions of the teeth of mammalia without them. Of late years attempts have been made by various authors to extend their use, more especially by the late Professor Garrod.

My object in the following table is four-fold :—(1) To reduce the size of our zoological treatises ; (2) To show at a glance the range of any particular structure in any given group ; (3) To show what combinations of these structures are found in nature, and the relationship of these combinations to the food, habits, and geographical distribution of the species which exhibit them ; (4) To place a powerful weapon in the hands of the Taxonomist for the determination of species.

With regard to the first point it is unnecessary to dwell on the great size and expense of our zoological works, which the traveller cannot carry or the poor student afford. In such works as Nicholson's “Indian Snakes” and Beaven's “Freshwater Fishes of India,” laudable attempts have been made to furnish students with cheap and handy



text books, but in these it is by the omission of details to a large extent that the reduction in bulk is gained.

With regard to the second point, characters that serve at one time to characterise a family, in another family are merely generic, in some genera merely specific, and in some species they vary in individuals. Their range cannot be learnt, therefore, from ordinary diagnostic treatises without much research.

My third aim can of course be only carried out by some sort of table, and I suppose no one would deny its utility, if it is only possible to accomplish it.

The fourth point to many may seem to be of little moment, but the science of Zoology depends upon the correct determination of specific names. As Linnæus pointed out in his preface to the "Systema Naturæ":—"Methodus animæ scientiæ, indigitat primo intuitu, quodcunque corpus naturale, et hoc corpus dicat proprium suum nomen et hoc nomen quæcunque de nominato corpore beneficio sæculi innotuere ut sic in summa confusione rerum apparenti summas cospiciatur naturæ ordo."\*

#### ON NUMERICAL COLUMNS.

Before considering what formulæ to employ and what signification to attach to them, it will be well to see how much can be expressed by simple numbers. These can be understood at once by all, however ignorant they may be of the technicalities employed in describing the species of the group they may be desirous of studying.

Upper labials:— $\frac{8}{345}$  shows that there are eight upper labials, the third, fourth, and fifth of which enter the eye.

P O  $\frac{1}{2}$  shows that there is one præ-ocular and two post-oculars.

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\* Method, the soul of nature, points out at first sight any natural body whatsoever, so that the body may be called by its own proper name, and this name tells us whatsoever things have become known concerning the body named, for the benefit of future generations, so that amidst the utmost apparent confusion the perfect order of nature may appear.



V  $\frac{125-161}{50-79}$  shows that there are from one hundred and twenty-five to one hundred and sixty-one ventral shields, and from fifty to seventy-nine sub-caudals, in the species.

Dr. Gunther uses the formula  $1+2, 2+2, \&c.$ , to express the arrangement of the temporal shields, meaning that there is one temporal behind the eye, followed by two others, &c.

The number of transverse rows of scales is shown in another column, and the average length attained by an adult in the last.

By placing all that can be expressed by simple numbers in vertical columns in this way, great condensation is gained, as well as facility of comparison. Expressed in words, as they are at present, these numerical characters in the rat-snake (24) run as follows:—There are 17 transverse rows of scales, and from 190 to 208 ventrals, and 95 to 135 sub-caudals. Two præ-oculars and two post-oculars; eight upper labials, the fourth and fifth entering the orbit. Two temporals immediately behind the orbit, succeeded by a second pair.

It is frequently possible to determine a species of a genus by means of these numerical columns only; thus, in the case of the four species of *Tropidonotus* found in Ceylon the following points can be seen at a glance by referring to the table:—One præ-ocular and nine upper labials, the fourth and fifth of which enter the eye, and nineteen transverse series of scales serve to indentify *T. asperimus*.

*T. stolatus* has only eight upper labials, the third, fourth, and fifth of which enter the eye.

*T. ceylonensis* has two præ-oculars and eight labials, of which only the fourth and fifth enter the eye.

*T. plumbicolor* has also two præ-oculars, but only seven upper labials. It is also at once distinguished from the preceding by having twenty-three to twenty-seven transverse series of scales.



ON THE FORMULÆ TO BE ADOPTED, AND THEIR  
MEANING.

No sooner is an attempt made to classify a series of natural objects than two great difficulties are encountered: the subtlety of nature and the difference of opinion amongst different observers as to the degrees of likeness and unlikeness between different species or groups of species. The first is well expressed by Cuvier. Speaking of his division *Dentirostres* in the *Passerine* birds, he says:—"The genera are distinguished by the general form of the bill, strong and compressed in the shrikes and in the thrushes, depressed in the fly-catchers, fine and pointed in the warblers; but the passage from one to another is so graduated that it is difficult to fix the limits of the genera."

Here we have an attempt to classify bills only, and he divides them into four types: the Shrike, the Thrush, the Fly-catcher, and the Warbler type, but finds gradations between them all. And it is almost always the same with every part in every group of the animal kingdom, the difficulty increasing with the length of the series chosen. This was well understood by Linnæus, and expressed in his celebrated maxim.\*

This difficulty might be lessened if naturalists could be brought to agree as to degrees of likeness and unlikeness between different forms: but birds have been united into one and divided into thirty-two orders. The classification of every part, and of the whole animal kingdom, is incessantly changing according to the views of different great authorities, and the new lights thrown on the subject by fresh discoveries in every department of Zoology. Nor is the individual mind free from this difficulty. The bill that appears to the student on one day to be most like the thrush's he will be more inclined to class with the fly-catcher series on another, and even with the shrikes on a third, and

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\* "Natura non facit saltum."



still he is unable to separate it from them clearly and satisfactorily, and form it into a new type.

Only the individual, as Agassiz pointed out, really exists in a material form. Species, genera, orders, classes, and other divisions used by Zoologists are but groupings together of certain series of facts by the human mind,\* and the same observation applies to the parts of animals considered separately. It would be no doubt desirable, if it were possible, in constructing zoological tables to take a definite series of types : for instance, the eagle's wing, the swallow's wing, and the plover's wing, and call them respectively *a*, *b*, and *c*. Then the student, having become thoroughly acquainted with their respective characters, would, on seeing *a*, *b*, *c* in the wing column, be provided with a mental picture of the kind of wing the species possessed opposite whose name the letter stands. But this aim is too high ; the idea of a type at first sight so precise and clear is really of the most evanescent kind when a long series of animals is studied. Take the case of the head shields in snakes.

In No. 24, *Zamenis mucosus*, the head is entirely shielded above. There are a pair of internasals and a pair of frontals ; the nasals are small and lateral, and there is a mental groove with chin shields. All these characters are of wide generality and easy to determine, being points that make a strong impression on the eye. The two genera *Simotes* and *Oligodon*, species 20 to 23, agree with *Zamenis* perfectly in these characters ; but the rostral shield is much larger, and the internasals greatly reduced in size. When first taking up the study of Ophiology the student will not be struck with these differences ; but when he learns how alike are the head shields of all those species that I have arranged under letter *a*, although belonging to such widely different groups,—ground-snakes, tree-snakes, water-snakes, snakes diurnal and nocturnal, poisonous and non-poisonous,—he will not fail to be struck by the strong

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\* Introduction to "The Natural History of the United States."



alterations in the proportions of the shields in this little group (the old family *Oligodontidæ*), although there is no structural difference.

In No. 33, *Helicops schistosus*, there is only a single internasal. This strikes the attention at once, and is a strong structural character deserving undoubtedly strong expression; but the question is, are the proportional changes in the head shields of the *Oligodons* of equal value? Whilst some minds would be more inclined to dwell on the points of likeness between *Simotes* and *Oligodon* and *Zamenis*, others would be more inclined to dwell on the peculiarities that characterise the head shields of the two former genera. There is also the subject of convenience to be considered, which depends much on the formulæ employed. These formulæ should be as simple as possible. Complicated formulæ, such as  $aa\frac{1}{1}$ ,  $aa\frac{1}{2}$ ,  $ab\frac{1}{1}$ ,  $ab\frac{1}{2}$ , are neither easy to compare, to read, or to remember. In the following table the formulæ consist of a single letter and an index figure.

For many years I have attempted to make the letters expressions of absolute types that should at once appeal to the eye and also agree in their structural characters, and hoped that the index figures would serve to complete the descriptions of the sub-divisions, so that all parts may be referred to by the same letter and figure; that is to say, all head shields under *a* shall be really exactly alike. But there is no likeness in nature. Not only do individuals differ, and the same individual at different ages, but the same individual in itself. In many snakes, especially in sea-snakes, the shields differ on the two sides of the head.

Moreover, different authorities do not take the same views. The characters used by Dr. Gunther in the "Snakes of India" are not those used by Dr. Boulenger in his "Reptiles of India and Ceylon."

The letters and figures therefore merely serve to combine characters together that I trust may prove useful to the student: the letters the more important characters and the figures the minor characters.



The head shields of species Nos. 16, 25, 26, 29, 30, and 31 all carry the formula  $a^2$ , but I do not mean to say that there are no differences between them: far from it, there may be, and indeed are, many, but I look upon them as too small to be of service in helping the student to identify the several species.

But although I cannot always carry out my original hopes, I by no means abandon aiming at them as much as possible. Thus, I do consider that the head shields included under  $a$  are really of the *Zamenis* type, that all the species agree closely with the rat-snake in this particular character.

On the contrary, I do not pretend that in the column headed "Form" that all forms under  $a$  belong to the rat-snake type. I can find no satisfactory classification of this group of forms, and have therefore contented myself with uniting them under some easily understood characters.

The way in which I have attempted to treat the subject will be best understood by a short analysis of my classification of each of the parts.

#### FORM.

The cobra (No. 45) is undoubtedly the best known snake in Ceylon, and one of the commonest, but as it is rather of an abnormal form I shall take the rat-snake, No. 24, as my type.

Now, as regards the form of this species (No. 24, *Zamenis mucosus*) there is nothing remarkable about it. The body is not very elongate, and the head and tail are not distinguished by any peculiarities in their form or proportions. A general description of its form would read thus:—Body of moderate length, rather slender, sides somewhat compressed, belly flat; head distinct, with a flat crown and somewhat depressed muzzle; tail long, cylindrical, tapering to a point. Passing on to more or less closely allied species the differences in these points are endless, and the combinations also. The body may be more cylindrical or more compressed than in the type, the belly flatter, the head more or less distinct,



the tail long, moderate, short, or very short; and it is frequently difficult, especially with specimens preserved in spirits, to decide how this or that particular should be described. There is thus an endless gradation of forms all blending into one another. However, there are some groups that stand out in bold relief. There is the cobra itself with its expansible hood, otherwise quite a normal snake form; then the little *Calamaridæ* (Nos. 10 to 14), in which the head with its pointed snout is quite continuous with the perfectly cylindrical body. These lead to the perfectly worm-like forms, such as *Typhlops* (Nos. 1 and 2), and a near relation of the cobra, *Callophis trimaculatus* (No. 42). In the tree-snakes, *Dendrophis* and *Chrysopelea* (Nos. 27, 28, and 39), we find very slender bodies with keeled bellies. In the whip-snakes (Nos. 37 and 38) the bodies are extraordinarily slender, with round bellies. In yet another form of tree-snake, *Dipsas* (Nos. 35 and 36), the body is equally elongate but strongly compressed. By another series of transitions through such forms as No. 40 (*Cerberus rhyncops*, type *d*) and No. 34 (*Chersydrus granulatus*, type *l*) we are led to the sea-snakes with their oar-shaped tails (Nos. 46 to 56, type *m*). All these forms are easily distinguishable, and form quite distinct types; but in all important respects, or, rather, in such characters as can be easily expressed, there is nothing to separate No. 23 (*Oligodon subgriseus*) and No. 3 (*Python molurus*) from type *a*, No. 24 (*Zamenis mucosus*). Yet no one could say that there is any likeness between these three forms. But if an attempt is made to define these forms by the comparative length of the snout or tail, or distinctness of the head, it will be found that all these characters fail, as other species show every gradation in these respects.

It is probable that if all the animal forms, past, present, and to come, were to pass before a Zoologist in a vision, that he would find that the animal kingdom is like the French Republic, one and indivisible; and that there would be no lines of absolute demarcation to be found anywhere from the jelly fish to man. And the same of course would apply to



the parts of animals considered separately: in fact, the gradations in form would be perfect from any known snake to any other, from the little worm-like burrower to the oar-tailed sea-snake. There is a *Tropidonotus* (Nos. 29 to 32) that shows such an inclination to develop the hood of the cobra that it suffers largely by its resemblance.\* But these tables are only concerned with facts as they exist: when a type can be defined it is represented by a letter; when it cannot, the letter stands for a combination of useful characters.

#### VENTRALS AND SUB-CAUDALS.

Besides the form, the other characters used in the diagnosis of snakes are the scales, mouth, nostrils, eyes, teeth, and colour. In normal snakes, however, the scales can be treated of under three distinct heads: the shields on the belly, the scales on the back and sides, and the shields of the head. The ventral shields are of great importance, as they are the organs of locomotion in snakes, taking the place of limbs in other animals. A reference to the explanatory part of the following table will show in how small a space, and with what clearness, a full description of these shields can be given for all Ceylon species.

In the rat-snake (No. 24) the sub-caudals are two-rowed, in the poisonous *Bungarus* (Nos. 43 and 44) simple. This is a distinction that at once strikes the eye; but striking and important as this character generally is, the great snake-eating snake of India (*Ophiophagus*) has them sometimes partly two-rowed and partly simple. Another character that does not immediately strike the observer, but which is very easily seized and very important, is the character of the last ventral or anal shield, whether it is simple or bifid.

The ventrals may also be either smooth or keeled, and when the keels are strongly developed we have another well-marked type.

These important characters give for Ceylon snakes five

\* See Gunther's "Reptiles of British India," p. 262, pl. XXII., fig. C.



well-characterised types: *a* (No. 24), the rat-snake type; *b* (No. 45), the cobra type; *c* (No. 27), the tree-snake type; *d* (No. 43), the *Bungarus* type; and *e* (No. 16), a union of types *c* and *d* in *Lycodon carinatus*.

In this little table I consider my ideal as nearly as possible attained; I know of nothing more, or at least of nothing useful, that can be said of the ventrals of the cobra than is said under *b*<sup>1</sup>, *i.e.*, well-developed, broad, smooth, sub-caudals two-rowed, anal entire; and the other six species have their ventrals and sub-caudals exactly the same. Here the letters and figures express, as they should always express if possible, exact identity in all particulars that cannot be expressed by numbers; and at the same time refer to full descriptions.

#### SCALES.

In the rat-snake (No. 24) the scales are confined to the back and sides; they are imbricate, polished, and but partially or feebly keeled, and the form may be characterised as lanceolate. Most of the species grouped under *a* have the scales quite smooth. In others there are apical pits on the scales, and some or all of the scales may be feebly keeled, minute particulars, generally requiring a lens to make them out.

Many snakes have the scales more or less keeled. These form section *b*, and in *Tropidonotus asperrimus* the scales are very strongly keeled; but there is every gradation between this form and that of the rat-snake, in which some of the scales are very slightly keeled. In *Bungarus* (No. 43) the scales are smooth, but there is a larger vertebral series. In the whip-snake (No. 37) the scales are very imbricate and narrow.

This character is combined with a larger vertebral series in the tree-snakes, such as No. 35 and 36, *Dipsas*. In the remaining snakes there are no true ventrals; in all the burrowing snakes the scales are highly polished; in the *Uropeltidae* (Nos. 5 to 9) there is a rough disc at the end of the tail; in the sea-snakes the scales are always unpolished, sometimes



imbricate and sometimes tessellated, with every gradation between the two extremes; in the curious *Chersydrus* (No. 34) the scales are merely rough warts thickly set over the head and body.

### THE HEAD SHIELDS.

The description of the head shields of *Zamenis mucosus* under letter *a* is a very full one: all the most important characters are given, and when a snake differs from this species in any of these characters I consider that these differences ought to be expressed by a new letter. There appear to me to be thirteen quite distinct types of head shields in Ceylon snakes, expressed by the letters *a* to *n*. By means of the index figures it would be possible to extend these descriptions to any length. Following Dr. Gunther, No. 24, *Z. mucosus*, *a*<sup>1</sup>, might read thus: "Rostral broader than high; two nasals; three loreals; upper labials all reaching the labial margin; internasals more than half the size of anterior frontals, pointed in front; one præ-ocular reaching to the upper surface of the head; frontal five-sided; basal margin shorter than lateral, which are slightly concave; posterior margins converging to a point; supra-ocular projecting;

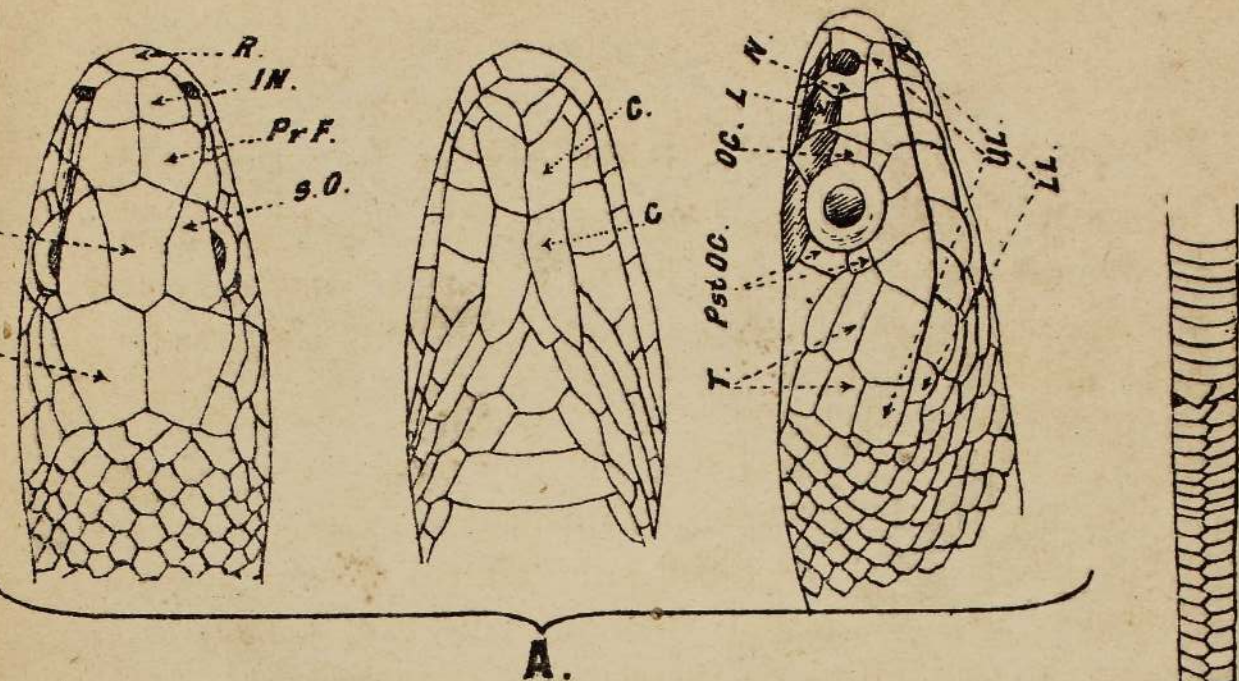
#### *Explanation of the Plate.*

#### **A** = HEAD SHIELDS OF THE *a* TYPE.

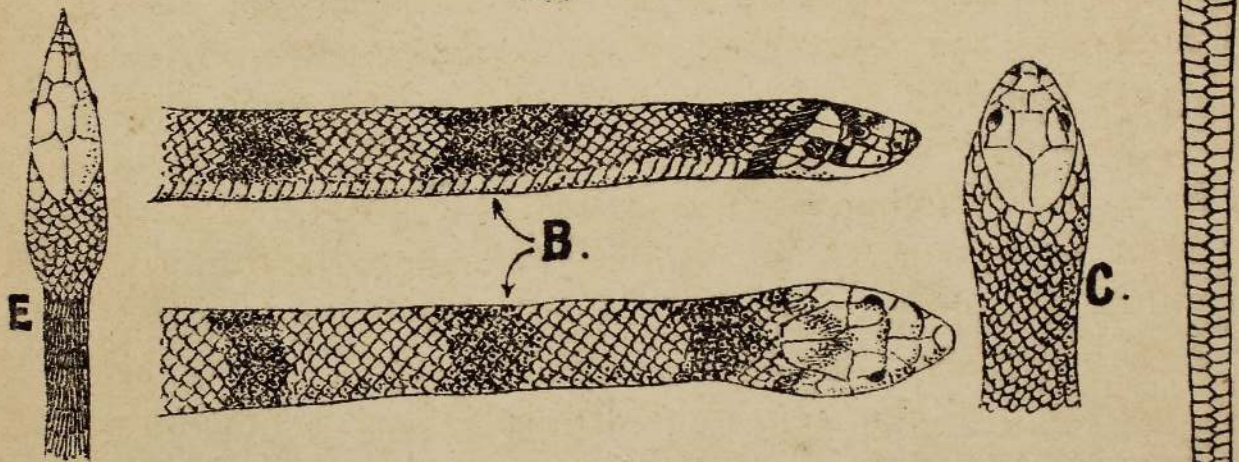
R.	= rostral.	Pst OC.	= post-oculars.
IN.	= internasal.	T.	= temporals.
PrF.	= præ-frontals.	UL.	= upper labials.
F.	= frontal.	LL.	= lower labials.
S.O.	= supra-ocular.	C.	= chin shields.
P.	= parietal.	<b>I.</b>	= ventral and caudal shields of the <i>a</i> <sup>1</sup> type.
N.	= nasals.	<b>II.</b>	= ventral and caudal shields of the <i>d</i> type.
L.	= loreal.		
OC.	= pre-oculars.		

Types **L**, **M**, and **N** are not given, as they can be easily understood from the description. Type **G** is much like **F**, but the front margin of the orbit is formed by the præ-frontals.





A.

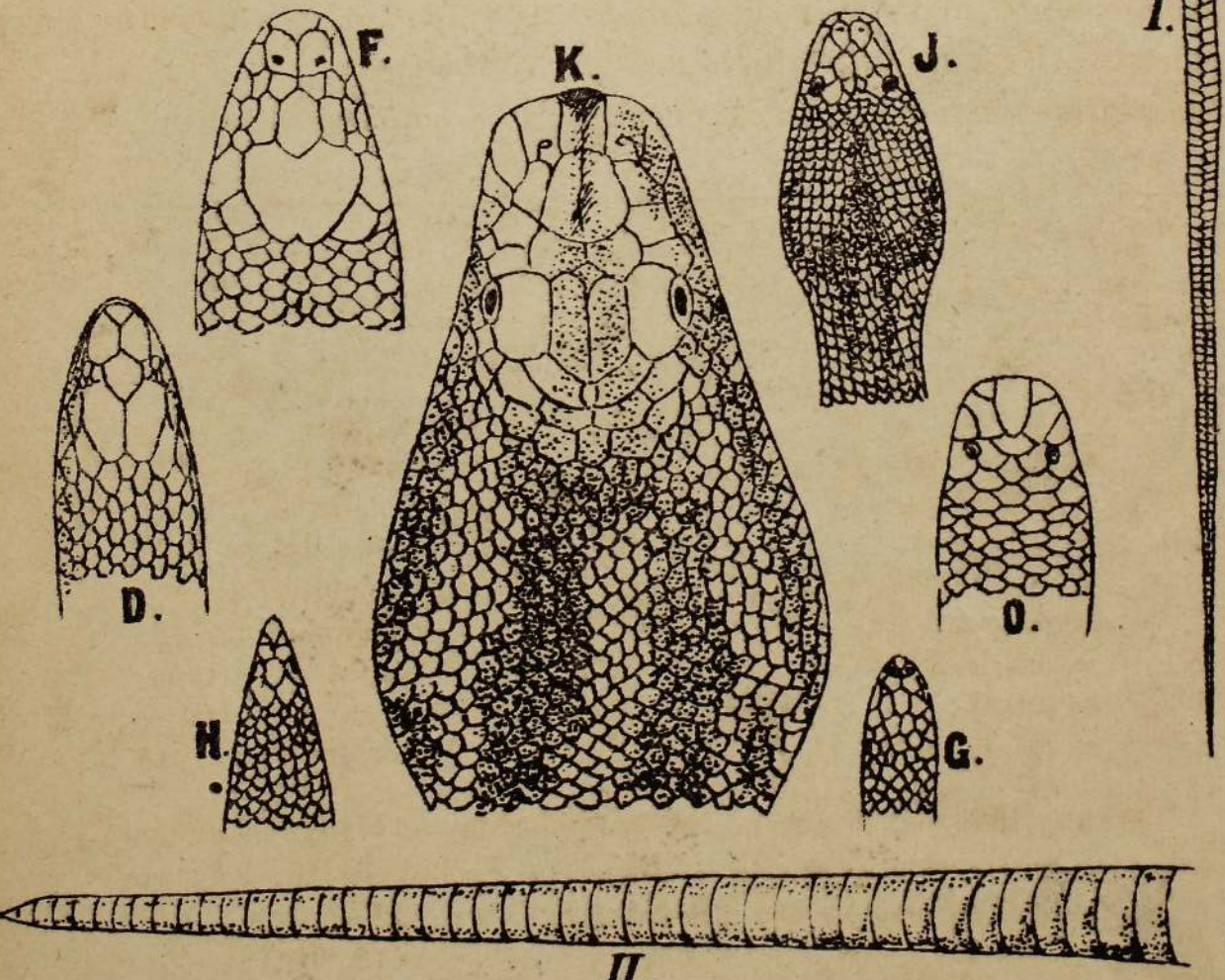


B.

C.

E.

I.



F.

K.

J.

D.

H.

O.

G.

II.







parietals not much longer than frontal, in contact with post-oculars; temporals regular, elongate; posterior chin shields longer than anterior.

Then, No. 30, *Tropidonotus stolatus*, might stand as  $a^2$ . Repeating no characters that are the same as in  $a^1$ , the full description would run thus: One loreal, large, square; internasals less than half the size of posterior frontals; supra-ocular not projecting, parietals rounded behind; superior præ-ocular reaching upper surface of head.

Or, following Dr. Boulenger, the three following species would read thus:—

$a^1$ , *Z. mucosus*.—Rostral a little broader than deep, visible from above; internasals about as broad as long, the suture between them shorter than that between the præ-frontals; frontal as long as its distance from the end of the snout, as long as the parietals, or slightly shorter; usually three loreals; five lower labials in contact with the anterior chin shields, which are shorter than the posterior; the latter in contact anteriorly.

$a^2$ , *T. stolatus*.—Rostral just visible from above; internasals much narrowed anteriorly, sub-triangular, with the anterior angle truncated, the suture between them nearly as long as that between the præ-frontals; frontal longer than its distance from the end of the snout, as long as the parietals; a single loreal as long as deep, or deeper than long; five to six lower labials.

$a^3$ , *T. asperrimus*.—As in  $a^2$ , but the rostral is visible from above; frontal sometimes a little shorter than the parietals; loreal nearly as long as deep; five lower labials.

And so the descriptions might be carried on through all the snakes of Ceylon or of the world that have head shields of the type  $a$ . But are these minute details of any use to the student, or of any real interest?

In the great "Historie Naturelle des Poissons" of Cuvier and Valenciennes the description of the common perch is given with the most precise minuteness, even to the curves of the profile; but the system is only fitfully carried out.



It would be impossible to compare the upper profile of the perch with all other fish of the same family or of the same type of form, nor is it easy to see what use there would be in doing so. In point of fact the greater number of the descriptions in this work are as short as those given in the "British Museum Catalogue of Fishes," although by no means so precise.

There are only sixty species in the following table. In treating of the birds of Ceylon (320 species), or of the fish (between 800 and 900 species), even giving separate tables for such groups as may be characterised as Orders, the omission of minor details would be an absolute necessity if the requisite compression of space is to be obtained.

The index figures, therefore, under head shields are only used to point out the more striking characters, and those most useful for the purpose of identification. There are many differences between Nos. 16, 25, 26, 29, 30, and 31, but as in all the nasal is completely divided into two, the loreal single and squarish in form, and all the labials reach the labial margin, and the supra-ocular does not project, they are arranged under  $a^2$ .

In the case of No. 32, *Tropidonotus plumbicolor* (head shields  $a^3$ ), the index figure only points to a tendency to vary, not to any absolute character always diagnostic of that species. Such licenses must be allowed if an attempt is to be made to follow the endless variations, gradations, and combinations to be found in any long series of animals.

#### EYES, NOSTRILS, MOUTH, TEETH.

The eyes, nostrils, and mouths of snakes vary little ; when they do they give the student easily-seized points for finding out what is before him. The visibility or invisibility of the rudimentary eye in the little species of *Typhlops* will furnish him with important aid in the most difficult task the Ceylon Ophiologist has to encounter, viz., name these little worm-like snakes. Finally, he has to examine the teeth. This is best done by carefully cutting out the jaws and palatine



bones of one side, or, if not a rare species, cutting off the head of a spirit specimen and skinning it, then drying it hard in the hot sun. Prepared in this way the gums will shrivel and the teeth protrude, and none will be lost. It will be seen that the gums are crowded with teeth, the more advanced ready to take the place of those in use. Thus, the cobra seems at first sight to have several fangs, but only one on each side is united with the bone, and in actual use.

The teeth in No. 27 (*Dendrophis pictus*) and No. 39 (*Chrysopelea ornata*) are identical, or almost so to the eye; but in No. 39 some of the last teeth in the upper jaw (posterior maxillary) are grooved. This is a very slight character, and difficult to demonstrate. Schlegel took no notice of this distinction, and united Nos. 27 and 39 in the same genus, *Dendrophis*. Boie places *D. ornata* in another genus, *Chrysopelea*, in which Dr. Gunther follows him, keeping *Dendrophis* and *Chrysopelea* in the same family, *Dendrophidæ*. Professor Huxley, in his "Anatomy of Vertebrates," divides the order *Ophidia* into sub-orders according to their dentition. In the *Aglyphodontia* none of the maxillary teeth are grooved, in the *Ophisthoglyphia* some of them are; hence the genera *Dendrophis* and *Chrysopelea* are at once widely separated. Dr. Boulenger does not consider the *Ophidia* as an order, but only a sub-order, and three of Professor Huxley's sub-orders are merely sections of the family *Colubridæ*. This, however, makes no change in the relative positions of the above-named genera: they belong to different sections.

Whether this difference really separates these two very closely allied species so widely is not a subject for consideration here. I have only to consider how the teeth are to be treated, considered apart from their other characters; and I think there can be no doubt that they do belong to different types.

We find a series of types *a* to *h* including all the species from 1 to 34, in which grooved teeth never occur; and another



including the species from 35 to 41, in which one or more of the last teeth in the upper jaw are grooved. Both series include types of different appearance to the eye. We may therefore look upon type *j* as an imitation of type *a*, but differing in a fundamental point of structure. The same order of relation is of constant occurrence in the animal kingdom. Thus, many marsupial mammals are externally, in some cases exactly, like species belonging to orders very far removed by their anatomical characters. All such cases of difference of structure disguised by similarity of appearance should be expressed by a letter.

#### HABITS AND GEOGRAPHICAL DISTRIBUTION.

These subjects have been so little worked out that the student must consider the tables as mere sketches to show that they are susceptible of the same treatment as the actual material facts expressed in the animals themselves. The anatomical characters can of course be tabulated in the same manner; but in order to do this a complete collection of skeletons and specimens showing the myology, splanchnology, and neurology of Ceylon snakes would be required.

#### COLOUR.

Colour, in the limited number of snakes found in Ceylon, is scarcely susceptible of a natural classification. I think, however, that in all cases—even if treating of the birds of the world, for instance—that the plan adopted in the following table would be an advantage. An artificial key is given by arranging the species according to the colour of the belly, which is either white or yellow, immaculate, or more or less spotted with black, or of much the same tint as the rest of the body, or, in a few cases, darker. Then the general ground colour and the position of each tint is given, commencing with the black and going through to the white in the order of their intensity. This plan admits of great condensation of the descriptions, and by observing the black marks alone many species can be identified with



certainty. In the case of birds this system would, I believe, be invaluable. The great "British Museum Catalogue of Birds" now extends to eleven volumes, and is not nearly finished, and there are no descriptions given of either orders, families, or genera: the work is almost entirely occupied with descriptions of colour and with the synonymy. Now I find that it is possible to shorten descriptions of 250 words to 80 or 90, and no particulars omitted; but if minute differences of tint are omitted, and brown made to include blackish-brown, pale-brown, and rich-brown, for instance, a still further compression could be effected; and if closely allied birds are compared, and their differences from the first in the list only expressed, in many instances very few words would suffice. The section under which the colour is described is given in the colour column. The tyro should try this character first and learn the rest afterwards.

#### CLASSIFICATION.

With the classification of snakes this table has nothing to do; the student can adopt any classification he likes from that of Linnæus to the present day. The arrangement followed is that of the latest authority, Dr. Boulenger, in the "Fauna of British India." Whatever may be the merits or demerits of this classification, it is far too advanced for the beginner. I will therefore give the synopsis of it, and then give a modification of it founded on that in Dr. Gunther's "Reptiles of British India," which will be much more easily understood:—

Order III.—*Squamata*. Quadrate bone free distally; no lower temporal arch; ribs single-headed; no plastron; teeth not implanted in alveoli; anal opening transverse; copulatory organ present, paired.

Sub-Order III.—*Ophidia*. Nasal bones bounding nasal apertures; vomers distinct; mandibular rami connected by ligament; no trace of pectoral arch; tongue flattened and bifid at the end, and sheathed at the base.



**A** = No transpalatine; pterygoids not extending to quadrate or mandible; no supra-temporal; præ-frontal forming a suture with nasals; coronoid present; vestiges of pelvic arch.

*a* Maxillary vertical, loosely attached, toothed; mandible edentulous; a single pelvic bone. Family *Typhlopidae*, Nos. 1 and 2. The *Glauconiidae* are not found in Ceylon.

**B** = Transpalatine present; both jaws toothed.

*a* Coronoid present; præ-frontals forming a suture with the nasals.

*a*<sup>1</sup> Vestiges of hind limbs; supra-temporal present.

*a*<sup>2</sup> Supra-temporal large, suspending the quadrate. *Boidæ*, No. 3.

*b*<sup>2</sup> Supra-temporal small, intercalated in the cranial wall. *Ilysiidae*, No. 4.

*b*<sup>1</sup> No vestiges of hind limbs; supra-temporal absent. *Uropeltidae*, Nos. 5 to 9.

*b* Coronoid absent; supra-temporal present, suspending the quadrate.

*a*<sup>1</sup> Maxillary horizontal; pterygoids reaching quadrate or mandible.

*a*<sup>2</sup> The *Xenopeltidae* are not represented in Ceylon.

*b*<sup>2</sup> Præ-frontals not forming a suture with nasals. *Colubridæ*.

Series A.—*Aglyphia*. All the teeth are solid, not grooved; harmless.

Sub-Family I.—*Colubrinæ*. Post-frontal bone not produced over supra-temporal region; scales imbricate; head shields and ventrals large. Nos. 10 to 33.

Sub-Family II.—*Acrochordinæ*. Post-frontal bone produced over the supra-orbital region; scales not imbricate. No. 34.



Series B.—*Ophisthoglypha*. One or more of the posterior maxillary teeth grooved. Suspected as poisonous to a slight degree.

Sub-Family III.—*Dipsadinae*. Nostrils lateral. Nos. 36 to 39.

Sub-Family IV.—*Homalopsinae*. Nostrils on upper surface of head. Nos. 40 and 41.

Series C.—*Proteroglypha*. Anterior or maxillary teeth grooved or perforated; poisonous.

Sub-family V.—*Elapinae*. Tail round, caudal; hypapophyses short. Nos. 42 to 45.

Sub-Family VI.—*Hydrophinae*. Tail compressed, caudal; hypapophyses long. Nos. 46 to 56.

*b*<sup>1</sup> The *Amblycephalidæ* are not represented in Ceylon.

*c*<sup>1</sup> Maxillary vertically erectile; perpendicular to transpalatine; pterygoids reaching quadrate or mandible. Family *Viperidæ*. Nos. 57 to 60.

In Dr. Gunther's work the *Ophidia* are considered as an order; by Lankester, in the "Encyclopædia Britannica," as a sub-class with four orders (1888). In 1887 Dr. Boulenger uses the term *Squamata* in the Zoological Record to include the *Lacertilia* and *Ophidia*, without, however, stating the rank of these divisions. I think that there can be little doubt this is the natural statement of the facts. The lizards and snakes are too closely allied to be looked upon as equivalents of the turtles and the crocodiles. The student then will do well to consider the snakes as a sub-order of the order *Squamata*, equivalent to the old orders of the *Lacertilia* and *Ophidia*.

Sub-Order *Ophidia*.—In cases where the lizards are limbless they can be distinguished from snakes by their flat unsheathed tongue; the true snake tongue is found in the Ceylon monitor and iguana (*Varanus bengalensis* and *salvator*), but these lizards have powerful limbs.



Family *Typhlopidae* (Nos. 1 and 2).—Agrees with Dr. Gunther's family of the same name. They are worm-like snakes without mental groove or ventral shields.

Family *Boidae* (No. 3).—Dr. Gunther's *Pythonidae*, but placed in a very different position, being removed from after the *Colubridae* to a place in front of them. They possess vestiges of hind limbs.

“In the *Typhlopidae* rudiments of hind limbs are hidden beneath the skin.” (Gunther.) “A single pelvic bone.” (Boulenger.) And in the *Tortricidae* (Gunther), *Ilysiidae* (Boulenger), “rudiments of hind limbs are hidden in a groove each side of the vent.” (Gunther.) “Vestiges of pelvis formed of three or four elements as in the *Boidae*, and terminating in a claw-like spur usually distinguishable on each side of the vent.” (Boulenger.) The python is well known to everybody. It has teeth on the præ-maxillary bones, and its tail is prehensile.

Family *Ilysiidae* (No. 4).—The *Tortricidae* of Dr. Gunther. Worm-like snakes with a mental groove, but no ventrals and rudiments of hind limbs.

Family *Uropeltidae*.—The same as Dr. Gunther's family of the same name. Worm-like snakes with truncated tails, generally terminating in a rough naked disc (Nos. 5 to 9).

Family *Calamaridae* (Nos. 10 to 14).—As far as this, with the exception of the displacement of the *Boidae* or *Pythonidae*, Dr. Gunther's and Dr. Boulenger's families agree, and the termination *idae* is used for groups that almost all Zoologists recognise by the name of families; this name expressing anatomical identity, together with outward likeness. Thus, as Agassiz says, any child can tell at sight a skipjack, a devil's coach-horse, a bombardier, a *Scarabæid*, or a weevil amongst beetles, and they are scientifically known as *Elateridae*, *Staphylinidae*, *Carabidae*, *Scarabæidae*, *Curculionidae*, and so on. If, however, we are to follow Dr. Boulenger and consider the termination *idae* as defining an anatomical group, founded, as in his *Colubridae*, entirely on the characters of the skull, under which the most heterogeneous forms to



the eye may be grouped, such as rat-snakes, tree-snakes, wart-snakes, and sea-snakes, then all previous zoological arrangements and nomenclatures will have to be abandoned throughout the animal kingdom. Nor is it possible to see the reason for this course. Family VII., *Colubridæ*, might just as well have been called a series, or *cohort*, or *legion*, or received a simple letter or number, and the old family names as far as he considered them natural, retained.

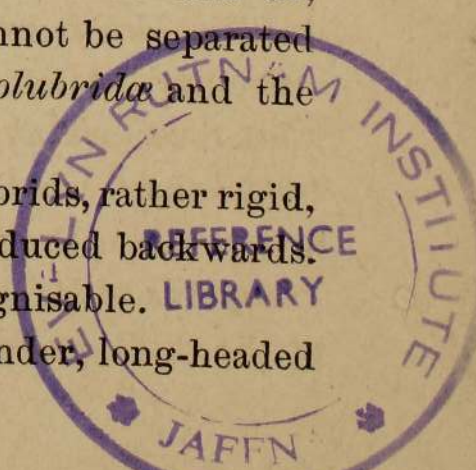
There can be no doubt that the *Calamaridæ* are a thoroughly natural family, forming a transition between the burrowing, snakes and the ordinary forms. Their muzzles are pointed, and the head forms quite a part of the body. The tail, however, tapers, and ventrals are present; there are two parietals.

*Lycodontidæ*, Nos. 15 and 16.—As in ordinary snakes, the body is flexible throughout, which, with the exception of the python, is not the case in the previous families. Ventral shields are developed, there is a mental groove, and no rudiments of hind limbs; but they have a fang-like tooth in front of the maxillary, and there is no elongate posterior tooth. No. 16, *L. carinatus*, seems to me to belong to quite a distinct genus to No. 15, *L. aulicus*. As the table shows it is a very peculiar form. Dr. Gunther placed it in the genus *Cercaspis*.

*Colubridæ*, Nos. 17, 18, 19, 24 to 26, 29 to 33.—Ordinary snakes, with no fang-like teeth in front or middle of upper jaw. The dentition of No. 19, *A. calamaria*, is very peculiar, and may possibly make it necessary to found another family for it; but I do not know to what extent this dentition extends amongst snakes. No. 33, *H. schistosus*, has a single internasal, but it is so obviously and closely related to Nos. 30 and 31, *T. stolatus* and *T. asperrimus*, that it cannot be separated from them. It is a link between the *Colubridæ* and the *Homalopsidæ*.

*Oligodontidæ*, Nos. 20 to 23.—Small colubrids, rather rigid, in which the rostral is very large and produced backwards. A perfectly natural family, and easily recognisable.

*Dendrophidæ*, Nos. 27 and 28.—Very slender, long-headed





snakes, with round pupils and no fang-like teeth. Tree-snakes. No. 17 is a transitional form between this family and the *Colubridæ*.

*Acrochordidæ*, No. 34.—Wart-snakes, instantly recognizable. Forms so peculiar that they may be placed almost anywhere. Most nearly allied perhaps to the sea-snakes. Boulenger's *Acrochordinæ*.

*Dipsadidæ*, Nos. 35 and 36.—Very elongate, compressed snakes, with short triangular heads. They are tree-snakes, generally with viperine heads, and are probably more or less poisonous.

*Dryophidæ*, Nos. 37 and 38.—The well-known whip-snakes; body excessively slender, with long heads and tapering snouts; pupil horizontal.

*Chrysopelidæ*, No. 39.—For *C. ornata*, placed by Gunther with *Dendrophis*, to which it is most closely allied, see section "Teeth." This is a case of imitative resemblance, in which one of the *Ophisthoglypha* series imitates one of the *Aglypha*.

*Homalopsidæ*, Nos. 40 and 41.—The same as Dr. Boulenger's *Homalopsinæ*. They have their nostrils on the top of the snout.

*Elapidæ*, Nos. 42 to 45.—The same as Dr. Boulenger's *Elapinæ*. Includes the cobra and its allies. The loreal shield is always absent; the venom fang is grooved along its front.

*Hydrophidæ*, Nos. 46 to 56.—Sea-snakes with oar-shaped tails. It is curious that not one of the three common and widely spread species of *Platurus* included in this family has yet been recorded from Ceylon. They are not true sea-snakes, but simply cobras modified for an aquatic life, and are found sometimes a long way from the water.

The *Viperidæ* and their sub-divisions agree with Dr. Gunther's classification:—

*a* Snakes with a long perforated erectile fang on the maxillary, which is extremely short; without other teeth.

*a*<sup>1</sup> Loreal region flat, without pit. *Viperidæ*.

*a*<sup>2</sup> Loreal region with a pit between eye and nostril.

*Crotalidæ*.



ON SNAKES RECORDED FROM CEYLON EITHER  
NOT INCLUDED IN THIS PAPER OR IN  
DR. BOULENGER'S WORK.

There is no specimen of *Rhinophis punctatus* (Boulenger, No. 293) in the Colombo Museum, nor can I find one of No. 298, *Silybura melanogaster*. No. 393, *Oligodon ellioti*, was accidentally given as Ceylon. The only specimen known in the British Museum is from Madras.

No. 419, *Dendrophis bifrenalis*, is not represented in the Colombo Museum collection. I maintain that *Dendrophis gregorii* (Haly, Taprobanian, vol. III., p. 51, 1888) is a perfectly good species. It is however now too late to insert it in the table. No. 445, *Dipsas barnesii*, is wanting in the Museum collection. No. 471, *Gerardia prevostiana*, is an undoubted Ceylon snake, a specimen having been captured by Mr. H. F. Fernando in the Kelani. No. 474, *Callophis trimaculatus*, has been found at Hambantota and Trincomalee. Any of the sea-snakes mentioned in Dr. Boulenger's work may be found off Ceylon. I have only described Museum specimens. No. 522, *Echis carinata*, has as yet only been obtained from Mullaittivu.

The old *Tropidonotus quincunciatus* of Schlegel and Gunther, the *T. piscator* of Dr. Boulenger, No. 435, has since been re-described in the "Annals and Magazine of Natural History"\* as "*T. asperrimus*, Boulenger, Ceylon." I cannot accept this separation of our Ceylon specimens as forming a distinct species. I do not see that the characters given by Dr. Boulenger make at the most more than an Island variety, if even that. There is a very fine specimen in the Museum with the quincuncial spots as in Indian specimens. I therefore advise the student to alter No. 31, *T. asperrimus*, to—"*T. piscator*, Boie. India, Ceylon, Burma, S. China to the Malay Peninsula and Archipelago."

\* Annals and Magazine of Nat. Hist., March, 1891, p. 281.



**FORM.****A = 24 ZAMENIS MUCOSUS.**

Body of moderate length, more or less cylindrical ; belly flat, more or less rounded ; head rarely very distinct from neck, with a flat crown, and more or less depressed muzzle ; tail cylindrical, tapering to a point.

- 1.—Head elongate, distinct from neck ; snout obtuse, slightly projecting. 24 *Z. mucosus*.
- 2.—As in  $a^1$  ; snout curved and prominent. 25 *Z. fasciolatus*.
- 3.—As in  $a^1$  ; snout not projecting. 26 *C. helena* ; 29 *T. ceylonensis* ; 30 *T. stolatus* ; 31 *T. asperrimus*.
- 4.—Head very distinct from neck ; body stout, viperine aspect. 32 *T. plumbicolor*.
- 5.—Head slightly distinct from neck ; body rather stout. 33 *H. schistosus*.
- 6.—Head short, not distinct from neck ; tail very short. 20 *S. arnenis* ; 21 *O. templetonii* ; 22 *O. sublineatus* ; 43 *B. ceylonicus* ; 44 *B. cæruleus*.
- 7.—As in  $a^6$ , but tail longer. 23 *O. subgriseus*.
- 8.—Head short, scarcely distinct from neck ; tail moderate. 18 *P. subpunctatus* ; 19 *A. calamaria* ; 41 *G. prevostiana*.
- 9.—Head scarcely distinct from neck ; snout much depressed, with swollen lips, spatulate in the adult. 15 *L. aulicus*.
- 10.—Head long and broad, very distinct ; snout long ; tail very short, prehensile. 3 *P. molurus*.

**B = 45 NAIA TRIPUDIANS.**

As in  $a$ , but the neck is extensible, forming a hood when spread out.

**C = 10 ASPIDURA BRACHYHORROS.**

Body cylindrical ; head not distinct from neck, subconical ; snout pointed.



1.—Body stout; tail rather short. 10 to 13, *Aspidura*, all species.

2.—Body slender. 14 *H. ceylonensis*.

**D** = 40 CERBERUS RHYNCOPS.

Head with elevated crown; snout high; body stout; tail rather compressed at root.

**E** = 27 DENDROPHIS PICTUS.

Body elongate, somewhat compressed; head elongate, distinct; belly keeled; tail long.

1.—Body very elongate and slender. 27 *D. pictus*; 28 *D. caudolineatus*.

2.—As in *e*<sup>1</sup>, but the snout is depressed, truncated. 39 *C. ornata*.

3.—As in *e*<sup>1</sup>, but the body is moderately elongate. 17 *H. nympha*.

**F** = 37 DRYOPHIS MYCTERIZANS.

Body and tail exceedingly elongate; body compressed; head long, very distinct from neck; snout produced into an elongate flexible appendage; sides of muzzle deeply grooved. 37 *D. mycterizans*; 38 *D. pulverulentus*.

**G** = 35 DIPSAS CEYLONENSIS.

Body and tail exceedingly elongate; body compressed; head very distinct, with a short blunt snout. 35 *D. ceylonensis*; 36 *D. forstenii*.

**H** = 57 VIPERA RUSSELLII.

Body robust; head very distinct from neck; snout triangular.

1.—Snout obtuse; tail short. 57 *V. russellii*.

2.—As in *h*<sup>1</sup>, but snout slightly turned up, with a sharp canthus rostralis. 59 *A. hypnale*.

3.—Snout very short; tail moderate, prehensile. 60 *T. trigonocephalus*.



**J** = 58 *ECHIS CARINATA*.

Body robust; head scarcely distinct from neck, thick and high, with a very short snout; tail short. 58 *E. carinata*.

**K** = 16 *LYCODON CARINATUS*.

Body much compressed posteriorly; belly keeled; head with short and blunt snout; tail compressed. 15 *L. aulicus*.

**L** = 34 *CHERSYDRUS GRANULATUS*.

Body much compressed; belly compressed to a central keel; head scarcely distinct, with high square snout; tail strongly compressed, tapering to a point. 34 *C. granulatus*.

**M** = 47 *HYDRUS PLATURUS*.

Tail strongly compressed; oar-shaped.

1.—Body short. 47 *H. platurus*.

2.—Body short and stout. 46 *E. curtus*.

3.—Head moderate; body stout. 52 *D. stokesii*.

4.—Head rather small; body moderately elongate. 48 *H. spiralis*.

5.—Head short with a declivous pointed snout; body moderately elongate. 53 *D. jerdonii*.

6.—Head moderate; body moderately elongate. 54 *D. robusta*; 56 *D. ornata*.

7.—Head moderate; body elongate. 55 *D. cyanocincta*.

8.—Head very small; body long, with an extremely slender neck. 49 *H. fasciatus*; 50 *H. gracilis*; 51 *H. cantoris*.

**N** = 42 *CALLOPHIS TRIMACULATUS*.

Body worm-like, being cylindrical, of nearly equal thickness throughout; very slender; tail not distinct, ending in a blunt point.



**O** = 4 CYLINDROPHIS MACULATUS.

As in *n*, but the body is stout. 4 *C. maculatus*.

**P** = 1 TYPHLOPS BRAMINUS.

As in *n*, but the head is quite undistinguishable from the body; the snout is slightly depressed and rounded.

1.—Snout moderate, projecting; diameter of the body 35 to 55 times in the total length. 1 *T. braminus*.

2.—As in *p*<sup>1</sup>; diameter of body 43 to 60 times in the total length. 2 *T. mirus*.

**Q** = 6 RHINOPHIS OXYRHYNCUS.

Body cylindrical; head conical; snout pointed; tail not distinct, more or less truncated.

1.—Snout acutely pointed; diameter of body 37 to 39 times in the total length. 6 *R. oxyrhynchus*.

2.—As in *q*<sup>1</sup>; diameter 24 to 34. 7 *R. planiceps*.

3.—As in *q*<sup>1</sup>; diameter 26 to 30. 8 *R. trevelyanus*.

4.—As in *q*<sup>1</sup>; diameter 22 to 32. 9 *R. blythii*.

5.—Tail obliquely truncated as if cut with a knife; snout acutely pointed; diameter 20. 5 *U. grandis*.

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**VENTRALS.**
**A** = 24 ZAMENIS MUCOSUS.

Ventrals well developed, smooth, or slightly keeled; sub-caudals two-rowed; anal bifid.

1.—Ventrals broad, smooth. 15, 18 to 25, 29 to 33, 37 to 42.

**B** = 45 NAIA TRIPUDIANS.

As in *a*; anal entire.

1.—Ventrals broad, smooth. 26, 35, 36, 45, 57, 59.

2.—Ventrals very narrow. 3.

3.—Ventral preceding anal deeply notched. 60.

**C** = 27 DENDROPHIS PICTUS.

As in *a*; ventral keeled. 17, 27, 28, 39.



**D** = 43 BUNGARUS CEYLONICUS.

As in *a* ; sub-caudals simple ; anal entire. 10 to 14, 43, 44, 58.

**E** = 16 LYCODON CARINATUS.

Ventrals keeled ; sub-caudals simple ; anal entire. 16.

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**S C A L E S .**

**A** = 24 ZAMENIS MUCOSUS.

Scales confined to the back and sides, imbricate, polished smooth, or but partially or feebly keeled.

- 1.—Scales moderate, with apical pits, feebly keeled in the posterior part of the back. 24.
- 2.—With apical pits. 17, 25, 39.
- 3.—Feebly keeled on the posterior part of the body and tail. 26.
- 4.—Smooth. 10 to 13, 15, 18 to 23, 41, 42, 45, 60 (or feebly keeled).
- 5.—Smooth, very small. 3.

**B** = 31 TROPIDONOTUS ASPERRIMUS.

As in *a*, but the scales are distinctly keeled.

- 1.—No serrated keels. 14, 16, 29 to 33, 40, 57, 59.
- 2.—Keels on lateral scales serrated. 58.

**C** = 43 BUNGARUS CEYLONICUS.

As in *a*, but with a larger series of polygonal vertebral scales. 43, 44.

**D** = 37 DRYOPHIS MYCTERIZANS.

Scales very imbricate, quadrilateral (rhombic on the anterior part of the body). 37, 38.

**E** = 35 DIPSAS CEYLONENSIS.

As in *d*, but with a larger series of polygonal vertebral scales. 27, 28, 35 to 39.



**F** = 4 CYLINDROPHIS MACULATUS.

Scales surrounding the whole body (*i.e.*, there are no true ventrals), smooth, highly polished, slightly imbricate.

- 1.—A series of ventral scales slightly larger than the adjoining ones. 4.
- 2.—No large ventral series. 1, 2.

**G** = 6 RHINOPHIS OXYRHYNCUS.

As in *f*, but there is a rough naked disc on the end of the tail.

- 1.—Caudal shield as long as the shielded part of the head, extending to lower surface of tail; obtusely rounded caudal scales, smooth. 6, 7, 8.
- 2.—Caudal shield less than half the size of the head; asperous, scarcely ridged in the centre; faint traces of keels on some of the final caudal scales, and sometimes on terminal upper. 9.
- 3.—Caudal shield forms a large flat rough disc; very faint traces of keels on terminal sub-caudal scales. 5.

**H** = 47 HYDRUS PLATURUS.\*

Scales unpolished, surrounding the whole body; the ventral series as a rule distinguished in some way from the rest; never strongly imbricate and frequently tessellated.

- 1.—All the scales more or less hexagonal, tessellated; smooth in the females and young, with one to three tubercles in the male; no larger ventral series. 47 *H. platurus*.
- 2.—As in *h*<sup>1</sup>. Scales feebly tubercled or keeled; those on the lower surface in the male with a strong spinose tubercle; ventrals larger anteriorly, with two spinose tubercles in the male. 46 *E. curtus*.
- 3.—All the scales imbricate, smooth in the young, with a central tubercle in the adult; ventral series feebly enlarged. 48 *H. spiralis*.

\* The scales of sea snakes are counted round the neck; they are more numerous round the middle of the body.



- 4.—As in  $h^3$ . Scales of neck smooth, those on the body with a tubercle or short keel. 49 *H. fasciatus*.
- 5.—Scales imbricate anteriorly, elsewhere hexagonal, tessellated, each with two or more tubercles; feeble in the female; ventrals hardly enlarged. 50 *H. gracilis*; 51 *H. cantoris*.
- 6.—All the scales imbricate, keeled, or tubercled; ventrals enlarged anteriorly, further back in pairs. 52 *D. stokesii*.
- 7.—Scales slightly imbricate, strongly keeled; ventrals feebly enlarged; bituberculate. 53 *D. jerdonii*.
- 8.—Much as in  $h^7$ , but the scales may be smooth or have a tubercle or short keel. 54 *D. robusta*.
- 9.—Much as in  $h^7$ ; the keel may be broken up into tubercles, and the ventrals may be smooth. 55 *D. cyanocincta*.
- 10.—Much as in  $h^5$ ; scales in the young smooth, in the adult with a tubercle or keel. 56 *D. ornata*.

**J = 34** *CHERSYDRUS GRANULATUS*.

Scales very small; rough, round warts, each with a small tubercle. Those occupying the medium ventral fold have a very short keel ending in a minute point. 34.

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**HEAD SHIELDS.**

**A = 24** *ZAMENIS MUCOSUS*.

Head entirely shielded above; rostral not produced or enlarged; a pair of internasals and præ-frontals; the internasals never much reduced in size; anterior frontals neither in contact with the labials nor forming part of the labial margin, which is formed by many shields; nasals small, lateral; a mental groove; chin shields symmetrically arranged.

- 1.—Two nasals; two or three loreals (three generally); all the upper labials reach labial margin; supra-ocular projecting. 24 *Z. mucosus*.



- 2.—Two nasals; one loreal, which is never much longer than broad; all the upper labials reach labial margin. 16 *L. carinatus*; 25 *Z. fasciolatus*; 26 *C. helena*; 29 *T. ceylonensis*; 30 *T. stolatus*; 31 *T. asperrimus*.
- 3.—As in  $a^2$ , but the loreal is liable to become fused with the lower præ-ocular. 32 *T. plumbicolor*.
- 4.—As in  $a^2$ , but the loreal is elongate. 27 *D. pictus*; 28 *D. caudolineatus*; 39 *C. ornata*.
- 5.—As in  $a^2$ ; nasal subdivided; loreal fused with lower præ-ocular. 17 *H. nympha*.
- 6.—As in  $a^2$ ; a single nasal fused with the loreal. 19 *A. calamaria*.
- 7.—As in  $a^2$ ; seventh and ninth upper labials exclude the eighth from the labial margin; the eighth looks like a temporal. 18 *P. subpunctatus*.
- 8.—As in  $a^2$ ; the posterior nasal more or less deeply concave. 35 *D. ceylonensis*; 36 *D. forstenii*.
- 9.—As in  $a^2$ ; loreal very large, twice as broad as long, received into a notch between the internasal and anterior frontals. 15 *L. aulicus*.
- 10.—As in  $a^2$ , but the loreal is entirely wanting. 42 *C. trimaculatus*; 43 *B. ceylonicus*; 44 *B. cæruleus*; 45 *N. tripudians*.

**B** = 20 SIMOTES ARNENSIS.

As in  $a$ , but the rostral is large and produced backwards, reducing the internasals to narrow transverse shields.

- 1.—All the labials reach labial margin; two nasals; the loreal liable to be fused with præ-frontal. 20 *S. arnensis*.
- 2.—As in  $b^1$ ; loreal sometimes absent. 22 *O. sublineatus*.
- 3.—As in  $b^1$ ; loreal present. 23 *O. subgriseus*.
- 4.—As in  $b^1$ ; loreal longer than deep, entering the eye (fused with lower præ-ocular?); fifth and seventh labials excluding sixth from labial margin. 21 *O. templetonii*.



**C** = 33 *HELICOPS SCHISTOSUS*.

As in *a*, but only a small single internasal.

- 1.—Frontal of the usual form. 33 *H. schistosus*.
- 2.—Frontal elongate, with concave sides. 41 *G. prevostiana*.

**D** = 10 *ASPIDURA BRACHYHORROS*.

A single internasal; anterior frontals in contact with the labials; nasals placed on front margin of snout.

- 1.—Two nasals, no loreal; præ-frontals separated from the eye by a præ-ocular. 10 *A. brachyhorros*; 14 *H. ceylonensis*.
- 2.—As in  $d^1$ ; no præ-ocular; præ-frontal enters the eye. 11 *A. copii*.
- 3.—As in  $d^1$ ; præ-ocular very small; præ-frontal enters the eye. 12 *A. guentheri*; 13 *A. trachyprocta*.

**E** = 37 *DRYOPHIS MYCTERIZANS*.

As in *a*; rostral produced into a flexible nasal appendage; anterior frontals in contact with the labials. 37 *D. mycterizans*; 38 *D. pulverulentus*.

**F** = 47 *HYDRUS PLATURUS*.

A pair of very large contiguous nasals cover the snout; no internasals.

- 1.—Chin shields absent, or merely larger scales; temporals small, numerous. 47 *H. platurus*.
- 2.—Chin shields indistinct or very small; two or three superimposed temporals; parietals broken up into small shields generally, although sometimes only divided in two (in one specimen parietal on one side is only notched). 46 *E. curtus*.
- 3.—A single anterior temporal; frontal as long as its distance from rostral; two pairs of subequal chin shields in contact. 48 *H. spiralis*; 49 *H. fasciatus*.
- 4.—As in  $f^1$ ; frontal very small, hardly as long as distance from rostral. 50 *H. gracilis*; 51 *H. cantoris*.



- 5.—Two superimposed anterior temporals ; frontal as long as its distance from the rostral ; no chin shields ; rostral as deep as broad. 52 *D. stokesii*.
- 6.—A single large anterior temporal descending to the labial margin ; frontal nearly as long as its distance from the end of snout ; chin shields, two pairs in contact. 53 *D. jerdonii*.
- 7.—As in  $f^6$  ; rostral broader than deep. 54 *D. robusta*.
- 8.—As in  $f^7$  ; two superimposed anterior temporals. 55 *D. cyanocincta*.
- 9.—As in  $f^7$  ; two or three superimposed anterior temporals ; posterior chin shields, if distinct, separated by scales. 56 *D. ornata*.

**G** = 4 CYLINDROPHIS MACULATUS.

A pair of very large contiguous nasals cover the snout, succeeded by a pair of anterior frontals, which are in contact with the labials and form anterior margin of orbit. 4 *C. maculatus*.

**H** = 6 RHINOPHIS OXYRHYNCUS.

Head shields scale-like or slightly imbricate ; rostral very large, produced backwards ; a pair of anterior frontals ; a single ocular shield ; no mental groove or chin shields.

- 1.—Rostral strongly keeled, half as long as shielded part of the head. 6 *R. oxyrhyncus*.
- 2.—Rostral obtusely keeled, not half as long as shielded part of the head. 7 *R. planiceps* ; 8 *R. trevylanus* ; 9 *R. blythii*.
- 3.—Rostral convex. 5 *U. grandis*.

**J** = 40 CERBERUS RHYNCOPS.

Occiput scaly ; internasals small ; nasals anterior, superior, contiguous ; lower margin of orbit formed by an infra-ocular shield. 40 *C. rhyncops*.



**K** = 3 PYTHON MOLURUS.

Occiput scaly; snout with irregular shields; rostral and some of the labials deeply pitted; no chin shields.  
3 *P. molurus*.

**L** = 59 ANCISTRODON HYPNALE.

Large frontal and parietal shields, but the snout is scaly. 59 *A. hypnale*.

**M** = 57 VIPERA RUSSELLII.

Head almost entirely scaly.

- 1.—A narrow supraciliary shield; three nasals. 57 *V. russellii*.
- 2.—A pair of very small frontals; nasal subdivided. 58 *E. carinata*.
- 3.—Two front scales on snout large; nasal single. 60 *T. trigonocephalus*.

**N** = 1 TYPHLOPS BRAMINUS.

A large rostral projecting backwards, flanked by large nasals, covers the snout; there is a præ-ocular shield and an ocular and a few labials; the other shields are scarcely larger than the scales.

- 1.—No sub-ocular; ocular in contact with third or fourth labials; nasal completely divided; anterior nasal in contact with præ-ocular. 1 *T. braminus*.
- 2.—A sub-ocular separating ocular from third labial; nasal completely divided; ocular in contact with fourth labial. 2 *T. mirus*.

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**EYES.**
**A** = 24 ZAMENIS MUCOSUS.

Pupil round.

- 1.—Large. 24, 25, 27, 28.
- 2.—Rather large. 29, 39.



3.—Moderate. 26, 30, 32, 33.

4.—Rather small. 18 to 23, 31, 42 to 56.

5.—Small. 10 to 14.

6.—Very small. 5 to 9.

7.—Small, placed towards the upper surface of the head. 4.

**B** = 35 *DIPSAS CEYLONENSIS*.

Pupil vertically elliptical.

1.—Large. 35, 36.

2.—Moderate. 15 to 17.

3.—Small. 40, 41.

4.—Very small. 34.

**C** = 3 *PYTHON MOLURUS*.

Pupil vertical.

1.—Small. 3.

2.—Moderate. 57 to 60.

**D** = 37 *DRYOPHIS MYCTERIZANS*.

Pupil horizontal ; eye rather large. 37, 38.

**E** = 1 *TYPHLOPS BRAMINUS*.

Rudimentary ; under the shield.

1.—Visible. 1.

2.—Visible. 2.

**NOSTRILS.**

**A** = 24 *ZAMENIS MUCOSUS*.

Simple.

1.—Lateral. 1, 5 to 32, 35 to 39, 41 to 45, 58.

2.—Latero-frontal. 1, 2.

3.—Directed upwards. 4, 33.

4.—On upper surface of snout. 3, 40.

5.—As in  $a^1$ , but very large, 57.

6.—As in  $a^1$ , but there is a deep pit between the nostril and the eye. 59, 60.



**B** = 47 HYDRUS PLATURUS.

Nostrils provided with a valve placed on the upper surface of the snout. 46 to 56.

**C** = 34 CHERSYDRUS GRANULATUS.

Nostrils placed close together high on the snout, opening forward ; provided with a valve.

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**M O U T H.**

**A** = 24 ZAMENIS MUCOSUS.

Terminal ; cleft in accordance with length of head ; jaws very dilatable ; labial margins simple. 3 to 33, 35 to 45, 57 to 60.

**B** = 47 HYDRUS PLATURUS.

As in *a* ; labial margin with a lobule in the middle of the rostral shield, and with a notch each side, through which the forks of the tongue can be protruded. 46 to 56.

**C** = 34 CHERSYDRUS GRANULATUS.

As in *a* ; labial margin with a lobule in the centre of lower lip, fitting into a notch in the rostral. 34.

**D** = 1 TYPHLOPS BRAMINUS.

Mouth inferior, very short and narrow ; jaws scarcely dilatable. 1, 2.

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**T E E T H.**

**A** = 24 ZAMENIS MUCOSUS.

All the teeth solid, none grooved, placed on the maxillaries, palate, and mandibles ; conical, sharp, recurved.

- 1.—Maxillary teeth increasing in size posteriorly ; the last not so long as some of the preceding. 24 *Z. mucosus* ; 25 *Z. fasciolatus* ; 29 *T. ceylonensis* ; 33 *H. schistosus*.



2.—Maxillary teeth sub-equal. 19 *A. calamaria*; 26 *C. helena*; 34 *C. granulatus*.

3.—As in  $a^2$ ; anterior mandibular teeth longest. 27 *D. pictus*; 28 *D. caudolineatus*.

4.—Maxillary teeth equal; anterior mandibular teeth a little the longest. 10 to 14, *A. brachyhorros*.

5.—As in  $a^1$ ; anterior mandibular teeth a little the longest. 17 *H. nympha*.

**B** = 30 TROPIDONOTUS STOLATUS.

As in  $a$ , but the last maxillary tooth forms a distinct fang.

1.—Maxillary teeth gradually increasing in length posteriorly; fang moderate, separate from the preceding teeth by a distinct interval and enclosed in a separate membranaceous pouch; mandibular and palatine teeth all of about equal size. 30 *T. stolatus*; 31 *T. asperrimus*.

2.—As in  $b^1$ ; fang very large, separated from the preceding teeth by a wide interval. 32 *T. plumbicolor*.

**C** = 3 PYTHON MOLURUS.

As in  $a$ , but there are also teeth on the inter-maxillaries.

**D** = 15 LYCODON AULICUS.

As in  $a$ , but the anterior maxillary teeth are enlarged and fang-like, followed by a toothless space; anterior mandibular teeth enlarged. 15 *L. aulicus*; 16 *L. carinatus*.

**E** = 20 SIMOTES ARNENSIS.

As in  $a$ , but the teeth in the jaws few, the hinder maxillary fang-like.

1.—Teeth on the pterygoids. 20 *S. arnensis*.

2.—No teeth on the pterygoids. 21 to 23, *Oligodon*, all species.

**F** = 18 POLYDONTOPHIS SUBPUNCTATUS.

As in  $a$ , but the form of the teeth is very peculiar:



they are very small, numerous, of equal size, cylindrical at the base, but transversely compressed towards the tip, which forms a recurved cutting edge.

**G** = 6 RHINOPHIS OXYRHYNCUS.

As in *a*, but the teeth are few, and none are fang-like.

- 1.—No palatine teeth. 5 to 9, Uropeltidæ.
- 2.—Palatine teeth. 4 *C. maculatus*.

**H** = 1 TYPHLOPS BRAMINUS.

A few feeble teeth in the maxillaries only. 1, 2.

**J** = 39 CHRYSOPELEA ORNATA.

As in *a*, but the posterior maxillary teeth are grooved.

- 1.—Maxillaries sub-equal, the last three longest and grooved; anterior mandibulary tooth longest. 35 *D. ceylonensis*; 36 *D. forstenii*; 39 *C. ornata*.
- 2.—As in *j*<sup>1</sup>; the last two maxillaries grooved. 40 *C. rhyncops*; 41 *G. prevostiana*.

**K** = 37 DRYOPHIS MYCTERIZANS.

As in *j*, but one or two of the central maxillary teeth are much enlarged, forming fangs, and followed by an interspace; the posterior grooved; the third and fourth mandibulary teeth largest, fang-like. 37 *D. mycterizans*; 38 *D. pulverulentus*.

**L** = 45 NAIA TRIPUDIANS.

Maxillary teeth few, the first grooved in front forming a fang in connection with a poison gland, the poison canal terminating in a short slit.

- 1.—Fang followed by one to three small solid teeth. 43 *B. ceylonicus*; 44 *B. cæruleus*; 45 *N. tripudians*.
2. No tooth behind fang. 42 *C. trimaculatus*.

**M** = 46 ENHYDRIS CURTUS.

Maxillary with a pair of large grooved fangs, followed after a considerable interval by small solid teeth.



- 1.—Solid maxillary teeth, two to five. 46 *E. curtus*.
- 2.—Solid maxillary teeth, seven to eight. 47 *H. platurus*.
- 3.—Solid maxillary teeth, seven to eighteen. 48 to 51, *Hydrophis*, all species.

**N** = 52 *DISTIRA STOKESII*.

As in *m*, but solid maxillary teeth, four to ten in number, are grooved anteriorly. 52 to 56, *Distira*, all species.

**O** = 57 *VIPERA RUSSELLII*.

The anterior maxillary tooth forms a powerful caniculated but ungrooved poison fang terminating in a slit; the maxillary is a short rounded bone, and being movable, the fang is carried lying back on the roof of the mouth, being erected when the viper strikes. The anterior mandibular teeth are large; the pterygoids small, equal. 57 to 60, *Viperidæ*.

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**COLOUR.**

*Section A.*

Belly white or yellowish, immaculate. (Sometimes 30 *T. stolatus* has no spots on belly, and would then belong to this section.)

3 *PYTHON MOLURUS*.

Light gray with a golden sheen. Deep brown, lance-shaped spots on head and nape, streak from nostrils through eye to mouth, confluent with band along lower jaw, sub-triangular spot below eye, a vertebral series of large triangular spots with oblong spots either side, a lateral series of rather irregular spots with light centres.

10 *ASPIDURA BRACHYHORROS*.

Yellowish olive. Darker, four longitudinal streaks. Brown, freckles on tail. Black, an oblique band on each side of the neck, a vertebral series of dots.



## 14 HAPLOCERCUS CEYLONENSIS.

Light brown or blackish, at times dull red. Black, a vertebral line, a lateral series of small black spots, edge of nuchal band. Yellowish, an oblique nuchal band.

## 15 LYCODON AULICUS.

Brownish gray.

15 and 17 LYCODON AULICUS AND HYDROPHOBUS  
NYMPHA.

Rounded broad brown bands alternate with narrow white ones on the anterior part of the body. In some specimens of 15, and in all of 17, they are reticulated with brown.

## 19 ABLABES CALAMARIA.

Brownish gray. Black, edges of scales each side of back, forming small irregular spots, more or less confluent posteriorly. Brown, two minute streaks at base of each scale.

## 23 OLIGODON SUBGRISEUS.

Light brown. Black, edges of head bands and numerous irregular cross-streaks formed by the edges of some of the scales. Brown, præ-ocular, occipital, and nuchal bands. White, a vertebral and two lateral lines.

## 24 ZAMENIS MUCOSUS.

Belly at times brilliant yellow. Light brownish olive, darker on margins of scales. Black, margins of scales posteriorly, forming reticulations. Blackish, margins of head shields.

## 25 ZAMENIS FASCIOLATUS.

Brownish olive. Mixed black, brown, and white, cross bars on anterior half of body.



## 26 COLUBER HELENA.

Reddish olive. Black, numerous reticulated transverse bands, enclosing ocelli; two parallel longitudinal bands above an oblique band each side of neck, a line along occipital suture, an oblique band from eye along edge of ninth labial. Brown, a broad lateral posterior band running to tip of tail. White or yellow, a double row of lateral ocelli.

## 27 DENDROPHIS PICTUS.

Bronze. Black, a band commencing behind eye and forming an edge to lateral band, sometimes an edge below. Yellow, broad lateral bands and a vertebral line anteriorly.

## 28 DENDROPHIS CAUDOLINEATUS.

Belly pale yellow. Bronze. Black, two bands from a little behind head to root of tail, four narrow lines from posterior half of back to root of tail, a vertebral and abdominal band on tail.

## 29 TROPIDONOTUS CEYLONENSIS.

Belly becomes grayish posteriorly. Brownish olive. Black edges of ocelli dilated into cross bands, band from eye along neck. White or yellow, a single row of large lateral ocelli.

## 32 TROPIDONOTUS PLUMBICOLOR (adult).

Belly dirty white. Dirty green. Black, blotches here and there, the remains of markings in the young.

## 33 HELICOPS SCHISTOSUS.

Blackish olive as far as the lower labials and one or two lower rows of scales, which are the same as belly.

## 44 BUNGARUS CÆRULEUS.

*a.*—Blackish.

*b.*—Blackish. White, dorsal streaks in pairs.

*c.*—Blackish. White, a vertebral series of spots from which narrow transverse streaks proceed.

*Section B.*

Belly white or yellow, with a greater or lesser number of black spots laterally.



## 18 POLYODONTOPHIS SUBPUNCTATUS.

Each ventral with a pair of black dots. Reddish olive above, pearly gray laterally, the two tints separated by a distinct punctated line. Black, a series of vertebral dots and edges of collar. Brown, upper parts of head. Yellow, a broad collar and edges of vertebral dots.

## 30 TROPIDONOTUS STOLATUS.

Anterior ventrals with a pair of dots (sometimes wanting, see *Section A*). Black, numerous reticulated crossbars, edges of head shields, anterior margins of sub-oculars, sutures of fifth, sixth, and seventh upper labials. White or yellow, two bright longitudinal lines and lateral ocelli, præ-oculars, and post-oculars.

## 39 CHRYSOPELEA ORNATA.

*a.*—Belly bright yellow, each ventral with a pair of lateral black dots. Bright yellow. Black, broad bands on the head, short dorsal transverse bands and lateral reticulations. Crimson, a series of vertebral rosettes (adult).

*b.*—Pearly gray. Black, numerous narrow bands reticulated with yellow (half-grown).

*c.*—Pearly gray, alternate bands of black and yellow (young).

*Section C.*

Each scale on belly with a black central spot (no ventrals).

## 8 RHINOPHIS TREVELYANUS.

Blackish brown. Yellow, a series of triangular spots along each side of the body.

*Section D.*

Belly strongly marked with square black spots.

## 21 OLIGODON TEMPLETONII.

Brown. Blackish brown, a blotch on each side of neck, indistinct ocular bands, eighteen narrow short transverse bands. Light brown, a vertebral band.



*Section E.*

Belly with three punctated streaks, tail with two.

## 22 OLIGODON SUBLINEATUS.

Brownish olive. Brown, spots below eye, nuchal blotches, numerous pairs of slightly alternating, transverse, light-edged spots on back.

*Section F.*

Belly with blackish anterior margins to ventrals.

## 31 TROPIDONOTUS ASPERRIMUS.

The most variable snake in Ceylon, but has almost always two oblique streaks behind eye; when these are absent the beginner will probably be puzzled to identify his specimens.

*a.*—Grayish or brownish olive. Black, square spots arranged quincuncially in 3, 5, 6, or 7 series; two oblique streaks behind eye. Scarlet, a lateral series of spots during life only.

*b.*—The spots are dissolved into a network of black lines intermixed with white dots.

*c.*—Broad rhombic or brownish bands with darker edges.

*d.*—Almost uniform; a few scales have a black or white dot at the base.

*Section G.*

Belly white or yellow, more or less marked with brown.

## 57 VIPERA RUSSELLII.

Belly yellow, more or less marked with brown semi-circular spots on hind margins of ventrals. Grayish brown. Black, three longitudinal series of rings: the middle ovate, the outer circular, edge of ocular spots. Brown, margins of rostrals, lateral shields, præ-ocular spots. Yellow, a line on each side of upper surface of head, two convergent lines on snout, rostral, and labial shields.

## 58 ECHIS CARINATA.

Belly whitish, with more or less numerous round brown specks. Brown or brownish gray. Blackish brown, edges of dorsal spots. Brown, a pair of oblong spots each side of head, converging anteriorly; præ-ocular spot; post-ocular



streak ; spots on dorsal bands. White, a series of ovate dorsal spots, and a wavy band each side of them.

*Section H.*

Belly white, marbled with black.

11 ASPIDURA COPII.

Brownish, stippled with black. Black, a series of paired lateral spots, transverse spot behind angle of mouth, margin of each labial. Reddish, anterior and posterior margins of spots.

13 ASPIDURA TRACHYPROCTA.\*

Brown. Darker brown, four or five series of spots or lines, which may be entirely absent ; a band along each side of tail.

40 CERBERUS RHYNCOPS.

Belly with numerous confluent black blotches. Blackish. Ash, darker cross bars. Yellowish, two or three outer series of scales forming bands.

*Section J.*

Belly with black bands anteriorly, becoming darker posteriorly.

45 NAIA TRIPUDIANS.

Very variable ; black, brown, or dirty white. The spectacle marks on hood appear always to be present in Ceylon specimens.

*Section K.*

Belly of a dark tint different from the rest of the body.

12 ASPIDURA GUENTHERI.

Belly slate colour. Shining metallic olive brown. Darker, three rows of indistinct spots. White, some irregular spots, spots behind eye, sometimes a collar.

32 TROPIDONOTUS PLUMBICOLOR (young). For adult

see *Section A.*

Belly dusky. Pearly gray. Black, transverse bands. White, a collar.

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\* Some varieties almost uniform blackish, the marbling on the belly covering the whole surface. Very like 12, section K.



## 41 GERARDIA PREVOSTIANA.

Belly pale muddy. Olive, each ventral with a darker edge; back darker, the two tints divided by a pale lateral band  $2\frac{1}{2}$  scales broad.

*Section L.*

Belly white, back brown, the whole body encircled with a deep black network.

## 4 CYLINDROPHIS MACULATUS.

As in section.

*Section M.*

Dull coloured above and below, more or less uniform.

## 1 TYPHLOPS BRAMINUS.

Brownish, belly paler, upper shields of head with a faint crenulated paler margin.

## 2 TYPHLOPS MIRUS.

As in No. 1; snout yellow.

## 5 UROPELTIS GRANDIS.

Brown; margins of lateral and ventral scales lighter. (With or without yellow spots; yellow beneath with or without dark brown spots.—Boulenger's "Fauna of British India," p. 254.)

## 6 RHINOPHIS OXYRHINCUS.

Uniform brownish, each scale with a lighter margin. White, anal shield.

## 7 RHINOPHIS PLANICEPS.

As in No. 6; sometimes a yellowish blotch near head or vent.

## 9 RHINOPHIS BLYTHII.

Dark brown; sides with vertical yellow spots or festooned zigzag band along the anterior half of the body; a yellow ring round base of tail.



*Section N.*

Stippled above and below with various dull shades.

## 38 DRYOPHIS PULVERULENTUS.

Belly pinkish, with three brown bands stippled with black. Brown, upper head shields and rostral band running through eye. Yellowish, broad edges of the head shields (skin between scales on anterior part of body black and white, so that when the snake expands that portion transverse bars appear).

## 35 DIPSAS CEYLONENSIS.

Belly yellowish. Brownish olive. Whole body much stippled with gray and black; markings exceedingly variable; generally there are black blotches on occiput and a streak from the eye to angle of mouth. Brown, a series of vertebral spots.

## 36 DIPSAS FORSTENII.

As in 35. Black bases of some of the scales uniting to form irregular transverse bands, which are frequently broken up to form lateral spots; bands along occiput and neck; short band each side of neck; broad band from eye to angle of mouth. (Extraordinarily variable; one specimen in the Museum has no markings, being uniform gray with a reddish tinge.)

## 39 ANCISTRODON HYPNALE.

Very variable, ranging from flesh colour to black; generally stippled, spotted, or blotched with various shades. The most constant markings are a dark temporal line, a series of spots, and a pair of whitish spots each side of throat.

*Section O.*

Body with black and white rings.

16 and 43 LYCODON CARINATUS AND BUNGARUS  
CEYLONICUS.

Black bands, fainter on the belly; in some specimens the white rings are mere streaks on the back widening downwards. In the young of *Bungarus ceylonicus* there is a white collar, and in the very young the belly is white and the collar interrupted by a black longitudinal line.



*Section P.*

Blackish.

34 *CHERSYDRUS GRANULATUS* (adult).

As in section.

*Section Q.*

Black and white bands, the black pointed downwards, forming a backgammon board pattern.

34 *CHERSYDRUS GRANULATUS* (young).

As in section.

*Section R.*

Yellow, or whitish, or greenish, more or less banded or encircled with black, or half black and yellow, or pure yellow.

46 *ENHYDRIS CURTUS*.

Yellow. Black, transverse bands on back (in some old specimens rather indistinct) and end of tail.

47 *HYDRUS PLATURUS*.

*a.*—Yellow. Black, head and back, spots on tail. Brown, sides and belly. Yellow, band between the two colours.

*b.*—As in variety *a*, but black band below the yellow one.

*c.*—The black of the back becomes sinuous posteriorly and finally broken up into more or less confluent spots. Brown, irregular spots. Yellow, sides and belly.

*d.*—Yellow. Black, edges of bands, variegations on head. Brown, about fifty narrow bands extending nearly to belly, and streaks crossing belly alternating with band.

*e.*—Uniform pale primrose yellow.

48 *HYDROPHIS SPIRALIS*.

Olive above, yellowish beneath. Black, rings round body (ventral band in young), dorsal spots between rings, head above. Yellow, a horseshoe mark on head.

49 *HYDROPHIS FASCIATUS*.

Yellowish. Black, head and neck, cross bands or rings, which are broadest on back. Yellowish, cross bands on neck.



## 50 HYDROPHIS GRACILIS.

Bluish black or grayish olive. Lighter, more or less distinct cross bands anteriorly. (Young : black, head and neck ; rhombic cross bands on body continued on belly, or sub-interrupted or entirely black, with a series of elliptical vertical whitish spots on each side.—Boulenger.)

## 51 HYDROPHIS CANTORIS.

Dark olive or blackish anteriorly ; olive above ; posteriorly yellowish on the sides. Blackish, a streak along the belly. Olive, vertical bars on tail.

## 52 DISTIRA STOKESII.

Yellowish. Black, broad dorsal cross bands or complete rings.

## 53 DISTIRA JERDONII.

Olive above, yellow below. Black, cross bands or rings, sometimes spots between them.

## 54 DISTIRA ROBUSTA.

Greenish yellow above, yellow below. Black, cross bands or rings, which are narrower than the interspaces between them ; end of tail.

## 55 DISTIRA CYANOCINCTA.

Greenish olive above, yellow below. Black, cross bands or annuli, broadest on back ; sometimes a band running along belly.

## 56 DISTIRA ORNATA.

Olive above, white below. Blackish, cross bars tapering on sides, one or more lateral series of roundish spots. The bands may become confluent, when the specimen will be uniformly a blackish olive.

*Section S.*

Green above and below.

## 37 DRYOPHIS MYCTERIZANS.

Bright grass green, belly paler. Bronze, shade on back. Yellow, stripe each side of abdomen.



## 60 TRIMERESURUS TRIGONOCEPHALUS.

Green, belly paler. Black, network on head, band from eye to angle of mouth, vertebral band emitting lateral streaks. Yellow, border of vertebral band, spots on lateral streaks, tinge on lateral scales, broad margins to ventrals.

*Section T.*

Belly brilliantly coloured.

## 42 CALLOPHIS TRIMACULATUS.

Belly rich mauve graduating to pale yellow, increasing to orange crimson just before vent; behind deep velvety black, then pearly gray to tip of tail. Golden gray. Black, head, a spot on apex of each scale, two rings on tail. Yellow, two spots on head, a few faint markings on body, variegations of caudal rings.

**HABITS.****A** = 24 ZAMENIS MUCOSUS.

Non-poisonous, diurnal, terrestrial or subarboreal, feeding principally on mammals and birds. Oviparous. 3, 18, 19, 24, 25, 26.

**B** = 30 TROPIDONOTUS STOLATUS.

As in *a*, but freely entering water. Prey, frogs and fish. 30, 31, 33.

**C** = 15 LYCODON AULICUS.

Ground-snakes, feeding almost exclusively on skinks. 15, 16.

**D** = 27 DENDROPHIS PICTUS.

Diurnal tree-snakes. Prey, small lizards and frogs. I imagine 37 *Dryophis mycterizans* differs but little in habits. Both species may be seen in bushes and creepers in bright sunshine. *D. pulverulentus* is a rare snake, and nothing is known of its habits. 27, 28, 37, 39.



**E** = 3 *PYTHON MOLURUS*.

Sub-arboreal, feeding on mammals, which are crushed in its coils before being swallowed.

**F** = 35 *DIPSAS CEYLONENSIS*.

Nocturnal tree-snakes. Prey, mammals, birds, and lizards. 35, 36.

**G** = 10 *ASPIDURA BRACHYHORROS*.

Ground-snakes, living under stones, trees, and turf. Prey, insects and earthworms. 4.

**H** = 1 *TYPHLOPS BRAMINUS*.

Burrowing snakes. Prey, insects and earthworms. Oviparous. 1, 2, 10 to 14.

**J** = 6 *RHINOPHIS OXYRHINCUS*.

As in *h*, but viviparous. 5 to 9.

**K** = 40 *CERBERUS RHINCOPS*.

Fresh water-snakes, at times entering the sea. Prey, fish. Oviparous. 40, 41.

**L** = 34 *CHERSYDRUS GRANULATUS*.

Non-poisonous sea-snakes.

**M** = 45 *NAIA TRIPUDIANS*.

Poisonous land-snakes. Oviparous. 45, 46, 47.

**N** = 57 *VIPERA RUSSELLII*.

Poisonous land-snakes. Viviparous. 57 to 60.

**O** = 47 *HYDRUS PLATURUS*.

Sea-snakes. Viviparous. 46 to 56.

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**GEOGRAPHICAL DISTRIBUTION.**

**A** = 24 ZAMENIS MUCOSUS.

Generally over the Oriental region. 45.

**B** = 1 TYPHLOPS BRAMINUS.

From Southern China to Arabia, all over India, Africa south of the Equator, Madagascar, and the islands of the Indian Ocean.

**C** = 3 PYTHON MOLURUS.

India, Ceylon, rare in the Malay Peninsula, and Java.

**D** = 15 LYCODON AULICUS.

India, Ceylon, Burma, Siam, Malay Peninsula, Java, Phillipines, Timor, Maldives.

**E** = 17 HYDROPHOBUS NYMPHA.

Southern India, Ceylon. 29, 38.

**F** = 18 POLYDONTOPHIS SUBPUNCTATUS.

India, Ceylon. 20, 23, 26, 36 (35 Western Himalayas and Western India).

**G** = 19 ABLABES CALAMARIA.

Bombay to Ceylon. 32, 59.

**H** = 25 ZAMENIS FASCIOLATUS.

Bengal to Ceylon, Province Wellesley (Malay Peninsula).

**J** = 27 DENDROPHIS PICTUS.

India, Ceylon, Malay Peninsula, and Archipelago. 39.

**K** = 30 TROPIDONOTUS STOLATUS.

India, Ceylon, Burmah, Malay Peninsula, Southern China.

**L** = 33 HELICOPS SCHISTOSUS.

Bengal to Ceylon, Burma, Malay Peninsula, Yunnan.



**M** = 34 *CHERSYDRUS GRANULATUS*.

Mouths of rivers and coasts of Southern India, Ceylon, Burma, Malay Peninsula and Archipelago, and New Guinea.

**N** = 37 *DRYOPHIS MYCTERIZANS*.

From Burma through Bengal to Southern India and Ceylon.

**O** = 40 *CERBERUS RHYNCOPS*.

Rivers, estuaries,<sup>1</sup> and coasts from the Indus to north coast of Australia.

**P** = 41 *GERARDIA PREVOSTIANA*.

Ceylon, Pegu.

**Q** = 42 *CALLOPHIS TRIMACULATUS*.

Bombay to Ceylon, Tennasserim, Bengal ?

**R** = 43 *BUNGARUS CÆRULEUS*.

India, Ceylon, rare in Burma.

**S** = 46 *ENHYDRIS CURTUS*.

Sea-snakes ; may be found anywhere between the Red Sea and northern coasts of Australia. Their range is not yet known. 46, 48 to 56.

**T** = 47 *HYDRUS PLATURUS*.

From the Cape to Guayaquil and all through the Chinese, Malayan, and Indian Seas to the Persian Gulf.

**U** = 57 *VIPERA RUSSELLII*.

India, Ceylon, Burma, Siam.

**V** = 58 *ECHIS CARINATA*.

Deserts of North Africa, South-Western Asia, and India.

**W** = 2 *TYPHLOPS MIRUS*.

Peculiar to Ceylon. 4 to 14, 16, 21, 22, 23, 28, 31, 43, 60.



DIAGNOSTIC TABLE FOR CEYLON SNAKES.

	Form.	Ventrals.	Scales.	Head Shields.	Eyes.	Nostrils.	Mouth.	Teeth.	Colour Section.	Labials.	Ocu- lars.	Tem- porals.	Ventrals.	Scales.	Size.	Habits.	Geog. Distr.	Rarity.
FAMILY I.—TYPHLOPIDÆ.																		
1	<i>p</i> <sup>1</sup>	—	<i>f</i> <sup>2</sup>	<i>n</i> <sup>1</sup>	<i>e</i> <sup>1</sup>	<i>a</i> <sup>2</sup>	<i>d</i>	<i>h</i>	<i>m</i>	4	—	—	—	20	7	<i>h</i>	<i>b</i>	<i>cc</i>
2	<i>p</i> <sup>2</sup>	—	<i>f</i> <sup>2</sup>	<i>n</i> <sup>2</sup>	<i>e</i> <sup>2</sup>	<i>a</i> <sup>2</sup>	<i>d</i>	<i>h</i>	<i>m</i>	4	—	—	—	18	5, 5	<i>h</i>	<i>w</i>	<i>r</i>
FAMILY II.—BOIDÆ.																		
3	<i>a</i> <sup>10</sup>	<i>b</i> <sup>2</sup>	<i>a</i> <sup>5</sup>	<i>k</i>	<i>e</i> <sup>1</sup>	<i>a</i> <sup>4</sup>	<i>a</i>	<i>e</i>	<i>a</i>	11-13 7	2 3 or 4	—	Shields 242-265 60-72	60-75	240	<i>e</i>	<i>c</i>	<i>cc</i>
FAMILY III.—ILYSIIDÆ.																		
4	<i>o</i>	—	<i>f</i> <sup>1</sup>	<i>g</i>	<i>a</i> <sup>7</sup>	<i>a</i> <sup>3</sup>	<i>a</i>	<i>g</i> <sup>2</sup>	<i>l</i>	6 3-4	0 1	—	Scales 189-201 4-6	19 or 21	14	<i>g</i>	<i>w</i>	<i>cc</i>
FAMILY IV.—UROPELTIDÆ.																		
5	<i>q</i> <sup>5</sup>	—	<i>g</i> <sup>3</sup>	<i>h</i> <sup>3</sup>	<i>a</i> <sup>6</sup>	<i>a</i> <sup>1</sup>	<i>a</i>	<i>g</i> <sup>1</sup>	<i>m</i>	4	—	—	127-147 6-9	19	18	<i>j</i>	<i>w</i>	<i>rr</i>
6	<i>q</i> <sup>1</sup>	—	<i>g</i> <sup>1</sup>	<i>h</i> <sup>1</sup>	<i>a</i> <sup>6</sup>	<i>a</i> <sup>1</sup>	<i>a</i>	<i>g</i> <sup>1</sup>	<i>m</i>	4	—	—	217-223 5-7	17-19	17	<i>j</i>	<i>w</i>	<i>c</i>
7	<i>q</i> <sup>2</sup>	—	<i>g</i> <sup>1</sup>	<i>h</i> <sup>2</sup>	<i>a</i> <sup>6</sup>	<i>a</i> <sup>1</sup>	<i>a</i>	<i>g</i> <sup>1</sup>	<i>m</i>	4	—	—	152-172 3-6	17-19	10	<i>j</i>	<i>w</i>	<i>c</i>
8	<i>q</i> <sup>3</sup>	—	<i>g</i> <sup>1</sup>	<i>h</i> <sup>2</sup>	<i>a</i> <sup>6</sup>	<i>a</i> <sup>1</sup>	<i>a</i>	<i>g</i> <sup>1</sup>	<i>c</i>	4	—	—	190-204 3-6	17-19	11	<i>j</i>	<i>w</i>	<i>c</i>
9	<i>q</i> <sup>4</sup>	—	<i>g</i> <sup>2</sup>	<i>h</i> <sup>2</sup>	<i>a</i> <sup>6</sup>	<i>a</i> <sup>1</sup>	<i>a</i>	<i>g</i> <sup>1</sup>	<i>m</i>	4	—	—	148-162 4-7	17-19	15	<i>j</i>	<i>w</i>	<i>c</i>



	Form.	Ventrals.	Scales.	Head Shields.	Eyes.	Nostrils.	Mouth.	Teeth.	Colour Section.	Labials.	Oculars.	Temporals.	Ventrals.	Scales.	Size.	Habits.	Geog. Distr.	Rarity.
FAMILY V.—COLUBRIDÆ.																		
Series A.— <i>Aglypha</i> .																		
Sub-Family <i>Colubrinæ</i> .																		
10	<i>Aspidura brachyhorros</i> , <i>Boie</i> .	<i>c</i> <sup>1</sup>	<i>d</i>	<i>d</i> <sup>1</sup>	<i>a</i> <sup>5</sup>	<i>a</i> <sup>1</sup>	<i>a</i>	<i>a</i> <sup>4</sup>	<i>a</i>	$6 \frac{4}{4}$	$1 \frac{2}{2}$	1+2	Shields 137-159 $\frac{27-38}{}$	17	16	<i>h</i>	<i>w</i>	<i>c</i>
11	— <i>copii</i> , <i>Gthr.</i>	<i>c</i> <sup>1</sup>	<i>d</i>	<i>d</i> <sup>2</sup>	<i>a</i> <sup>5</sup>	<i>a</i> <sup>1</sup>	<i>a</i>	<i>a</i> <sup>4</sup>	<i>h</i>	$6 \frac{4}{4}$	$0 \frac{2}{2}$	1+2	125-150 $\frac{20-33}{}$	17	16, 5	<i>h</i>	<i>w</i>	<i>c</i>
12	— <i>guentheri</i> , <i>Ferg.</i> ...	<i>c</i> <sup>1</sup>	<i>d</i>	<i>d</i> <sup>3</sup>	<i>a</i> <sup>5</sup>	<i>a</i> <sup>1</sup>	<i>a</i>	<i>a</i> <sup>4</sup>	<i>k</i>	$6 \frac{4}{4}$	$1 \frac{2}{2}$	1+2	101-117 $\frac{19-27}{}$	17	6	<i>h</i>	<i>w</i>	<i>c</i>
13	— <i>trachyprocta</i> , <i>Cope</i>	<i>c</i> <sup>1</sup>	<i>d</i>	<i>d</i> <sup>3</sup>	<i>a</i> <sup>5</sup>	<i>a</i> <sup>1</sup>	<i>a</i>	<i>a</i> <sup>4</sup>	<i>h</i>	$6 \frac{4}{4}$	$1 \frac{2}{2}$	1+2	120-147 $\frac{13-25}{}$	15	15	<i>h</i>	<i>w</i>	<i>c</i>
14	<i>Haplocercus ceylonensis</i> , <i>Gthr.</i>	<i>c</i> <sup>2</sup>	<i>d</i>	<i>d</i> <sup>1</sup>	<i>a</i> <sup>5</sup>	<i>a</i> <sup>1</sup>	<i>a</i>	<i>a</i> <sup>4</sup>	<i>a</i>	$7 \frac{4}{4}$	$1 \frac{2}{2}$	1+2	177-207 $\frac{42-56}{}$	17	17, 5	<i>h</i>	<i>w</i>	<i>cc</i>
15	<i>Lycodon aulicus</i> , <i>Linn.</i>	<i>a</i> <sup>9</sup>	<i>a</i> <sup>1</sup>	<i>a</i> <sup>9</sup>	<i>b</i> <sup>2</sup>	<i>a</i> <sup>1</sup>	<i>a</i>	<i>d</i>	<i>a</i>	$9 \frac{3, 4}{4 \text{ or } 3, 4}$	$1 \frac{2}{2}$	Scaly	183-209 $\frac{57-77}{}$	17	25	<i>c</i>	<i>d</i>	<i>cc</i>
16	— <i>carinatus</i> , <i>Kuhle.</i>	<i>k</i>	<i>e</i>	<i>a</i> <sup>2</sup>	<i>b</i> <sup>2</sup>	<i>a</i> <sup>1</sup>	<i>a</i>	<i>d</i>	<i>o</i>	$9 \frac{3, 4, 5}{3, 4, 5}$	$1 \frac{2}{2}$	2+3	188-195 $\frac{53-64}{}$	19	26	<i>c</i>	<i>w</i>	<i>r</i>
17	<i>Hydrophobus nympha</i> , <i>Daud.</i> ...	<i>e</i> <sup>3</sup>	<i>c</i>	<i>a</i> <sup>5</sup>	<i>b</i> <sup>2</sup>	<i>a</i> <sup>1</sup>	<i>a</i>	<i>a</i> <sup>5</sup>	<i>a</i>	$8 \frac{3, 4}{6 \text{ or } 8}$	$1 \text{ or } 2 \frac{2}{2}$	2+2 or 3	200-243 $\frac{71-88}{}$	13	18	<i>d</i> ?	<i>e</i>	<i>r</i>







	Form.	Ventrals.	Scales.	Head Shields.	Eyes.	Nostrils.	Mouth.	Teeth.	Colour Section.	Labials.	Oculars.	Temporals.	Ventrals.	Scales.	Size.	Habits.	Geog. Distr.	Rarity.	
32 <i>Tropidonotus plumbicolor</i> , Cant. ...	a <sup>4</sup>	a <sup>1</sup>	b <sup>1</sup>	a <sup>3</sup>	a <sup>3</sup>	a <sup>1</sup>	a	b <sup>2</sup>	ak	7 3, 4	2 3 or 4	2+3 or 4	144-166 35-50	23-27	In. 25	?	g	r	
33 <i>Helicops schistosus</i> , Daud. ...	a <sup>5</sup>	a <sup>1</sup>	b <sup>1</sup>	c <sup>1</sup>	a <sup>3</sup>	a <sup>3</sup>	a	a <sup>1</sup>	a	8 or 9 3, 4 or 4, 5	1 2 or 3	2+2	129-151 55-85	19	30	b	l	c	
<i>Sub-Family Acrochordine.</i>																			
34 <i>Chersydrus granulatus</i> , Schneid ...	l	—	j	—	b <sup>4</sup>	c	e	a <sup>2</sup>	p, q	6 0	—	—	—	100	40	l	m	c	
<i>Series B.—Ophisthogypha.</i>																			
<i>Sub-Family Dipsadinae.</i>																			
35 <i>Dipsas ceylonensis</i> , Gthr. ...	g	b <sup>1</sup>	e	a <sup>8</sup>	b <sup>1</sup>	a <sup>1</sup>	a	j <sup>1</sup>	n	8 3, 4, 5 8-11	1 or 2 2	2+3 or 3+3	214-249 90-117	19 or 21	48	f	f	c	
36 ——— <i>forstenii</i> , D. et B. ...	g	b <sup>1</sup>	e	a <sup>8</sup>	b <sup>1</sup>	a <sup>1</sup>	a	j <sup>1</sup>	n	3, 4, 5 or 4, 5, 6 8	1 2 or 3	Numerous	259-270 106-131	25-27	48	f	f	c	
37 <i>Dryophis mycterizans</i> , Daud. ...	f	a <sup>1</sup>	e	e	d	a <sup>1</sup>	a	k	s	8 5	vr 2	1+2 or 2+2	172-188 140-166	15	72	d	n	c	
38 ——— <i>pulverulentus</i> , D. et B. ...	f	a <sup>1</sup>	e	e	d	a <sup>1</sup>	a	k	n	8 5	2 2	2+2 or 2+3	182-194 154-173	15	70	?	e	r	
39 <i>Chrysopelea ornata</i> , Boie ...	e <sup>2</sup>	a <sup>1</sup>	e	a <sup>4</sup>	a <sup>2</sup>	a <sup>1</sup>	a	j <sup>1</sup>	b	9 or 10 5, 6 or 4, 5, 6	1 2	2+2	204-236 118-138	17	54	d	j	c	



16—91	Sub-Family Homalopsine. 40 Cerberus rhyncops, Schneid. 41 Gardia prevostiana, Eyd. et Gerv. ...	$d$ $a^8$	$a^1$ $a^1$	$b^1$ $a^4$	$j$ $c^2$	$b^3$ $b^3$	$a^4$ $a^1$	$a$ $a$	$j^2$ $j^2$	$h$ $k$	$10\text{ to }12$ $\frac{5\text{ or }6}{8}$ $\frac{4}{4}$	$irr$ 2	— 1+2	$\frac{160-171}{70-85}$ $\frac{141-158}{31-34}$	37-47 17	In. 42 16	$k$ $k$	$o$ $p$	$c$ $rr$
	Series C.—Proteroglypha. Sub-Family Elapine.	$n$	$a^1$	$a^4$	$a^{10}$	$a^4$	$a^1$	$a$	$l^2$	$t$	$\frac{6}{3-4}$ $\frac{7}{3,4}$ $\frac{7}{3-4}$ $\frac{7}{3-4}$	1 2 1 2 1 2 1	1	$\frac{258-274}{24-35}$ $\frac{224-235}{35-40}$ $\frac{200-220}{40-51}$ $\frac{170-206}{49-75}$	13 15 15	19 39 54	? $m$ $m$	$q$ $w$ $r$	$rr$ $c$ $c$
	42 Callophis trimaculatus, Daud. 43 Bungarus ceylonicus, Gthr. 44 — cæruleus, Daud. ... 45 Naia tripudians, Merr. Sub-Family Hydrophinae.	$b$	$b^1$	$a^4$	$a^{10}$	$a^4$	$a^1$	$a$	$l^1$	$j$	$\frac{7}{3-4}$ $\frac{7}{3-4}$	2-3	2+3 or 2+4	$\frac{19-23}{49-75}$	19-23	76	$m$	$a$	$cc$
	46 Enhydrius curtus, Shaw 47 Hydrus platurus, Linn. 48 Hydrophis spiralis, Shaw 49 — fasciatus, Schneid. 50 — gracilis, Shaw ... 51 — cantoris, Gthr. ...	$m^2$ $m^1$ $m^4$ $m^8$ $m^8$ $m^8$	— — — — —	$h^2$ $h^1$ $h^3$ $h^4$ $h^5$	$f^2$ $f^1$ $f^3$ $f^3$ $f^4$	$a^4$ $a^4$ $a^4$ $a^4$ $a^4$	$b$ $b$ $b$ $b$ $b$	$m^1$ $m^2$ $m^3$ $m^3$ $m^3$	$r$ $r$ $r$ $r$ $r$	$\frac{4\text{ or }3,4}{7-8}$ $\frac{4\text{ or }4,5}{6-7}$ $\frac{2,3,4}{6-7}$ $\frac{2,3,4}{6\text{ or }7}$ $\frac{3-4}{6}$ $\frac{3-4}{3-4}$	1 1-2 1 2-3 1 1 1 1-2 1 1 1 1	2 or 3 Numerous	Scales 150-200 — 310-320 345-500 225-294 412-456	30-38 45-57 28-29 25-31 19-21 23-25	30 36 72 39 36 48	$o$ $o$ $o$ $o$ $o$ $o$	$s$ $t$ $s$ $s$ $s$ $s$	$r$ $cc$ $r$ $r$ $r$ $r$	



	Form.	Ventrals.	Scales.	Head Shields.	Eyes.	Nostrils.	Mouth.	Teeth.	Colour Section.	Labials.	Ocu- lars.	Tem- porals.	Ventrals.	Scales.	Size. In.	Habits.	Geog. Distr.	Rarity.	
52	<i>Distira stokesii</i> , Gray...	m <sup>3</sup>	h <sup>6</sup>	f <sup>5</sup>	a <sup>4</sup>	b	b	n	r	9 or 10 4, 5, 6 5 3-4 7	1 2	2 or 3	240-267	39-47	60	o	s	r	
53	— <i>jerdonii</i> , Gray ...	m <sup>5</sup>	h <sup>7</sup>	f <sup>6</sup>	a <sup>4</sup>	b	b	n	r	3, 4 or 3, 4, 5 7 or 8	1 1	1	224-238	15-17	35	o	s	r	
54	— <i>robusta</i> , Gthr. ...	m <sup>6</sup>	h <sup>8</sup>	f <sup>7</sup>	a <sup>4</sup>	b	b	n	r	3, 4 or 3, 4, 5 7 or 8	1 or 2	1	310-372	27-31	72	o	s	r	
55	— <i>cyanocincta</i> , Daud.	m <sup>7</sup>	h <sup>9</sup>	f <sup>8</sup>	a <sup>4</sup>	b	b	n	r	3, 4 or 3, 4, 5 7 or 8	1 2	2	300-426	27-33	72	o	s	r	
56	— <i>ornata</i> , Gray ...	m <sup>6</sup>	h <sup>10</sup>	f <sup>9</sup>	a <sup>4</sup>	b	b	n	r	3-4	2 or 3	2 or 3	252-300	35-42	48	o	s	r	
FAMILY.—VIPERIDÆ. Sub-Family <i>Viperinae</i> .																			
57	<i>Vipera russellii</i> , Shaw...	h <sup>1</sup>	b <sup>1</sup>	m <sup>1</sup>	c <sup>2</sup>	a <sup>5</sup>	a	o	g	11-12 0	—	—	Shields 163-172 45-60	27-31	48	n	u	cc	
58	<i>Echis carinata</i> , Schneid. Sub-Family <i>Crotalinae</i> .	j	d	m <sup>2</sup>	c <sup>2</sup>	a <sup>1</sup>	a	o	g	11-12 0	—	—	138-185 21-40	25-29	24	n	v	rr	
59	<i>Ancistrodon hypnale</i> , Merr. ...	h <sup>2</sup>	b <sup>1</sup>	l	c <sup>2</sup>	a <sup>6</sup>	a	o	n	7-8 0	1 or 2 1 or 2	irr	140-145 31-45 147-152	17-19	19	n	g	c	
60	<i>Trimeresurus trigono- cephalus</i> , Daud. ...	h <sup>3</sup>	a <sup>4</sup>	m <sup>3</sup>	c <sup>2</sup>	a <sup>6</sup>	a	o	s	9 or 10	—	—	57-67	17-19	31	n	w	cc	



JOHANN JACOB SAAR'S ACCOUNT OF CEYLON,  
1647-1657.TRANSLATED BY PH. FREUDENBERG, ESQ., Consul  
in Ceylon for the German Empire.*(Read January 28, 1885.)\**

## INTRODUCTION.

**J**OHANN JACOB SAAR was in his nineteenth year when he left home, on Easterday, 1644, his father sending him to Hamburg to find a situation. After spending two months at Hamburg in unsuccessful search of employment, he went on to Amsterdam. His quitting Nuremberg—then one of the foremost commercial towns on the Continent—for Hamburg, where the “Hansa” still existed, and his pushing on to Amsterdam, which, since the destruction of Antwerp, had risen to commercial eminence, suggests that it was commercial employment he desired. Saar’s statement that he did not find a *condition* at Amsterdam tends to confirm this supposition, *conditionieren* being to the present day in Southern Germany an expression for holding a mercantile post.

Failing to secure an appointment after six months’ fruitless effort, even at Amsterdam, Saar enlisted as *Adelpursch*—his own translation of the Dutch word *Adelborst*, “cadet.” As a matter of fact, he enlisted as a common soldier, whose rise in the ranks depended solely upon military qualifications.

\* An apology is due to the translator for the great delay in passing this Paper through the press. It obviously demanded careful editing: the translator expressed his inability to annotate the text: leisure to carry to completion the requisite notes has never come to the Editing Secretary. For the greater part of the editing the Society is indebted to the erudition and ungrudging labour of Mr. D. W. Ferguson, without whose generous aid the Paper might never have seen the light.—B., *Hon. Sec.*



His social position, however (having once been admitted as *Adelborst*), entitled him to an officer's commission eventually, but he never rose beyond the rank of corporal.

The following particulars regarding the conditions of enlistment under the Dutch East India Company, and the discipline, &c., on board their fleets, are worth reproducing.

The Company sent three fleets every year to the East, one in May, another in August, and the last about the end of December.

Two months' pay was given in advance, and for every day between enlistment and sailing an additional Dutch shilling. After the fleet had been at sea for two or three days, every one received five Dutch cheeses as a present from the Company. Full pay for soldiers only commenced from the time of passing the buoys, about a mile (Dutch) out at sea; but, should the ships have had to put back owing to unfavourable winds, the two months' advance pay was forfeited. Sometimes in winter, ships were laid up altogether, and the soldiers discharged to save further expense. The pay was fixed at ten Dutch florins a month; the loss of the right eye, hand, arm, or foot, to be compensated by the payment of 600 Dutch florins; the left eye, &c., being valued at 500 florins only; whilst the loss of a finger or toe was computed at 30 florins.

On board, crew and soldiers were told off to watches, three in all, and each lasting four hours. The first watch was then called *Prinsen quartier*,—*i. e.*, "Prince's quarter,"—the second *Count Moritz*, the third *Count Ernst*, the names referring to Princes of the House of Orange of the time. Discipline on board was very strict. Of the detail Saars gives, a few may be mentioned.

When any one was wilfully injured by knife, gun, or other weapon, the aggressor had to place his hand against the mast; a knife (if possible the one with which the wound was inflicted) was then driven between two fingers into the mast, and the culprit was compelled to draw his hand down, thus completely severing it in two. For striking an officer or the captain of the ship, the penalty was "keel-hauling"—*i. e.*, being drawn three times underneath the vessel. If the



culprit should not sink deep enough, he ran great risk of having his head smashed against the keel. This occurred in one instance in Galle Harbour during 1647. Gambling, drunkenness, smoking between decks, were also punished severely.

Saar sailed, with his father's consent, in the December fleet of 1644. He had enlisted on the 25th of November, in presence of the seventeen principal officers of the East India Company. On the 30th of November he was sent to Middelburg, and embarked on board a ship of that name, of 550 lasts of 30 cwt. each, carrying 36 guns and about 450 men, crew and soldiers all told. This vessel set sail on the 8th of January, 1645.

After fifteen years' of the roughest military experience in the East, and many a wound received in the Company's behalf, Saar at length turned his thoughts homeward. He seems to have left Ceylon in September, 1658, and after another year's service in the Eastern Archipelago returned to Batavia for the last time on the 15th November, 1659. The next day the stout German soldier got his discharge. It is signed by "Burchard Koch,"\* a fellow-countryman and captain in the army of the Staaten-General of the United Netherlands and the Dutch East India Company. The Governor-General of Dutch India at the time was Joan Maetsuycker. On the 14th December Saar sailed from Batavia in the ship "Princ [*sic!*] Wilhelm"†—one of a fleet of nine; on the 6th of July, 1660, he arrived at Flushing; and on the 11th of August reached Nuremberg. His fervent wish to see his father again was not, however, to be realised, for he had died eight months previously.

Saar, it appears, had kept a regular diary for a number of years, but unfortunately lost it at sea, and had to re-write his experiences from memory. He offered to give further verbal information to any reader of his travels who desired it; adding to this offer "that he heartily wished every one of his readers more fortune at home than he had."

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\* *Burchart Cockx.*

† *Prins Willem.*



From this remark it may be gathered that Saar's health after his return to Europe was not good,—a natural consequence of his wounds and hard service of many years in the tropics. He died young ; his portrait of 1661 gives his age as 36, and in 1672 he had been dead for some time.

Saar's work was published at Nuremberg in 1662 under the title of "Johann Jacob Saars Ost-Indianische Funfzehnjährige Kriegs-Dienst," &c. It is an oblong volume of 12, 50, 170, 20, and 12 pages ; with portrait of the author, by V. Sommer, frontispiece, and 15 plates. The work seems to have been edited by Daniel Wülffer, a clergyman in Nuremberg,\* who took the opportunity to prefix a laboured and learned disquisition on the question whether it was right for Christians to engage in the conquest and subjugation of heathen nations. This edition is dedicated to the Burgomaster and Council of Nuremberg ; and in an appendix the author gives additional information from memory, and quotations from other writers.

In 1671 a somewhat abbreviated Dutch translation of Saar's work (by J. H. Glazemaker) appeared at Amsterdam, the additional matter in the original being embodied in the text of this translation, which is illustrated by four plates, different from those in the German edition. The translator has also re-arranged the chapters (making 23 against 17 in the original), to which he has put sub-headings, and has omitted the prefatory matter and the index.

In 1672 a new and revised edition of the German original was published in Nuremberg in folio form, 46, 168, 16 pages. This edition was also edited by Wülffer, who substituted for Saar's dedication another, addressed to Georg Fierer, a banker in Nuremberg. Fierer, as appears from the preface, had travelled a good deal in foreign countries, had read much, and was able to suggest many of the foot-notes to the second edition. This support was the more welcome to Wülffer, as it helped to silence the mistrust of Saar's statements on

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\* Born 1617, died 1683.



many points, which had been expressed upon the appearance of the first edition. In this edition the additional matter of the first edition has been incorporated in the text, notes containing additional information are given in smaller type throughout the text, and the index has been amplified. The illustrations are the same as in the first edition, the portrait and the frontispiece, however, being re-engraved by J. A. Böner.

The very numerous foot-notes in the second edition (which, according to the editor who made them, doubled the size of the book) were principally culled from the narratives of Johann Albrecht von Mandelslo, a Mecklenburg nobleman, and Johann von der Behr\* (in India, 1644 to 1649); Jürgen Andersen of Sleswick (1644 to 1650); Volquart Iversen (1655 to 1668); Albrecht Herport (1659 to 1668); and Johann Jacob Merklein (1646 to 1653), an intimate friend of Saar's.

It is from this second edition that the following translation has been made.

Although Beckmann (*Litteratur der älteren Reisebeschreibungen*, II., pp. 324–7) speaks in disparaging terms of Saar's narrative, it is an interesting and valuable one, giving details not furnished by other writers. The dates given by him, however, are not reliable: this fault being due, probably, to the fact that his diary was lost at sea, as mentioned above.

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#### ANNO 1647.

AFTER again having spent about three months at Batavia, I was ordered in September to sail, with three hundred men, for the Island of *Ceylon*, which is distant some four hundred miles. So, trusting in God, we shook out our sails on the 4th of September: our ships were three,—the *Banda*, with the Admiral on board, and two yachts, *Lello* and *Aggerslot*.†.....

On the 4th of October, after a good voyage, we arrived at

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\* This writer has embodied in his book, without the slightest acknowledgment, whole passages from Saar's narrative. (See translation of his journal in *Ceylon Literary Register*, vol. VI., p. 82 *et seq.*) This practice was only too common among travel writers of the period.

† *Lillo*; *Akersloot* (Dutch ed., 1671).



the harbour of *Punte de Galle*,\* at that time the capital of *Ceilon* : now, however, *Columbo*\* is the capital.†

It is, in truth, a beautiful harbour : ships may lie there all the year round,—come in with the sea breeze and go out with the land wind ; but there are dangerous hidden rocks. Therefore, when ships arrive for the first time they have to fire three guns,—those that have been there before, fire one gun,—and after being answered in like manner must wait until a pilot comes on board to show the right passage. A pilot is always on the lookout with his crew upon a high rock in the sea, an hour and a half from the shore, where he has to hoist a big flag to a mast erected there as soon as he sees ships, to warn them to stand off until he meets them.‡

During the night the entrance should not be attempted, the danger is too great.

Overlooking the harbour is a fort, called the “Black Fort”§ originally erected by the Portuguese, under a false pretext to the king of *Candi*,|| of which we shall speak hereafter ; but it is now well strengthened with additional bastions by the Hollanders, who took it by storm from the Portuguese in 1640.

To the left, as one approaches, is now the hospital, on the spot where formerly the Portuguese had their mint. Still nearer the town is the bastion “Aggerslot,” mounting eight guns, which command the whole harbour. Further up, on

\* *Punto de Gallo* ; *Kolumbo* (Dutch ed., 1671).

† Johann von der Behr says (p. 92) :—“On 9th Nov. [1647] 3 ships with 200 soldiers from Galle came into the roadstead off Negombo, and after anchoring, the soldiers came on shore, . . . the ships were these, the ship Bantam, the yacht Lello, and the yacht Ackersloth. On the 12th the aforementioned ships left under sail for Persia.”

‡ This can only be “Pigeon Island,” which is close off Lighthouse Point, and contained a cocoanut tree at least as recently as 1860.

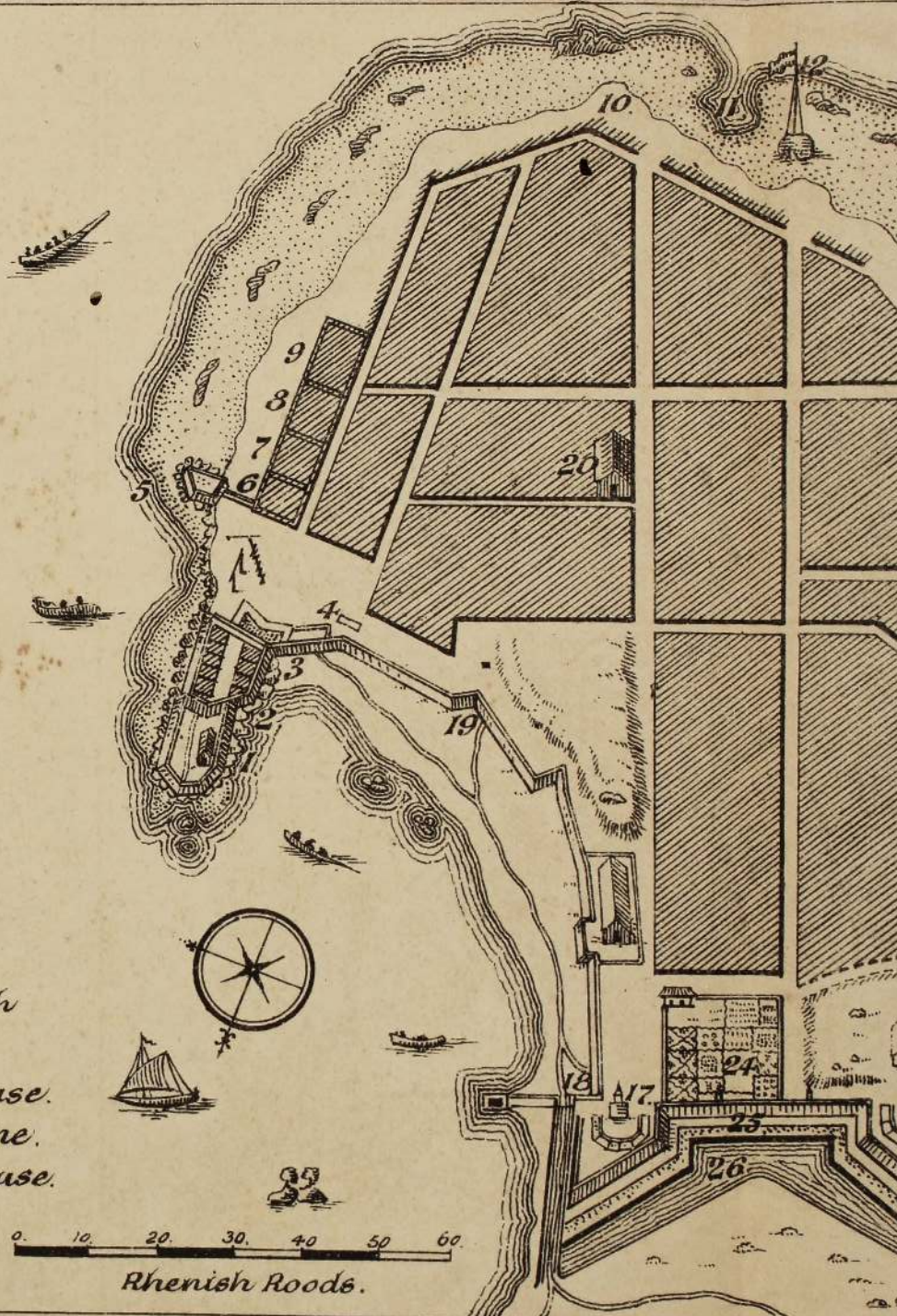
§ Dutch *Zwart Fort*. Heydt says that it may have derived its name from the fact that it had become blackened by the smoke and charcoal of the smiths who worked there. (See *Ceylon Literary Register*, vol. II., pp. 333, 340.)

|| *Kandi* (Dutch ed., 1671).



(From Valentyn's "Oud en Nieuw Oost-Indien,

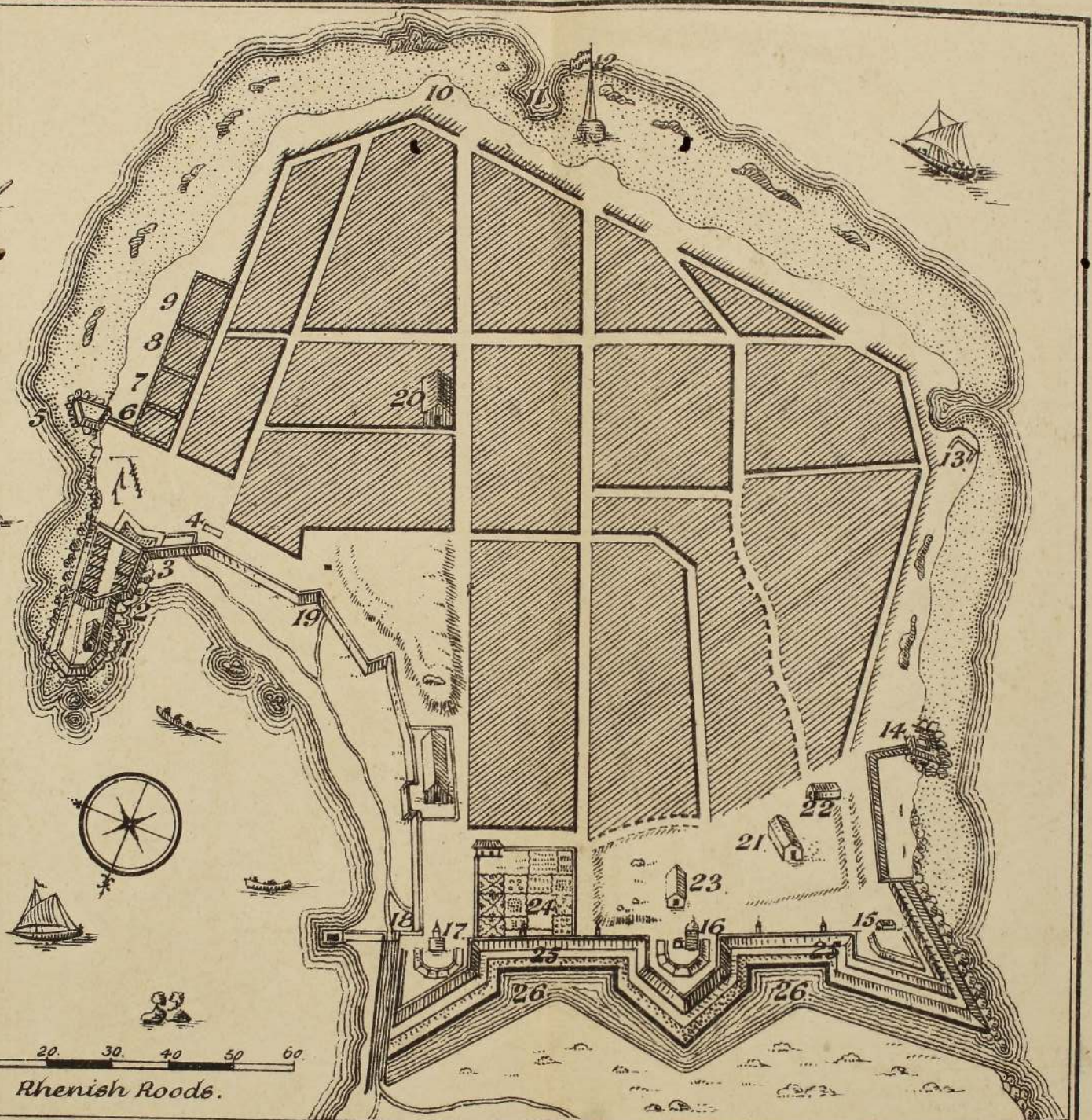
1. Water Bastion.
- 2 Black Fort
- 3 Storehouse
- 4 Tannery.
- 5 Aker Sloop.
- 6 Factory
- 7 Surgeon's House
8. Hospital.
9. Invalids' Garden.
10. Small Demi-lune
11. Small Bay.
12. Flagstaff
13. New Work
14. New Bastion
15. Sea Bastion.
16. Middle Bastion
17. Main Guard
18. Gate
19. Water Port
20. The Great Church
21. Church
22. The Spinning House.
23. Powder Magazine.
24. The Governor's House.
25. Fausse-braye.
26. Wet Ditch.



— THE TOWN OF PUNTO GALE



From Valentyn's "Oud en Nieuw Oost-Indien," 1726.)



THE TOWN OF PUNTO GALE

Lith. O. Saldin. Colombo.



pp. 333, 340.)

|| *Kandi* (Dutch ed., 1671).



the shore is the above-mentioned "Black Fort," rising high; within is the arsenal, and here live all artisans and slaves.

Beneath the "Black Fort," and considerably lower, is the "Water Bulwark,"\* directly facing the space where all ships must anchor. This was erected only in 1653 by the Governor of the time, Jacob von Küttenstein,† a native of Delft, and is armed with six pieces, each carrying a twelve-pound shot. On the inner side of this is a small port, called the "Water Port," through which people can be let in and out during the night. Here also are the Governor's house and the main guard (always sixty to seventy men strong); from this a kind of gallery, on posts, boarded and covered with a roof, called the "Wooden Doublet,"‡ is carried forty paces into the harbour.

To the right of this, on the land side, where the town is surrounded by strong high walls, a deep moat is dug, eighteen feet wide, and crossed by a drawbridge. Towering above is seen the central bastion,§ carrying nine or ten guns, commanding partly the main guard and partly the landward walls; and below it, moreover, a lunette. The sea-bastion|| is the last on the land side. Here the greatest number of guns are placed, and here a corporal and six men have to be on guard every night. This place is never called otherwise than the "Crab's Hole."

Between the sea-fort and another new work near the Government store a spring of good fresh water flows out of a rock, and a step away from it the sea plays up to the rocks, so that you can stand with one foot in fresh water and the other in salt.¶

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\* Dutch *Waterpas*.

† *Jakob van Kettenstein* (Dutch ed., 1671).

‡ Dutch *Houte Wambas*. (See *Ceylon Literary Register*, vol. II., p. 340.)

§ The *Middel Punt* or Moon Bastion.

|| Or Star Bastion.

¶ Valentyn has appropriated the above description of Galle, with slight modifications. (See translation in *Ceylon Literary Register*, vol. II., p. 333.) He also gives a plan of the fort drawn in 1663, of which a facsimile will be found on the opposite page.



The island itself is exceeding large, and has a ruler of its own, who is styled Emperor of *Ceilon* and King of *Candi*,\* a town where he resides, mighty rich in precious stones and the fairest jewels. There is likewise an open pearl bank in *Ceilon*, at a place called *Manara*.† The country is very thickly populated. I passed some eight years in it, having always been ordered back there after occasional service to other places. I shall now relate the different things I heard, saw, and experienced in the island.

The Portuguese are said to have been in the island about two hundred years. When they first discovered it, they asked the Emperor to grant them as much land as could be comprised within the limits of a cow's or bullock's hide ; for they had many sick on board their vessels, whom they were anxious to put on shore for their recovery. But when the Emperor granted the request, they cut up a bullock's hide into narrow strips, and fastening them together, enclosed a space large enough to build a fort, which they called the "Black Fort."‡

Afterwards they built the town of *S. [sic] Galle*, and, having once established themselves, added other towns and forts, such as the large town of *Columbo*,—*Jaffanapatan*, with strong intrenchments near it,—the fort of *Manara*, where, as mentioned before, the pearl bank is,—the fortress of *Nebumbo*,§

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\* For the full string of titles assumed by Rája Sígha II. (1632–1687), see Wouter Schouten's *Oost-Indische Voyagie*, Tweede Boek, 311 (3rd ed., 1745).

† Mannár.

‡ The above story, which has no basis in fact, is doubtless founded on Dido's traditional subterfuge in the foundation of Carthage by Virgil, *Aeneid* I., 335–371 :—

Devenere locos, ubi nunc ingentia cernes,  
Mœnia, surgentemque novae Carthaginis arcem ;  
Mercatique solum, facti de nomine Byrsam,  
Taurino quantum possent circumdare tergo.

§ *Negumbo* in ed. of 1662.



*Geis*\* four miles from *Jaffanapatan*, to which it is in a manner the key, in mid stream, where you cross it on the way to *Patan*.

As regards the inhabitants, some of them are naked all but the private parts, round which they throw a white cotton cloth. Those who belong to the higher classes, holding the position of gentry, wear besides, on the upper part of the body, a kind of fine white shirt of cotton, with narrow sleeves, trimmed before and behind with stripes of a finger's breadth. Their feet are bare; on them they often have their fontanels well covered with some tin and a leather strap; others have their fontanel on the neck, and keep it open with a small silver ball.† On their heads they wear a red cap, especially those that are soldiers.‡

They generally have long black hair and full beards, which they do not trim over much, and mighty long ear-flaps, in which are inserted rings of silver and lead.

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\* Kayts or Hammenhiel. This tiny fort stands on a solitary rock in the sea about half a mile from Karaittívu Island, and one-and-a-half mile from Kayts on the mainland. It was built by Antonio do Amaral de Menezes, the Portuguese Governor of Jaffna, a few years before the arrival of the Dutch, and considered "the key of Jaffna." Baldaeus gives a short account of its siege in April, 1658: want of water forced the Portuguese to capitulate after a fortnight. (See *Ceylon Literary Register*, vol. V., p. 204.) At present the fort is in a half-ruinous state, overgrown with thorny scrub, and infested with snakes: it is octagonal, the side facing Kayts being longer than the others; walls, fifteen feet in height and not very thick; on the ramparts some small rooms (formerly serving for a quarantine hospital), and under them a row of vaults, containing rusted cannon. (*Ceylon Literary Register*, vol. I., p. 24.)

† Dr. W. G. Van Dort kindly supplies the following information:— "*Fontanel*, an issue for the discharge of humours from the body. The practice of establishing artificial issues or sores by means of the knife, red-hot iron, or caustic medicines, and maintaining such issues by means of an irritant, such as a glass bead or silver ball inserted into the sore, was well known in ancient medicine. It would be interesting to know the nature of the disease or diseases for which such issues were resorted to as a means of cure so extensively as to attract the author's attention. Elephantiasis and goitre are the only two endemic affections, so far as I know, in which issues are used by native practitioners to this day." It is possible, however, that Saar may have mistaken the straps, &c., of sandals for coverings of fontanels; and that the silver ball on the neck may be capable of some similar explanation.

‡ Cf. Knox, *Ceylon*, 1681, p. 63.



When we wanted the natives specially to carry the officers' wives in palanquins through the country, we used to put strings through their ear-flaps and hold on to them, so as to prevent them from bolting, if they saw a chance, and, as indeed they often did, upsetting the ladies in the open country and leaving them to their fate, whilst they themselves hid in the jungle.

The women of *Ceilon* are as well formed as any I have seen in the Indies. They dance very well to the music of bells, which they are skilled in playing; they can walk on a tight rope, or dance on it with swords tied to their feet; they whirl round and round with such rapidity as to dazzle one's sight, and you cannot see their heads, so fast do they turn: they are so quick, too, with a hoop that it baffles description.\*

The children, boys and girls, especially those of social position, have, like their parents, silver rings below the calves.

The girls have a filigree silver girdle round their naked waists, and in front hangs a piece of silver, heart-shaped.

As regards boys, it is provided that none shall learn or carry on any other calling but that which the father has known and practised. For instance, if the father has been a tailor, a waggoner, a turner, or the like, the sons must follow that occupation, and no other, as long as they live.

They are clever people, and intelligent; they can make beautiful muskets, and powder, besides all sorts of cunning gold and silver work,—in particular, pretty sword-hilts, with figures of all kinds, and curiously carved buttons for clothes and mantles, albeit their tools are few and inferior. Yet, what is extraordinary but true is, that a peasant is considered of better birth and higher grade than a worker in gold and silver. An executioner is held in

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\* He probably refers to women of the *Oliya* caste—one of the lowest among the Sinhalese. By resolution of Council, December 20, 1659, the Dutch Government decided to expel all "dancing women and other useless people by which the Company suffered a loss," from the sixty villages they inhabited in the Weligama and Galle Kóralés. (Journal, R. A. S., C. B., 1874, p. 70.)



such esteem that he may approach the king and speak to him, and associate with him just as do the nobility of the island.

There is in the island a tribe so despised and outcast that everyone is afraid to speak to them, or to have anything to do with them. They must have special washermen to wash for them, who are not allowed to come near other washermen, especially those that wash for the nobility, who are very jealous of their privileges. Next to the penalty of death, it is considered the greatest punishment if the king degrades a man to live with these outcasts. We ourselves were reproved by him, because, being very thirsty, in exceedingly hot weather, we accepted a little water from them. They are only allowed half a roof for their houses, and must always sleep on the floor with their head in a winnower, such as is used to clean rice. In truth, it must be confessed, they stink so greatly that it is impossible to remain near them. Their trade is to make ropes of the skins of elk and deer to tie elephants with.\* Despised as they are, they do not allow you, if you ask them for some water, to put the jar or the pot to your mouth; on the contrary, you must hold it high up, that the water may fall into your mouth from a certain distance. The Moors, Persians, and the Javanese have similar customs.

The inhabitants have a queer way of killing fowls: they seize them by the head, and twist it so quickly between two fingers that the head remains in their hands, whilst the body is thrown off, and runs about for a while until it bleeds to death and falls down. When they want to kill oxen, cows, or other quadrupeds, they first cut the sinews of the hind legs, and after the animal has fallen in the way desired, they tie it up and cut the throat. They do not eat the flesh of animals killed by men of another nation. The women cook, boil, and bake dishes very nicely and cleanly; for instance, fowls (of which you can buy thirty for a

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\* For an account of the outcast Ródiyás, see, *inter alia*, Knox *l.c.*, pp. 70, 71; Tennent "Ceylon," vol. II., p. 187.



rix-dollar), eggs, good soups, many and various, deer, hogs, ducks, and the *lechaban*,\* which they consider a particular good dish. This is an animal of the shape of a small crocodile; it runs up and down the trees very quickly, and when shot hangs on until it has bled to death; it is as dangerous for poultry as the pole-cat; the belly greenish, feet with four claws, and the fat very good. (They eat,) too, peacocks, which are roasted and dressed with cloves. At one time, as we had nothing else, we were compelled to eat them during a whole month, so that at last they were quite distasteful. They were often found in the rice fields, but are otherwise seldom met with on the flat ground: on the trees, however, one frequently sees them in large numbers. The *Ceilonese* put the tail feathers round the hands and feet if they have sores, or have been hurt; they also consider them very useful against infection, should one happen to meet a woman with her courses.†

Bread is exceedingly scarce, and many a year I have not tasted it more than three times.‡ They use rice instead, well cleaned in water, then boiled, dried over coals, and dished up in crystal or china cup; and they eat a small handful along with a bit of another dish; the taste is good and

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\* Cf. Schweitzer's Account of Ceylon (English translation, London, 1700, p. 290): "Here is another sort of beast, much like the crocodile, which is called a Caprigoy [Sinh. *kabara-goyá*]; but it hath neither shells nor scales on it, and its tongue is very long and pointed. Another, not much unlike this, but less yet, called a *Leguwan*, the flesh of which many people eat." Nieuhoff's Voyages (Churchill, I., p. 358, ed. 1704): "A kind of crocodile, called *legoan* by the Indians.....the meat is white, like that of our rabbits, and very well tasted." It is the *iguana* (*Monitor dracæna*, Linn.) *talagoyá* of the Sinhalese, who, according to Knox (*l.c.*, p. 31), set great store by its flesh.

† Peacocks' feathers (Sinh. *monara pili*), reduced to ashes, form an ingredient in Sinhalese prescriptions for dysentery. See *Yôgaratnâkara*, *Yôgadârané*, *Bhaisajyakalpaya*, *Bâlagrahasântiya*.

‡ Johann von der Behr says (p. 58):—"Instead of bread, which is seldom to be found among the common people, they use a root called *uffa*, which they first cook, then peel, and cut into pieces; it is not bad in flavour." There seems to be some confusion here, *uffa* being apparently *appa* (*Anglice* "hopper").



pleasant. When taking their meals, they sit with legs crossed upon the floor on a mat, and eat with their hands in a somewhat swinish fashion, using no spoons. Their ordinary drink is only water, and, as I said before, all dislike that we should drink out of their cups or basins, unless we do not touch them with our lips, but let the water run into the mouth from a height.\* They are afraid lest we have eaten either pork or meat of a tame buffalo, which they consider objectionable.

They hold the buffalo in high esteem, and say that it does more for them than father or mother: viz., it ploughs for them, it threshes for them, they have butter and milk from it; wherefore they call it *abba*,† and they will not allow it to be harmed, or fall into our hands. Once, one of our lieutenants in a station four miles (Dutch) from *Columbo* inland, called *Malevanna*,‡ wanted to buy two tame buffaloes at the request of our preacher, but nobody would sell them. A week afterwards it appeared that a tiger§ had killed a bullock, and (for it only sucks the blood) left the carcass. As the natives had a great respect for us, the lieutenant made use of this opportunity to point out that this was a special retribution, because they had refused to let our *Pater Grande*, our preacher, have some for money, and that if they continued to be so disobliging the tiger would come more often

\* See Knox, *l.c.*, p. 87; and Pyrard (*Voyages*, 1619, p. 401) of the Malabars.

† Perhaps the Sin. *appá*, "father."

‡ *Malwána*, twelve miles from Colombo, in the Gangabada pattu, Siyané kóralé—an outpost of considerable importance in the eyes of both Portuguese and Dutch. Ribeiro says, the King of Portugal styled his Governor-General in Ceylon "King of Malvana" (*Rei da Malvana*), to please the Sinhalese (Cap. X.), but that it was rightly speaking a sanitarium, not a fort, and had a church and resident chaplain. Schweitzer, in 1678, found "the place very strong by a river. It hath pallisados, parapets, and a ditch, and field pieces, and other necessaries, and 60 men to keep it. It was very unhealthy by reason of the thick fogs; and therefore the garrison is often relieved from Columbo." (See also C. A. S. Journal, 1887, p. 168.)

§ *Felis pardus*, or panther, usually called "cheetah" in Ceylon, though neither that animal nor the tiger are found in the Island.



and do similar damage. When they heard this they soon returned and brought two buffaloes, to free themselves of the fear of further mishap.

Of drinks they have not only that called *siere*,\* which is taken from the cocoanut trees, and of which I am going to speak presently, but others too. There is first the *massack*,† which is prepared in the following way:—According to the number of those who wish to partake, they take four, five, or six gallons of *siere*, warm them, add two or three gallons of *arack*‡ or brandy, break twenty, thirty, or forty eggs into a tureen, mix them well, and then add gradually some of the warm *siere*, stirring it well the while, together with two or three pieces of cinnamon and nutmeg finely ground. When taken warm it not only has a delicious taste, but is very satiating and nutritious. Then they have *vinperle*; half water half *arack* boiled together; two or three eggs are added, citrons pressed into it, and adding sugar, cinnamon, and mace, an agreeable beverage is made. Thirdly, they have *palebunze*,§ half water half brandy, thirty to forty lemons (the seeds of which are spit out), and a little sugar; the taste is not very pleasant, and the drink not very wholesome.

Their religion, as is the case with most of the heathens, is principally Muhammadan. Their idol is *Jacka*|| made of clay, of the size of a man, black in the face, ugly, as if he had a mask, and sometimes with horns; they keep him standing in a corner, or under the roof, and when they want

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\* Skt. *sura*, "toddy," the sap, whether fermented or unfermented, of the palm. (Yule's *Hobson-Jobson*, 663.) Siṅ. *rá*, "fermented toddy;" *mirá*, "sweet toddy."

† *Massack*; cf. Schweitzer, *l. c.*, p. 266. (See also C. A. S. Journal, 1887, p. 168.)

‡ *Arack* or *arrack* (from Arabic, *barak*, "sweat"), "which sort of drink is distilled out of the *suri* that comes off from the cocoa-trees, and they call it *Arack*."—Schweitzer, *l. c.*, p. 253.

§ So, too, spelt by Struys; Mandelslo (Dutch ed., 1658, p. 24), *Palepunzen*. See *Hobson-Jobson*, s. v. "Punch."

|| Siṅ. *Yaksayá*, *Yakká*. See C. A. S. Journal, 1865, pp. 13-43.



to worship him carry him under a *peschar*\* tree (which is like a lime tree with thick leaves),† and pray, in case they are ill themselves, that he may restore them to health; or if their cows, sheep, or other animals are about to bring forth, that he would give them strength and help. They are in the habit of not carrying water from a well without first spilling a handful on the ground, and saying “This be offered to *Jacka*.” For what the Chinese say of their joss, the Ceiloneses likewise say of *Jacka*, viz., “God is a good man, who has created everything and hurts nobody: but, *Jacka* is malicious; to him we must make offerings that he may do us no harm.” They have special priests, called *Bramanes*, who can tell, if something has been stolen, who has taken it, and can force the thief to pass a certain spot, whence he cannot move, and must either bring the stolen things back or die.‡ They also firmly believe that on a mountain which they call Adam’s Mountain, Adam’s footprints are visible, and covered by a little temple in which cocoanut-oil lamps made of yellow copper burn day and night, and whither people come every year, a distance of seven to eight miles (Dutch), bringing a little cocoanut-oil as an offering. When they want to swear to a thing, the form of affirmation is that they are made to put their hands into hot melted butter.§ If they have perjured themselves they will be scorched; if their statement is true God will not allow that even a finger should be hurt in the boiling fat.

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\* Skt. *Pisácha*, the demons or spirits of the dead, has worshipped in S. India and Ceylon.

† See note \*, p. 252.

‡ Cf. Knox, p. 112. This is still a genuine belief among the Siphalese; the following *mantra* witness:—“Take some sand from a footprint of the thief, and placing it on a *mal-tatuva* (flower-offering altar) charm it 108 times at the three *yámas* (divisions) of the night; then mix it with *daluk-kiri* (sap of the *Euphorbia antiquorum*), cover it up and hang it over the hearth. In three *varucas* (1½ day) one side of the thief will become lifeless, in 1½ day more his body will crack and split (in different parts), and in seven days he will die.” The Máldivians have very similar charms against thieves.

§ Sij. *telen gomen diviruma*.



Whenever we suspected them of theft, we insisted upon this proof, and very often got the lost things back, because they were afraid of being burnt if they withheld the goods against their better knowledge.\*

Marriage is a matter which they take very easy. When they get married (everybody has the right to take as many wives as he can support) they give each other a cloth, or plant a tree, and when that is torn, or this bears fruits no longer, they separate. It is not uncommon for a man to cohabit with his brother's wives, or to commit incest; and in fact marriage is liked the better the more brothers the bridegroom has. The wedding feast and the confirmation of the marriage contract consist in the bride and bridegroom eating a dish of rice together, boiled in cocoanut milk, and called *kiribath*.† This is the whole festivity, and it completes everything.

As there are high mountains and extensive forests, so there are many animals and vermin in them. The natives have a queer way of calculating distances and of hunting. A mile is counted in this fashion: they take a leaf from the spot where they start for the journey; as soon as this leaf has withered, they think they have gone a mile; as long as the leaf is fresh, they are satisfied that they have not yet travelled a mile. The hunting is done in this wise: three or four men go into the forest at night; the first carries on his head a rice winnow, with an earthen pot inside; in this pot are wood embers that glow well, but burn slowly, and herewith they drive the elephants out of the way. The second man has in his hand a bunch of small bells, which he jangles the whole time to attract the attention of the animals, but not to drive them away, for they do not fear them to such an extent. If they meet an animal, be it deer, wild pig, elk, or wild buffaloes (for, as said before, they would not hurt a tame

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\* See Knox. p. 103; C. A. S. Journal, 1873, p. 12.

† *Sip. kiri-bat*, a kind of rice pudding made with cocoanut milk and a little salt. (C. A. S. Journal, No. 26, 1883, p. 48.)



one), the third man takes his gun and shoots it at close quarters. When they set out they will not allow any one to go with them, and keep everything as secret as possible.\*

Every year they catch about twenty wild elephants, tame them, and sell them to Persians and Moors, principally from Mecca.† I myself had to go three years consecutively into the jungle to see elephants caught,—at one time I saw as many as two hundred together; and because at the beginning I was anxious myself to see how these huge brutes could be caught, which one describes in one way, and another in another way, I was the more pleased to go.

I will now tell how I have seen them caught by the Dutch, in this same island of *Ceylon*.

There are two places where they are caught, the one called *Kattumma*, the other *Flasmeulla*.‡ A special master of the hunt is appointed, who has to furnish a given number of elephants every year. In my time he had to provide three with tusks, and fifteen without: the latter being of considerably less value than the former. He has for the purpose thirty-six villages under his command, out of which he can take five hundred natives to help him. The best time to catch elephants is in the three months of June, July, and August, because, on account of want of water, they leave the high mountains and go into the plains towards the sea, where it rains more frequently.

Now, when the hunter wants to catch them, he orders wood to be brought, or his subordinates must fetch it in the jungle

\* See Knox, p. 26, and C. A. S. Journal, No. 26, 1883, p. 16, of the Panikkans, or Elephant-catchers.

† Ribeiro says, twenty or thirty were procured annually for the Mogul. The trade was important to the Dutch, realising from 100,000 to 130,000 guilders yearly. Colombo and Mátara furnished fifty elephants, the Wannu fifty, Mántoṭa and Vilánkuḷam twenty to twenty-five—a net total of one hundred available for the sale at Jaffna, whence all were taken overland to find a readier market. Two kraals were held each year, that in the Mátara district being the larger. (Lee's *Rebeiro*, App., pp. 170–197.)

‡ *Kaṭṭuwána*; *Walasmulla*; both in the Hambantōṭa District of the Southern Province.



themselves : this must be wood which does not burn quickly like other kinds, but, on the contrary, smoulders and glows a long while. Knowing already whence the elephants are coming, they place it down for a distance of four, five, or six miles, as they want to drive them, and set fire to it. The animals are very much afraid of the fire, and certainly would not step over it (this was also our safeguard during the night, and we protected ourselves in making a huge fire around us), and a *kral* is put at the end, that is to say, they put on both sides strong, big trees, close together, like pallisades, and strongly supported. Here the elephants stand, wedged in, and must submit to have those picked out which are to be driven into a kind of passage at a quarter of an hour's distance. This passage is much narrower, so that an elephant once in it can neither turn round nor get out, because the end is closed with four strong bars. As soon as the one wanted is inside, it will go straight on, in the hope of getting through, but as soon as it reaches the end, the natives, who are at hand, run up with small spears, and put likewise four bars behind it, so that it can neither go forward nor backward. When eight (that is the number that can be accommodated in the passage at one time) have been driven in, the elephant-catcher reports to the commander. Then the tame elephants, which have been broken to it, are brought up by a native with the help of a goad, one on each side of the passage, with a thick rope wound four times round its neck. A similar rope is thrown round the wild elephant ; but this is very difficult to manage, and it often takes half a day before a small rope is got round it, to which the big rope is attached. As soon as it is tied in this way, a rope is fastened to one of the hind legs, and held by two hundred natives, until at the outlet the bars have been withdrawn. Then the elephant imagines that it can quickly escape, because it is free in front, but it remains firmly tied to the tame elephants. After it is thus well secured, the hind leg is set free again, and it must walk on



between the two tame elephants, just as in our country a wild bull is led between oxen.\*

We now hurry to the place where it is to be tamed, and have the privilege (provided he is a tusker, otherwise it is not allowed) to claim from the peasants in all the villages passed through enough to eat and drink. Should they refuse, the natives who ride on the tame elephants take the wild one into the rice fields and thoroughly lay them waste. Therefore, if the natives know that we are out elephant-catching, they keep in all the villages some one to watch and to look out for us twice a day, near some tall tree, such as are in the villages, surrounded by stones, so that one can sit under it: they call it "*peschar*† tree," and offer to the demons under it.

When a peasant takes rice from the field, before carrying it home and eating any of it, he boils a chattyful and offers it to the demon, that he may again allow a good crop the following year.‡

As soon as the elephant reaches the place where it is to be tamed, the drivers stop at the *peschar* tree, with all three elephants, until the *billaher*§ arrive. These are two dancers in fancy dress with masks, and quite covered with bells. They dance and caper about in front of the wild elephant, and at last stand still and speak to it in their language, bidding it not to try and make believe that it was wild; instead of being forced, as hitherto, to stay in the jungle in rain and wind, it was now to stand in a house, and under a roof; instead of being compelled to go several miles for water to drink, it would now be taken twice a day to the river to drink; instead of not always finding food as heretofore, or not enough, it would now have plenty to eat every day. The

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\* For full particulars regarding the present mode of kraaling elephants in Ceylon, see Tennent, *The Wild Elephant*, 1867. It may be noted that elephants are now noosed in the ordinary kraal enclosure without resorting to the narrow *cul de sac*.

† ? Tamil, *pisásu*, demon.

‡ Sin., *akyála*, or *deviyanné-vi* (C. A. S. Journal, No. 26, 1883, p. 55).

§ ? Port. *bailhador*, dancer.



elephant stands confused by the strange sounds and the jumping, and quietly submits, as if it was bewitched. Then they bring a big bucket full of water, pour it over the body, and christen it therewith, giving it the name of the lord of the land, or of any other noble, and take it to its stable: after that it takes six months, sometimes even a year, to become quite tame, so that it can be trusted and let free.\*

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\* The following interesting particulars have been communicated by C. J. Hulugala, Raṭémahatmeyá of Wannihatpattu, North-Western Province:—

From the day a herd has been surrounded, and the drive started, the elephants are invariably subjected to charms, either in the way of enforcing their march, or whenever they attempt to charge at the beaters, or break through the line of watchers. Certain charms used on these occasions are supposed to have dangerous or even fatal effects on the particular elephants to which they are applied, unless these effects are dispelled by counter charms employed in different prescribed forms. The form generally known and adopted by the people of this District (Kurunégala) is to charm a potful of clear fresh water, and sprinkle some of it on every one of the captured elephants, either before they are taken out of the kraal, or at the stable (*pántiya*).

The "christening" spoken of by the writer is performed occasionally even at the present day, but at no particular stage, or in any set form. Originally the christening appears to have accompanied the sprinkling of the charmed water. The person who undertakes the ceremony inquires what name the elephant's owner desires it called by, and, addressing the animal by the name thus assigned, sprinkles some of the water, repeating certain appropriate incantations; but, so far as can be gathered, there would seem to be no particular phraseology used.

The elephant is supposed after this to be not only secure from the effects of the original charms, but also to be free for the future from influence on the part of the *déwatáwá*, or guardian-spirit, who is supposed to have possessed it in its wild state—there being a strong belief among the natives that every wild elephant has a *déwatáwá* to protect it, so much so, that there are special charms directed to be used only at such hours that the *déwatáwá* is believed to have supreme control over the elephant. These hours are midday, and evening between 5.30 P.M. and 6.30 P.M., and then the ordinary charms are considered to be powerless.

Every village has a prominent tree, held sacred next only to the *bó*, in some conspicuous spot, either on a bund of a tank or elsewhere, which the people believe to be occupied by the *déwatáwá*, or guardian-spirit, of the village, and at the foot of which they make different kinds of offerings in the way of milk, rice, &c. There is a "peschar" tree of this kind in every village, and it is possible that it was formerly the habit to take the captured elephants before such trees out of respect to the *déwatáwá*, as also to secure his protection for the elephant, and in order to exercise the devil



The Hollanders sell fifteen to twenty elephants every year to the Moors who come from Persia or Mecca. They are first measured with a long stick like a measuring rod. From a man's elbow to the hand (that is in our measure as much as three-fourths of an ell) is called a *gobdel*,\* and the price for one is three to four hundred thalers. I have often seen elephants that were seven, eight, nine, or ten *gobdels* high; the biggest that came to my notice was even eleven *gobdels* in height.

As I have said, that, when out to catch elephants, we had to protect ourselves with large fires, which they are afraid of, I will now also describe an adventure I had on such an occasion with a big snake. There are many of them in the island of *Ceylon*. Some are very poisonous, and he who gets bitten must die, unless he applies remedies immediately. They are called *Cupre Capelle* :† some of them have a stone in the head, and he who has such a stone is in no danger even though bitten; for if the stone be held to the wound, it sticks to it, and draws the poison out, and when taken off, and put into water, the water turns a bluish colour. The stone gives up all the poison, and one can safely use it again as before.‡

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which is supposed to have had charge and care of the elephant in its wild state.

After the ceremony of sprinkling water has been gone through, and the elephant named, or "christened," it is removed to the *hilinguwa*. This is a sort of narrow enclosure constructed in the stable, wherein the elephant is confined to enable the tamer to approach and fondle it in the process of taming.

The dancing may have formed part of the ceremony peculiar to the Mátara District (where the writer probably witnessed it), but is not now resorted to in the Kandyan districts.

\* Cubit (Port. *covado*). "An elephant is sold according to his height. The largest elephant is about 9 cubits (*códos*) high from the point of the foot to the shoulder, and being sold at the rate of 1,000 *pardaos* the cubit, he fetches about 8,000 *pardaos*; but a very large one, which has good distinguishing marks, fetches 12,000 or even 15,000 *pardaos*." (Lee, *Ribeiro*, p. 67.)

† *Kobra de kabelo* (Dutch ed.); Port. *Cobra do capello*; Sin. *nayá*; *Naja tripudians* (Merv.).

‡ See Tennent, *Nat. Hist.*, pp. 312, 313.



Now, the following happened to me with a snake. One day, when out catching elephants, two of my comrades—Vallentin Pollac,\* a Pole by birth, and Henrich von Kampen†—and myself were ordered to cross the river and fetch wood to increase the fire on account of the elephants. One of the three had to hold his gun and keep guard so as to fire a shot should an elephant approach, whilst the other two collected wood and put it into the boat. My comrade Henrich von Kampen went a little too far into the forest and began to shout at the top of his voice, that I—and especially Vallentin Pollac with his gun—should come up and load with a crossbar shot, because there was a large snake that could not escape. After he had fired and killed it, we noticed that it had swallowed a young deer, all save one of the hind legs, which was still protruding. We measured the snake, and found it to be sixteen feet long, and as thick as a tree of twelve thumbs. We tried in vain to drag it into our boat. When we cut it open we found the young deer inside, and on placing it on the cinnamon scales ascertained that it weighed forty pounds. The natives wanted to eat it, but we thought that if it would not hurt them it would not hurt us, as the snake was not a poisonous one.† We took it to the river, washed it well, took the skin off, and divided the flesh; then cooked it and asked our comrades to eat with us. Some of them thought it repulsive diet, but I felt no qualms of that kind. I made four good meals of it, and asked my good friend Michael Danckwert, of Sweden, to join me. We thanked our Lord who had given it, and were well content. The fat of the snake was melted away. We took the carcass and put it upon an ant-hill, as we knew to be the way of the heathens, who adorn themselves with the bones that remain, which are made beautifully white and shining; they also use them for necklaces and hat laces.

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\* *Valentyn Polak*; *Heindrik van Kampen* (Dutch ed.).

† He refers to the *Python molurus* (Linn.), which occasionally reaches twenty feet in length.



There are also other snakes called “rat-catchers,”\* which at times, when we slept, crept over us. But they do nobody any harm, and therefore are not killed; they creep under the roofs, search for the nests of rats and mice, and eat them, as the cats do in our country. The lizards often warned us, as it were, against them, and we oftentimes said to each other: “Those lizards must think that the snakes wish to harm us, or there must be a peculiar antipathy between the snakes and the lizards.” For, it often happened when we laid us down, as our wont during the great heat at midday, and slept, and a rat-catcher snake was near and crept towards us, that a lizard† would run over the face or on to the neck, and scratch and tickle us till we woke and could guard against the snake; thus showing the love which it, although a lizard, felt towards men. Even if such a snake is only as thick as a child’s finger it can swallow and digest a big rat. In Banda a snake is said to have been killed twenty-eight feet long, and on opening it, a servant girl, or slave, was found inside.

As I have spoken of snakes, I shall also mention other vermin of the island. It is dangerous to walk near rivers or morasses, on account of the crocodiles, called by the heathen *kümmele*, or *keyman*‡, which love to haunt those places, and lay their eggs. Once our steersman Heinrich (generally called “Lucifer”) caught a small live crocodile, a span long, and kept it in a jar of fresh water. I found this jar on board at a time when I was very thirsty, and not knowing that the reptile was inside, I took a deep draught out of it. The draught, thank God, did me no harm, but all who heard of it were very much alarmed; a few days afterwards, however,

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\* *Ptyas mucosus* (Linn.).

† *Hemidactylus maculatus*, or *Peripia peronii*, both geckos commonly found in houses.

‡ Sin. *kimbulá*. (On *kaiman*, see *Hobson-Jobson*, s. v. “Cayman.”) There are two species in Ceylon. See Tennent, *Nat. Hist.*, pp. 282–89.



the young crocodile died.\* It was stuffed with straw and kept as a memento, and I often handled it myself.

Crocodiles there are very dangerous to men, and a good friend of mine, a painter, lost his wife by one. In 1649, one night at *Negumbo*, we were ordered to the bank of a river, and my said good friend sat in the bright moonlight, and to while away the time drew sketches in the sand, whilst the others slept. A crocodile crawled up, seized him from behind, and carried him off so quickly that the sentinel upon the Horn Bastion of the *Negumbo* fortress only heard him call out twice "O God!" It was not till two months afterwards that we found his clothes and sword half a mile from *Negumbo*, on a small island called *Walchere*.† I saw a native carrying them in his hand when I went to the river to buy fish.‡

A similar fate befell our comrade *Wilhelm von Helmont*§ He went to bathe in this river, and as he was sitting up to his chest in water, and intending to first wash his head with eggs and limes, and afterwards dry it with cotton leaves, as is the custom there, such a huge crocodile bore him away that we never saw anything more of him.

The same thing nearly happened to the wife of one of our captains, *Marcus Cassels*,|| a native of Flanders, at a place ten miles from *Pünste de Galle*, called *Madre*.¶ One evening she wanted to walk down to the river, not far from her house,

\* But soon a wonder came to light,  
That show'd the rogues they lied ;  
*The man recovered of the bite,*  
*The dog it was that died.*

(Goldsmith, *Elegy on the Death of a Mad Dog*.)

† *Walcheren* (Dutch ed.). Probably the modern *Diwa*, which lies a quarter of a mile from the mainland at the mouth of the *Negombo* lake, just beyond *Kuttidiwa* point: here all the fish is sold by auction as it comes in. Another island, *Munakkará*, is some two hundred yards distant from the Resthouse.

‡ *Johann von der Behr* records a similar incident as having occurred at *Negombo* in June, 1648.

§ *Willem van Helmont* (Dutch ed.).

|| *Markus van Kassel* (Dutch ed.).

¶ *Mátara*, thirty English miles south of *Galle*.



when she fortunately saw a crocodile that was waiting for her, and began to move towards her; although very much frightened, she just managed to escape. The captain at once sent for the blacksmith, and ordered him to make a great hook, and when it was ready he caused a dog to be shot, fastened to the hook, and put into the river with a long chain. Two hours afterwards the crocodile appeared again, came to the carcass, and swallowed the hook. We saw this and quickly ran to the place; some of us pulled it on to the bank, others took iron rods, such as are used to load guns, and nearly beat it to death; then we filled a big powder flask, put it into its mouth, and exploded it with a train from a distance. Next day, when we cut the animal open, we found that it had been living for fully eight hours afterwards.\*.....

If one searches, it is easy to find where a crocodile is: it makes a somewhat loud sound similar to that of an ill-tempered dog; it knocks its jaws together, so that the snapping is plainly audible at a distance.

Besides the crocodiles and snakes there are many other vermin in *Ceylon*. There is a kind of worm called by the Portuguese *Un cento pé*,† and by the Hollanders “thousand legs.” They are fully a span long, have brownish, or often white feet, and are so poisonous that when they bite swelling sets in at once, and the great pain drives one almost delirious. During the night they glimmer like sulphur, and the best thing to allay the pain is to put on ear-wax.‡

\* Wir hatten einen in der *Compagnia*, einen Schiffers-Knecht, der vom Glück zu sagen wuste in dergleichen Gefahr. In ein Gesträus kam Er und wolte seine Nohtdurft verrichten, meinte auch nicht anderst, Er ruhete auf einen alten Storn. Da aber Knal, und Fall, gieng, war es ein Crocodil, das über dem Gepluder so wohl erschrack, und durchschosz als Er erschrack, Sein Geräht geschwind wieder zusamm raspelte, und mit offenen Hosen lief, was Er lauffen kunnte, und, Gott lob! auch davon kam.

† *Centopiedo* (Dutch ed.), our centipede.

‡ This may be one of the many native remedies. A Siphalese medical work (*Yógálankáraya*, Galle, 1885) prescribes tartar scraped from the teeth. Schweitzer recommends “oil of cocos” (*l.c.*, p. 292).



There are also many scorpions : the smaller ones are white, the bigger ones—I have seen them as large as crabs—are dark. These vermin live in old walls, and come out when it rains. The fowls love to catch them and prey upon them. When sailing in old ships, or felling trees on shore, especially old trees, one must be very careful not to be poisoned by them. I was stung once by a big scorpion, but ran quickly to the surgeon, who put oil on, and I recovered.

There are besides thin red worms called “suckers.” They are put on to dropsical people to draw out the objectionable matter ; so full do they suck themselves that they become as thick as the thumb, and when quite round fall off just as leeches with us. They often attach themselves to the legs, especially when it rains, so that to be rid of them the feet must be rubbed well with powder and salt.\* During the night another creature, a kind of fly, plagues one greatly ; they call them *muscieten* (mosquitoes) ; their sting itches very much, and they cannot be driven from the room but by smoke, which they appear to dislike exceedingly.

Beautiful large turtles are caught in *Ceylon*. We have often found the eggs on the shore to the number of 300 to 400. I have seen with my own eyes turtles so big that a couple of men had enough to do to carry one. The fishermen used to sell them for half, or three-fourths of a rixdollar ; but this luxury is only within the reach of rich people. Once, when we were out elephant hunting, and I stood sentinel, I saw one in the moonlight, as big as a hat ; and as at that time I did not know yet what it was, and only saw it moving about, I called my comrade to look. When he came, and with his musket had turned it over and found that it was a turtle, he was delighted, cut it open and took off the shell ;

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\* Cf., too, Knox, p. 25, and Ibn Batuta (C. A. S. Journal, Extra No., 1882, p. 46). “Blood-suckers or leeches are the worst vermin on the island... The best way to deal with them is to have some green lemons with one, or good vinegar and salt, or saltpetre, and wet them with it, and they fall off immediately.” Schweitzer, p. 293.



the remainder we took, cooked, and our ensign, Otto Hermersen,\* of Emden, having invited himself as a guest, we all found that in truth, the meat was of better taste and flavour than the best chicken.

In the forests are many tigers, but as they have sufficient prey in young buffaloes, oxen, deer, &c., men are comparatively safe from them. We much liked to see that they had killed the heathens' cattle or other animals, for it is the tiger's nature only to suck the blood, and as he does not eat the flesh, and it was repugnant to the natives to eat anything but what they slaughtered themselves, the meat came in very handy for us, and we used to wish that the tiger would often prepare a similar feast.....

It is likewise very amusing in the forest to watch the monkeys, who delight in staying on cocoanut trees; and if anybody happens to pass, they throw the nuts down on his head. I shot several of them. They make enormous springs from one tree to another, and when they have young ones they take them in their arms and jump from branch to branch.† They are easily trained, and I have seen one myself that could fetch wine, and would refuse to give the money before he got the wine. When boys tried to tease it it would put the jar down, lay hold of stones, and throw them, so that the boys had to run away.

They are caught in a curious way. A whole cocoanut is taken, a hole is bored into it, and the kernel loosened; then the monkeys come at once, scratch a bit of the kernel out with their fingers, and when the natives rush up, the monkeys, rather than let the kernel go, allow themselves to be caught. Some of them are totally black, and have partly long tails, partly short tails; some are grey, and these too have both long and short tails.‡ A wild monkey can be

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\* *Otto Harmensz.* (Dutch ed.).

† The small brown kind (*Macacus pileatus*; Sin. *vilavá*) is probably meant.

‡ On the four species of *Presbytes* (Sin. *vandaruvá*) found in Ceylon, see Tennent, *Nat. Hist.*, pp. 6-11.



bought for half a rixdollar, but those that are trained and know a few tricks cannot be had under two rixdollars.

There are in the island of *Ceylon* many and beautiful trees called cocoanut trees, from which as I said above, a beverage is drawn called *siere*. In Amboina it is called *sagaweher*,\* in Surat *terri*.† The tree can be utilised in about seventy ways. When the liquor gets old they make vinegar of it. The nuts when young are green, and have water inside, very sweet, and as clear as crystal;‡ when you cut them open the water spirts up to a certain height; but when old, the water inside the nut becomes solid, and a kernel grows about as thick as the finger, of which milk can be made; you can also make oil of it. The natives cover their houses with the branches, and also make their utensils thereof. When the nuts are old they are put into the ground, and a plant grows out of the nut, which, after five or six years, bears fruit. If the natives had not this tree, they would be poor indeed. But the monkeys, of whom there is a large number, as I have before remarked, do much damage to the trees.

There are also beautiful *cannelles*, or cinnamon trees; all the cinnamon, and more than is wanted, comes solely from this island. In 1648, when in garrison at *Negumbo*, about twenty-six miles from *Pünste de Galle*, I was during three months often ordered into the forest, as a rule, with twenty-five men; of the niggers, however, or heathen, about four hundred went to the forest. When we marched out in the morning a drummer came with us who had to beat the drum very loud in the forest, and we fired volleys from time to time on account of the elephants. In the meantime the natives had to peel cinnamon, for cinnamon is nothing else but the bark of the tree, which can be peeled, just as bark is peeled from trees.

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\* *Sagaweer* (Dutch ed.). See *Hobson-Jobson*, s. v. "Saguire."

† Toddy. See *Hobson-Jobson*, s. v.

‡ Johann von der Behr (p. 49) says, that the drinking to excess of cocqanut water was very injurious to newly arrived Europeans, causing paralysis of the legs, which could be cured only by inserting the limbs in hot sand several hours a day for some months.



in our country. The tree itself does not grow very high, is no thicker than a man's leg above the ankle, and bears no fruit. The leaves, when taken into the mouth, have a taste of cloves; after the tree has been peeled the bark renews within a year and a half, and you can see how the sap oozes out through small holes, and runs over the tree and congeals until the bark can be peeled again. When the tree is old, and a young one sprouts up, the old one is cut down to make room for it, because old cinnamon is not of the same value as new. Every one of the natives knows how much he must bring. When they come home there is a captain who examines the bark, and if he finds old or thick cinnamon he rejects it, and does not weigh it; but in *Pünite de Galle* they make cinnamon-oil of it. Any native who brings one thousand pounds weight of good young cinnamon is free for a whole year afterwards; if he does not bring so much he must make it up next year; for what more he brings he gets paid.\*

It costs the Hollanders very little money on the spot,—no not a penny,—but much Christian blood: I know for certain that during the period of eight years which I spent in the island, it cost us six thousand of our men; and the Portuguese, who always wage war with the Emperor of *Ceilon*, just as we did for some time, over twenty thousand men.†

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\* According to Valentyn (*Oude en Nieuwe Oost Indien*), each man was required to bring in during the harvest two *bahars*, of 480 lb. the *bahar*: for one *bahar* he got nothing; for the other only  $1\frac{1}{2}$  rixdollar. The captain in charge of the cinnamon peelers was held responsible that the fixed number of 515 natives entered the forest and remained there till they had brought in the stipulated quantity, 898 *bahars* = 431,040 lb. The yearly demand was at first 1,000 bales; by 1742 it had grown to 2,100 bales for India, besides the regular supply to Europe, 8,000 bales. There were then two harvests a year, the first and chief in April. In such estimation was its collection held as to give the title of *Mahá badda*, or "great tax," to the establishment under which it was worked by the natives of the Cháliya caste, who retain the name in spite of the abolition of the Government monopoly since 1833. (For full particulars of the trade and its expansion, see Lee's *Ribeiro*, App., pp. 172, 191, 192, 231-45; Bertolacci, pp. 239-55.)

† Cf. Tennent, II., 51.



Another kind of tree there is called *hakra*,\* of which they get black sugar, and which the Hollanders therefore call "the sugar-tree." The leaves are very large, and they are used when it rains, because they keep off the water well.† They bear apples as big as the head of a child, brown outside, like a chestnut, and yellow inside. If one wants to open and eat it the shell must first be pulled off with the teeth; the inner part is like a knot of hair; when taken into the mouth, it has a hard, large, white kernel, very sweet and pleasant to eat; yet one would rather think that the inner part ought to be thrown away and the outside eaten. We have often had a joke with new comers over this.‡

There is another kind of tree which they call *sursack*, a favourite fruit with the elephants: it has leaves like a larch, and does not bear its fruit, like other trees, on stalks away from the trunk and on the branches, but on the trunk itself. The fruit is long, green, thorny, very mucilaginous inside, and with yellow seeds with a kernel, which, roasted like a chestnut, have a very agreeable taste.§

Capital lime, orange, and pomegranate trees are also found. The natives, as well as foreigners, Hollanders, and Portuguese, men and women, eat one or two oranges early in the morning, and say that in the morning oranges are like gold to the stomach, at noon and in the evening like lead: so you will not see any Portuguese eat this fruit save at the time first stated.

There is a kind of pumpkin also, called melons: they grow like pumpkins, not round like those of our Christian soil, but long; they are good and pleasant to eat.||

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\* *I.e.*, Sin. *hakuru*, "jaggery," a coarse brown sugar made in Ceylon from the kitul (*Caryota urens*), cocoanut (*Cocos nucifera*), and palmyra (*Borassus flabelliformis*) palms. Saar means the kitul.

† The leaves of the talipot (*Corypha umbraculifera*) or palmyra are, of course, referred to.

‡ The fruit of the palmyra palm.

§ *Sursack*, the Dutch name for the *Artocarpus integrifolia*, or jak-tree (Port., *jaca*, from Malayalam *chakka*). *Hobson-Jobson*, s. v. "Soursop."

|| Several species. Cf. Nieuhoff (Churchill, II., 329), on its good qualities.



Almost similarly so grows a fruit called water-melon, sometimes as big as a man's head, and sometimes smaller. The outside is green: when you open them, they are red inside; some have black, some red kernels; they are very juicy, and on that account cut into small slices, which are put into the mouth to quench the thirst in the great heat.\*

There are also big gourds, and in great quantities; they are easily carried, and often, when we had to march and were afraid of running short of water, we hollowed them out and carried them well filled. † Into the smaller ones we put oil, and hung them to our bandoleers, so that in case of rain we could clean our guns and be always ready to fire. ‡

They have a kind of pear as big as a fist, called *kujafen*, which grows on small trees of the height of a man; the colour is yellow; inside are black kernels, and they are eaten with the peel on, being very soft. †

Other trees, about one and a half times the height of a man, bear *pappeyen*, which are similar to our pears, and oval: when they are ripe they are green outside, yellow inside, very juicy and sweet, and melt in one's mouth; in the centre they have ash-coloured kernels, which are a capital medicine against diarrhœa and dysentery. At times they are cooked, and then have the taste of turnips; they are a very hot fruit. §

The *annassen*, likewise, are so hot that the lips crack, even if cut up like limes and soaked in water for a long time; they nearly resemble our artichokes, and are of a reddish colour. ||

Similarly hot are the *kaschauen*, a fruit formed below like a heart, but above is a chestnut which, when opened, is

\* *Sin. komadu*; *Citrullus vulgaris*, or water melon.

† The bottle gourd, *Lagenaria vulgaris* (Seringe).

‡ Guava; *Sin. péra*; *Psidium guyava* (Linn.).

§ *Carica papaya*, the papaya, or papaw. "This word seems to be from America, like the insipid, not to say nasty, fruit which it denotes."—*Hobson-Jobson*, s. v. "Papaya."

|| *Ananassa sativa*, the pine apple.



very oily; but when it has been well dried it exposes a kernel inside as good as an almond: one side of the fruit is red, the other yellow; it is very good against syphilis, which, by reason of its heat, it drives out of the skin, so as to be evident.\*

They have still other fruits; for instance, the *mumpelbouse*, as big as the head, red inside; the peel prepared with sugar, like the citron, is very good to allay thirst.† The *puppunen*, similar to the melons, green outside, red inside, are made hollow, filled with fat, meat, or grease, pepper and mace. When a fleet sails, they take one or two thousand with them and when well boiled together their taste is good.‡ The *potazen*, of the same form as our cheese-cakes, as long as a finger, and oval, are peeled and cut, and when cooked are an agreeable dish.§

The *kecerey*, a sort of a vegetable, reddish and white, like lentils.|| The *gajan*, round grains, which, when cooked, turn quite green.¶

There is also a fruit, the size of a plum, green outside, inside of a reddish yellow, with a big kernel inside when ripe, and very sweet. The native call them *mangas*, and

\* The cashew-nut and apple, *Anacardium occidentale*.

† Pommelo, pomplemose, or shaddock (*Citrus decumana*, Linn.), the largest of the orange tribe. See *Hobson-Jobson*, s. v. "Pommelo," for the many vagaries the name has assumed. Dutch ed. reads *pumpelmoezen*.

‡ Dutch ed. *pepoenen*; Port. *pepino*, cucumber.

§ Probably sweet potatoes (Sin. *batala*). In W. Schouten spelt *batattes* and *patatten*.

|| Dutch ed. *kecerijen*. Probably the vetchling (*Lathyrus sativus*, Linn.; *Cicerula alata*, Moench). Hind. *khesári*, *kussúr*, *kasári*, *kassar-tiuri*. W. Schouten has *kitzery* (II., 13) and *kitsery* (II., 17; III., 15), which he describes as "a small but nutritious seed." (See also next note.)

¶ *Cajanus indicus*, or pigeon pea,—"*kadjang*, as the *Javanese* and *Malayans* call it" (Nieuhoff, *loc. cit.*, 336),—is the commonly used pulse, *dál* or *doll* of India. W. Schouten (II., 17) says: "*Catyang*, which are little seeds, about the size of those of *Fenugreek*, and in some places are shipped in large quantities, and are used everywhere throughout India as food, just as peas are in Holland." Heydt (1744), writing of *Java*, says (p. 69, *note*):—"Some sell provisions and eatables, namely rice, *catjang*, *kissery*, beans and corn in great plenty."



I liked them very much, when for the first time I tasted them after my arrival from Banda at Batavia.\*

There are whole fields full of cardamoms: they grow as high as rice, in sheaths, in which they are shipped to other countries.†

A kind of pepper grows also there, but it is not exported, for it is consumed in the country.‡ The best quality and the largest quantity comes to our stores from the Island of Jamby.¶ There is no saffron, instead of that they use a root called *borriborri*, of the shape of ginger, and when rubbed on a stone the colour is reddish; they like it particularly because they say that it makes the eyes clear and bright.¶

\* *Mangifera indica*. From the Tamil *mán-káy* the Portuguese coined *manga*, whence the modern form *mango*.

† *Elettaria cardamomum*; Sin. *ensál*, Ceylon cardamom.

‡ Chillies are possibly referred to. Further on (chapter XVI.) Saar says:—"When I had now been six months at *Batavia*, I received for my wages two months' pay, with which money I therefore supplied myself with victuals for the voyage; I bought a large pot full of fruit, which are called *ricien*, and must be cooked if one wishes to eat them. Some are green, some red, some yellow; they can be used instead of pepper, and grow on small bushes, as the bilberry does in these parts. The Indians call them *rattimires* [Sip. *ratamiris*], and the other pepper, which is brought to India from other places, they call *Hollandes mires*. The true pepper grows exactly like the juniper berry, and is quite green, and only when it is dried in the sun does it become black." Langhansz (p. 194) says:—"..... long or Spanish pepper (which they call *ritzkes*)."

¶ Jambi was not an island, but a kingdom on the east coast of Sumatra now included in the Province of Palembang.

¶ "The plant, the root whereof is called *Borbori* by the *Javanese*, *Saffran di Terra*, i.e. *Saffron under Ground* by the *Portuguese*, *Kurkum* by the *Arabians*, and by the *Latins*, *Radix Curcumæ* or *Curcuma-Root*, has Leaves not unlike those of the *White Hellebore*, viz., thick, long, and broad, smooth, and interspersed with many Veins. The Stalk is thick, and grown up to a considerable height: The Flower is of a Purple colour, and the Root resembles the *Gentian-Root*. After the Flower comes the Fruit, like a Chestnut, containing a round Seed not unlike our Pease. The Root contains a Saffron yellow Tincture, whence it has got the Name of *Indian Saffron*. The *Malayans* Boil and Eat them both with Fish and Flesh and look upon them as the most Sovereign Remedy in the World; against all the Obstructions of the Liver, Lungs, and Spleen; against the Gravel and Stone,



There are old people in the island up to ninety and one hundred years ; and to keep themselves in good health, they carry a root in their belt, which they chew if they do not feel well.\* I once asked one of them how he could have grown so old, and still be so quiet. He replied that when he had a mind to eat he had eaten, to drink he had drunk ; to sleep he had slept ; when he had an opportunity to sit down he sat down ; to cover his head he covered it ; in short he had never done anything against his nature when he could help it.

When one of them is on his deathbed, and to all appearances sinking, one of his best friends comes, puts his mouth on his firmly and exactly, that his soul may not go into an animal when leaving.† When he is quite dead, they begin to weep and to mourn, and to ask with tears why he had died, whether he had not money enough or not enough to eat ; they go into the jungle and conjure the devil that he should tell them what had been the matter with the deceased. After much crying they wash him and sew him up in a cloth, and then hire several old women, who have to sit in front of the dead man's house for three days and nights and to wail. They cover themselves with mud, or run into the water up to the neck, as if they wanted to drown themselves

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the Stoppage of the Monthly Flowers, and other Diseases of the Womb ; but most especially against the Yellow Jaundice : This Root is one of the main Ingredients in that Ointment, called *Borbori* by the *Javanese*, wherewith they anoint the whole Body." (Nieuhoff, *loc. cit.*, p. 339.) "Curcoma or Bobori" (Valentyn, Amboina, p. 160). "Great Java also produces...Borborry" (Heydt, p. 69, n). "They [the Malabars] smear themselves now and then with *Borreborry*, a sort of *Indian* saffron (W. Schouten, *l. c.*, p. 275). "*Buriburri* or *Gurkoma* (which is the *Indian* saffron)" (Langhansz, *Neue Ost-Indische Reise*, p. 194). "The *Gurkuma*, which in *India* is called *Buriburri*, they use likewise for dyeing cotton" (*ibid.*, p. 242).

\* Probably the areka-nut (*Areca catechu* L.), which all natives chew, mixing it with leaves of the betel creeper (*Piper betle*) and chunam or lime.

† Navarette notes that the Bráhmins, *contra*, endeavour to ensure the soul of the man *in articulo mortis* passing straight into a cow, though not through its mouth. (Churchill, I., 308.)



in their distress.\* At last the body is put upon a bier, and if the man was particularly poor and of mean birth, they carry him into the jungle or to the seabeach, where they bury him with the face towards the east.† They generally put upon the grave a green branch, and plant thorns around it to protect it against the *jackhals*,‡ a kind of fox, which is very fond of human flesh. As an outward sign of their grief, they wear a long blue cap with no bottom to it, which hangs far down behind, and in this dress they appear for about a year.

In this island, as mentioned before, the Portuguese had several settlements. The Emperor of *Ceilon* and King of *Candi*, however, did not like them as neighbours, for they had drowned his brother, because he was more inclined towards the Dutch. He therefore began a great war against them, and sent a special Ambassador to Batavia to ask for help against Portugal, promising all help and assistance now and afterwards.

In this wise the Hollanders came to *Ceilon* for the first time, *Anno Christi* 1640, and began by the conquest of the town *de Galle*, soon followed by that of the great fortress of *Negumbo*,|| the latter they lost again two years afterwards, *Anno* 1643, but in the subsequent year (1644) they reconquered it, thus twice losing and twice winning it within four years, and always in February. *Negumbo* was a strong place, and had four bastions, two facing the sea, called *Horn*¶

\* Cf. Knox, p. 115.

† A mistake. Siphalese children are enjoined against sleeping with the faces to the west—that being the posture assigned to the dead at burial. Cf. Davy (*Account of Ceylon*, pp. 290, 291) :—“As Boodhoo came from the east, they lie during life, with their heads in that direction; and as they think it is not right that the living and the dead should lie the same way, their first duty is to turn the head of the corpse to the westward.....Low caste people are not allowed to burn their dead; they bury the corpse with little ceremony, in a grave 3 or 4 feet deep, *with its head to the west*.”

‡ *Jakhals* (Dutch ed.).

|| For the early history of *Negombo*, see “*Old Negombo*,” in *Cey. Lit. Reg.* vol. IV., p. 21, *et. seq.*

¶ *Hoorn* (Dutch ed.).



and *Enckhysen*,\* two towards the land *Delft* and *Rotterdam*, with a high wall made of sods about twenty-two feet broad: each bastion had eight guns. There are two ports, the Water Port and the Land Port. Inside there is a castle, protected by two bastions, called *Middelburg* and *Amsterdam*, built of stones to a certain height, and having the rampart above likewise covered with sods. It is surrounded by a ditch, in the middle of which long and pointed palisades are closely fixed. After the conquest of *Columbo*, however, the fortifications were demolished (saving the stone inner castle), that it should not require such a strong garrison and so much money for its upkeep.

When the Hollanders appeared before this place [Negombo] the second time the Portuguese might have well prevented their landing and driven them away by cannon and matchlocks with very great loss; yet they allowed our people to land unopposed because they were so certain of victory, and in partaking of the holy sacrament had sworn to give no quarter to any Hollander, and not to eat or drink until they had washed their hands in Hollandish blood, and after to try to capture our ships. But God Almighty did not permit their ire to have its way. When we were all ashore we took up a good position, and after prayers had been offered on the field, and the word passed, "God with us," we advanced towards the Portuguese with great courage. Their password was *Madore Des*:† (Mother of God). Then both sides approached each other, and when we halted the Portuguese some 900 strong, fired the first volley, which killed 30 of our men and wounded 50. Thereupon we, but 300 in number, fired in return, and at the command of our officers began to use our swords (for it is usual with the Hollanders when they go into action to carry short swords, broad and curved). The Portuguese were attacked with such fury, that within a short time about 700 were slain, and the rest took to their heels. One of the Hollanders, a captain

\* *Enkhuizen* (Dutch ed.).

† *Madre de Dios* (Dutch ed.).



of the name of Sendemann,\* had, together with his servant *Joan de Roes*, deserted to the Portuguese, *Anno Christi* 1643. When he saw that we were victorious, and that the fortress would fall into our hands, he advised them to put a fuse to the powder that was stored underneath the fortress of *Negumbo*, that if we entered we should be blown up along with it. Some of the prisoners told us about it, among them a Capuchin father, whom our people had taken with them into the fortress and who wished to save his clothes and his skin, and not to try to mount into heaven before his proper time. Our Governor, Mr. *Franciscus Charon*,† offered a reward of forty rixdollars to any one who would venture down and remove the fuse. When the man got into the cellar, the fire was only two thumbs' length from the powder, so God's grace and power alone prevented the catastrophe. A German, who had taken the Father prisoner, being in a great rage that he had been silent so long, and said nothing about it until he was in danger himself, took his gun and shot him down at our Commander's side, who said, "My fine fellow, do not come nearer; if you do not wish to give quarter, do not carry it out on me."

*Anno Christi* 1643 a large fleet came before the town of Goa with instructions to make peace with the Portuguese, on condition that if they still were in possession of the fortress of *Negumbo*, they should keep it, if not, and the Portuguese wanted to risk another assault, they should be free to do so. They, however, had not the desire, and next year (1644) a treaty was published for a ten years' armistice.

Now that we had peace it was resolved upon the instigation of the Portuguese, *Anno Christi* 1645, that war should be made against the King of *Candi* for the sake of elephants.

As the Hollanders had no tame elephants, the Portuguese

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\* *Sendeman*; *Jan de Roos* (Dutch ed.).

† *François Charon* (id.).



offered, at the price of half the number caught, to lend their tame ones. The Hollanders then marched out, and to pick a quarrel they seized upon four of the best elephants of the King of *Candi*. He, as a sensible man, sent word to the Hollanders that he had no intention to do anything against them, and he expected them, for their part, to act likewise; he had called them in as friends to be his allies against the Portuguese, and he hoped therefore that they would not settle in his territory. But the Hollanders from the beginning were bent upon war. When the King saw that it could not be avoided, he collected by one of his generals (a *Saude*,\* or what we should call a Count) about 60,000 men, chiefly natives, besides a few Portuguese whom he had formerly made captives, and who had entered his service. He would no longer trust the Hollanders, having been deceived once. They had promised at first to remove people from his country, but, under pretext of fetching them and providing victuals for their return journey, they had brought, under a guard of 36 men, powder and ammunition in small casks, which they had put into bigger ones, and covered with rice and meat. A deserter from our side told him about it.

In the following year (*Anno Christi* 1645†) in the month of May, Mr. von der Stält‡ received fresh orders to march with 150 men (picked soldiers), plenty of ammunition, powder, lead, and other materials of war, and also two field guns. He met with the heathen *Saude* in a small clearing, but as the latter had no orders to fight, because the king was still disinclined to go to war, he withdrew into the forest. The Hollanders opened a heavy fire from their field-guns and fire-arms, so that 400 were killed, and many were

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\* In Schweitzer *Saudi*. Perhaps the same as Knox's *Sihattu*, which he says is a title meaning "Honour," applied to noblemen when not in the King's presence.

† Read 1646.

‡ Van der Stelt (Dutch ed.).



wounded. As the Hollanders had taken the offensive, the *Saude* did not care to act only on the defensive. He therefore came out of the forest, and closing round our people, attacked them with such energy that he cut off the head of Mr. von der Stält, who had been carried in a *palanquin* or litter, clad in red scarlet. Of our men, who had numbered 150, they got 103 heads. The rest fled into the jungle and hid themselves as best they could.\*

When the King, who had been near, heard of the onslaught he hurried to the spot, and although he was told that his men had been forced to fight, he showed displeasure. At once he ordered drums to be beaten and proclamation to be made that none of the Hollanders who had fled into the jungle were to be killed, but they were to be brought alive before him; that he would treat them well; and that he would swear by his God that he was innocent of the bloodshed. He then gave directions to have the head of Mr. von der Stält put into a silver bowl, and covered with white cloth, and sent it by one of the prisoners to their Captain in the great camp, to say that this was the head of Mr. von der Stält, and that the King would see his body as well as the other 103 bodies decently buried. But at the same time the King sent word, that if after three days the Captain was still in the field, or in his country, he would come with 100,000 men and take him with all his followers. The Captain sent for the head, had it buried near the camp, and three volleys fired over it: but as he had no orders from the Governor at *S. Galle* to leave the place, he was unwilling to move without instructions.

Thereupon the King of *Candi*, with a force of 100,000 men, besieged him, and during the night erected such works that he could fire into the camp and none of our soldiers could show themselves.

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\* For J. von der Behr's account of this occurrence, see *Ceylon Literary Register*, vol. VI., p. 99. Jürgen Andersen also relates the affair. All these accounts differ in details.



After the Emperor of *Ceylon* had besieged the camp for eight days, our people, who numbered in all 500 men, had neither victuals nor chance of withdrawing from the place, and seeing that they were completely hemmed in, they at last had to surrender to the heathen with all they had. The Emperor was so courteous (and, notwithstanding he is a heathen, he is an exceedingly intelligent man) that not alone in his camp but throughout his whole empire even he had published the order, that under penalty of death it was forbidden to harm any of the *Hollanders*. He himself did not treat them as prisoners, but as men who belonged to his retinue; he even had them brought before him, which is a sign of particular imperial grace.

Next, the King went towards the small camp, and desired them to surrender according to custom. The Lieutenant, however, who had 70 men with him, sent back a message that "he had nothing for the Emperor but powder, bullets, and the point of his sword;" and in truth those he showed him up to the fourteenth day, killing and wounding many, so that the Emperor himself said they must be all very devils inside, and not *Hollanders*. Then he asked one of the prisoners of what nation the Lieutenant was, and on his answering that he was an *Allemand*, and that most of the men with him were *Allemands*, that is High Dutch, the Emperor said that if he could get hold of him he would like him the better, and honour him more than the *Hollandish* Captain. When one of his men wanted to know the reason, he replied, "This Captain had 500 men in his great camp, who did not want to fight for their master and their country; but the *Allemand*, although in *Hollandish* service, remained true to them with his few men, and would sooner have died than lose his honour."

During the night the Emperor sent a *Hollandish* prisoner who knew the Lieutenant, to see him and to persuade him to surrender. The messenger called the Lieutenant by name, and told him that the party of Mr. von der Stält was routed, and he himself killed; that the Captain in the great camp



had surrendered with all his men ; that he also should do the same, as there was no possibility of escape. After consulting his men the Lieutenant replied that, unless the Emperor gave them the very best conditions, he was determined to defend himself to the last man : that if the Emperor would promise those conditions, and keep them, he would consult his men, and, if all agreed, surrender the camp. The next day the Emperor sent one of his high officials with a white flag, to conclude terms with the Lieutenant, and to tell him that he was anxious to see the *Allemand* and his men, because they were such good soldiers and had served their master so well : the official was to take an oath in his name that he would keep the arrangement made. Thus highly are German courage and honesty respected amongst the heathen, as the said Lieutenant experienced after the Emperor's Ambassador had taken his oath. When these heathen wish to take an oath in public they take up a handful of sand, hold it high, say a few words, and let it fall ; they afterwards hold firmly and to the last point what they promise.

When the garrison came out, and the Lieutenant and his men with burning fuses, bullet in the mouth, swords by their sides, were taken before the Emperor, they all first fell on their knees three times. This is etiquette, and even as man of high rank as Ambassador for the Hollanders, if he desires to see the Emperor of *Ceylon*, must fall on his knee three times. The Emperor's own subjects, however, must throw themselves three times with their faces to the ground. The highest in rank, if they need to speak to their Emperor, are not allowed to turn round as long as they can see him, but they must march out backwards. Ordinary people are not allowed to come near him, but must have men of rank to speak for them. The Hollanders, however, are allowed to stand before him, and personally to speak with him.

After the said Lieutenant with his men had fallen on their knees three times, he took his sword to present it himself



to the Emperor. The Emperor, however, would not receive it, and ordered him to put it to his side again ; but his men had to give up their matchlocks. Then he gave instructions that all the prisoners, 600 in number, should be well fed three times a day, and whatever had been taken from them should be restored ; that anybody whom the prisoners should complain of was to be executed by the elephants. To the Lieutenant, however, as a courageous German soldier, he presented a horse, an elephant, and a thick golden chain ; and he always made him ride by his side, which astonished every one.

After this he sent an Ambassador to the Hollandish Governor at *S. Galle*, with a message that as he had enough elephants and enough cinnamon, if they would give back his four elephants, and not again have a military camp in his country, he would live in peace and friendship with them as long as the sun shone and the moon endured, and he would at once liberate the 600 men. But our Governor would not accept the Emperor's good-will ; he had the Ambassador and all those that were with him blindfolded, and led away so far that they could no longer see the town, and only then had the bandages removed. This displeased the Emperor very much, and he went with his followers and prisoners to *Candi*, where he had his residence and treasure vault. Once a year he was in the habit of going there, and likewise only once a year he used to go into his treasure vault. On such occasions one of his body-guards has to accompany him with a light, and after having inspected the treasure, the Emperor goes out ; as soon as the guardsman, however, arrives at the outer court, his head is cut off, so that nobody knows for certain where the imperial treasure is. Other heathen have similar habits, likewise the Portuguese, who, when they are besieged, and are afraid that they will have to surrender, order one of their slaves to dig a large, deep hole, into which they put their best valuables ; after this has been done, they immediately kill the slave, that he may not reveal where the treasures are. I have seen



myself that when such a treasure was dug out human bones lay close by, and in India this is a common occurrence.

After, as before said, the Emperor had arrived at his castle in *Candi*, he at once ordered to distribute the 600 Hollandish prisoners in his country amongst the peasants and in the town, and that they should never be allowed to want; otherwise the royal displeasure would be incurred. But they were to look well after their women, cows, oxen, &c., because the Hollanders were very fond of women and all sorts of meat. When afterwards complaints were made about misdeeds of this kind, the Court replied that the natives had been well warned beforehand, and they ought to have watched more carefully. These were the King's Hollanders: and if a native did not give his guest enough to eat, and refused to do so after the latter had said to him, "Give me to eat in the Emperor's name," and the Emperor was informed of it, the native was at once thrown to the elephants and killed, and, according to custom, had to lie unburied. A similar occurrence happened amongst our people in the town of *Candi*. One of the prisoners, an ensign, *Cornel Salvegad* from Utrecht, had struck his Captain, although the latter had dealt the first blow, and the former had only defended himself. However, when the Emperor, who would not hear of any disturbance amongst our men, was informed of it, he ordered the Captain to be asked what the custom amongst the Hollanders was if a subaltern struck an officer of higher rank. When he received the reply that a subaltern forfeited his life, he ordered the ensign to be arrested. A week afterwards judgment was given, that he should be thrown before an elephant; and although our people, including the Captain himself, went down on their knees to beg for mercy, the King's order remained unaltered, and the reply was given that, according to their custom, their master's order was irrevocable. Thereupon the poor fellow was taken away and tied to a pole. At first he was in hopes of receiving a reprieve; but when he saw that there was no chance, he prayed with great fervour, and commended himself to God's mercy. When



a native, with his short hook, told the elephant to kill the condemned man, the wild beast refused, began to roar, swayed his head to and fro, and would not attack the ensign. However, as the execution had to be carried out, the native had to make the elephant angry, and to hit him behind the ears with the hook until his temper was roused and he was forced to run at the poor man. He ran him through with his two tusks, then threw him into the air, and when he fell down he quickly put his feet upon his body to shorten his sufferings. Our people, as well as the heathen—ay, the Emperor himself—were very much astonished, and many thought that, after all, the poor man might have been wronged; for if the elephant has to kill a native or heathen he is at once ready for it, and requires no urging, but is himself savage enough. Not all the elephants, although there are many in the island of *Ceylon*, execute justice, but there are only two which the King always keeps for the purpose. Our people petitioned again to have the man buried, but the same reply came back that an order given by the King was for ever irrevocable; so we had to bear it patiently.

Once the Portuguese, 1,500 strong, defeated the Emperor, who had to retreat into the mountains. They followed him up to *Candi*, took the town, found rich booty, and enjoyed themselves in shooting, eating, and drinking. The Emperor allowed them to do what they liked, but in the meantime was bent upon his revenge. He closed the roads in the forest quietly, and when he saw that ammunition and victuals were nearly at an end, he attacked them again; and because the passage was cut off, and they could neither advance nor retreat, they had to suffer from hunger and thirst. When deserters came from the Portuguese camp the Emperor ordered them to be asked why they had deserted; if they complained of hunger and thirst, they were to receive enough to eat and to drink; and when they at last said they had had enough, their heads were to be cut off immediately. When most of them had died of hunger and thirst, the Emperor took a deserter, had him well fed, gave him victuals for a week and a convoy of forty men



that he should be protected against the elephants and the natives, and sent him to *Columbo*, where he was to tell the Viceroy what had happened to him and to his comrades, who were all dead. The Viceroy flew into such a rage that he had the messenger hanged immediately, and said that he ought to have remained where the 1,500 remained.\*

This is perfectly true: in the forest the natives are like cats. If they have a little rope which they can put round their feet they are quickly up one of the highest trees; and it would be difficult to beat the Emperor of *Ceylon* in the forest. But in the plain they have no courage, and 300 Christians, however poor soldiers they may be, will beat 3,000 natives.

In the year of Christ 1647, on the 2nd February, the Emperor sent an Ambassador to *Negumbo*, and informed our Commander that he was going presently to send an Ambassador to *Punte de Galle* as well to negotiate a peace, especially as the Portuguese had already asked him for peace, with whom, however, he could not negotiate, on account of the murder of his brother. When our Commander learnt this he asked whether any of the merchants would like to volunteer to go as Ambassador to the Emperor of *Candi*. The same was done amongst the soldiers, twelve of whom were to go with a merchant of their own free will. This the Hollanders did, so that in case of a failure they were not bound to liberate the soldiers; for if no alliance can be arranged the Emperor keeps the Ambassadors, perhaps ten years, perhaps all their lives; but if one of them returns, the Emperor gives to the Ambassador a golden chain, and to each soldier a golden ring with beautiful stones; the Hollanders, on the other hand, give them promotion, but it is very dangerous.

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\* The above refers, no doubt, to the disastrous Portuguese expedition to Kandy under Diogo de Melo and Damiao Bottado in 1638. (See Valentyn, *Ceylon*, p. 117.)



This an Ambassador from the King of *Bengala* experienced *Anno* 1643. This King sent to the Emperor of *Candi* a live rhinoceros. Besides this present for the Emperor the messenger received much gold to buy elephants from the Emperor. Although there are many of these in *Bengala* he wanted to see whether it was true that his elephants would fall down upon their knees before those of *Ceilon*, as it were to show their subjection. Now, it is true that, clumsy and unwieldy an animal as an elephant would appear, he is almost as intelligent as a man, and as far as the above remarks are concerned I have seen it myself *Anno* 1659 in Batavia, that when elephants from these two countries meet by chance, those from *Bengala* at once bend their knees before those from *Ceilon*, for reasons which God only knows. When the Emperor of *Ceilon* had heard the Ambassador's message, and that he had much money from his king to purchase elephants with, he was displeased, and said he was no merchant, he did not sell elephants, but the Hollanders were trading in them, and from them he could get them. He then arrested the Ambassador, and kept him for fifteen years, until all the money was spent which his king had given him. After that time the Emperor set him at liberty, made him a present of two elephants, and ordered him to tell his king that in future he had better apply for his purchases to the Hollanders, who would be glad to receive his money, and more besides.

As we knew the danger by past occurrences, nobody seemed inclined at the beginning to go to *Candi* as an Ambassador. At last, however, a merchant and twelve soldiers made up their minds, and started across country from *Punte de Galle* on the 1st of April. When they arrived, they had to wait six days before they could see the Emperor. (These heathen are very particular as to auspicious days, and for matters of importance they prefer Sunday and Thursday. On a Friday they would do nothing at all, and even to put on another coat, whatever might be the occasion, would be considered exceedingly imprudent.) On the sixth day the



Emperor requested the attendance of our Ambassador as well as of the Portuguese Ambassador. He first inquired from the latter whether he had sufficient soldiers to drive the Hollanders out of the island; when he replied no, because at that time no soldiers could be expected from Portugal, where the King had a big war with Spain, the Emperor inquired from the Hollanders whether they would undertake to chase the Portuguese out of the island. As the reply to this was in the affirmative, the Emperor took the present which the Portuguese had given—namely, a hat with a clasp of gold and several stones, and with a bird of Paradise as plumage, and in the presence of the Portuguese gave it to our Ambassador. In return, he requested the present of a small dog which the Ambassador had with him; and as this exchange was not disadvantageous, our Ambassador was very much pleased thereat. The Portuguese Ambassador had to leave without success.

After our Ambassadors had been kept by the Emperor of *Candi* for eight months, during which time they were always free to communicate by messengers with our Governor at *Pünite de Galle*, it appeared that the merchant was not quite intelligent enough to treat with the Emperor. The latter, therefore, in December sent a special messenger to our Governor, and requested that a soldier should be sent, and not a merchant, to treat with him. Thereupon the old man was recalled and allowed to depart in peace.\*

#### ANNO 1648.

In this year, on the 5th of February, a Captain of the name of Burckard Koch,† from Wesel (from whom I eventually received an honourable discharge), was sent in the name of

\* The merchant was Laurens Maerschalk. For details of the correspondence that took place between the Dutch and the King in consequence of the massacre of Van der Stel and his company, see *C. A. S. Journal*, 1889, p. 37 *et seq.*

† *Burchard Kok* (Dutch ed.). Called Burgard Cox in the *Beknopte Historie*. He does not appear to have gone to Kandy until 1649. (See *C. A. S. Journal*, 1889, p. 45.)



the Company, with twenty men as volunteers, to the Emperor at *Candi*. There they arrived on the 15th, and when the Court was informed of it, he was soon summoned to appear, and was kindly received by the Emperor. After he had shown his credentials, and delivered his message, the Emperor said that he would think about it ; in the meantime the Ambassador could go to his quarters. The Emperor then sent for his sister, who was a very experienced sorceress, to ask her with which of the two parties he was to make peace : with the Hollanders or the Portuguese. She gave him the advice to have three of the most savage fighting cocks in this country to fight—a black one for himself, a white one for the Hollanders, and a red one for the Portuguese ; then to get the white one and the red one to fight together, and with the winner he was to make his peace. When the cocks fought, the white one got the better of the red one, and thoroughly defeated him. The Emperor's sister said that now he ought to treat with the Hollanders. Thereupon the Emperor asked whether, after the Portuguese had been driven out of the country, the Hollanders might not become his masters. She bade him, in reply, to let the white and black cocks fight each other. This was done : the birds went at each other boldly, but neither could master the other, and the fight remained undecided. Thereupon the Emperor's sister declared this to mean that he would remain Emperor of *Ceylon* and King of *Candi*, in the hill country ; but that the Hollanders would remain masters in the plains, and near the seaborde. He therefore made up his mind to make peace with the Ambassador Captain. First, however, he assembled all his nobles and counsellors, and those who advised to make peace with the Portuguese he caused to be murdered in secret, but those who advised to make peace with the Hollanders he honoured. He instantly sent for the Captain to come and begin the treaty, and to complete it ; he then ordered all the prisoners who had been previously distributed in the country to be brought to *Candi*, made each one a present of a gold ring, and sent them back to *Pünthe de Galle* with much



firing of guns. Those who were not well he kept until they had fully recovered and could join the others. Amongst them was a Nuremberger of the name of Andreas Heberlein, now a rich man, and a miller in Batavia, as I shall describe later on.

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ANNO 1650.

In the year of Christ 1650, on the 12th of February, a letter arrived in Persia\* from Holland overland, to our merchant, which stated that they had beheaded the King of England, *Carolus*, with an axe, and that the sword or Government had been handed over by Feurfax† to Oliver Cromwell. Thereupon I was at once ordered with other ten men from the ship of the Moors on to another one from Zealand called the yacht *Lello*, to go to the island of *Ceylon*, whither she was bound. We arrived at *Pünite de Galle* on the 9th of April, and reported what had happened to the King of England. The ship was ordered at once to proceed to Batavia, and there to report the news, but I remained in *Ceylon*, where at that time it was advisable to stay, inasmuch as there was a constant talk about a big fleet which was to come from Batavia to besiege *Columbo*, the great and rich town in *Ceylon*, and where many, like myself, expected a large booty. This, however, was delayed until *Anno Christi* 1655.

On the 9th of October I was ordered to *Negumbo* with two hundred men in the ship *Banda*, to reinforce the garrison, of which many had completed their time of service. On that occasion I was in the greatest danger of death, for when our steward with a light went to look after the brandy casks, he incautiously allowed a spark to fall: the brandy quickly took fire, and ran over the whole ship; and if we had not speedily thrown the powder into the sea we should all have been blown up. As it was, I thought that our last hour had come, and I looked out for a piece of an old mast

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\* The author was at the time in Gambroon.

† *Fairfax* (Dutch ed.).



wherewith I could save myself, and reach the land, which was only ten miles distant. Still we continued to do our best to put down the fire, and God in his great mercy helped us to escape from the danger. When we arrived at *Negumbo* we found that the garrison had taken a new engagement for three years, and, as we were not required, we had to return.

#### ANNO 1651.

In the year 1651, on the 12th of February, a ship came from Batavia, and brought orders that we should declare *Orlog* or war against the Portuguese, and require them to take their soldiers out of the island, or we should drive them out by force.

When that happened it was very inconvenient for them; still they collected their men in great haste and constructed a camp against us. One of their Captains with three hundred niggers came over to us, and offered to give the fortress of *Calutre* into our hands without the loss of a single man. Although this was agreeable news, our Commander did not like to risk it, as it would weaken the number of men under his command; but he replied that within a short time more ships with soldiers would come from Batavia, and that the matter could stand over till then.

On the 25th of April news came that three ships had been seen close to the land twelve miles from *Pünite de Galle*. On the next day the ships arrived, but there were no soldiers on board, and there were so few hands that only with great difficulty had they managed to take the ships across the sea. Moreover, they brought the bad news that England and Holland were bitter enemies, and had begun a bloody war at sea. What was to be done? The enemy was in front of us; the possession of the fortress would have suited us very well if we could only obtain it, but we had neither soldiers enough nor any to expect. But God inspired one of us with the idea that there was full hope to capture *Calutre* if only a ruse were used before it became known that the ships were empty. Therefore, upon each of the ships four banners



were to be shown and four drummers were to be ordered to beat the drums very hard, whilst the ships under sail should come near the land as soon as possible. We others who were on shore were to march on boldly, to make the Portuguese believe that they were attacked by sea and land. Very probably on seeing all this they would make the *retirató* towards *Columbo* and abandon *Caluttre*. This plan succeeded, and because they fancied themselves attacked in front and behind, rather than see their passage cut off they left, and we had the immense advantage of taking possession of the fortress.\* We got much ammunition, nine guns (big and small, all of bronze), about 500 head of cattle, cows, oxen, pigs, and chickens. The inhabitants who at once came under our protection were all left safe and unmolested, but those who were gone to the Portuguese, and were made prisoners afterwards, were sold as slaves and distributed amongst us. A Hamburger, of the name of Wittebol, and myself got a woman, who for some time used to wait upon us and cook for us. But one day when we were on guard, and were waiting to have our meal brought by her, she did not turn up. My comrade ran home to hurry her on, but found that she had hanged herself in the middle of the room.

The fortress of *Caluttre* is very strong, and cannot be taken by water, because on one side is the sea and on the other the river, which comes from far inland, and from which a new outlet has been made towards the sea, so that there is water all round. On the land side are high hills, upon which it is difficult to get; and moreover, on this side there are four bastions opposite each other, and protected with thick, double palisades with points of iron; there is only one entrance, and round about a very high wall, so that you can see none of the houses inside. The Portuguese garrison

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\* The Dutch did not however retain possession of Kalutara, as Saar would lead one to suppose; but abandoned it almost immediately, in order to concentrate their forces at Negombo, which was threatened by the Portuguese. (See Baldæus, Eng. trans., p. 788, and Ribeiro, bk. II., chap. XVIII.).



was always three hundred men, but for the Hollanders half the number is sufficient, and every six months they are revictualled from *Columbo*, from which it is seven miles distant. To that place, from this very fortress of *Caluttre*, Mr. Richlof von Guntz,\* of Emden, then Extraordinary Councillor of India and Commissioner of War, had a good road made, so that where formerly only one man could hardly march now eight men can march abreast, and can take with them small field guns which carry a charge of four pounds iron.

ANNO 1652.

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In the month of June, a Lieutenant of the name of Fetting, a native of Dantsic, lost his life because, when drunk, he had killed an Ambassador of the Emperor of *Ceilon*, and therefore had to be shot two months afterwards. They put three bullets into his hand, which he had to distribute to whom he liked : he gave the first to me, that I should fire the first shot ; the other to a man from *Olmütz*, named Andreas Mott ; the third to Christian of Cologne. He prayed fervently to God, and begged of our officer that they should have him buried decently.

When the Indians have to die at the hands of the Hollanders they ask who is to feed them when they come into the other world. When new soldiers arrive, and one of them resembles a man who died perhaps three or four years ago, the natives believe that he died in India, was resuscitated in Holland, and has now come again to India. This they believe so firmly that it is impossible to dissuade them from it. When they must die they take it very calmly, and think that it has thus been ordained. When they have to face an enemy, however, they are very much afraid of losing their lives.

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\* *Rijklof van Gunts* (Dutch ed.).



## ANNO CHRISTI 1653.

[At the beginning of 1653 Saar had an unpleasant experience, which he omits to record in this place, but which he refers to parenthetically in describing his voyage from Europe. Speaking of a vessel that had escaped from two pirate ships of Dunkirk, and the crew of which had resolved rather to blow up their vessel than fall into the enemy's hands, he continues:—"For that is the custom of the East Indian ships, that they would rather suffer a short death than remain a long time in the murderous hands of the Spanish or Portuguese: as I myself experienced when in India at *Angerdotta* [Angurutota, or Anguruwátara, on the Kaluganga], a pass in the Island of *Ceilon*, I lay for thirteen weeks a prisoner with the Portuguese, and would much rather have been among the heathen or Moors than amongst them. For they made us, with our feet fastened tightly to a piece of wood, pound saltpetre, grind in the powder-mill, and suffer hunger besides, until we were quite blackened. On account of this one of our number, to our exceeding great and imminent danger, on one occasion, from a sort of desperation, threw, of a set purpose, a number of sparks from the tobacco that he was smoking, with the intention of sending the powder and all into the air, to deliver himself and us from our misery, which, however, the compassionate God in his fatherliness prevented. A man from Friesland was at that time imprisoned with us, a fine young fellow, who, wishing to escape, risked it, wherefore he smeared himself quite black, and went completely disguised like a woman, and had got past the guard, when a black youth recognised him by his feet, where the white skin showed, and announced the fact, and for this he was so terribly beaten that he could not move or turn himself for some time.\* However, when they fall into the like misfortune

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\* Ribeiro (bk. II., ch. XVII.) gives the following account of the affair at Angurutota:—"The camp [Manicravaré] having been rid of the trouble referred to, it was notified that the Hollanders had made at



they can pretend the very utmost submissiveness. For when God had again delivered me from my prison, which took place between *Goa* and *Caluttre*,\* by our ships, which fell upon the ships in which we were as enemies, and by the grace of God captured them, I had experience of their cowardly hearts. For they shut us up together, as captive Hollanders, and deliberated in the ships, we being able to hear everything, whether they should let us live or put us

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Angoratota a strong wooden stockade, which they had garrisoned with a hundred and forty men and a company of Bandanese, and four hundred lascarins from the Galle districts, who had laid waste the Provinces of Reigancórla and Salpiticórla. With remarkable promptitude Gaspar Figueira got ready, with fifteen companies of infantry and some black troops, who followed the Dissavas of Maturé and Sofregao, the latter Antonio Mendes Aranha, the former Francisco Antunes; he raised this force on account of the enemy's being two leagues from Calituré, a town which they had fortified and garrisoned with a force of fifty men. Arriving at Angoratota he found the enemy well fortified, with the necessary redoubts, defences, flanks, and a ditch, which covered the fortification; for which reason he did not attack them, as he had intended; and as he could not do as he wished he laid siege to them. On the third day, seeing that we had suffered some loss, and that the enemy had a supply of everything needful for a considerable time, he ordered to be brought from the city [Colombo] two cannons of eight pounds each, and when they arrived, at the first shots, they could delay no longer in calling a parley and surrendering upon terms; he conceded to them that they should go out with their arms, drums beating, banners flying, match lighted, and march to the quarters of the Captain-Major, where they should pile their arms, and that they should remain in Columbo until the first monsoon for going to Goa, and should proceed in our ships to Portugal. In these conditions he did not allow the lascarins who assisted them to be included, and he sent all of them to the city to serve in the powder-mill, except the Araches, seven of whom he ordered to be impaled, and six to be cut in two with the axe, as they had been ours; though indeed inhabitants and natives of the Galle districts. This punishment Gaspar Figueira ordered to be executed on these thirteen Araches under the pretext that they were traitors to the Crown of Portugal; he did it, however, to intimidate the natives, who were helping the Hollanders. With the prisoners he returned victorious to Columbo, where he was received by all with great applause." It will be seen from this that it was in the Colombo powder-mill that Saar and his comrades had to labour: Ribeiro's account would lead one to suppose that it was only the natives who were employed in this arduous work. Baldæus also gives an account of the capture of Angurutota (English translation, p. 787); but says nothing of the imprisonment in Colombo, &c.

\* *Kalikuth* (Dutch ed).



to death. Some advised that we should be thrown overboard, in order that we might not have our revenge on them if we related to our fellows what courtesy they had shown to us. Others opposed this in the hope of getting all the better quarter from us. All of which we heard very plainly, until one of us let out with some menaces, as our flags were now close at hand. Then one of the number tried to get at the powder magazine with the lunt, and would certainly have done so if one of themselves had not prevented it.\* However, I got my revenge for my thirteen weeks' imprisonment among the Portuguese, especially in the island of *Ceylon*, where I was on five or six occasions, and we defeated them. For although our officers called out '*Messieurs*, or soldiers! we have the name of compassionate *Hollanders*, then let us have the deed also, and give quarter!' yet we acted as if we did not hear it, but shot and laid about lustily, as long as we could stir arm or hand, so that verily some hundreds forgot to stand up. For, as I have said, they also do not spare us, and when they could give us a short death, with their firelock and a ball through the head, they do not do it; but stab us and wound us with their long *steggats*, or swords, for a long time, indeed even after our death they give us ten or twenty stabs."]

In November, 1653, I came again to *Ceylon*, and then had the option of going to Batavia or to my fatherland. I was out of sorts for about a year and a half, and although I was not actually laid up, still every day at noon I was so weak that you might have pushed me over with a finger. I and others who had similar complaints felt as if not a drop of blood was left in our bodies, and our faces were as white as

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\* *Baldæus* (*l. c.*, p. 789) says :—" About this time Commissary *van Goens*, in his return from *Persia* and *Suratte* to *Ceylon*, had the good fortune to beat the Galeons near the Cape *du Ramos*, and thereby to release twenty of our People made Prisoners at *Angretotte*, who were set ashore at *Puntegale*."



sheets. They called it the sickness of the country, and he who gets over it is safe against many other diseases of the country. In the evening, when it is cool, one imagines oneself to be quite well, and feels quite strong, but as soon as the heat of the day begins one cannot walk twenty steps; one must sit down, and one's heart beats like the works of a strong clock.

#### ANNO 1654.

When, thanks to God's goodness, I had recovered, and there was no early opportunity of going to Europe, I enlisted again in December, 1654, for a period of three years, because they offered me the place of a corporal with the pay of fifteen Dutch florins a month, and I was always to remain with the company that had firearms. Two months afterwards I was ordered into the camp before *Calutre*;\* and I had the great misfortune that, as I discharged my gun, a native ran just in front of me. If I had aimed at him most carefully I could not have hit him better, and he fell down stone dead. Nobody knew who had done it, nor did I know it myself; but when inquiries were made who had fired a shot, and it was heard that a corporal of the firearms under Captain Severin had done it, I was at once put under arrest. The court-martial acquitted me, but I had to give the Indian's widow some money out of my pay. Our parson, however, was a good friend of mine; and said that an Indian was no better than a dog, and of no consequence. If it had happened to a Christian it would have been difficult to save me from being shot. For when this has once happened, and something has been passed over lightly, no further pardon can be expected.

#### ANNO 1655.†

In the month of February two ships arrived at *Piinte de Galle* from Batavia with troops, and brought the news that

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\* *Kaluter* (Dutch ed.).

† For fuller details of the events which occurred during this and the two following years see *Baldæus* and *Ribeiro*.



in two months a large fleet of sixteen ships would arrive with troops under a new General from Holland ; his name was Gerhard Hulfft, a native of Amsterdam, where he had been Secretary of the Town, and it was said that the fleet was to sail towards Goa and watch the Portuguese fleet. This news was spread on purpose that the Portuguese should not know that the fleet had arrived, and should feel safe in *Columbo*, upon which the real attack was planned. The Portuguese knew that for three or four years no troops had been brought over from Batavia, and they were convinced that England and Holland were still at open war ; they also bragged a good deal and made a great fuss and wanted to besiege the fortress of *Negumbo*. This, however, we prevented, and sent sixty men to strengthen the garrison.

On the 9th of April a fleet was seen off *Negumbo*, but it was uncertain whether it was ours or the English, because no flags were hoisted and the ships kept well out to sea. The plan of our General, however, was, since *Columbo* was only five miles distant from *Negumbo*, to land during the night, and in secrecy cut off the Portuguese who besieged *Negumbo* from the land side, and prevent them from getting to *Columbo*. Then it was intended that the King of *Candi* should come from the other side ; that the enemy should be taken between the two forces ; and that thus the town of *Columbo* should be conquered with all the more ease.

The plan, however, was frustrated. As soon as we were on the way it began to rain heavily, and continued to do so for two whole days. Our victuals and ammunition got wet ; the newly-arrived troops, who had been two months under sail, and had become quite stiff, because, on account of their number and great quantity of artillery, they had hardly been able to move about on board, could not advance, and had to stop on the road. We had all to withdraw to *Negumbo*, and to allow the Portuguese to reach *Columbo* with ease, and without losing a single man. They did not, however, find out that we had an eye upon the town, but were of opinion that we only tried to have the upper hand in the field.



On the 1st of June following a council of war was held, and it was settled that our General should leave with a fleet and anchor below *Columbo* near a fortress belonging to it, and about seven miles distant. A few miles from this fortress is a place where landing is easy, called *Berberi*. The Portuguese held this fortress, from which an open road leads to *Columbo*. I myself walked over it three times, but it is not easy to walk when it is high water, because one can only march along the sea, and with bare feet : you have now sand, now water, now stone ; and shoes are very dear in India : you have to pay two rixdollars for a pair, and they do not last for a week.

Now, as I did not care to spend my pay in shoes and stockings, necessity taught me to walk barefoot, and I thought " Different countries, different customs," and " When you are amongst the wolves you must howl with them." Many of my comrades who had been born in wealth felt this so much that they fell ill or even died of chagrin and vexation. But in my case I had perforce to be patient, and I could sooner endure this than the drinking of the water we had, and that, too, not always in sufficient quantity. Many a whole day, burning hot as they are in India, we had not more than a pint ; and that too so full of worms, that we had to strain it through a cloth held before the mouth, and then the water was such that it had to be sweetened three times before taken. Many a time I thought of my father's wine-cellar, and would have gladly done without wine if I could only have had a glass of home-brewed beer, or a slice of good beef out of our kitchen. Hundreds of times I had to be satisfied with a small slice of salt meat, and this we only got three times a week, and it was so salt because it had been in salt for five or six years. This does not leave much flesh on one's bones. However, when I saw that it could not be helped, I at last learnt to bear these hardships easily. At the beginning the Hollanders had given me the nickname " Young-depraved," because I went into war so early in life ; but after I had been a year in the country, and knew how to



bear good fortune and mishaps, they called me "Light-heart." It is the custom amongst the lower classes and soldiers in India to call hardly anybody by his right name, and if anybody had asked for Hans Jacob Saar he would have had more difficulty to find me out than if he had asked for Hans Jacob Light-heart. I myself have been days and years in a fortress, and yet could not tell what the real name of each one of the others was.

In the meantime I had written several letters home in 1647, 1649, 1652, and 1653, of which none but the last reached its address. This one I entrusted to a Frenchman of the name of Carol Rubert, of Rochelle, and even this one only reached my dear father in 1655 by way of Augsburg. As I could get no news I gave up writing; until in 1655, through a countryman, Martin Sothauer, a dispenser, and the son of an Inspector of Hospitals, I received news that my father was still alive, and that he had spoken to him himself at Würzburg. All the circumstances made me believe that this was correct. In the following year, 1657, when I was in Ceylon, a former servant of my dear father's, Michael Bräutigam, from Sula in Thuringia, confirmed it in writing, and stated that my brother had died, and that my half-sister was married. As soon as troops were sent from Batavia to Ceylon he would try to be sent with them, and then to speak to me personally. He was, however, ordered to Amboina, and died there in 1658.

On the 3rd of July, 1655, we all went quietly on board during the night. On the following day we set sail towards *Berbeti*.\* We were landed soon, as the Portuguese did not oppose us, and we sang and shouted "God with us, God with us." On the 10th of the same month we marched in good order towards the fortress. We had two mortars and nine cannon, some of which, of iron, shot 18 lb. We put them in position on a hill close by, and sent many a ball into the fortress, but without much success; and if it had

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\* *Berberi* (Dutch ed.).



been provided with victuals, we should very likely have had to withdraw. In the following month of August, however, the fortress capitulated; we found much powder and ammunition, and got three hundred and fifty picked men, who were distributed amongst our sixteen ships as prisoners.

On the 17th of September we marched towards *Columbo*. Four miles from it is a river called *Bandre*,\* which we had to cross; and that would have been difficult if we had arrived a few hours later. The Portuguese had made many bags full of straw and many fascines about as high as a man, and intended to construct a battery, and prevent our landing; and if they had filled the bags with sand, and had built a small rampart, it would have been very difficult for us to storm it. The river is so broad, that, with an ordinary musket, you cannot shoot across. The current is so strong, that, in crossing, you must begin high up, otherwise the current takes you into the open sea, and there would be nothing left but to sail to the next landing-place as best one can; and as these small boats cannot carry a large quantity of provisions, it may happen that one has to suffer hunger and thirst for several days.†

When on the 9th‡ of September we had got across the river, we marched straight towards *Columbo*. After we had been half an hour on the way, and were proceeding in disorder, as we thought ourselves safe, our vanguard, about one hundred and fifty men strong, came upon two hundred men of the enemy. We skirmished so pluckily that they, with the loss of seventeen dead and many wounded, had to retreat towards *Columbo*. A Portuguese, who had fled into the wood, and had been taken prisoner, told us that at a distance of an hour's march the enemy was posted with

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\* Pánaduré.

† The author then proceeds to give an example of this from his own experience. When journeying by boat from *Mátara* to *Galle*, he and his companions were overtaken by a storm, and did not reach their destination until the seventh day, having been three days without water.

‡ *Sic* in original; but evidently a misprint for 19th, which the Dutch translation has.



seven hundred men ; that this was the troop which had always waged war against the King of *Candia* ; and that it had been ordered to prevent our passing the river. Our General at once ordered the officers to quietly tell their soldiers to well provide themselves with ammunition, to take up position in five troops, each six companies strong, in *échelon*, and to be very careful with our two field-guns ; then to say prayers, and in the name of God await the enemy. After this was done, thirty men were ordered to advance half a mile, and to report at once if they found the enemy. A quarter of an hour had hardly passed when it was reported that the enemy was advancing. We looked forward to the fight with delight, as we were three thousand men, and the enemy only seven hundred, and ignorant of the arrival of a fleet from Batavia, sixteen sail strong, with two thousand three hundred men. We closed round them very soon, and killed about five hundred ; so that not more than two hundred got back to *Columbo*, and of them half died, because they were almost all wounded. Thereupon we marched towards *Columbo*.

The town is prettily situated in the plain, and is quite open towards the sea.\* Big ships cannot enter the harbour, but must anchor at a distance of half an hour. To the right is a great battery near the river called *S. Croix*, and on this, when we came, were sixteen bronze guns, which commanded the sea and the harbour. Near the beach to the right before one reaches the town was the Elephant Gate, opposite which stood the Viceroy's house. Along the beach it is surrounded by low walls, and there is a small battery of the name of *S. Vincenz* ; † not far away was a small water-gate, and close by the bastion *Allegresse*. Still further along the beach was

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\* For a comparison of Saar's description of the fort of Colombo with that given by Ribeiro, see C. B. R. A. S. Journal, No. 42, vol. XII., 1891, p. 75 *et seq.* Saar's account of the siege should also be compared with Ribeiro's and the narratives in Baldæus.

† *S. Vincent* (Dutch ed.).



the bastion of *S. Joan*,\* built high up with stones; and being the last battery near the harbour, it commanded the harbour and the land side; near to it is a big gate leading to the town. Towards the land was a large bastion called *S. Stephan*,† where likewise sixteen bronze guns were placed. Then followed a small bastion called *S. Sebastian*,‡ and near to it a great gate called the King's Gate, which leads into the town. Not far away was another bastion called *Madre Des*,|| or the Mother of God. On all the bastions round the town were bells to quickly make known everywhere what was going on. From the bastion *Madre Des* a big brook runs past the house *Hieronimus*, where a battery was erected with two guns charged with shot, and close by was a small bastion called the *Capottin*, after the monastery of Capuchins close by. Further on stood the powder magazine, and close to it a great bastion, *Hieronimus*, and again a big gate called *Mapan*, with an arch above and guns at the top; at last of all the bastion *S. Augustin*,¶ so called after the monastery of the Augustines. At the end of the ditch was a stone rampart, called *S. Jago*, about eighty feet long, rising up to a cliff upon which, as at *Pünthe de Galle*, a flag can be hoisted. Outside the town were several monasteries; the first called *Acqua di Lupo*; the second *S. Sebastian*, with a small chapel; the third, at a distance of a mile, *Misericordia*. Near the monastery *Acqua di Lupo* was a fine residence, in which the General took up his quarters. We others were lodged partly in the monastery *S. Sebastian* and the surrounding buildings, at half the distance of a cannon shot from the town. In front, towards the town, we built in one night a good rampart, so as to be safe against the enemy's guns. Each workman was paid a rixdollar.

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\* *S. Jan* (Dutch ed.).

† *S. Steven* (Dutch ed.).

‡ *S. Sebastiaan* (Dutch ed.).

|| *Madre Dei* (Dutch ed.).

¶ *S. Augustyn* (Dutch ed.).



On the 20th\* of September they made a sally with several thousand men, but they had to retreat with a loss of five hundred men. We made many of these prisoners, kept them for three or four days, but, after that, had to take them into the wood and shoot them down. As we had already four hundred prisoners on board our ships, which we had taken at *Berberi*, and as our men had to come on shore every day to bring ammunition and provisions, we could not guard a large number of prisoners.

On the 2nd of October we began to build batteries during the night, and made four, into two of which we put from two to three guns, and in the others from three to four guns, all able to carry a charge of eighteen to twenty-four pound iron. The Emperor of *Ceylon* sent us two thousand of his men to help to work, of whom in many a night twenty to thirty were killed; he promised to send even more, but we were not to leave anything undone to get *Columbo* into our power. Our head gunner proceeded without the necessary caution. Instructions had been given to load the cannon with shot during the night, so that, in case the enemy came out, he could be received properly. During the day the shot was to be taken out again, and ball put in instead, so that if the enemy fired from the walls the fire could be returned immediately. Our head gunner forgot to take the shot out, and when fire was opened at the enemy at a time when our people were working between the town and our battery, the shot spread, and killed thirteen men of our allies. The gunner was at once arrested, and a letter was despatched to the King of *Candia* to say how unfortunate that gunner had been, and to ask what punishment he wished to be awarded. The reply came, as it had been an accident, a ball should be fired over his head, and if the man made another such mistake he should be shot.

On the 17th of October we began to dig trenches from our

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\* Dutch ed. has 19th.



battery, and the general storming of the town was decided upon.

On the 2nd\* November, in broad daylight, at eight o'clock in the morning, the general assault began. Sixteen ships, which had been lying outside of the harbour, weighed anchor, and sailed in front of the town as near as possible, but two of them were ordered to enter into the harbour and bombard the water-fort as heavily as they could.

This bastion, however, was strong, armed with twelve bronze guns; and soon one of the ships was sunk,† whilst the other‡ had the greatest difficulty in getting out of the harbour again. Whilst in the meantime the other ships from the sea fired boldly into the town, two of our companies, that of Captain Hartenberger§ and that of Roggenkam,|| to which latter I belonged, each seventy-five men strong, mostly with firelocks and muskets, with their officers and drummers, and each company strengthened by twenty marines, each of whom had five hand grenades, were ordered to try what they could do. We had to cross a big sheet of water, and had to take our men and scaling-ladders over in nine small boats. We protected the bows of the boats with planks and beams, three fingers thick, to be quite safe. We arrived at a spot whence we could see into the town, and fancied the Commander of the town had overlooked this. But when we tried to land, we found that the enemy was hidden in the houses, and opened a well-sustained fire upon us. A comrade of mine, Georg Caspar Kindsvatter,¶ from Nuremberg, who has still friends in Wöhrd, was killed, and later on buried by us.

When I was ordered to follow, and wanted to do so, I received from a gallery two shots in quick succession, one in

\* A misprint for 12th.

† This was the "Maaght van Enkhuyzen."

‡ Named the "Workum."

§ *Hardenberger* (Dutch ed.).

|| *Roskam* (Dutch ed.).

¶ *Georg Kaspersz* (Dutch ed.).



the right arm, the other on the left side under the shoulder-blade, so that I fell backwards into the ship. It was a hard fight, inasmuch as only six of us came home again, and these were wounded; and altogether on that day we had eight hundred men killed and five hundred wounded; amongst the latter our General. When he was taken into his quarters he cried the whole time, "O my fine soldiers! O my fine soldiers! Would I had my soldiers back!" But it was too late.

If the enemy had acted up to their intentions everything would have been lost; for, after the attack had been beaten off, they wanted to make a sortie with thirteen hundred men. God, however, struck the Governor in the fortress with blindness; he would not allow it, under pretext that this assault had only been a ruse, and our principal force was lying in the trenches and in the batteries; therefore, if they were to sally out, we in the trenches would cut off their passage and drive them against the artillery, and it would end in a great loss.\*

The loss, however, would have been entirely on our side, as we had been in all three thousand men, and now, as mentioned before, had eight hundred dead and five hundred wounded.† However, we did not withdraw from the town, for this is the habit of the Dutch, if once they put guns up in front of a place they do not take them away unless they are driven away. Our wounded were taken to a distance of half a mile, to *Mattawal*,‡ and twelve surgeons were ordered from the ships to dress the wounds; three times a day fresh meat was given, and three times wine. A ship was despatched at once taking the news to Batavia, and to ask for six hundred fresh men, wherewith, according to his letter, our General undertook to conquer *Columbo*. When our great loss became known to the King of *Candia*, to whom our

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\* Ribeiro says that the Portuguese had not the forces needed for a sally.

† Ribeiro states the Dutch loss to have been "more than two thousand."

‡ *Matta Wal* (Dutch ed.).



General had not sent previous notice that he was going to storm, he was very angry, and wrote to him to say that, according to the treaty, Colombo, if it had been taken, would have been half his. The General ought, therefore, to have communicated with him, and to have allowed his soldiers to take part in the assault. This difficult undertaking ought not to have been attempted single-handed, but jointly.

When our General noticed the King's temper, and being aware that he had made a mistake, he resolved to at once send an ambassador to the King, with assurances of great respect, and his apologies, and also with a certain promise to take the place; but the King must have a little patience.

#### ANNO 1656.

On the 25th of January Captain Johan Hartmann,\* of Cassel in Hesse, volunteered to go to the Emperor with every mark of respect. The Emperor would not receive him until the third day, and then he summoned him to offer his presents, which were very graciously accepted. As the Emperor was very anxious about *Columbo*, he did not keep our Captain very long: gave him a gold chain and an elephant, and very soon sent him off again to our General with other presents, in return, many jewels, and two elephants for the Company.†

On the 2nd of February the said Captain returned with a letter to our General and the Company, stating that it would be well not to attempt in future a hazardous undertaking without his (the King's) knowledge, as he was very sorry to see so many good soldiers needlessly sacrificed by us.

On the 18th February we began again to approach the town, as every day new soldiers turned up, who had recovered at *Mattavval*, and who could be better fed in the camp, because the Emperor sent fresh food every day, and victuals of all kinds were cheap. When we got near the town one of

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\* *Jan Hartman* (Dutch ed.).

† For details and copies of letters, see *Baldæus*.



our corporals, who had gambled away the pay which he had received from his Company, and who had no further means to pay them, deserted, because he did not believe that we should conquer the town. He told the besieged that it was our intention to try one more general assault, and if that did not succeed to leave the place, as there was very little courage amongst us to attack another time after having been driven back with such great loss.

When, however, on the 2nd of April three ships with fresh soldiers arrived from Batavia, our spirits rose considerably, and we wanted to have our revenge, the more so as on the following 3rd April we got hold of the Portuguese provision ship, which had sailed from Goa under a Dutch flag in hopes to pass through our fleet into the harbour of Colombo.

When the besieged learnt these two facts they, on the other hand, became despondent, especially as they saw that every day we got nearer to the town. Daily many deserters came to us, and all reported that there was great want of provisions, and that many had died of hunger. This was confirmed by their daily driving out black people whom we could not allow to come into our camp, and therefore had to shoot between the trenches and the town. At last the famine assumed such proportions that one native woman ate her own child, while others took grass from the ground and tried to eat it. As we had no means of driving them away from our camp we had to strike still greater terror into them; and when a woman came and brought small children we forced her to put her child into a wooden mortar and pound it to death with the poulder, and then again to go away with the dead child.

On the 9th of April we began to dig a mine, and managed to make a gallery from our side across the ditch. When, however, on this side we had dug for two days, they noticed it, made a counter-mine in the direction of ours, so that when we became aware of it, and heard it, we had to give up our work.



On the 12th\* of April our General wanted to reconnoitre whether we could not construct a mine in a different locality. But when he wanted to go into the last trench, a shot from one of the bastions hit him, and killed him on the spot, which caused a great panic amongst our soldiers.

On the 2nd† of May his body was taken to *Pünite de Galle*, and there carried into the church by sergeants and buried, whilst the cannons upon the wall and round the town fired a salute, and two companies of soldiers gave three volleys.

On the 6th of May, a Saturday, we were lying all through the night in the trenches,† as the Emperor of *Ceilon* and ourselves had decided to attempt again a general assault. Just then a Portuguese, fully armed, ran over to our camp, and then was conducted before our Governor,‡ who commanded in place of the late General. In close examination he said that those in the town wished for nothing better, but that another storm should be attempted. He told us that in the town passages had been made through all the houses, whilst all streets were provided with double palisades of palm trees; that the cannons had been taken down from the walls and had been posted in the streets, charged with shot; that below the walls which we should have to pass big boxes with powder had been put, and so arranged that with a running fire through all their houses they could be exploded, and, by thus separating the bastions from each other, make it impossible for us to carry our point, because we should all be killed either by fire or by mines. On the other hand, he gave us splendid advice. He said that as soon as daylight appeared, being Sunday, the citizens who had been watching during the night would go with the soldiers to hear mass, and there

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\* Should be the 10th.

† Should be the 12th of April. For an official record of Hulft's death and burial, and the despatch of the Governor-General and Council of India announcing the fact to the Directors of the Company, see C. B. R. A. S. Journal, No. 38, vol. XI., 1889, p. 148. Baldæus gives a portrait of Hulft, and Valentyn quotes some lines by the Dutch poet Vondel on the death of Hulft.

‡ Adriaan van der Meyden.



would be no more than five or six men in the bastions. Altogether there were only about one hundred real Portuguese soldiers,—the others were burghers and slaves. Now, we were to make our drummers beat and our trumpeters blow at the same time and in the usual way in the morning ; we were to remain quietly in the trenches that nobody might become aware of our intentions, and then half an hour afterwards, when they would be all in church, we were quickly to attack the bastion called S. John's. This advice pleased us very much. Three companies with firearms were quietly told off, and a reward of fifty rixdollars promised to him who should first scale the wall. We quickly prepared our ladders, placed them against the wall, and managed to get up without being noticed. We found not more than eight natives, seven of whom were asleep ; the sentinel, it is true, was awake, but he was killed with the others before he had time to escape.

Soon there was an alarm in the town, all the bells were tolled, everybody was up and in arms, and ran towards the bastion. The cannons were directed against us, and a strong fire was kept up, so that we again had about three hundred killed and many wounded. I again came in for my share of it, and a piece of lead from the water-fort hit me on the right foot ; a small bone was smashed, and I had to remain lying on the ground. It was a still greater misfortune that, when I was carried away, my wound was dressed by a young surgeon who did not know his work well, and within three days had so neglected me that mortification set in, and it was thought that my leg would have to be amputated below the knee. When all the surgeons were assembled, an officer who in such cases has always to be present to inform the Governor of it, and get his consent, said to the surgeons that the wounded was a young man who had served the Company for eight years ; who had always marched and mounted guard without complaining, and asked whether they could not find another remedy than to sacrifice the foot.

A Frenchman was found who promised our Commander to try another plan, and by the Lord's grace and mercy, although



I had to undergo unbearable pain, I was nearly restored to health in about a month. A countryman of mine, Martin Sothauer,\* an apothecary, helped me very much in my misfortune, and always assisted in dressing my wounds. I hope soon to see him again in good health, for when I left him in *Columbo* he had only one year more to serve under the Company.†

On the 8th of May the besieged attacked the bastion fiercely to dislodge our men, but as during the night the latter had well fortified themselves, and were well provided with ammunition and hand grenades, and well returned the fire, the enemy had to withdraw with great loss, crying all the time "O Mother of God, remember us," and others said "This is a punishment for our sins."

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\* *Marten Sothauwer* (Dutch ed.).

† Towards the end of his book the author happens to refer to Scotchmen in the Dutch service; and this reminds him of an incident that took place during the siege of Colombo, when he nearly came to a tragic end at the hands of an irate Scot. The story is given in the appendix to the first edition; but in the second is incorporated in the general narrative. It runs as follows:—"As I have mentioned Scotchmen, I shall here add, in what a plight, and how near to losing my life, I came through a Scotchman of this sort. When we were lying before *Columbo*, on one occasion I had the watch in the trenches, beside the mortars, with twenty-four men. Now there was also a Scotchman ordered there with his Company, of the name of *Robert Kohl*, a man of great strength, who could seize four men at once and carry them off. Now, at that time the Scotchmen used to be terribly badgered, because they had sold their King; and I also happened to say that he would make a good bargain, for he would get double wages, one from our people, the Hollanders, and the other from his fellow-countrymen at home, who would already have reserved for him his share of the blood-money for their King, until he came home; upon which he flew into such a violent passion, that he seized me with one hand by the waist, put me upon a mortar loaded with stones, and with the other felt for the lunt, and wanted to fire me by means of it into the air, which indeed would have happened, had not God so ordained that another man had just then taken away the lunt to light tobacco therewith: otherwise I should have had to go into the air or into *Columbo*. However, he got a well-deserved reward for his wickedness, for two days afterwards he was shot dead from the city, while he was out of bravado exposing himself rather too much, and wanting to mock at the garrison." The Dutch edition has an illustration (fanciful, of course) of this incident.



On the 9th of May a trench was dug from the bastion towards the town.

When the Portuguese saw this they came on the 10th with a white flag and wanted to negotiate and surrender the town on the same day. The next day, 11th of May, the following terms\* were concluded :—

1. The Portuguese had to give nine months' pay for every one of our men, taking the number of all that had arrived, thus counting the dead as well as the living, and a month's pay was fixed at ten florins.

2. They were to pay the value of all the ammunition which had been used against the town.

3. They were to leave all their slaves behind, or to re-purchase from us those they wanted to take with them.

4. Every man was to have the option of taking five years' service under the Hollanders. Those that wanted to go to a Portuguese port were to be taken there by our ships, and those that wanted to go to Holland were to be taken to Batavia.

All fathers, mothers, brothers, and sisters that were married were to be taken in our ships wherever they wanted to go, as, for instance, to *Goa*, *S. Thoma*,† *Cochin*,‡ and other Portuguese settlements, or even to Holland. The unmarried daughters, however, were to remain, and to marry Hollanders. (When that happened it caused great grief, mourning, and crying.)

6. As the Portuguese had to expect four ships from Goa with soldiers and provisions, it was arranged that if they arrived before the 20th of May they were to remain in the possession of the Portuguese : should they arrive after the 20th of May they were to belong to the Hollanders.

7. All and everything that belongs to the King of Portugal in the town of *Columbo*—horses, money, slaves, cattle, movables and immovables of all and every description—

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\* The full text is given by Baldæus

† *S. Thomas* (Dutch ed.)

‡ *Kochin* (Dutch ed.)



were to be handed over to the Hollanders, without anything being openly or clandestinely withheld.

After this treaty had been ratified by both sides, we marched into the town on the 12th of May. On the following, the 13th, the sick were brought in, I amongst them, and quartered in the monastery of S. Augustine.

The soldiers of the Emperor of *Candia* were not allowed to enter, which he resented so much that he ordered all the passes in his country to be closed, and all the victuals on the way to *Columbo* to be stopped. Thereupon famine reigned again in the town ; and so many died, that our slaves, whom we had with us in the camp, had nothing else to do three or four days long, but to bury. There died in one day twenty to thirty, and this caused a great stench, so that many even amongst us fell ill and died, although we had large quantities of rice and salt-meat from the ships to live upon.

On the 13th and 14th of May nine of our ships left—three went to Batavia, the other six took those away that wanted to emigrate : the men of rank and clergy were embarked first ; the others afterwards.

On the 15th four Hollanders, amongst them the Corporal I spoke of before, were hanged ; also a native, and likewise a Portuguese Captain who first had deserted the Portuguese to come to us, and, when our assault was beaten back, again went from us to them.\* One of the Hollanders, a common servant, had died two days previously, but, to add to the terror, and to prevent any other from becoming a felon and betraying his master, the body was dug up again and hanged on the gallows.

From the 15th to the 21st nothing remarkable happened. On the 21st May, however, in the afternoon four ships were seen, which came as near the town as possible. We knew already that they were Portuguese, and we allowed them to come into the harbour. We hoisted the Portuguese flag on the bastions, and some of our soldiers had to dress like Portu-

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\* Baldæus gives his name as Simon Lopes.



guese, with long tight sleeves, double hose, white linen stockings, and big collars to their shirts, and straw hats lined with taffeta, and were made to walk along the beach, and wave their hats. The four ships did not think anything else but that the town was still in the possession of their people ; but they very soon learnt the contrary. They made one of their number swim ashore, which art they are very efficient in (they can swim, one, two, three, or four hours in the sea). He did not swim towards the town, but towards *Mattavval* ; and as a Portuguese who happened to walk from the town along the beach noticed him, and called out to him that the town had surrendered, he quickly turned round and took the news to the ships, who wanted to betake themselves out of the harbour and sail away. Our water-fort in the meantime had made all preparations, and before the ships could turn, one of them was sunk, another got out of the harbour but was caught by our ships between *Columbo* and *Negumbo*, the other two struck their flags, and the three were brought in ; we soldiers, however, would have preferred to see them escape, because their salt-meat was stinking, and we had to eat it, to our disgust, because all the passes outside were closed, as mentioned before.

From the time that we conquered *Columbo* until 1657, thus more than six months, there was great poverty among us, and we poor wounded felt it particularly, until God helped us so far that we could somewhat recover. It was, however, only on the 18th of August that I had fully recovered, and could do service again ; by the General's order I was quartered in the house of a rich Portuguese for about four months ; there I was well cared for, and could every month save two rixdollars and forty pounds of rice.

#### ANNO 1657.

On the 28th of January of the following year, 1657, three of our ships went to Goa to take over the rest of the Portuguese, and they had orders to remain there until the fleet from Batavia came and brought further orders.



On the 3rd of February the same arrived in *Ceylon*, and stayed there until June, when they sailed for Goa, where they remained until 1658.

ANNO 1658.

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On the 3rd of March three ships with soldiers came from Batavia to us off Goa, and brought six hundred soldiers and four mortars, two of which shot 220 lb., the other two 60 lb. The Commissary who came with them, of the name of Richlof von Guntz,\* from Emden, took other four ships and many soldiers, so that upon every ship before Goa there remained only fifteen men, and sailed towards *Columbo*. We arrived on the 5th of April, but were not allowed to land. The above-named Commissary went on shore and ordered the old soldiers to embark as well ; he also took a large quantity of ammunition.

On the 12th† a fleet of nine ships with one thousand five hundred soldiers, and in every ship besides one hundred and twenty to one hundred and thirty sailors, sailed towards the island of *Manara*, about twenty miles from *Columbo*.‡ It belonged to the Portuguese at that time, who had built a fortress thereon. On the 11th of April we arrived at the river four miles from the fortress, and when they heard of it, they came from there as well as from the castle *Jaffanapatan*, which is situated behind *Manara*, and tried to prevent our landing.

On the 13th of April our fleet went as near the shore as possible, the battle ships as well as the small ones ; they formed a half moon ; they let go the anchors, so that the ships remained in one position, and could carry all the guns charged with grapeshot on one side directed towards the land.

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\* Rijklof von Goens. (Dutch ed., *Richlof von Gunts*.)

† The Dutch ed. has 10th, a needful correction, since the next date mentioned is the 11th. The dates, however, are not reliable (*cf.* Baldæus).

‡ Compare with Saar's account of the capture of Mannár and siege and capitulation of Jaffna those given by Baldæus and Ribeiro (the latter in *Ceylon Literary Register*, vol. V., p. 202).



Our Commissary went round to all the ships and asked the officers and men whether they would be willing to attempt a landing the next morning, and all replied, "Yes, yes." On the 14th of April morning prayers were said very early, and every man got a big glass of wine, and we went with good courage in small boats towards the shore. When we were ashore we had either to fight or to die, for it was only then that the Portuguese attacked us. Our guns, however, fired so well that the Portuguese had many killed and wounded, and had to withdraw towards their fortress. We followed until the night fell, and then encamped at about half an hour's distance.

On the following day, the 15th, two of our mortars were brought on shore, a small one and a big one, also two hundred bombshells of one hundred and fifty and one hundred and twenty pounds, and fifty of sixty pounds. We advanced towards the suburb, constructed a good rampart, fortified two monasteries to prevent the enemy's coming out, and then began to fire our grenades, and at times stones, which took great effect. On the fourth day they offered to surrender. On the following day two hundred and fifty soldiers and three hundred citizens marched out; were at once taken on board, and sent to Goa. We entered, and two hundred men were immediately sent to the pearl bank, which is about three miles distant, and estimated by the Hollanders at the value of twenty tons of gold, to prevent the Portuguese from spoiling it, as they have done to one ten miles from *Manara*. The pearls are in shells, and are found under water. There are natives especially for the purpose, who go down with a long rope and a basket, and holding a sponge on one arm thickly filled with oil, which they press firmly to the mouth and nose. After they have found a number of pearls, and can no longer stay under water, they give a sign by shaking the rope, and those who stand in the boat near the windlass watch carefully, quickly wind them up, when they empty their basket. There is also a class of natives especially



trained to clean and polish the pearls, but our men find it difficult to make them do it. The Hollanders can hardly rule twenty slaves where a Portuguese can rule a thousand, for the natives would rather stay with them than with the Hollanders, of whom they do not like to receive orders.

On the 15th of May we marched in full force towards the castle of *Jaffanapatan*, which lies beyond *Manara*. It is a beautiful even country which the Portuguese have held in possession over two hundred years. When they come to a place they mean to stay there all their lives, and are not anxious to return to Portugal. A Hollander, however, when he comes to India thinks, "As soon as my six years are over I shall return to my country." They therefore do not cultivate the land nor build towns; on the contrary, when they conquer a fortress or town, they, as a rule, cut off a part towards the land, and the other part near the sea they fortify very strongly, so that few men may be required to garrison it. In 1656 we cut off the beautiful large town of *Columbo*: the finest houses of the town were entirely demolished, only one-third of the town near the sea was fortified, whilst on the land side the town was surrounded by water; and when these works will be finished, which was estimated to take ten years, the place will be twice as strong as it was before.\*

When the Portuguese learnt that we were marching towards the castle, they all fled thither from the country with their most valuable possessions; we found nothing but rich, beautiful clothes, fine covers artistically sewn with silk; and there was no lack of victuals, cows, oxen, and chickens. We found good sugar-candy, which we were forbidden to eat, and we were also not allowed to drink any water out of wells or standing pools, but only the water that comes from the river and flows out.

After we had marched three days and had found many beautiful monasteries, we halted for a day in a monastery with a beautiful garden and pretty surroundings, so that I

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\* Compare the two plans of Colombo given by Baldaus.



felt as if I were on Christian soil. The chiefs of the heathen of the country came, and were very glad that we Hollanders had arrived and wanted to drive the Portuguese out, because their Prince had wished for a long time already that the Hollanders or the English should come and avenge an affront which the Portuguese had put upon him. He had wished, at one time to have a Portuguese wife or maid; they sent him in a litter a white dog with a golden chain round the neck, and with a letter to him, that as no Portuguese woman wished for him since he was black, and a heathen, if he wished to have a white female he should be satisfied with a white bitch. This offended him and the whole country so much, that he swore always to be an enemy of the Portuguese. When our Commander learnt this he was very glad, and we others likewise, because we thought that now our game was half won already. It was publicly announced, with the beating of drums, that no natives should be harmed, and that nothing should be taken without payment. They have a curious custom, namely, when they want to sell something, they first inquire of their children whether they like it: if they agree, the thing is sold; if not, they do nothing against the wish of their children.

After having had a day's rest in the monastery, we continued our march, and our Commander sent word to the Prince that he came as his friend and as the enemy of the Portuguese, and that therefore he did not wish to cause even the slightest loss to his subjects. If they brought anything they should be paid for it either in money or in other goods; and if we got possession of the castle, not a single Portuguese should be allowed to remain in the country, but they should all be transported to other islands; and if they were to try to take it back, we would keep the castle well provided with ammunition and victuals, and would resist them with all our power at sea and on land; and every year he should be twice informed as to how things stood between us and the Portuguese. In case sooner or later they should try to re-enter into his dominions, he had only to appeal to us for



protection, which should be extended to him as long as we were in possession to do so.

If a Hollander once takes a place from the Portuguese it is not likely to come back to him, although the country is large and they always try to settle in another place.

When we had marched another two days, and were a few hours from the castle, and rested, the Prince, upon the letter of our Commander, came to us in person and was received by our Commander in his quarters in a most friendly way. He gave information how things were in the country and in the castle, and how strong the garrison was. He did not know the number of the citizens, but said they were very rich, and that many of them possessed six tons of gold, for they had been in peace and quiet for a long time, and the Hollanders were their first enemies. Their monasteries and priests were also very rich ; for when they wanted to convert the natives, they forced them to come to church every day, or be fined a larin, that is, a quarter of a dollar ; a monastery had the command over thirty to forty thousand natives ; some of the monasteries had three and four churches ; and the priests had greater power than the civil authorities.

The custom is said to prevail that when a Portuguese has a pretty daughter, and the *Pater Grande*, the highest priest, wishes to have her, the parents have no objection, but consider it a high honour that the holy man should be the first to sleep with her ; and they do not consider this a sin. One of our Lieutenants wanted at one time to marry such a Portuguese girl of twelve years, and came with her parents to ask the consent of our Commander ; for this is the custom in India, that if a man wants to marry, he must first ask the permission of the master of the land. When our Commander asked the parents whether she was a legitimate child, what kind of people they were, whether she was still a virgin,—the mother replied, with apparent satisfaction, that nobody had had any connection with her but the *Pater Grande*. Thereupon our Commander would not give his consent, nor



allow the Lieutenant to be married. He, however, kept her with him for about three years as his concubine. This is tolerated. But when a man gets a son, and the Portuguese or native woman, especially if the latter has become a Christian, wants to recover her honour, and informs against him to his Commander, he must pay her 300 Dutch florins, or, in our money, 120 rixdollars. Then he is entirely free. But if he cannot or will not give the money, he must marry her, and afterwards as long as she lives, or perhaps as long as he lives himself, remain in the country. If he wants to leave her he must do so in profound secrecy, and during the night, otherwise he will soon be poisoned, as it often happened in Amboina and Banda. These native women are also extremely jealous, and if they only see somebody joking with another woman they at once have the worst suspicion, and they are such adepts in poisoning that they can cause a man to die immediately, or so work that he is tortured during five or six years without having a single hour without pain, until they themselves restore him again to health. They can sew something into the clothes, so that a man has no power with any other woman but themselves; and I have often heard this said by people who experienced it themselves, and who were very much annoyed at the false position they got into.

After our Admiral had received from the native Prince all information, we marched on the 18th of May towards the castle, and when we were a quarter of an hour's distance from the suburb they came about 1,100 strong. We soon drove them back and made seventy prisoners, who had to give us the latest news as to how things stood inside. They told us that there were about 40,000 people, old and young, inside, mostly citizens, with their wives, children, and slaves; the 1,100, however, who had come out were soldiers of the King of Portugal, and a few burghers had been amongst them as volunteers.

We settled down in the suburb in four churches, which were only a gunshot distant from the walls, and there



fortified ourselves in such a way that they could never drive us away.

There were more heathens with us than Christians. As our soldiers were very thirsty some ran to the wells to drink, and as these were all poisoned, about thirty men died, some natives amongst them ; whereupon everywhere guards were placed near the wells. We had to be satisfied with water from the river, but we forced seventy prisoners to drink water out of the wells, and they all died. There were many dead frogs in the water, and at the top it was quite blue as if covered with a skin. In order that nobody more should come to harm, all the wells were filled up with earth and sand.

Four mortars and many bombshells were brought on shore from our ships. Our sailors had nothing to do but to bring iron hammers and break to pieces the great hard tombstones in the churches and monasteries, and these pieces were daily thrown into the town in great quantity along with the grenades. After this had been done for some time many Portuguese came over to us and reported that the bombshells had not done so much damage as the stones, which in three months and a half had killed two thousand six hundred people.

On the 3rd of September the Portuguese came out on the side where our Commander was on land with half the army, and wanted to capitulate. We on our side knew nothing about it, and as we had instructions to damage them where we could, and as at that time many people stood unprotected upon the walls and ramparts, our head gunner, who had first taken aim with a cannon, wanted to fire. At that moment an arquebusier came running, and brought instructions to cease firing, because they were in treaty with our Commander for the capitulation, and were likely to hand over the castle in two days. We were very glad, and sat down in the field near our trenches and began to speak to them, and to tease them, asking whether there were pretty women in the fortress. They said we had killed all the pretty ones with stones, and that the remainder were all ill. But as we knew that the



Portuguese cannot stand being teased about their women, and that they sooner forgive a blow than being called cuckold, we teased them all the more, and said that if we came inside we should cure their illness in a way which they would like very much.\*

In the meantime the arrangements for the capitulation were completed. The following day the soldiers marched out; on the second the clergy, or priests; on the third the citizens with their wives and children, but the women looked like corpses, nothing but bones with skin over them; on the fourth day our Commanders and officers went into the castle and plundered; on the fifth we were allowed inside, but without arms, and every one plundered as best he could, but our officers had already pretty well cleared the place. I was not lazy, either. I ran straight into the monastery, as I knew it would not be quite empty, and found an old priest, who was ill, and wanted to know from him where I could find something. He was willing, and said that if I would give him a share he would show me good booty, and then he asked what countryman I was. I replied in Portuguese that I was a High Dutchman. Then he began to talk to me in High Dutch, and said that he was an Austrian from Corneuburg, and had lived thirty-six years in the monastery. He showed me an old cushion. I cut it open and found five hundred *St. Thomæ* (that was money, and each of the value of four Hollandish florins). But I did not remain in possession very long.

The following day about six hundred of us were ordered on board, and whilst we passed from the boat into the ship we were searched. We were allowed to keep the goods, but the money was taken away from us. If I had known that, I should have sooner thrown it into the water; on shore I should certainly have known how to keep it, because I had risked my life before the enemy for it, and there would have

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\* Compare Ribeiro's description of the brutal treatment accorded to the prisoners by the Dutch.



been an opportunity for anybody who wanted to act faithlessly to shoot an envious officer and for a while to fly to the above-mentioned native Prince until a new Governor had arrived, or the wife of a high officer had been confined, on which occasion a general pardon is given.