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LIBERIA



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A Mandingo Woman

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LIBERIA

By

SIR HARRY JOHNSTON

G.C.M.G., K.C.B., D.Sc.

Gold Medallist Royal Geographical, Royal Scottish Geographical, and Zoological Societies—
Author of "The Uganda Protectorate," "History of the Colonisation of Africa," etc.

WITH AN APPENDIX ON THE FLORA OF LIBERIA

By

DR. OTTO STAPF, F.L.S.

Principal Assistant, Kew Herbarium

- 28 Coloured Illustrations by Sir Harry Johnston
- 24 Botanical Drawings by Miss Matilda Smith
- 402 Black and White Illustrations from the Author's Drawings
and from Photographs by the Author and others
- 22 Maps by Mr. J. W. Addison, Capt. H. D. Pearson, R.E.,
Lieut. E. W. Cox, R.E., and the Author

"A more enviable renown England never won—no, not when from the reluctant hand of the throne she wrung the Charter of her liberties, not when beneath the raging waves she sank the Spanish Armada, not even when her power struck down Napoleon—than when the perishing African cried to her and she listened and saved."

R. R. GURLEY (one of the founders of Liberia),
Philadelphia, U.S.A., 1839

IN TWO VOLUMES
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17.	Sketch-map of West Africa, to show area of Mandingo peoples, languages, and influence	" " "	929
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CHAPTER XXII

THE LIBERIAN FLORA

AS will be evident from a comparison of the list of plants drawn up in an appendix at the end of this chapter contributed by Dr. Otto Stapf, the flora of Liberia, like its fauna, whilst typically West African, has certain individual peculiarities, is associated nearest with the vegetable products of Sierra Leone, and belongs to the botanical sub-region which might be styled "Upper Guinea." This means a narrow belt of densely forested country along the West African coast beginning to the south of the River Gambia, and extending perhaps as far east as the country of Dahome. This forest belt is of varying width, as may be seen by the appended sketch-map. It is usually associated with a rainfall of not less than ninety inches per annum, usually more. To the northwards, the West African forest belt (affected by the recent extension of human action in agriculture) changes with more or less abruptness into the park-like region of luxuriant grass, herbs, and rich forest in the river valleys, together with occasional shady trees out in the open. This park-like country in West Africa is not of much greater average width than the forest belt. It is soon affected north of the eleventh degree of N. Latitude by the rapidly decreasing rainfall, which to the north of this eleventh parallel drops generally from sixty inches to an average thirty-five and less. These conditions create a country much healthier for human beings and much more

Liberia ☞

richly endowed with a large mammalian fauna ; but regions of it lying away from great and small rivers are rather sparsely endowed with vegetation. For although the rainfall in this steppe country may be greater than, or as great as, that of England, the descent of the rain is limited to a few consecutive months in the year, and during the remaining months a blazing sun parches the vegetation.

Somewhere to the east of the Volta River, the flora of Upper Guinea merges into that of Lower Guinea, which (I think it will be found) extends considerably north of the Congo region, to the mouths of the Niger and the country of Lagos. The birds and perhaps other groups of animals follow much the same divisions, though here and there in individual cases there is an overlapping. In the flora, at any rate, a good many species or sub-species that are common to Dahome, Lagos, the Niger Delta, the Cameroons, the Congo, and Angola do not extend westwards into the Gold Coast Colony, still less into Liberia. At the same time there are some exceptions to this rule, such as *Funtumia elastica*, the rubber tree of Lagos. The range of this species appears to extend from Uganda, in East Central Africa, to the eastern half of Liberia. Beyond this—namely, the hinterland of Sino County—it has not as yet been traced to the westward, and certain other trees and birds have the same western limit—that is to say, they just reach the eastern half of Liberia, and do not penetrate westwards into Sierra Leone. East of the Niger Delta the forest region of West Africa extends in a much broader belt two-thirds of the distance across the continent, to the shores of Lake Victoria, Tanganyika, and the northern part of the Zambezi-Nyasa basin. In all probability the peculiar West African flora of to-day, like the West African fauna, was once that of all Africa south of the Sahara Desert, of Southern Arabia, possibly

Liberia

of India and Malaysia. The affinities of the West African flora with that of the Malay Archipelago and Peninsula, Burma and Southern India (and perhaps Brazil), are nearly as marked as the resemblance between the West African fauna and that of Eastern Tropical Asia, and even of South America. This relationship has led to much confusion in botanical nomenclature. Various rubber trees and vines of Tropical Africa were, until recently, grouped under the same genera as *Apocynaceæ* of the Malay Region and of South America. Subsequent examination showed the differences to be generic—more than merely specific. And so such names as *Kickxia*, *Tabernaemontana* and others were originally applied to African rubber trees, which now figure under the separate genera of *Funtumia*, *Conopharyngia*, etc. (The Malayan *Kickxia* yields no rubber.)

Liberia is the forest country of Africa *par excellence*. Probably in this part of the Dark Continent the forest belt is deepest, even at the present day. Here the inroads of man on the dense virgin forest of the Equatorial regions have been least apparent, at any rate westward of the Niger: nevertheless in the coast belt of Liberia the primeval forest has had to give way to a dense scrub of palm, wild coffee, and low, shrubby trees. Here the forest had been originally felled for agriculture. The denseness of the interior woodland is at once a guarantee of unexploited wealth and a terrible hindrance to the civilisation of the country. It is remarkable how closely the big trees grow together and at the same time to what a relatively slight depth of soil their roots penetrate. Indeed in most parts of the country, except in the accumulations of alluvial soil, the hard granite rock is at a depth of only six or seven feet below the leaf mould of the forest. The roots of the trees spread out rather than grow down. They often interlace with one another on the surface. Great trees are easily uprooted and

● The Liberian Flora

blown down by the wind when man has exposed them. They herd together closely (as it were) in the dense forests for protection against the wind and their insecure hold of the shallow soil—shallow but amazingly rich.

Amongst the noticeable features in Liberian flora (I write



209. THE "SCRUB" (ONCE-CULTIVATED LAND ON WHICH FOREST IS SPRINGING UP AGAIN)

from the point of view of the ordinary observer) are the following trees and plants :

In the coast regions of Liberia is found the "water tree" (*Tetracera potatoria*). This is a low tree or bushy shrub, sometimes with a climbing habit, which is celebrated for a very abundant sap that tastes like pure water. The stems are cut and slashed by the natives, and the water pours down and

Liberia ♣

will soon fill a cup. It is usually tasteless, and said to be quite wholesome.

Among the Anonaceous order, which is so common in Tropical forests, and which produces several fruits that are quite palatable (such as the Sour sop), there are trees of



210. THE BASE OF A FOREST TREE, TO SHOW BUTTRESSED TRUNK

utility or interest. The Guinea pepper (*Xylopiæ atropurpurea*) is a tree sometimes of considerable height, growing in fairly dry places, and yielding aromatic fruits, which, when dried and powdered, form a sort of pepper, much appreciated in Liberia, but too aromatic for the European taste. This tree yields a useful wood for masts, oars or paddles. Another spice (and the Liberian forest is rich in spice-producing substances) is



211. THE BASE OF A COTTON TREE

Liberia

Monodora myristica, the seed-vessels of which are known as "African nutmegs." They are large in size, from four to six inches across. The flowers of this African nutmeg are also very large and noticeable—white inside, pale green outside, spotted with red-purple.

All the stagnant fresh water of Liberia abounds in "water-lilies," apparently all, or nearly all, belonging to the widespread species *Nymphaea lotus*, though obviously developing into peculiar varieties, sometimes with very long stalks that rise high out of the water. In the eastern part of Liberia there is a variety or sub-species much smaller in size, the outer sepals of which (round the white petals) are deep blue. This is a beautiful little water-lily which might well be introduced to cultivation.

Amongst the Mallow order (*Malvaceæ*) there are, of course, many species of *Hibiscus*, amongst which is the plant that yields the "okro" vegetable so popular throughout West Africa, where amongst other qualities it is prized as a mild aphrodisiac. The young fruits of this plant—okroes—are used in soup or are boiled as a vegetable. They are gelatinous and slimy, with an agreeable flavour. Other forms of *Hibiscus* yield strong and useful fibres, or have seeds which are ground up into strong-smelling perfumes. There is certainly one indigenous species of wild cotton (*Gossypium punctatum*?) which has not yet figured in any collection of plants from Liberia, but which is in all probability the plant yielding the cotton so much manufactured in the interior. But the American form of cotton, *Gossypium peruvianum* (probably introduced from South America), and also *G. barbadense*, the Sea Island cotton, are common throughout the coast belt of Liberia. The magnificent *Bombax* or silk cotton tree found in Liberia is *B. buonopozense*. Its flowers are noteworthy and very picturesque. They are crimson-scarlet throughout, bell-shaped,



M. Smith del.

212. COULA EDULIS

1. Flowering branch (nat. size). 2. Flower (enlarged). 3. Section of flower (enlarged). 4. Fruit (nat. size).
 5. and 6. Fruit with fleshy exocarp removed (nat. size). 7. Section of fruit with fleshy exocarp removed
 (nat. size). 8. Embryo (enlarged).

Liberia ♡

with short, fleshy petals and bundles of numerous stamens. During the flowering season the ground round the base of



213. $\frac{1}{2}$ LEAVES AND FLOWERS OF BERLINIA ACUMINATA

the tree is covered with these scarlet-purple flowers that have fallen from their slender stalks.

The Kola nut tree is indigenous to Liberia, but rarely

met with (except when planted) on the coast. Drawings made for this book by Miss M. Smith show the character of the flowers, leaves, and seed-vessels (vide pp. 411 and 413).

Amongst the *Olacineæ* should be mentioned the *Coula edulis*. This produces oily nuts of very pleasant taste and, I should think, very nutritious. They are much eaten by the natives, and may prove valuable to commerce.

Representing the *Connaraceæ* and the great papilionaceous group are numerous trees and shrubs with beautiful flowers, some of which might be introduced to our horticulture. Among these I would mention a form of *Connarus* discovered by Mr. H. Reynolds in the interior of Liberia. This has panicles or bunches of very numerous, fairly large flowers of a beautiful creamy white or pale buff-yellow. A species of *Rhynchosia* (a bean) is an ornamental climber, also with thickly clustered bunches of cream-white flowers, rather like those of a sweet pea, and of a velvety texture. The *Lonchocarpus* tree (*L. sericeus*) has great bunches of lilac-coloured flowers, rather like *Wistaria*.



214. FLOWER OF BERLINIA ACUMINATA

This is very common in the forest, and the ground round the base of the tree sometimes presents a lovely spectacle, being covered with a carpet of mauve blossoms.

A very handsome tree of the Bean order is *Berlinia acuminata*, the aspect of which (as regards leaves and flowers) is sufficiently delineated in my illustration. This conspicuous flowering tree is very common throughout the coast region of Liberia.

Amongst tall trees of the Rose order is *Parinarium*,



215. *BARTERIA NIGRUTIANA*

• The Liberian Flora

which bears bunches of pinkish flowers that are succeeded by fruits of a dirty yellow colour, the size of a large egg. These



216. FEMALE PAPA W TREE

are very mealy, and vapidly sweet, but they are much appreciated by the natives.

There are numerous shrubs and trees of the genus *Combretum*, with long sprays of crimson or deep red flowers—very handsome, and often making quite a gorgeous spectacle by the side of the path in the dense forest.

Liberia 🍃

Common flowers in the scrub, especially in marshy districts, are the various forms of *Dissotis*, some of which have large, geranium-like flowers of bright purple, with yellow stamens.



217. WHITE-SEPALLED MUSSAENDAS GROWING IN LIBERIAN BUSH

Amongst the plants of the Passion-flower order may be indicated the *Smeathmannia*, very common in the coast region of Liberia, with big, white camellia-like flowers growing



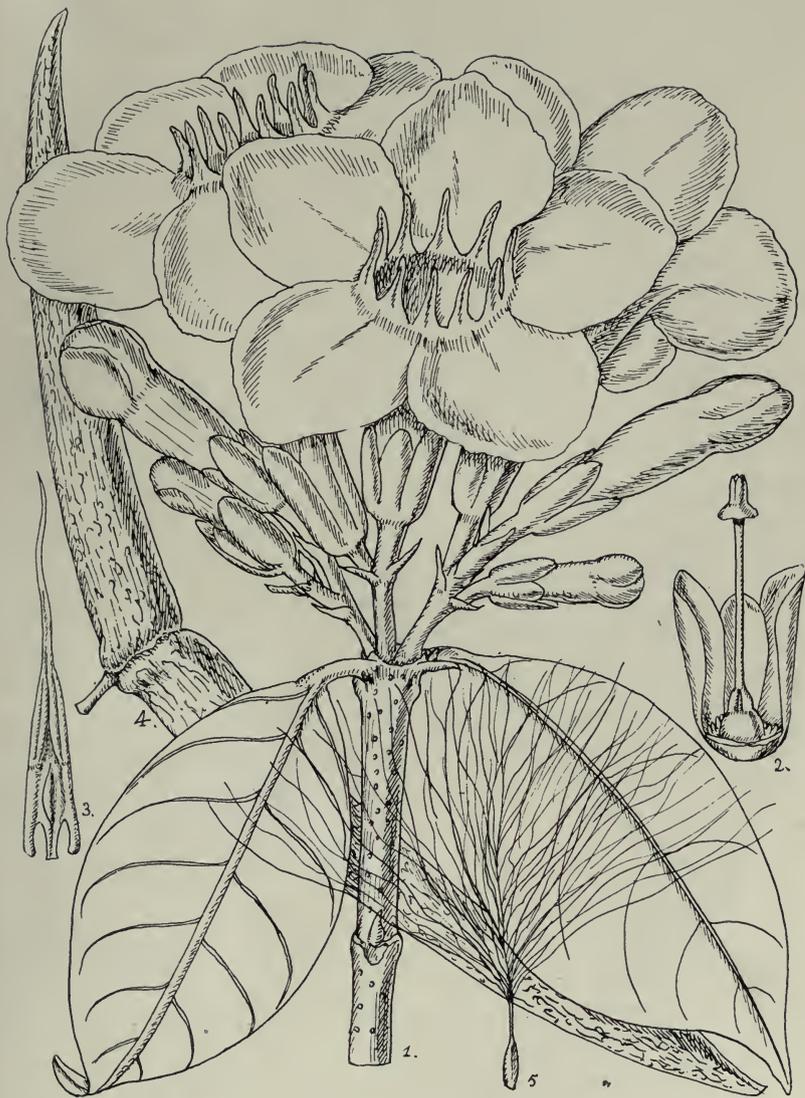
218. MUSSËNDA ISERTIANA

Liberia ☛

close to the stalk. I did not succeed in developing photographs taken of these very handsome shrubs, so I give on p. 532 as some indication of what they are like, a drawing done by me from an allied species, *Barteria nigriflora*. I believe that this shrub extends in its range to the eastern part of Liberia, but the drawing which is here given was made by me from examples of *Barteria* picked at Lagos. I think, however, it will be found to grow in the vicinity of Cape Palmas.

A very common object in the bush round the Liberian towns at the present day is the papaw tree (*Carica*), which although a native of America has now become well established in Liberia, as it has throughout Tropical Africa. It yields an excellent fruit, which can be eaten cooked as a vegetable, or ripe as a very good imitation of a hothouse melon. The sap or juice of the papaw is a digestive, and the leaves are used to wrap up meat in order to make it tender. The male and female flowers are white, and deliciously scented. The male flower is smaller than the female and on longer stalks. This species is "dioecious"—that is to say, each individual plant is either male or female—single-sexed. I have noticed, however, not only in Central Africa but also in Liberia, that the male flowers of this plant develop the extraordinary habit of producing fruits (apparently seedless). These grow as a long, pendulous drupe, quite different in shape from the melon-like fruit of the female, which of course is full of seeds.

The Madder family (*Rubiaceæ*) is abundantly represented in the West African flora; and amongst its many trees, shrubs, and herbs of remarkable aspect are those of the genus *Mussaenda*. A form of *Mussaenda* with white sepals and tubular orange flowers is common throughout Liberia, as indeed elsewhere in forested West Africa. It is a most striking object in the bush. The Liberian type is probably *Mussaenda conopharyngifolia*.



M. Smith del.

219. STROPHANTHUS GRATUS

1. Flowering branch (nat. size). 2. Section of calyx and pistil (enlarged). 3. Anther (enlarged).
 4. Fruit ($\frac{1}{3}$ nat. size). 5. Seed ($\frac{1}{3}$ nat. size).

Liberia

It is so common a feature in all the bush country of Liberia that I have ventured to select it as the national flower, and as such it appears on the inner lining of this book and in a coloured plate. The drawing on p. 535 was made by me some time ago from an equally striking *Mussænda* in the lands farther east than Liberia (in West Africa), and is probably *Mussænda isertiana*. It has seemed to me that this form was actually found in Eastern Liberia, but I may have been mistaken; at any rate there is as yet no representative of it in our collections, but instead there is the very similar white-sepalled *Mussænda* known as *Mussænda conopharyngiifolia*.

The *Mussændas* are amongst the most conspicuous flowers of the West African forest region between Uganda on the east and the Atlantic coast. Sometimes they develop handsome large white blossoms with little observable in the way of sepals. Occasionally their flowers become more tubular, and bright scarlet, orange, or lemon-yellow in colour. In connection with the tubular flowers, a single sepal is developed at the base of the corolla, which might be at first mistaken for a bract or specially developed leaf. These exaggerated sepals are usually of soft snowy white, as though they had been cut out of white velvet. It has seemed to the present writer that in the north-eastern parts of the Congo Forest on the borders of Uganda he has come across tall *Mussænda* shrubs that developed gorgeous crimson sepals in lieu of white, but as he was unable to collect a specimen to verify his belief, the existence of this very handsome shrub has not yet been established scientifically. It resembles a *Poinsettia* in appearance.¹

¹ Mr. W. R. Johnson, of the Aburi Botanical Gardens, Gold Coast, informs me that this red-sepalled form is *Mussænda erythrophylla*. It is probably found in Eastern Liberia as well as on the Gold Coast.

Amongst other prominent members of the Rubiaceous family in Liberia is the "wild peach" of the coast regions (*Sarcocephalus esculentus*). This has large white fragrant flowers, and deep red fruit about the size of a peach and not unlike it in appearance. The fruits are too aromatic for the taste of a European, but are much appreciated by the natives. Some plants of this order yield the natives yellow dyes; others, like *Ixora*, exhibit splendid bunches of rose-coloured flowers. Others again, like the celebrated *Coffea* or coffee tree, produce berries which are edible for their pleasant sweet pulp, or the seeds of which furnish the material for a stimulating beverage. In addition to the well-known *Coffea liberica*—the Liberian coffee (which is a taller tree than the common coffee, with larger black berries)—there are two other kinds of wild coffee (red berried), both of which apparently might furnish coffee beans for commerce.

Under the order *Apocynaceæ* in the Appendix (p. 616 *et seq.*) will be found set forth all the known sources of rubber in Liberia. Of



220. AN ARISTOLOCHIA FLOWER UNOPENED

Pale yellow-green, with dark crimson veins (⅔ nat. size). Also base of corolla to show sexual parts.

Liberia

these, mention has already been made of the celebrated *Funtumia elastica*, the rubber tree of Lagos. This is one of the tallest trees of the African forest. Mr. Sim, who discovered it growing in the magnificent Nidi forest (Sino County, near the Satro Mountains), said that it seemed to tower to an altitude of at least two hundred feet. The brilliant sulphur-yellow flowers of *Allamanea* grow in every Liberian garden on the coast, but this splendid shrub is really a native of America. An important plant of the same order (*Apocynaceæ*) is *Strophanthus gratus*, a climbing shrub with magnificent tubular flowers, white or blush-colour, with a purple tinge in the interior of the corolla. This *Strophanthus* produces smooth seeds which are of considerable value, as they yield the celebrated medicine much employed in treating diseases of the heart. The potency of these *Strophanthus* seeds has long been known to natives of Africa, who have used them for concocting various poisons.

A handsome example of the *Bignoniaceæ* is *Newbouldia levis*, a low tree or bushy shrub which grows in the vicinity of Monrovia and other coast settlements, with sprays of bright pink flowers offering a superficial resemblance to a fox-glove. Amongst the *Acanthaceæ* is *Thunbergia alata*, a creeping plant with large flowers, the calyx of which is a deep red, while the short petals or lobes are yellow or white. The *Thunbergias* are a very widespread genus in Africa, and nearly always produce showy or beautiful flowers, especially in the park country outside the forest. Here their tints are orange, golden-brown, pale yellow, or deep blue-purple. The climbing *Thunbergia* of Liberia might be worth cultivation. Another striking example of this order is *Brilliantesia lamium*, a plant with bunches of large blue, mauve, or lavender flowers. The *Acanthus montanus* is also a handsome flowering shrub, with spiky clusters of closely packed pink flowers, each with

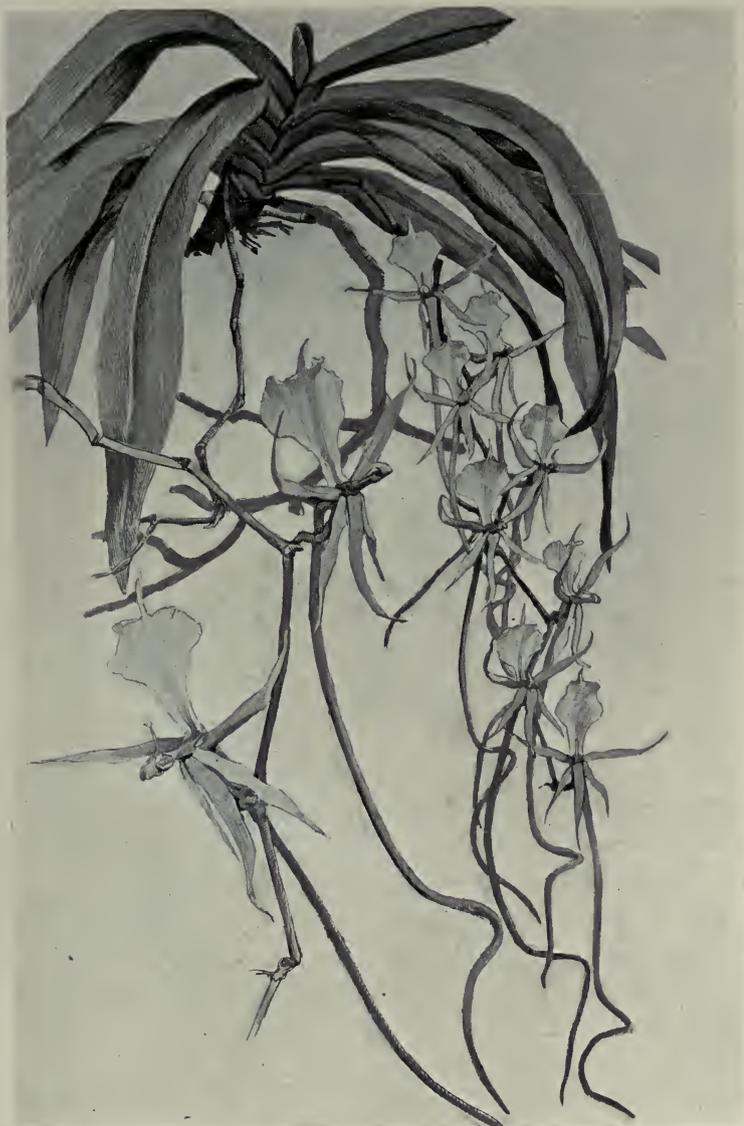


221. A RUBBER-PRODUCING FIG TREE : PROBABLY *FICUS VOGELII*

Liberia ☞

a single petal. In the Verberna order there are two noticeable species of *Clerodendron*, one—*C. splendens*—a low tree with splendid bunches of bright red tubular flowers and very projecting stamens. The other, *C. scandens*, is more shrub-like, and has sprays of white flowers with a red centre. In another member of this order—*Vitex grandifolia* (a low tree)—the fruits are plum-like, with a sweetish pulp. They are eaten by the natives, and are also used by the Liberians to make a fermented drink, which is said to taste like rum. The timber of *Avicennia africana* is likely to be of value in commerce. This grows to a considerable height, generally in the brackish marshes along the coast. Another verbenaceous plant most prominent in the vicinity of the coast settlements between Sierra Leone and the Ivory Coast is honoured by botanists with a terrific name—*Stachytarpheta indica*! No one who has landed at Sierra Leone or at Monrovia can fail to have noticed this common herb, which blooms all the year round with sprays of rather pretty blue flowers, not unlike the flowers of verbenas cultivated in our gardens. The leaves of this plant are used to make a decoction in native medicines said to be useful as a febrifuge. This plant is a common weed throughout the tropics, but the present writer has never noticed it growing so abundantly as in the coast region of Liberia.

The extraordinary *Aristolochia* is not uncommonly met with in the bush, at a short distance from the sea-coast. My drawing given on p. 539 is done from a specimen not yet fully open. Mr. Gow records this plant as being common in the region of the Dukwia River. The illustration is about two-thirds natural size. Amongst the *Myristaceæ* there is a species of *Pycnanthus*, a tallish tree—probably *Pycnanthus kombo*—which produces extremely oily seeds. These are apparently the oil seeds that are exported from Liberia in considerable



222. LISTROSTACHYS CAUDATA, AN EPIPHYTIC ORCHIS OF WESTERN AFRICA ($\frac{1}{3}$ nat. size)

Liberia ♣

quantities, and sold at Liverpool under the name of "kombo" or "kafa."

The Liberian forests are very rich in Fig trees, as may be seen by the list of species in the Appendix, and some of these yield rubber of more or less good quality.

Amongst the Monocotyledons there is much to remark. When the orchids of Liberia have been carefully collected, it will be found that this order is well represented by epiphytic¹ species as well as terrestrial. Mr. Whyte in his reports draws attention to "a most magnificent terrestrial orchid, *Lissochilus roseus*," apparently a near relation of the equally splendid *L. giganteus* of the Cameroons and Congo. This *Lissochilus roseus* grows to as much as seven feet in height, with spear-shaped leaves nearly three feet long, and a flower-stalk with perhaps thirty inches of inflorescence. The flowers are nearly an inch in length, and a beautiful rose-pink set in reddish brown sepals.

I have also seen in the forests at the back of Grand Basā an extraordinary looking orchis, which is represented on p. 543 by one of my drawings, though no dried specimen has as yet been sent home from Liberia. This epiphytic orchis is known as *Listrostachys caudata*, and its range in West Africa is apparently from Sierra Leone on the west to the Niger Delta on the east. The illustration is about one-third natural size. The large central petal at the back is white, and the remaining parts of the flower are green or greenish yellow. This orchis has a very long nectary. The leaves are thick and fleshy. It is a beautiful object, as its flower racemes hang

¹ Epiphytic means, of course, "growing upon other trees or plants." Orchids are either terrestrial and grow with roots and bulbs in the soil, or they are of epiphytic habit, and attach themselves by innumerable finger-like roots to the trunks and limbs of trees.

in small cascades of white and green from the branches of trees as they cross the path in the dense forest.

There are, no doubt, not a few species of *Angræcum*



223. AN ANGRÆCUM ORCHIS OF WEST AFRICA [? A. EICHLERIANUM]

Flowers below and at the right $\frac{1}{2}$ nat. size ; bunch of flowers and leaves in background $\frac{1}{3}$ nat. size

(that widespread epiphytic African genus) in Liberia, but hitherto no specimens of *Angræcum* have been sent home. I give here a drawing of (?) *Angræcum eichlerianum*, which seems

Liberia ♣

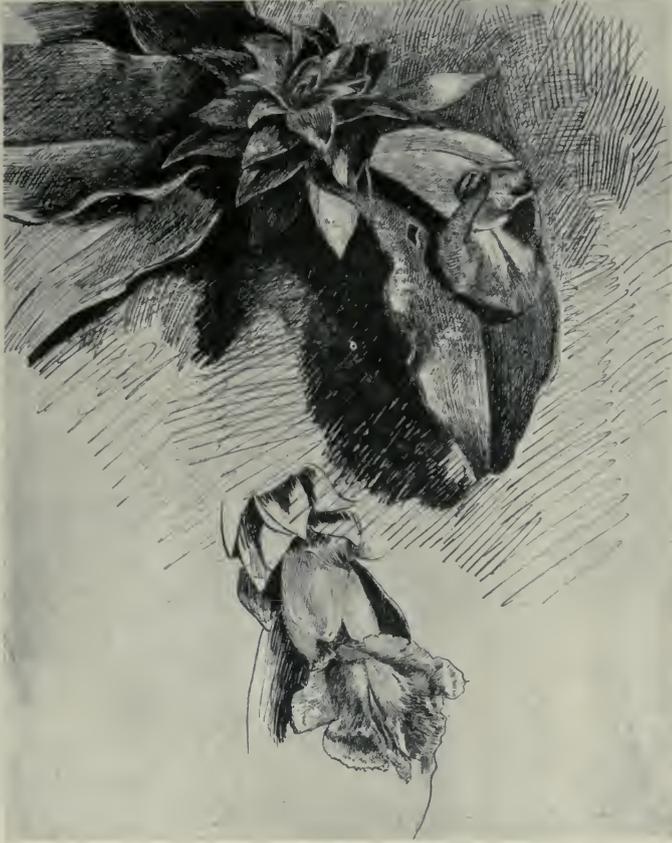
to be common in the eastern parts of Liberia, especially near the sea-coast in rather marshy regions.

The undergrowth in the Liberian woods offers many tall herbs that belong to the Zingiberaceous order. These are at once remarked for their handsome leaves, so often resembling in miniature the fronds of a banana. The *Amomum* (*Aframomum*) which produces Malagueta pepper has already been described and pictured. Other amomums are equally remarkable for beautiful flowers of pale pink, mauve, or white, and for seed-capsules with a more or less edible pulp. The closely allied *Costus* instead of producing its flowers separately from the leaf stem, as is the case with the amomums, bears a large white or mauve-tinted flower (with a golden centre) at the end of a stem covered with leaf-like bracts and growing high above the ground. According to Dr. Stapf the juice of a *Costus* in the Cameroons is used as a reagent in coagulating rubber. *Renealmia* is a tall shrub with a flower-stalk growing separately, but close to the long, lance-shaped leaves. The flowers are not particularly remarkable for beauty. They seem to exude a gummy substance extraordinarily attractive to insects, which are plastered all about them.

A genus of the closely allied *Marantaceæ* which is prominent in the undergrowth of the Liberian forest is *Sarcophrynium brachystachyum*, which has very inconspicuous flowers, large red or black fruits, and particularly handsome leaves. These at once suggest the illustrations in books dealing with foliage plants. They are of a bright glossy green with a tendency to blackish markings down the centre.

The ordinary cultivated Banana, both in the older type of the plantain (the long fruit) and in the more recently introduced form of short banana (from the West Indies), is commonly cultivated throughout Liberia, but as yet no one has discovered

or reported any wild indigenous species of *Musa*, such as are so abundant in Eastern and Central Africa, especially in the mountainous regions.



224. A SPECIES OF COSTUS, A ZINGIBERACEOUS PLANT

Crinum lilies are frequently seen in all moist or marshy districts. The one illustrated on p. 550—*Crinum natans*—practically grows in the water, with the long attenuated leaves submerged,



225. FLOWER-STALK OF
RENEALMIA, A ZINGI-
BERACEOUS PLANT

and the stalks with the flowers rising rather high above the stream. It is a very beautiful object. The petals are pure white or blush-pink, being more inclined to pinkness at the back than in the front.

The true Lily order is represented by *Dracæna* trees or shrubs, with very glossy dark green leaves and white aloe-like flowers which turn into bright red berries. One of these dracænas—species not identified—grows into a very lofty tree, as may be seen by the illustration on p. 551, where a Kruboy at the base gives some idea of the height of the tree. These dracænas are prominent objects not only in the forest but in the vicinity of settlements. The natives like to make hedges and stockades of them.

Liberia is somewhat well supplied with representatives of the Palm order. There is a species of wild date, *Phœnix reclinata*, which scarcely grows higher than a mere bush. The



226. A SPECIES OF SARCOPHYRNIUM, A HANDSOME FOLIAGE PLANT IN THE LIBERIAN UNDERGROWTH



227. THE WATER-LOVING CRINUM LILY (*C. NATANS*)

climbing *Calamus*, with some of its fronds developed specially as hooked, whip-like stems, climbs to the tops of the highest trees, and is a very prominent object in the Liberian forests.



228. A VERY TALL DRACÆNA OR DRAGON TREE IN THE LIBERIAN FOREST

Liberia ☞

This *Calamus* (or one very like it) has been described and illustrated by the present author in his record of a journey up the River Congo. The one species of *Raphia* as yet discovered in Liberia—*R. vinifera*—is the “bamboo palm” so commonly met with throughout West Africa. It is not such a stately



229. A CALAMUS PALM

object, nor do its fronds rise to such a height as the raphias of Eastern and Central Africa; still, it is a beautiful member of the palm family, its fronds appearing like huge ostrich plumes. It is perhaps the most useful tree in Liberia. From its sap the native makes a pleasant fermented drink. The

• The Liberian Flora

filaments of its leaves are used for a variety of purposes—for thatch, for plaiting into mats, baskets, etc., etc. The fibrous stem of the fronds fulfils innumerable purposes in local manufactures, and the complete stems are used in building houses. The fibre of the stems and trunk becomes the well-known piassava of commerce, used for making brooms, brushes, etc.

The Oil palm has been alluded to in several other chapters of this work, and needs no further description ; the same



230. RAPHIA VINIFERA PALM

may be said of the *Borassus* or Fan Palm. The Coconut is now met with all along the Liberian coast, and even some distance into the interior up the rivers. It is of course no true native, but has come at some time or other from the Pacific Ocean, possibly by way of America.

The *Pandanus* or screw pine is a familiar object in all the tidal marshes along the coast, mixed with the mangrove. It is possible that a species of pandanus also grows on higher ground and in the interior away from the sea, just in the same way that a form of pandanus grows along the banks of rivers

Liberia

in the Congo Basin in the very heart of Central Africa. The bread fruit (*Artocarpus*), which is one of the commonest trees now seen on the Liberian coast, was introduced by the first American colonists. It is of course a native of the Pacific.

The Liberian forests and their outskirts contain many striking forms of the Arum order. One of the commonest is the ordinary West African *Anchomanes*. This may be noticed



231. OIL PALMS (ELAÏS)

first of all in the fully developed type of leaf, which rises on a slender prickly stem to a height of two or three feet. Instead of presenting an undivided outline of the usual arrow-head character, the leaf is split up into numerous unequal-sized leaflets, giving any one, not a botanist, the impression that it is a cluster of independent leaves growing from a number of separate stalks. At first sight no one would take this to be an aroid. The long stalk of this curiously divided leaf rises



232. THE BORASSUS PALM

Liberia ☞

from a tuberous growth just apparent above the soil. Close by, but appearing independently (from the underground rhizome), is the inflorescence. This consists of a purple spathe with a pale cream-coloured interior and a long cream-coloured spadix, dotted here and there with minute blackish flowerets. To this succeeds in time, by ripening, a very conspicuous cluster of white seeds with black or reddish tips. The first, second and third leaves of this arum, however, are very



233. COCONUT PALMS

different in shape and appearance from the later forms, and the drawings given on pp. 558-9 show the transition in outline between the simple sagittate or arrow-shaped leaf and the complicated, much-divided cluster of leaflets represented by the final leaves of the plant. This aroid exhales a rank, sickening smell.

Another prominent aroid in Liberian landscapes is the *Cyrtosperma*. This has very handsome leaves of considerable size, and tall flower-spathes which are purplish, with yellow-green streaks. The *Cyrtosperma* is one of the commonest plants

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in the coast region of Liberia, along the banks of streams or in ditches by the wayside. In the forest one comes across many examples of the Arum order, some of them epiphytic. There are no doubt several species of *Culcasia*, one of which is a climbing form with simple leaves and a



234. MANGO (ON LEFT) AND BREAD-FRUIT TREE (RIGHT) IN A LIBERIAN PLANTATION

very poorly developed dark-coloured spathe to the flower-spadix (*C. scandens*).

Another kind, though of a climbing habit, generally grows along the banks of streams, clambering over the wet rocks. This form has a very pretty white spathe (almost like white velvet) and a pale yellow spadix. It resembles slightly the cultivated arum of the greenhouses, which is really a South African form. The drawings on pp. 563-4 of these two species

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of *Culcasia* were executed by me in the West African coast belt to the east of Liberia, but seem to me to represent pretty accurately two kinds of *Culcasia* found in Liberia, which are not yet represented by dried specimens.¹ The same may be said about the pretty aroid *Nephtytis constricta*, which closely resembles the *Nephtytis afzelii* already recorded from Liberia.



235. YOUNG LEAVES OF ANCHOMANES ARUM

It is probable that *Nephtytis constricta* extends its range westwards to Eastern Liberia, though it has not yet been recorded from there. *N. afzelii* is very similar in appearance. This plant, together with the *Cyrtosperma*, might well be introduced

¹ Of these, *Culcasia scandens* has been sent home from Sierra Leone. It is therefore no doubt identical with the Liberian type of climbing *Culcasia*.

into horticulture, on account of the handsome or strangely shaped eaves. *Rhektophyllum mirabile*—or at any rate a species of *Rhektophyllum*—is frequently met with in the dense forest of Liberia as an epiphyte on trees, up which it grows to a con-



236. LATER LEAF OF ANCHOMANES ARUM

siderable height. The leaves are very large, sometimes nearly three feet long, and are remarkable for open slits which gradually appear between the veins. The flower-spathes are a pale yellow-green, or greenish white, with a blackish spadix that

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is but little exposed. Festoons of this aroid up and down the trunks of great forest trees form a handsome spectacle.



237. SPATHE AND SPADIX (FLOWER) OF ANCHOMANES DUBIUS

The country is very rich in Rushes (*Cyperaceæ*), though the handsomest rush of Africa—the Papyrus—is apparently

missing. So far as I am informed, the papyrus is absent from the forest belt along the West African littoral—at least, I have never seen it there, and am not aware that specimens of it have been collected in that region. It appears on the River Congo, but not I think farther to the west than Stanley Pool. Further research into the purely West African flora may show that though scarce it is still a native of the West African coast. But at any rate so far it is absent from Liberia.



Amongst Grasses should be mentioned specially the Bamboo. This magnificent grass is met with in huge clusters or groves at various places in the coast region of Liberia, a few miles back from the sea. Unfortunately, the photographs which I took of these bamboos developed in too unsatisfactory a way for exact identification, and only serve to establish the existence of this giant grass. Büttikofer refers to the bamboo also in his work, and ascribes its introduction to the American colonists (from the West Indies). It is practically certain that the Scotch missionaries who founded the two Presbyterian Missions at Old Calabar (in the Niger Delta) brought a bamboo from the

238. SEEDS OF ANCHOMANES
DUBIUS

Liberia

West Indies and established it in that corner of West Africa, where it has ever since thriven. At the same time there is *no record* of the Liberians having introduced the bamboo or



239. CYRTOSPERMA SENEGALENSE

of having taken any particular interest in it. The question is one which requires investigation, as it is quite possible that the Liberian bamboo may be an indigenous form (*Oxytenanthera*), only remarkable for the fact that it grows so near to sea level.



240. A CLIMBING *CULCASIA ARUM* (*C. SCANDENS*)

Liberia

Several bamboos are indigenous to Tropical Africa, especially in its east and central parts, but away from the more temperate regions of Natal and South Africa they are only found on high mountains, or at any rate not much lower than altitudes of



241. A WHITE-SPATHED¹CULCASIA

3,000 feet. Under the Equator (for example, in the Uganda Protectorate) bamboos do not make their appearance until about 7,500 feet above sea level. In British Central Africa, much farther south, the bamboo level begins at 3,000 feet (or even a little lower) and extends to 7,000 feet in different species.

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I am informed by persons who have travelled far into the interior of Liberia to the bases of relatively high mountains that bamboos make their appearance on these mountains at a considerable height above sea level. These would certainly be indigenous ; but it is a question at present undecided as



242. NEPHHTYTI CONRICTA

to whether the species growing on the Liberian coast is not an introduced form planted by man. In any case, its cultivation and extension deserve the attention of the Liberians because of the many uses to which it can be put.

The grasses of Liberia include many widespread African forms, and also numerous cultivated *Gramineæ*,



243. RHEKTOPHYLLUM MIRABILE

The country is very rich in Ferns, but from a variety of causes they have been singularly little studied, and are very poorly represented in existing collections. In the scrub of the

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coast region the cosmopolitan bracken fern—the “dear, familiar bracken”—is a common object, and a pleasant one to a European, its appearance and its smell when crushed recalling an English common and the brakes of English woods. Mr. Reynolds asserts the existence of Tree ferns on the hills of the interior. A Polypody fern, with very large fronds and a creeping root, grows on tree trunks, and in common with other species



244. THE “DEAR, FAMILIAR BRACKEN”

of ferns makes a home in the interstices of the frond-bases of the oil palm. It is a familiar sight in Liberia and other parts of West Africa to see the oil palms just below the stems of their lowest fronds festooned with a beautiful green fernery. Also growing as a parasite on tree trunks is the singular and picturesque staghorn fern—*Platyserium*. This is a familiar object in most tropical “ferneries”: it is one of the commonest features of the forest in Liberia.

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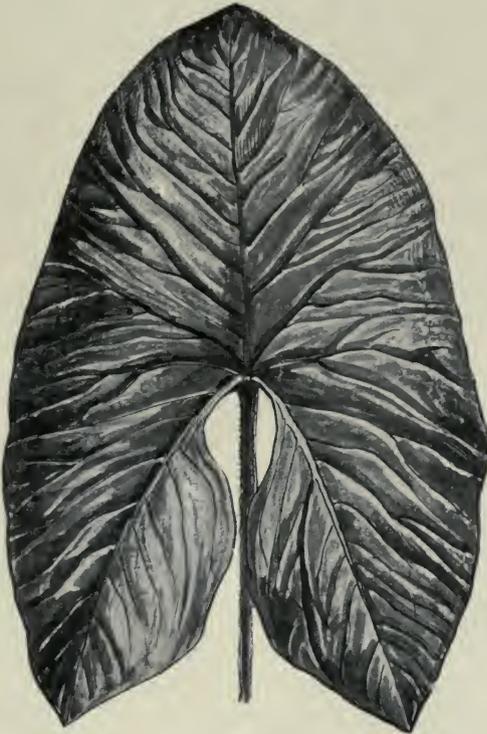
In the low bush, especially in the coast region, there is a tall *Lycopodium*, which grows to the height of two or three feet from the ground, and in appearance is exactly like a miniature tree, recalling its vanished and gigantic relations of the Coal Measures, of a period in the world's history before flowering plants were invented. In its way it is a dwarfed survival, like that other example of archaic vegetation, the *Equisetum* or marestalk, which still lingers in Britain and elsewhere.

The cultivated plants of Liberia are touched on in other chapters, and in the following appendix many of them are included in the catalogue of Liberian plants. Some of these, like the papaw, are so well established that many Liberians—both African and American—probably think they are true natives. Unlike most of the cultivated plants, the papaw extends its range into the forest, far from human habitation. Its succulent fruits with their abundance of hard black seeds contribute to this result. It is much the same with the pineapple. This last is spread by the sprouting tops from the upper end of the fruit. Native porters and travellers cut the pineapple when ripe, devour the luscious pulp, and throw away the tuft of leaves at the top. These lie by the roadside and soon take root in the moist soil, so that many Liberian roads far into the interior are bordered by hedges of wild pineapple. The pineapple where naturalised in West Africa is in a little less specialised form than the pine which is more carefully cultivated in America and Europe. It still produces seeds, and these are often abundant, large, and hard enough to be a nuisance in eating the fruit. I believe it would be possible to raise plants from these seeds, which seem to have vitality.

The mango tree introduced from the West Indies grows nearly without interruption along the whole littoral of Liberia. The fruit is often turpentine and degenerate. Liberian oranges,

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however, are of excellent quality and taste. They seem to owe their original introduction to the Portuguese, which is also the case with the lime. The lime tree, in fact, is apparently found throughout Liberia up to the Mandingo Plateau.



245. LEAF OF CYRTOSPERMA ARUM ($\frac{1}{2}$ nat. size)

APPENDIX IV
THE KNOWN PLANTS OF LIBERIA

MAINLY FROM MATERIALS IN THE HERBARIUM OF THE ROYAL BOTANIC
GARDENS, KEW

(With the permission of the Director)

BY OTTO STAPP, PH.D., F.L.S.,
Principal Assistant, Herbarium, Royal Botanic Gardens, Kew

THE botanical exploration of Liberia began with the arrival of Dr. Theodor Vogel, a German, who with his assistant, John Ansell, accompanied the British Niger Expedition of 1841 as botanist. He landed at Monrovia on July 5th of that year, but left the following day for Grand Basā, where he stayed till the 14th, when the expedition sailed for Cape Palmas, which they reached on the 16th and left on the 18th of July. In spite of the shortness of the stay, which moreover fell in the rainy season, he succeeded in bringing together a collection of about 150 species, which were included in Bentham and Hooker's *Flora Nigritiana* (1849). Here also a short memoir of his life may be found, whilst a translation of his diary containing a sketch of the littoral vegetation of Liberia was published in Hooker's *London Journal*, vol. v. pp. 621-44, and vol. vi. pp. 79-106. Most of his plants were collected in the sandy littoral near Grand Basā; the plants marked by him "Monrovia" were gathered on an excursion from Monrovia along the Mesurado peninsula, and those from Cape Palmas on the narrow isthmus which separates this cape from the mainland. His entire collection is at present at Kew.

The next attempt to explore the flora of Liberia was also made by a German, Philipp Schoenlein, who went to Cape Palmas in 1855, but died there very soon. His collection, which consisted of only a few specimens, was worked out by Professor Klotzsch of Berlin, who published an account of it in the *Abhandlungen der Akademie der Wissenschaften* of Berlin, 1856 (pp. 221-42, tab i.-iv.). Schoenlein's plants are preserved in the Berlin Herbarium, and were not seen by me,

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In August, 1874, the German expedition on board the *Gazelle* called at Monrovia, when the naturalist of the expedition, Dr. Nauman, made a small collection mainly in the marshes near the town. The species of this collection were incorporated by Professor Engler in his *Übersicht über die botanischen Ergebnisse der Forschungsreise der "Gazelle,"* published in 1889. His plants also are at Berlin, and I have not seen them.

Much more successful than his predecessors was Mr. Max Dinklage, late manager of the Woermann factory at Grand Basā, who explored the coast region of Liberia in 1898. No account of his journey was published; but a considerable number of new genera and species discovered by him were made known by the Berlin botanists in various articles and monographs. A fair set of duplicates from his collection was received at Kew from Professor Engler, the Director of the Botanic Garden at Berlin. From Dinklage's labels, it appears that he collected mainly in the neighbourhood of Monrovia, Fishtown, Grand Basā, the mouth of the Cestos River, and Cape Palmas. It seems that a great portion of his collection is not yet worked out. His labels—and the same may be said of Vogel's—contain many valuable notes on the growth and habitat of the plants and other particulars which cannot be grasped from the dried material.

All the collectors so far mentioned confined themselves to the coast region. When, however, at the end of 1903, Mr. Alexander Whyte, late Superintendent of the Botanic Garden at Entebbe, Uganda, and a very experienced collector, went to Liberia at Sir H. H. Johnston's recommendation, he proceeded to the hinterland of Monrovia, and explored the country within a radius of twenty miles from a place called Kakatown. This was in December, 1903, and January, 1904. In the following February Whyte collected near Monrovia. Then he went to Sino, and from there travelled along the Sino River as far as the rapids at Grant's Farm, and in the Kru country, about eighty miles from the coast. Whyte's collection contains about 350 species. The specimens are excellently preserved, but with the exception of rubber plants, unfortunately not accompanied by special labels. They were presented by the Liberian Chartered Company to Kew at the request of Sir Harry Johnston.

A small but interesting set of plants from the Sino region, collected by Mr. D. Sim, an employé of the Monrovia Rubber Company,

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was received at Kew about the same time, also through Sir H. H. Johnston, and some more gathered on the St. Paul's River, about thirty miles from the coast, were sent by Mr. H. Reynolds early last year to Kew.

Sir Harry Johnston has also himself collected and transmitted a few specimens.

Descriptions of fifty-eight novelties from Whyte's, Sim's, and Reynolds's collections were published by me in the *Journal of the Linnean Society of London*, vol. xxxvii. pp. 79-115, in July of last year.

I may add that there are a few plants collected in Liberia by Carder, Millen, and others in the Kew Herbarium, but there are no labels with them giving the precise localities where they were collected.

I have attempted to give as complete as possible an enumeration of the plants contained in the collections referred to above, and I believe it is a fair representation of what we know at present of the flora of Liberia.

Considering our very imperfect knowledge of the flora of Liberia, and the almost total absence of information concerning the character and distribution of the types of vegetation occurring in the country, it would be premature to deal here more particularly with this aspect of the vegetable world of Liberia. It may suffice to say that it is evidently a section of the great natural region which extends from the Senegal in the north to the Kunene in the south. It seems to contain a certain local colouring due to the presence of endemic species, but it is yet impossible to estimate precisely the degree of specialisation. On the other hand, so much is certain that the Liberian flora is in close relationship with that of Sierra Leone. A great portion of the country is covered by dense forest stretching across the country from west to east; in places it reaches, broken up in isolated patches, down to the sea, whilst more generally a narrow stretch of savannah and parkland is interposed between the forest and the sea. The width of the forest belt varies from 180 to 280 miles. To the north of it, savannah and parkland seems to take its place; this, however, is still botanically *terra incognita*.

I have endeavoured to be as precise as possible in the quotation of the names of the plants, and the specimens which form the

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basis of the list, in order to render it really useful for scientific purposes; hence the addition of the collector's numbers wherever there were any attached to the specimens. I have already stated that the bulk of the collections is in the Kew Herbarium. These I have consulted in every case, and the specimens included in them are in the usual way marked with a "!" The rest were taken up on the authority of other writers.

As a dry list of names, localities, and collector's numbers, however important for the expert student, would be of limited use in the field for the explorer, who is generally not a professional botanist, I have attempted to add notes on the general aspect of the plants, the arrangement, size and colour of the flowers, and the character of the fruits, such as might help one to recognise at least some of the species and assist the memory. For this end I had, of course, to avoid technical terms as far as possible. Finally, I have carefully gathered what information there was on the economic value of the plants. Unfortunately it is still very meagre. It would also have been desirable to add a list of vernacular names, but we know practically next to nothing about them.

In bringing together on this plan all the information accessible to me about the flora of Liberia, I was led by the hope that it would act as a stimulus in the direction of the further exploration of a flora which is, no doubt, extremely rich and interesting and contains much of great economic and scientific value. It will, I believe, afford some help to the man in the field, not only in the amount of positive information, which I trust he will subject to a careful scrutiny, but also in so far as it reveals to him the gaps in our knowledge which he may have an opportunity of filling in.

The species which have so far not been found outside Liberia are marked with an asterisk.

DILLENiaceÆ

Tetracera potatoria, *Afz.* (*syn.* *T. obtusata*, *Planch. ex Oliv.*): a more or less hairy shrub (sometimes climbing) or tree with firm dull green scabrous conspicuously nerved leaves, panicles of white very fugacious flowers up to $\frac{1}{2}$ in. in diameter, prominently striate follicles (3—4 in each fruit) and seeds with yellow arils;

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in dry and sunny situations of the savannah of the littoral, Fishtown, *Dinklage*, 1841!¹—The “Water Tree” of Sierra Leone, so called on account of the profuse yield of water from the stems when cut across.

- ***T. leiocarpa**, *Stapf*: similar to the preceding, but the leaves glabrous and the follicles quite smooth and shining; Kakatown, *Whyte*!
- ***T. dinklagei**, *Gilg.*: a tall climbing shrub similar to the preceding species but with the leaves hairy on the petioles and the undersides, with flowers 1 in. across and hairy fruits; in the bush of the littoral, Fishtown, *Dinklage*, 1752, 1837, 2049!

The leaves of several West African species of *Tetracera* are reputed native remedies for dysentery.

ANONACEÆ

- Uvaria scabrida**, *Oliv.*: a climbing shrub or moderate-sized tree with rusty tomentose twigs, rough oblong leaves, extra-axillary yellowish green flowers, $1\frac{1}{2}$ —2 in. across, with the spreading petals in 2 series of 3 each, and fruits consisting of clusters of numerous tomentose obovoid sessile few-seeded carpels; in primary forest along the banks of the Cestos River, *Dinklage*, 1936!
- ***U. dinklagei**, *Eng.* and *Diels*: a climbing shrub similar to the preceding, but with the leaves softly hairy below, with smaller flowers, up to 1 in. across, and long-stalked almost globose fruit-carpels; in humid situations in the bush of the littoral, *Dinklage*, 1717, 1794, 206!
- U. afzelii**, *Scott Elliot*: a shrub with rusty tomentose leaves (at least on the underside), leaf-opposed velvety flowers, purplish green and $1\frac{1}{2}$ —2 in. across, and very long-stalked tomentose fruit-carpels; Sino Basin, *Whyte*!
- Polyalthia oliveri**, *Engl.* and *Diels*: a small or moderate-sized almost glabrous tree with papery more or less oblong leaves, solitary or fascicled (2—3) extra-axillary white flowers with six obliquely erect petals up to $\frac{1}{2}$ in. by $\frac{1}{12}$ in., and globose stalked fruit-carpels, over $\frac{1}{3}$ in. across; in the forest of the littoral, Fishtown, *Dinklage*, 1637!; Sino Basin, *Whyte*!

¹ See page 573, first lines.

- ***Popowia whytei**, *Stapf*: a tree (?) with more or less elliptic thinly coriaceous almost glabrous leaves, $3\frac{1}{2}$ —6 in. by 2 — $2\frac{1}{2}$ in., fascicled finely tomentose flowers, thick petals, the outer 3 scarcely $\frac{1}{6}$ in. long, the inner half as long; Sino Basin, *Whyte*!
- ***Xylopia humilis**, *Engl.* and *Diels*: an almost glabrous shrub or a small tree with a broad top and pendulous branches, very coriaceous, abruptly acuminate oblong leaves, 5—6 in. by $1\frac{3}{4}$ — $2\frac{1}{4}$ in., and stalked cylindrical smooth fruit-carpels, 3—4 in. by $\frac{1}{2}$ in., with upwards of 6 seeds (flowers still unknown); in humid situations in the primary forest of the littoral, Fishtown, *Dinklage*, 2006!
- X. æthiopica**, *A. Rich.*: a tree, 30—60 ft. high, similar to the preceding but with almost sessile fruit-carpels, $1\frac{1}{2}$ — $2\frac{1}{4}$ in. by $\frac{1}{6}$ — $\frac{1}{4}$ in., the flowers solitary or fascicled, usually axillary, up to $1\frac{3}{4}$ in. long, cylindrical, silky, the 6 linear petals conniving at the base; in dry localities in the savannah of the littoral, *Dinklage*, 1760, 1898!—The aromatic fruits are used as a tonic or in place of pepper, hence the name African, Guinea or Negro “Pepper.” The elastic wood is used for oars and masts of small boats.
- ***X. dinklagei**, *Engl.* and *Diels*: an almost glabrous shrub with thin leaves 2—3 in. by $\frac{3}{4}$ — $1\frac{1}{4}$ in., solitary silky lanceolate flowers $\frac{1}{2}$ — $\frac{1}{3}$ in. long, and fruit-carpels 2 in. by almost $\frac{1}{2}$ in.; in the bush of the littoral, Grand Basā, *Dinklage*, 1760, 1898!
- X. oxypetala**, *Oliv.*: a shrub or moderate-sized tree similar to *X. dinklagei*, but with larger leaves, longer (white, sweet-scented) flowers, to over $1\frac{1}{2}$ in. long, and smaller fruit-carpels; in the bush of the littoral, Fishtown, *Dinklage*, 1858!
- ***Artabotrys oliganthus**, *Engl.* and *Diels*: a glabrous shrub climbing by means of the frequently recurved hook-shaped peduncles, with greenish solitary flowers, $\frac{3}{4}$ in. long, the 6 lanceolate petals more or less spreading; in very humid situations in the primary forest of the littoral, Fishtown, *Dinklage*, 2083!
- Anona muricata**, *L.*: a small almost glabrous tree with fleshy yellow flowers; a native of the West Indies, frequently cultivated in West Africa on account of its delicious fruits, the “Sour Sop” of English colonists, *Vogel*, 37! *Dinklage*, 1883.
- A. palustris**, *L.*: a small tree similar to the preceding but with much smaller flowers and smooth bright yellow fruits; a native of South America, where it is a common coast plant, and known as “Alligator Apple”; in swamps near Grand Basā,

Liberia

Vogel, 36!; at Cape Palmas, *Vogel*, 37!—The soft wood is used in Jamaica in the place of cork.

Monodora myristica, *Don.*: a shrub or small tree with showy flowers, 2—6 in. across, pale green, purple spotted with a white centre (the petals in 2 series of 3, the outer ovate-lanceolate, crisped, the inner smaller ovate to cordate, short-clawed) and hard globose many-seeded fruits, 4—6 in. across; in primary forest near the cataracts of the St. John's River, *Dinklage*, 1615!; Kakatown, *Whyte*!—The aromatic seed, "Calabash Nutmegs," are much esteemed as a condiment in some parts of West Africa.

M. tenuifolia, *Benth.*: a small deciduous tree with flowers similar to those of the preceding species, but with narrower petals of which the inner 3 are gradually narrowed into a long claw; common in the primary forest near Grand Basā, *Dinklage*, 1614!

MENISPERMACEÆ

***Kolobopetalum ovatum**, *Stapf*: a diœcious glabrous climbing shrub with thin ovate entire leaves, 4 in. by $2\frac{3}{4}$ in., and long spreading panicles of very minute flowers, $\frac{1}{16}$ in. long, of 6 sepals and 6 petals, the male with a column of stamens; Sino Basin, *Whyte*!

***Glossopholis dinklagei**, *Stapf* (*syn.* *Tiliacora dinklagei*, *Engl.*): a low glabrous shrub of the forests of the littoral with coriaceous oblong acuminate leaves, 5—6 in. by $1\frac{3}{4}$ — $2\frac{1}{2}$ in., and panicles ($2\frac{1}{2}$ in. long) of small white fragrant flowers of 6 sepals and 6 petals, the inner 3 sepals longest ($\frac{1}{4}$ in.); Grand Basā, *Dinklage*, 1646, 2123; Monrovia, *Whyte*!

Triclisia patens, *Oliv.*: a climbing shrub with finely downy twigs, thinly coriaceous almost glabrous ellipsoid leaves, 4—5 in. by 2—3 in., many-flowered downy panicles from the old shoots and small flowers of 6 minute sepals and 3 petals, $\frac{1}{8}$ in. long with spreading tips; Kakatown, *Whyte*!

These three Menispermaceæ are diœcious, and only the male plants are known.

NYMPHÆACEÆ

Nymphæa lotus, *L.*: the well-known Egyptian Lotus; in stagnant water, Kakatown, *Whyte*!

A very pretty little water-lily, probably a variety of *N. lotus*,

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with thin leaves and small flowers having deep blue-violet sepals and white petals; was collected in the Sino Basin by Whyte.

CRUCIFERÆ

Brassica campestris, *L.*: a near ally of the Cabbage, cultivated or an escape from cultivation, Kakatown, *Whyte!*—Several varieties are in cultivation in temperate countries either for the production of oil from seeds (colza) or as vegetables (e.g. the Swedish turnips).

CAPPARIDACEÆ

Cleome ciliata, *Schum.* and *Thonn.*: a sparsely hairy weed with mostly 3-foliolate leaves, white or purplish tetramerous flowers and linear pods, 1—2½ in. long; Monrovia, *Whyte!*; Grand Basā, *Vogel*, 34!; Sino Basin, *Whyte!*

Ritchiea fragrans, *R. Br.*: a usually climbing glabrous shrub with 3-foliolate firm leaves and long-pedicelled large greenish white flowers in short corymbs, the petals very variable in width and number, usually very narrow, up to over 2 in. long; Monrovia, *Whyte!*

Euadenia eminens, *Hook. f.*: a glabrous shrub with 3-foliolate membranous leaves and yellowish flowers in corymbs (8—10 in. in diameter), with 4 petals, of which 2 are lanceolate, long-clawed, up to 4 in. long, the other 2 small or absent; Kakatown and Sino Basin, *Whyte!*

VIOLACEÆ

***Alsodeia prasina**, *Stapf*: a glabrous shrub with pale green serrate oblong to lanceolate thinly coriaceous leaves, up to 8 in. by 3 in., and panicles (to 3½ in. long) of small flowers (¼ in. long) with prominently striate sepals; near Monrovia, *Whyte!*

***A. liberica**, *Stapf* (*syn.* *Rinorea liberica*, *Engl.*): a low shrub with lanceolate very shortly petioled leaves and short terminal panicles of small yellowish brown flowers ¼ in. long; in primary forest along the banks of the Cestos River near the sea, *Dinklage*, 1931!; near Grand Basā, *Dinklage*, 1944!; Sino Basin, *Whyte!*

***A. johnstonii**, *Stapf*: a glabrous shrub with bright green serrulate more or less lanceolate thinly coriaceous leaves, up to 7 in. by 2—2½ in., and dense terminal panicles (1—3 in. long) of

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small flowers ($\frac{1}{6}$ — $\frac{1}{4}$ in. long) with dark white-edged glabrous sepals; near Monrovia and in the Sino Basin, *Whyte*!

***A. whytei**, *Stapf*: a shrub with thin pale green serrulate more or less lanceolate leaves, 2—4 in. by $1\frac{1}{4}$ —2 in., and pubescent panicles ($1\frac{1}{2}$ in. long) of small flowers ($\frac{1}{6}$ in. long) with pubescent sepals; near Monrovia, *Whyte*!

Sauvagesia erecta, *L.*: a small herb with lanceolate serrulate prominently nerved leaves, long fringed stipules and small nodding white flowers on fine, often long pedicels; near Monrovia and Kakatown, *Whyte*!

BIXACEÆ

Bixa orellana, *L.*: a South American tree with long petioled ovate often large leaves, terminal panicles of large rose-coloured flowers and prickly capsules; cultivated near Grand Basā, *Vogel*.—An orange-yellow dye, known as “Orleans Annatto” or “Rocou,” is produced from the pulpy red arils surrounding the seeds.

Oncoba brachyanthera, *Oliv.*: a spinous shrub or tree with the young shoots and membranous ovate or elliptic leaves more or less hairy, with handsome white flowers, about 2 in. across, terminal or on short lateral shoots, and hard smooth globose fruits, $1\frac{1}{2}$ —2 in. across; Sino Basin, *Whyte*!

***O. brevipes**, *Stapf*: a glabrous tree (?) with elliptic- or obovate-oblong pale green leaves, up to 7 in. by $3\frac{1}{2}$ in., and large white flowers, over 4 in. across, with 10—12 petals; near Monrovia and in the Sino Basin, *Whyte*!

POLYGALACEÆ

Carpolobia parvifolia, *Stapf* (*syn.* *C. alba*, var. *parviflora*, *Oliv.*): a small tree with glossy ovate to ovate-oblong leaves, 1—2 in. by to $\frac{3}{4}$ in., and frequently solitary white and purple irregular flowers up to $\frac{3}{8}$ in. long, and edible 3-lobed yellow berries; Kakatown, *Whyte*!

***Atroxima liberica**, *Stapf* (Plate 246): a glabrous shrub or tree with thinly coriaceous oblong reticulate leaves, 4—6 in. by 2 in., axillary racemes of small flowers, $\frac{1}{4}$ in. long, and dry almost globose fruits with a crustaceous pericarp and 3—2 finely hairy seeds; Sino Basin, *Whyte*!



M. Smith del.

246. ATROXIMA LIBERICA

1. Flowering branch (nat size). 2. Flower (enlarged). 3. Corolla and staminal tube laid open (enlarged).
 4. Interior petal (enlarged). 5. Anther (enlarged). 6. Pistil (enlarged). 7. Section of ovary (enlarged). 8. Fruit of *A. macrostachya* (nat. size).

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HYPERICINEÆ

Haronga madagascariensis, *Chois.*: a shrub or tree with opposite more or less tomentose or glabrous leaves, 3—6 in. by $1\frac{1}{2}$ —3 in., large corymbs of small fragrant white flowers dotted with black glands and small globose 2—4-seeded drupes; Grand Basā, *Vogel*, 23!; Kakatown and Sino Basin, *Whyte*!

CARYOPHYLLACEÆ

Polycarpæa platyphylla, *Pax.*: a glabrous perennial with crowded whorls of lanceolate leaves, $\frac{1}{2}$ in. long, and compact heads of small silvery white shining flowers; Monrovia, *Krause*; Grand Basā, *Vogel*, 69!

GUTTIFERÆ

Garcinia epunctata, *Stapf*: a shrub or tree with thinly coriaceous oblong opposite leaves, up to 5 in. by 2 in. with long, fine, transparent lines (under the lens) and solitary or paired tetramerous flowers, the sepals pale green, the petals bright yellow; Sino Basin, *Whyte*!

MALVACEÆ

Sida linifolia, *Cav.*: an annual weed with linear to lanceolate leaves, 2—6 in. by $\frac{1}{6}$ — $\frac{1}{3}$ in. and mostly terminal hairy dense corymbs of white or crimson flowers, almost $\frac{1}{2}$ in. across; Cape Palmas, *Schoenlein*.

S. carpinifolia, *L.*: a perennial erect weed with linear-lanceolate leaves and axillary clusters of yellow flowers almost $\frac{1}{2}$ in. across; Sino Basin, *Whyte*!

S. cordifolia, *L.*: a perennial weed with broad ovate or roundish tomentose leaves and dense clusters of yellow flowers, over $\frac{1}{2}$ in. across; Monrovia, *Whyte* †

S. rhombifolia, *L.*: a much-branched very variable perennial weed with ovate to lanceolate leaves, whitish beneath, and solitary or clustered yellow flowers, over $\frac{1}{2}$ in. across; Kakatown, *Whyte*!
—This yields a strong fibre similar to jute.

Urena labata, *L.*: a stiff coarse hairy herb with very variable entire or 3—5-lobed leaves, whitish tomentose beneath, solitary or paired, shortly pedicelled pink flowers, 4 in. (or more) across,

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and globose carpels covered with hooked spines; Kakatown, *Whyte!*—The fibre of this plant is used by the natives for ropes and twine.

Hibiscus physaloides, *Guill.* and *Perr.*: a tall hispid perennial with long-stalked 5-angled or 5-lobed leaves, cordate at the base, and, like all the following species of *Hibiscus*, yellow flowers with a purple centre, not unlike those of a hollyhock, each flower with an epicalyx (involucre) of 10 filiform segments; Kakatown, *Whyte!*

H. surratensis, *L.*: a trailing or leaning prickly weed with long-stalked deeply 3—5-lobed leaves, and an epicalyx of 10—12 spatulate segments with leafy appendages; Kakatown, *Whyte!*

H. rostellatus, *Guill.* and *Perr.*: a suffrutescent very hispid prickly herb, up to 10 ft. high, with long-stalked acutely 5-lobed leaves and an epicalyx of 10 linear segments with 3-partite appendages; Sino Basin, *Whyte!*

***H. whytei**, *Stapf*: a tall herb very sparingly covered with small stellate hairs, with deltoid or ovate leaves on moderately long stalks and short-pedicelled flowers in a terminal raceme, each with an epicalyx of 10 linear segments; Kakatown, *Whyte!*

H. guineensis, *G. Don*: a very tall herb, with a coarse stellate tomentum, at length more or less rubbing off, broad ovate or rounded 3—5-lobed leaves on long stalks, epicalyx of 5 linear segments, and fruits somewhat longer than the calyx; about 70 miles up the St. Paul's River, on native farms, *Reynolds!*

H. esculentus, *L.*: a tall hirsute herb with long-stalked 5-lobed leaves, a caducous calyx, a caducous epicalyx of 10—12 linear segments and acute grooved capsules, up to 6 in. long, on short stout stalks; near Monrovia, *Whyte!*—The young fruits of this plant, known in West Africa as "Gombo" or "Okro," are eaten as a vegetable. It also yields an inferior fibre.

H. abelmoschus, *L.*: very similar to the preceding species, but with shorter never grooved capsules, $1\frac{1}{2}$ —2 in. long, borne on long rather slender stalks; cultivated around huts near Grand Basā, according to Vogel.—The seeds emit a musk-like odour when heated, and are made into scent powders. The plant yields a strong fibre.

Gossypium peruvianum, *Cav.* (sens. lat.): the "Kidney Cotton"; Kakatown, *Whyte!*—There are no fruits with the sample

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collected by Whyte, but the leaves and flowers agree so well with a typical specimen of "Kidney Cotton" (*G. peruvianum* in the broad sense) that there is little doubt of its belonging to this species. Vogel states that he observed *G. barbadense*, L., the "Sea-Island Cotton" near Cape Palmas; there is, however, no specimen of it at Kew. The African cottons are still imperfectly known, and it appears desirable to collect samples of all the varieties, particularly those grown by the natives. It will, however, be necessary to gather, as far as possible, specimens in the flowering as well as in the fruiting state, and with the flowers and fruits still attached to the leaf-bearing branches.

Bombax buonopozense, *Beauv.*: a large, deciduous tree with tuberculate bark and scattered stout conical prickles, digitate leaves, 5—7 leaflets, solitary scarlet flowers with velvety firm petals, almost 2 in. by $\frac{3}{4}$ in., and 5 bundles of very numerous stamens; near Grand Basā, *Vogel!*

STERCULIACEÆ

Cola acuminata, *Beauv.* (Plates 153, 154): the well-known true "Cola" tree of West Africa; near Monrovia, *Whyte!*—This species, which occurs from Sierra Leone to the Niger, although in many parts rare, was named *Cola vera* by the late Dr. K. Schumann of Berlin, he being under the mistaken impression that Beauvais had another species in view when he described and figured his *C. acuminata*.

C. digitata, *Mast.*: a small tree with a flat top, digitate leaves of 7—9 entire or pinnately lobed leaflets, 3 to over 12 in. long, and stalked follicles, 2—3 in. long, scarlet inside, whilst the 4—6 seeds are of a shining black; near Monrovia, *Whyte!*

Melochia corchorifolia, *L.*: a sparingly hairy erect herb with ovate to lanceolate serrate leaves and dense terminal (or also axillary) clusters of white yellow or pale rose flowers, $\frac{1}{4}$ in. across; Cape Palmas, *Vogel*, 30, 57!

M. melissifolia, *Benth.*, var. *mollis*, *K. Schum.*: a villous herb with sessile axillary clusters of small white or yellow flowers, otherwise similar to the preceding species; near Kakatown, *Whyte!*

Theobroma cacao, *L.*: the well-known "Cacao" tree, cultivated at Cape Palmas, according to Vogel, and near Monrovia (Johnston).

TILIACEÆ

Grewia malacocarpa, *Mast.*: a shrub with drooping branches, oblong leaves, whitish tomentose beneath, terminal and lateral loose panicles of greenish white flowers, 1 in. across, and 1-seeded velvety drupes, up to 1 in. long; Kakatown and Sino Basin, *Whyte*!

Honckenia ficifolia, *Willd.*: a stellate-tomentose erect often very tall herb with entire or variously lobed leaves, showy purple or white flowers, up to 3 in. across, and densely prickly capsules; Grand Basā, *Vogel*, 57! 91!; Sino Basin and Kakatown, *Whyte*!

H. parva, *K. Sch.*: a hirsute perennial ascending from a prostrate base, with irregularly lobed leaves and small white flowers, scarcely 1 in. across: Monrovia, *Krause*.

Triumfetta cordifolia, *Guill.* and *Perr.*: a glabrous or hairy weed with long-stalked ovate cordate or more or less 3-lobed leaves, paniced ultimately loose cymes of yellow flowers, $\frac{1}{2}$ in. across, and globose capsules, covered with hooked spines, including the spines $\frac{1}{3}$ in. or more across; Monrovia, *Whyte*!

T. rhomboidea, *Jacq.*: a weed similar to the preceding, but with much contracted axillary clusters of flowers and smaller fruits, $\frac{1}{6}$ in. across; Grand Basā, *Ansell*!; Monrovia, *Whyte*!—It yields a fibre of inferior quality.

Corchorus olitorius, *L.*: an almost glabrous herb, with small axillary yellow flowers, usually in pairs or threes, and long-beaked capsules, over 2 in. by $\frac{1}{5}$ in., with the valves transversely septate on the inner side; Kakatown, *Whyte*!—The leaves are eaten as a vegetable.

Glyphæa grewioides, *Hook. f.*: a slender shrub with a drooping habit, membranous leaves, 4—8 in. by $1\frac{1}{2}$ —4 in., and scanty sub-terminal cymes of yellow flowers, 1— $1\frac{1}{3}$ in. across, and oblong acute deeply grooved indehiscent fruits, $1\frac{1}{2}$ — $2\frac{1}{2}$ in. by $\frac{1}{2}$ in.; Kakatown, *Whyte*!

LINACEÆ

Phyllocosmus africanus, *Klotzsch*: a shrub or small tree with thinly coriaceous shining lanceolate-oblong leaves, $2\frac{1}{2}$ — $3\frac{1}{3}$ in. by 1 — $1\frac{1}{3}$ in., and numerous slender racemes (2 — $2\frac{1}{2}$ in. long) of

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small white flowers, $\frac{1}{6}$ in. long, with persistent petals and 1—2-seeded capsules $\frac{1}{4}$ in. long; Cape Palmas, *Schoenlein*; Grand Basā, *Dinklage*, 2034!

MALPHIGIACEÆ

Heteropterys africana, *A. Juss.*: a glabrous shrub, sometimes climbing, with very coriaceous leaves, 4—8 in. by 2—4 in., rusty tomentose racemes of yellow flowers ($\frac{1}{3}$ — $\frac{1}{4}$ in. across, and with a whorl of large glands on the calyx) and red-winged fruits; Grand Basā, *Vogel*, 35!; Monrovia and Sino Basin, *Whyte*!

Flabellaria paniculata, *Cav.*: a climbing shrub with thin opposite leaves, beautifully silvery silky underneath, panicles of white or pinkish flowers, $\frac{1}{4}$ in. across, and fruits with a circular 2-lobed thin wing, 1—1 $\frac{1}{4}$ in. across; Sino Basin, *Whyte*!

RUTACEÆ

Zanthoxylum guineense, *Stapf* (sp. nov.): a prickly shrub, prickles straight, $\frac{1}{8}$ in. long: leaves pinnate, 5—7-foliolate, with a narrowly winged rachis (including the petiole 2—2 $\frac{1}{2}$ in. long) and elliptic to obovate leaflets, 1—1 $\frac{1}{2}$ in. by $\frac{1}{2}$ — $\frac{3}{4}$ in., the uppermost often with a cuneate base, the nerves finely downy in the young leaf; flowers 5-merous, hermaphrodite, whitish downy, in terminal panicles (1—3 in. long) and subterminal small corymbs on slender peduncles, under $\frac{1}{2}$ in. long, calyx lobes triangular, very small, petals $\frac{1}{8}$ in. long; Cape Palmas, *Ansell*! —Also in Sierra Leone, *Scott Elliot*, 4887! 5310!

Citrus aurantium, *L.*: the common Orange, cultivated at Cape Palmas, *Vogel*, 28!

Vogel also states that "Lemons" and "Limes" are cultivated in Liberia.

OCHNACEÆ

Ochna multiflora, *DC.*: a small glabrous shrub with coriaceous leaves, 4—5 in. by 1 $\frac{1}{2}$ —2 in., nodding racemes of long-stalked bright yellow flowers, $\frac{1}{2}$ in. across, numerous stamens, and fruits consisting of several small black drupes on a red disc, surrounded by the persistent red calyx; Monrovia and Sino Basin, *Whyte*!; along watercourses near Grand Basā, *Dinklage*, 1647!

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**Gomphia amplexans*, *Stapf*: like all the following species of *Gomphia* a shrub with yellow or red flowers and fruits like those of *Ochna*, but with only 10 stamens; leaves lanceolate with an auricled base, hiding the short petiole, up to 1 ft. by 3 in.; Kakatown, *Whyte*!



247. GOMPHIA SUBCORDATA

G. congesta, *Oliv.*: leaves lanceolate, acutely serrulate, 5—7 in. by 2—2½ in., panicles very dense, 2—3 in. long; Kakatown, *Whyte*! —Identical with the Sierra Leone specimen referred to this species by Oliver. Mann's specimen from Ambas Bay, enumerated by this author under the same name, is distinct.

**G. subcordata*, *Stapf* (plate 247): similar to *G. congesta*, but the leaves slightly cordate at the base, and the racemes up to 6 in.

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- long, slender and looser, mature sepals to almost $\frac{1}{2}$ in. long; Kakatown, *Whyte*!
- **G. schoenleiniana*, *Klotzsch*: very similar to the preceding species but with paniced racemes and smaller flowers, the mature sepals scarcely $\frac{1}{4}$ in. long; Cape Palmas, *Schoenlein*!; Kakatown, *Whyte*!; Fishtown, in shady primary forest, *Dinklage*, 1849!
- G. reticulata*, *Beauv.*: leaves lanceolate, acute at both ends, raceme very slender, usually paniced, the panicle $\frac{1}{2}$ —1 ft. long; Monrovia and Kakatown, *Whyte*!
- G. flava*, *Schum.* and *Thonn.*: leaves lanceolate, densely serrulate, panicles 3—4 in. long and drupes of somewhat oblong shape, $\frac{1}{4}$ in. long; Kakatown, *Whyte*!
- G. vogelii*, *Hook. f.*: leaves lanceolate to oblong, entire or slightly wavy, flowers in paniced fascicles, the panicles 3—4 in. long and wide; Fishtown, in the bush of the littoral, *Dinklage*, 1638; Grand Basā, *Vogel*, 53!; Sino Basin, *Whyte*!

CHAILLETIACEÆ

- **Chailletia whytei*, *Stapp*: (*syn.* *Dichapetalum liberia*, *Engl.* and *Dinkl.*): a shrub with elliptic lanceolate finely acuminate leaves, yellowish tomentose beneath and long-peduncled dense clusters of small white flowers with narrow cleft petals, $\frac{1}{8}$ in. long; in primary forest in the littoral, Fishtown, *Dinklage*, 1832!; Kakatown, *Whyte*!

OLACINEÆ

- Heisteria parvifolia*, *Smith*: a glabrous shrub with coriaceous leaves, small white axillary flowers and white berries, surrounded by the much-enlarged deeply 5-partite crimson calyx ($\frac{1}{2}$ — $\frac{3}{4}$ in. long); Monrovia and Kakatown, *Whyte*!; Grand Basā, *Vogel*, 86!; *Dinklage*, 1670!; Cape Palmas, *Schoenlein*.
- Ptychopetalum anceps*, *Oliv.*: a small glabrous tree with 2-edged slender twigs, lanceolate coriaceous leaves, very short scanty axillary racemes of small flowers, $\frac{1}{4}$ in. long (waxy outside, hairy inside), and dry ellipsoid drupes; Monrovia, *Whyte*!; Grand Basā, *Vogel*, 12!

Coula edulis, *Baill.* (Plate 212): a sparingly pubescent tree with coriaceous elliptic acuminate leaves, short axillary rusty pubescent racemes of small flowers without a distinct calyx and with 4—5 coriaceous petals, $\frac{1}{6}$ in. long, and 12—20 stamens, and 1-seeded almost globose drupes about $1\frac{1}{3}$ in. in diameter; common, according to *Mr. Braham*, in Liberia; *H. H. Johnston* (fruits!)—The oily seeds are pleasant to eat. They are known in the Gaboon as “Nkula,” hence the generic name *Coula*, and have nothing to do with the *Cola* nuts.

**Olax major*, *Stapf*: a glabrous shrub with yellowish green twigs and leaves, short sessile racemes or clusters of waxy white flowers, almost $\frac{1}{3}$ in. long; Monrovia, *Whyte*!

Urobotrya angustifolia, *Stapf* (Plate 248): a slender shrub with lanceolate leaves, long pendulous racemes of small greenish flowers with long exerted stamens, and, according to *Dryander*, baccate fruits; near Monrovia and Kakatown, *Whyte*!; by native tracks, about 70 miles up the St. Paul's River, *Reynolds*!

**U. latifolia*, *Stapf*: very similar to the preceding species but with broad elliptic leaves and stouter racemes; Monrovia, *Whyte*!

**U. trinervia*, *Stapf* (nov. sp.): a shrub; leaves oblong or elliptic, subacute at the base, long acuminate, 6—7 in. by $2\frac{3}{4}$ in., papery, quite glabrous, with 5—6 side nerves of the first order, the lowest 2 almost from the base, very oblique and carried almost to or beyond the middle, where they join the next side nerve, which, like the following, spreads almost at right angles from the midrib; flowers as in *U. angustifolia*; Kakatown, *Whyte*!—

The great resemblance of the inflorescences of these three species of *Urobotrya* and the diversity of the shape and nervation of leaves is remarkable, and they should be compared in the field.

**Desmostachys vogelii*, *Stapf* (*syn.* *Sarcostigma vogelii*, *Miers*): a glabrous shrub with lanceolate to oblong papery leaves, 5—10 in. by $1\frac{1}{2}$ —4 in., and long and slender pendulous spikes of spreading tubular whitish (?) flowers, $\frac{1}{4}$ in. long, and red drupes; Kakatown, *Whyte*!; Cape Palmas, *Vogel*, 25! 27! 68!

Apodytes beninensis, *Hook. f.*: a small glabrous tree or shrub with coriaceous leaves, axillary fascicles of 3—10 white flowers, $\frac{1}{4}$ in. long, on fine pedicels of the same length, and with somewhat

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compressed crustaceous fruits, orbicular in outline, $\frac{1}{2}$ in. across; Cape Palmas, *Vogel*, 46!—The seeds are eaten by the Lagos people. An allied species (*A. dimidiata*, E. Mey.) yields a hard timber of very equal grain and fine dark grey colour.

Leptaulos daphnoides, *Benth.*: a glabrous shrub with light green twigs and leaves, the latter thinly coriaceous, dense axillary sessile clusters of fragrant white tubular flowers, $\frac{1}{3}$ in. long, and ovoid nuts, $\frac{1}{4}$ in. long; Kakatown and Sino Basin, *Whyte*!

***Iodes liberica**, *Stapf* (*syn.* *I. reticulata*, *Stapf*, not of King): a slender climbing shrub with downy twigs, long extra axillary tendrils, ovate to oblong finely reticulated papery leaves and small paniced tetramerous flowers, $\frac{1}{12}$ in. long; Kakatown and Sino Basin, *Whyte*!

CELASTRACEÆ

Hippocratea indica, *Willd.*: a glabrous climbing shrub with coriaceous elliptic leaves, axillary panicles of small flowers and oblong fruits ($1\frac{1}{2}$ in. by $\frac{1}{2}$ in.) which break up into two woody navicular valves and contain about 2 large winged seeds; Monrovia, *Whyte*!

H. macrophylla, *Vahl.*: a climbing shrub with very broad leaves, 5—9 in. by $2\frac{1}{2}$ — $4\frac{1}{2}$ in., large extremely lax divaricate panicles and petals, $\frac{1}{4}$ —almost $\frac{1}{2}$ in. long; Monrovia, *Whyte*!

Salacia senegalensis, *DC.*: a small glabrous tree or shrub with warty twigs, coriaceous oblong more or less opposite leaves, axillary fascicles of finely stalked white flowers, 1 in. long, and apple-shaped fruits over 1 in. in diameter; Monrovia, *Whyte*!—Known in Sierra Leone as “Beacon Bush.”

Salacia sp.: a shrub similar to the preceding with small yellowish green petals and red anthers, and with the seeds embedded in a sweet pulp; common near Grand Basā, *Vogel*, 66! 90!—This is named *S. prinoides*, *DC.*, in the *Flora of Tropical Africa*, but it is certainly distinct from that species. The material at hand is not sufficient to describe the species.

S. debilis, *Walp.*: a tall glabrous shrub with slender smooth twigs and rough old branches, oblong coriaceous leaves and fascicles of long-stalked (to over 1 in.) small white flowers, the fascicle axillary or at the ends of short branchlets; Monrovia, *Whyte*!



M. Smith del.

248. *UROBOTRYA ANGUSTIFOLIA*

1. Flowering branch (nat. size). 2. Bud (enlarged). 3. Flower (enlarged). 4. Petal with stamen (enlarged). 5. Longitudinal section of pistil and disc (enlarged).

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- S. nitida**, *N. E. Brown* (*syn.* *Gymnema nitidum*, *Benth.*): similar to the preceding, but the flowers smaller, in axillary and extra axillary short fascicles, and shortly pedicelled; Cape Palmas, *Ansell!*

RHAMNACEÆ

- Gouania longipetale**, *Hemsl.*: a climber with slender spiral tendrils, rising from the uppermost leaf axils, slender spikelike rusty tomentose racemes of small white flowers and 3-winged capsules, $\frac{1}{4}$ in. by $\frac{1}{3}$ in.; Kakatown, *Whyte!*

AMPELIDACEÆ

- ***Ampelocissus gracilipes**, *Stapf*: a vine with all the young parts covered with a thin cinnamon-coloured tomentum, long tendrils, cordate leaves, 6 in. by 5 in., and dense leaf-opposed panicles of minute flowers on slender pedicels; Sino Basin, *Whyte!*
- Cissus arguta**, *Hook. f.*: a large glabrous (excepting the inflorescence) vine with cordate-ovate membranous leaves, numerous tendrils, and rusty pubescent often much compound or paniced cymes of minute tetramerous flowers; Liberia, *Christy!*
- C. producta**, *Afz.*: a large glabrous vine with succulent stems, ovate or oblong membranous leaves, tendrils, and leaf-opposed short-stalked cymes of small green flowers and red berries, up to $\frac{1}{2}$ in. in diameter; Sino Basin, *Whyte!*
- Leea guineensis**, *Don.*: a shrub without tendrils, with pinnate or bipinnate leaves up to $1\frac{1}{2}$ and even 2 ft. long, and large corymbs of orange-coloured or red and yellow flowers, and 5—6-grooved depressed berries, $\frac{1}{4}$ — $\frac{1}{2}$ in. across; Kakatown, *Whyte!*; Cape Palmas, *Vogel!*

SAPINDACEÆ

- Allophylus africanus**, *Radlk.* (*syn.* *Schmidelia africana*, *DC.*): a common glabrous or more or less hairy shrub (sometimes climbing) or a tree with 3-foliolate leaves, paniced almost catkin-like downy racemes of minute flowers and obovoid blackish hard fruits, up to $\frac{1}{3}$ in. long; along the coast, Grand Basā, *Vogel*, 36!
- Eriocœlum pendulum**, *Stapf*: an almost glabrous shrub or tree (?) with pinnate 5—7-foliolate papery leaves, pendulous very slender

racemes up to 1 ft. long and orange-coloured smooth capsules, over 1 in. across, breaking up into 3 woody valves; Monrovia and Kakatown, *Whyte*!—Also in Sierra Leone.

**Deinbollia polypus*, *Stapf*: a glabrous tree (?) or shrub with pinnate shining leaves (the leaflets lanceolate, up to 8 in. by 2 $\frac{3}{4}$ in.), stiff sparingly branched panicles of almost sessile fascicles of whitish flowers, scarcely $\frac{1}{2}$ in. long; Sino Basin, *Whyte*!

**D. grandifolia*, *Hook. f.*: a small tree similar to the preceding species but with the largest leaflets 10 in. by 4 in., and larger, more branched panicles up to 1 ft. long; Kakatown, *Whyte*!; Cape Palmas, *Vogel*, 66!

Dodonæa viscosa, *L.*: a small shrub or tree with viscid branchlets, lanceolate thinly coriaceous leaves, small apetalous flowers in terminal panicles, and capsules with 3 pink membranous wings; Monrovia, *Whyte*!—The crushed branches, saturated with their resin, serve in some parts of Africa as torches. According to Moloney the wood is also used for engraving and in turnery.

MELIANTHACEÆ

**Bersama leiostegia*, *Stapf*: a glabrous shrub or tree (?) with pinnate 13—17-foliolate leaves, acuminate lanceolate stipules (up to over 1 in. long and glabrous with the exception of the ciliolate margins) and rigid racemes of greyish tomentose flowers, over $\frac{1}{2}$ in. long; Sino Basin, *Whyte*!

ANACARDIACEÆ

Trichoscypha liberica, *Engl.*: a tall shrub with densely hairy dark brown young twigs, pinnate 9-foliolate shining leaves, over 1 ft. long and very hairy axillary panicles (5—6 in. long) of minute flowers; near Monrovia, *Naumann*.

Odina acida, *Walp.*: a small deciduous glabrous tree with pinnate leaves, 7—11 oblique leaflets and short terminal panicles of clustered minute flowers; Grand Basā, *Vogel*, 102!—The powdered bark is, with some other substances, made into a paint for the face.

Spondias lutea, *L.*: a tall glabrous tree with pinnate leaves, $\frac{3}{4}$ —1 $\frac{1}{2}$ ft. long, 7—19 more or less opposite oblique leaflets, and panicles of small flowers and yellow plum-like fruits; Grand

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Basä, *Vogel*, 25!—The fleshy pericarp is edible, and, with sugar and water, made into a refreshing beverage. The fruit is known as "Yellow Plum" in Sierra Leone.

CONNARACEÆ

Byrsocarpus coccineus, *Schum.* and *Thonn.*: a much-branched deciduous shrub with pinnate leaves, 7—11 oblong to rounded thin leaflets, $\frac{1}{2}$ — $\frac{3}{4}$ in. long, lax few-flowered cymes of small white flowers and pods, $\frac{1}{2}$ in. long, and containing a single seed with a black hilum and a scarlet aril; Cape Palmas, *Vogel*, 37!

***Connarus libericus**, *Staff.*: a glabrous shrub with pinnate leaves, 3—4 in. long, about 9 thinly coriaceous leaflets and slender rusty downy racemes or scantily branched panicles of whitish flowers, $\frac{1}{4}$ in. long; Monrovia, *Whyte*!

***C. reynoldsii**, *Staff.*: a very ornamental shrub with pinnate 7—9-foliolate coriaceous leaves and copious graceful panicles of creamy flowers with wavy linear petals up to $\frac{2}{3}$ by $\frac{1}{8}$ in.; on native tracks in the forest, about 70 miles up the St. Paul's River, *Reynolds*!

***Spiropetalum triplinerve**, *Staff.*: a shrub with pinnate 7—9-foliolate coriaceous leaves and very dense velvety solitary or fascicled racemes ($\frac{3}{4}$ in.—1 $\frac{1}{2}$ in. long) of whitish flowers with linear petals, up to almost $\frac{1}{2}$ in. long; Monrovia, *Whyte*!

Manotes expansa, *Planch.*; a tree or climbing shrub with pinnate 5—7-foliolate thinly coriaceous leaves and very lax divaricate panicles ($\frac{1}{2}$ —1 ft. long) of small flowers with pinkish calyx and white petals; Kakatown, *Whyte*!; Grand Basa, *Vogel*!

LEGUMINOSÆ

Crotalaria retusa, *L.*: an erect herb with simple very blunt leaves $1\frac{1}{2}$ —3 in. long, loose terminal racemes of yellow papilionaceous flowers, $\frac{3}{4}$ —1 in. long, and inflated cylindric pods, $1\frac{1}{2}$ in. by almost $\frac{1}{2}$ in.; Sino Basin, *Whyte*!—Occasionally cultivated in India for its fibre and sold as "Sunn Hemp" for the manufacture of cordage and canvas.

C. falcata, *Vahl*: a low shrub with 3-foliolate leaves, obovate leaflets, terminal racemes of yellow papilionaceous flowers over $\frac{1}{3}$ in.

long with a sickle-shaped keel and cylindric pods, $1\frac{1}{4}$ by $\frac{1}{6}$ — $\frac{1}{8}$ in. ; Basā Cove, *Ansell!* ; Cape Palmas, *Vogel*, 161!

Indigofera hirsuta, *L.* : a villous annual with pinnate 5—7-foliolate greyish green leaves opposite blunt leaflets, slender very villous dense racemes of subsessile red papilionaceous flowers, $\frac{1}{6}$ in. long, and hairy pods, $\frac{1}{2}$ — $\frac{3}{4}$ in. by $\frac{1}{2}$ in. ; Monrovia, *Whyte!*

I. endecaphylla, *Jacq.* : a decumbent or suberect adpressedly hairy-weed with pinnate 7—9-foliolate leaves, blunt leaflets, dense axillary racemes of red papilionaceous flowers, $\frac{1}{6}$ in. long, and pointed cylindric pods, $\frac{1}{2}$ — $\frac{3}{4}$ in. by $\frac{1}{12}$ in. ; Grand Basā, *Vogel*, 106! ; Cape Palmas, *Vogel*, 4!

I. suffruticosa, *Mill.* (I. anil of most authors) : a much-branched adpressedly hairy shrub with pinnate 13—16-foliolate leaves, blunt or subacute mucronate leaflets, very slender axillary racemes of yellowish papilionaceous flowers, $\frac{1}{6}$ in. long, and reflexed sickle-shaped pods, $\frac{1}{2}$ — $\frac{3}{4}$ in. long ; Monrovia, *Whyte!*—One of the indigo-producing species of *Indigofera*, frequently cultivated.

***Milletia dinklagei**, *Harms.* : a shrub with pinnate about 9-foliolate leaves, thin coriaceous leaflets, 2—3 in. long, and silky below, ample velvety panicles of white papilionaceous flowers, under $\frac{1}{2}$ in. long, and flat velvety pods ; in the bush of the littoral, Fishtown, *Dinklage*, 1672, 1764!

M. thonningii, *Baker* : a glabrous shrub or small tree with pinnate leaves, 11—13 papery acuminate leaflets, 1—3 in. by $\frac{3}{4}$ — $1\frac{1}{2}$ in., peduncled racemes of purplish papilionaceous flowers, $\frac{3}{4}$ in. long, and flat coriaceous pods, 6 in. by $\frac{3}{4}$ in. ; Grand Basā, *Vogel*, 33!

***M. pallens**, *Stapf* (nov. spec.) : a glabrous tree (?) with slender branches ; leaves up to 1 ft. long with usually 13 opposite ovate to oblong acuminate thin papery stipellate leaflets, $1\frac{1}{2}$ in.—4 in. by 1—2 in., very pale green below and increasing in size from the lowest pair upwards ; racemes or narrow panicles axillary, very slender, $\frac{1}{5}$ — $\frac{1}{6}$ in. long ; flowers papilionaceous or silky on pedicels, up to $\frac{1}{6}$ in. long ; calyx cup-shaped obscurely 5-dentate, slightly silky downy, $\frac{1}{5}$ in. long ; corolla almost $\frac{3}{4}$ in. long, pale purplish (?) with the standard silky on the outside ; Monrovia and Kakatown, *Whyte!*—It is allied to *M. drastica*, Welw., which has, however, more numerous narrow leaflets and stiff rusty pubescent racemes. *M. drastica* possesses

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hard wood, and decoctions of the pods are used as a drastic purgative.

- Ormocarpum verrucosum**, *Beauv.*: a glabrous tree or shrub with simple papery ovate leaves, 3—4 in. by $1\frac{1}{2}$ —2 in., small scanty racemes of white red-veined papilionaceous flowers, $\frac{1}{3}$ in. long, and 2—5-jointed pods, the joints with longitudinal ribs and scattered tubercles; near water at Grand Basā, *Vogel*, 103!; Monrovia, *Whyte*!
- Stylosanthes erecta**, *Beauv.*: a much-branched stiff hairy shrub with prominently nerved 3-foliolate leaves, $\frac{1}{2}$ — $\frac{3}{4}$ in. long, and inconspicuous often apetalous flowers, covered by rigid reticulate hirsute bracts in oblong terminal or subterminal heads; Grand Basā, covering large patches of ground, *Vogel*, 56! Cape Palmas, *Vogel*, 5!
- Arachis hypogæa**, *L.*: a diffuse herb with 4-foliolate leaves and solitary axillary papilionaceous flowers, only the lower ones fertile, the pods ripening under ground (hence the name "Ground Nut"), a native of Brazil, cultivated in Liberia, according to *Vogel*.—Cultivated throughout the tropics for the seeds, which are used as food, and for the extraction of oil.
- Desmodium lasiocarpum**, *DC.*: a more or less rusty hairy shrub or undershrub with simple ovate leaves, very slender usually spikelike often paniced racemes of small pinkish or purplish papilionaceous flowers and 5—6-articulate tomentose pods more or less cohering by their hairs; Kakatown, *Whyte*!
- D. incanum**, *DC.*: a weed, downy in the upper part, with 3-foliolate leaves (the terminal leaflet up to 4 in. long), loose racemes of reddish papilionaceous flowers, $\frac{1}{6}$ in. long, and 5—8-jointed hairy pods deeply constricted between the joints from one side, 1 in. by $\frac{1}{3}$ in.; by the roadside in Monrovia, *Naumann*.
- D. mauritanicum**, *DC.*: an erect low herb, very similar to the preceding, but with smaller leaflets (the terminal up to 1 in. long), and purple flowers; Kakatown, *Whyte*!; Grand Basā, *Vogel*, 48!; Cape Palmas, *Ansell*!
- D. paleaceum**, *Guill.* and *Perr.*: an undershrub with 3-foliolate leaves, lanceolate to linear-oblong leaflets, shining above, and 3—4 in. by $\frac{2}{3}$ —1 in., long dense more or less paniced spikelike tufted racemes of small rose-coloured papilionaceous flowers and 5—7-articulate linear dark pods; Kakatown, *Whyte*!

- Uraria pieta**, *Desv.*: an erect low shrub with the lower leaves entire and the upper pinnate 5—9-foliolate, long dense villous spike-like racemes of small pink papilionaceous flowers and few-jointed pods nestling among the long brown calyx teeth and turning ultimately greyish white and glossy like enamel; Cape Palmas, *Vogel*, 31!
- Dioclea reflexa**, *Hook. f.*: a hairy twining shrub with 3-foliolate leaves, the terminal leaflet 4—6 in. by 2—4 in., stiff long racemes of brilliant dark-red papilionaceous flowers, $\frac{3}{4}$ in. long, and supported by persistent recurved bracts, and with coriaceous flat 1-seeded pods, 3—4 in. by 2 in.; Kakatown, *Whyte*!; Cape Palmas, *Vogel*, 52!
- Canavalia obtusifolia**, *DC.*: a nearly glabrous rambling twining or trailing herb with 3-foliolate leaves (leaflets very obtuse, up to 4 in. by $2\frac{1}{2}$ in.), long-peduncled spikelike racemes of purple or blue papilionaceous flowers, to over 1 in. long, and flat linear pods, 4—5 in. by $\frac{3}{4}$ — $\frac{4}{5}$ in.; Kakatown (?), *Whyte*!—This is usually a seashore plant.
- Phaseolus adenanthos**, *Hook. f.*: a wide-climbing almost glabrous perennial herb, with 3-foliolate long-stalked leaves, dense 6—12-flowered long-peduncled racemes of rose-coloured or yellowish papilionaceous flowers, $\frac{3}{4}$ in. long, and flat linear pods, 4—5 in. by $\frac{1}{2}$ in.; Monrovia, *Whyte*!—Cultivated for the tuberous root, which is cooked and eaten.
- Vigna vexillata**, *Benth.*: a herbaceous twiner with a slender tuberous root, slender hairy stems, 3-foliolate leaves, very long-peduncled umbel-like racemes of yellowish purple and blue flowers, resembling those of sweet peas, and linear pods, 3—4 in. by $\frac{1}{6}$ in.; Kakatown, *Whyte*!
- V. luteola**, *Benth.*: a herbaceous twiner to 15 ft. long, with a large tuberous root, very slender stems, 3-foliolate leaves, long-peduncled umbel-like racemes of yellow to bluish papilionaceous flowers, $\frac{1}{4}$ — $\frac{1}{2}$ in. long, and straight pods, $1\frac{1}{2}$ — $2\frac{1}{2}$ in. by $\frac{1}{8}$ — $\frac{1}{4}$ in.; Kakatown, *Whyte*!
- Cajanus indicus**, *L.*: a finely silky herb, 8—10 ft. high, with 3-foliolate leaves, acute leaflets, silvery silky below, scanty axillary and terminal racemes of yellow purple-veined papilionaceous flowers, up to $\frac{3}{4}$ in. long, and long-pointed downy pods, 2—3 in. by $\frac{1}{3}$ — $\frac{1}{2}$ in.; Monrovia, *Vogel*.—This is the "Pigeon Pea" or

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“Congo Pea” of English colonists. The green pods and seeds are used as a vegetable, the mature seeds as a kind of pulse.

- Rhynchosia calycina**, *Guill.* and *Perr.*: an ornamental climber with 3-foliolate leaves, dense racemes of cream-coloured papilionaceous flowers, $\frac{3}{8}$ in. long, with a large velvety calyx, the corollas turning orange or red when dry, and with grey velvety pods, $\frac{1}{2}$ in. long and containing 1—2 shining bluish black seeds; Kakatown and Sino Basin, *Whyte!*
- Eriosema parviflorum**, *E. Mey.*: a low softly hairy shrub with petioled 3-foliolate leaves, dense long-peduncled racemes of reddish papilionaceous flowers, $\frac{1}{4}$ in. long, and flat shaggy pods, $\frac{1}{2}$ in. by $\frac{1}{4}$ in.; Grand Basā, *Vogel!*; *Ansell!*
- E. glomeratum**, *Hook. f.*: an erect low softly hairy shrub with almost sessile 3-foliolate leaves, dense axillary subsessile heads of yellow papilionaceous flowers, $\frac{1}{4}$ in. long, and shaggy pods, $\frac{1}{2}$ in. by $\frac{1}{3}$ in.; Monrovia, *Whyte!*; Sino Basin, *Whyte!*; Cape Palmas, *Ansell!*; *Vogel*, 60!
- Dalbergia saxatilis**, *Hook. f.*: a straggling or climbing glabrous shrub, often of considerable size, with pinnate 9—11-foliolate leaves, oblong very obtuse leaflets, $\frac{3}{4}$ —2 in. by $\frac{1}{2}$ —1 in., axillary and terminal, sometimes large, panicles of white or rose-coloured flowers, $\frac{1}{4}$ in. long, and 1-seeded thin glabrous indehiscent pods, up to over 3 in. by almost 1 in.; Monrovia, Kakatown, and Sino Basin, *Whyte!*; Cape Palmas, *Ansell!*
- ***D. dinklagei**, *Harms.*: a densely branched shrub, similar to the preceding, but with smaller leaflets (the longest $1\frac{1}{2}$ in. by $\frac{1}{2}$ in.), very short dense axillary and terminal panicles and firmer rusty downy pods; in the bush of the littoral, Grand Basā, *Dinklage*, 1724, 1766!
- D. ecastaphyllum**, *Taub.*: a prostrate shrub with ascending stems (up to 20 ft. high), usually simple leaves, $1\frac{1}{2}$ —6 in. by 1—4 in., dense short axillary panicles of white papilionaceous flowers, $\frac{1}{4}$ in. long, and flat indehiscent pods of the size of a halfpenny; very common in the bush of the savannahs of the littoral, Grand Basā, *Vogel*, 52!; *Dinklage*, 1986!; and in a peculiar form (var. trifoliata, *Stapf*), distinguished by very large oblong leaves or (in trifoliolate leaves) terminal leaflets, in the Sino basin, *Whyte!*

I would refer here to **D. melanoxyton**, *Guill.* and *Perr.* (Plate 141), a small much-branched glabrous tree with a trunk up to

2½ ft. in diameter, stout woody spines, 9—13-foliolate leaves, firm leaflets, ½—1 in. by ½—¾ in., rather copious dense panicles (1—3 in. long) of white papilionaceous flowers, ⅓ in. long, and 1—4-seeded glabrous thin pods, 1—2½ in. by ½ in.—This is widely spread throughout Africa, and also occurs very probably in Liberia. It possesses a very hard jet-black or brownish black heart-wood which is used like ebony and is known as “African Black-wood” or “Senegal Ebony.”

Drepanocarpus lunatus, *C. F. Mey.*: a glabrous straggling shrub or small tree with numerous recurved spines, pinnate 5—7-foliolate coriaceous leaves, panicles of white papilionaceous flowers, ⅓ in. long, and sickle-shaped 1-seeded coriaceous pods, 1½ by ¾ in.; common near water, Monrovia, *Whyte*!; Grand Basā, *Vogel*, 99!

Pterocarpus esculentus, *Schum.*: a shrub or tree with glabrous leaves, 4—8 in. long, of 5—7 alternating elliptic or oblong leaflets, short dense axillary velvety racemes of yellowish papilionaceous flowers, under 1½ in. long and winged roundish pods, 1½ in. in diameter, and very rough in the thickened centre; Kakatown, *Whyte*!—The seeds are eaten, but produce, it is said, intoxication.

Ostryocarpus riparius, *Hook. f. (syn. Millettia micrantha, Harms.)*: a glabrous rambling or climbing shrub, sometimes of considerable size with long-stalked pinnate 5-foliolate leaves, elliptic coriaceous leaflets, 4—6 in. by 1½—3 in., ample panicles of dense short (½—1 in. long) racemes of yellowish papilionaceous flowers, ⅓ in. long, and flat indehiscent pods, 2 in. by 1—2 in.; common near water, in the littoral, Fishtown, *Dinklage*, 1725!; Sino Basin, *Whyte*!

***O. major**, *Stapf*: similar to the preceding but with 7-foliolate leaves, longer panicle branches and slightly larger flowers; Monrovia, *Whyte*!

Lonchocarpus sericeus, *H. B. K.*: an ornamental shrub or tree with downy twigs, 7—11-foliolate coriaceous leaves, dense racemes or panicles of fragrant lilac or purple papilionaceous flowers with a silky standard, ⅔—¾ in. long, and flat woody pods, 3—4 in. by ¾ in.; Grand Basā, *Vogel*, 67!; Cape Palmas, *Vogel*, 21!—The wood is very hard and heavy.

L. barteri, *Benth.*: a lofty woody twiner with glabrous pinnate leaves, ½—1 ft. long, usually 5—7 oblong to elliptic long acuminate leaflets, long slender interrupted spikelike racemes

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of purplish papilionaceous flowers, $\frac{1}{2}$ in. long, and flat velvety pods; Kakatown, *Whyte*!

Baphia polygalacea, *Baker*: a climbing or erect shrub with simple thin coriaceous leaves, 3—5 in. by $1\frac{1}{2}$ — $2\frac{1}{2}$ in., on slender petioles (1— $1\frac{1}{2}$ in. long), copious slender racemes or panicles (1—4 in. long) of white papilionaceous flowers, over $\frac{1}{3}$ in. long, with a silky calyx, splitting into two halves, and flat coriaceous pods, 4 in. by $\frac{1}{2}$ in.; Monrovia, *Whyte*!; Grand Basā, *Vogel*, 46!

***B. spathacea**, *Hook. f.* (*syn.* *B. dinklagei*, *Harms.*): similar to the preceding, but with short petioles ($\frac{1}{2}$ — $\frac{3}{4}$ in.) and larger yellowish white flowers, and a rusty velvety calyx splitting to the base on one side only; Basā Cove, *Ansell*!; Fishtown, in bush, *Dinklage* 1664!

Two species of *Baphia*, (*B. nitida*, Afz., and *B. pubescens*, *Hook. f.*), both natives of the coast region of Upper Guinea and therefore likely to occur also in Liberia, produce a valuable dye-wood, known as "Cam Wood," which yields a brilliant deep red colour.

Sophora tomentosa, *L.*: a common shore plant, more or less silvery silky, with 7—15-foliolate leaves, loose racemes of bright yellow papilionaceous flowers and long (5—6 in.) pods, which are very much constricted between the seed-bearing portions; Cape Palmas, *Vogel*, 1!—The sap is used as a fish poison in East Africa.

***Ormosia monophylla**, *Harms.* (*syn.* *Crudia* (?) *monophylla*, *Harms.*): a small tree or shrub with simple leaves, axillary racemes (about 4 in.) of whitish (?) papilionaceous flowers and pointed oblong woody 1-seeded pods, 3 in. by 2 in.; along watercourses, Fishtown, *Dinklage*, 1913!

Cæsalpinia bonducella, *Roxb.*: a common rambling more or less downy very prickly shrub with bipinnate leaves, 1— $1\frac{1}{2}$ ft. long, and many-flowered long racemes of orange or brownish yellow slightly irregular flowers, $\frac{2}{3}$ — $\frac{3}{4}$ in. across, and prickly 1—2-seeded pods; Cape Palmas, *Vogel*, 9!

C. pulcherrima, *Sw.*: a small glabrous tree, unarmed or almost so, with bipinnate leaves and large racemes of brilliant scarlet flowers; frequently cultivated in the tropics, probably of American origin; Cape Palmas, *Schoenlein*.

Duparquetia orchidacea, *Baill.* (*syn.* *Oligostemon pictus*, *Benth.*): a

tall shrub with 7—9-foliolate coriaceous leaves and long stiff racemes of showy rose-coloured flowers with 4 sepals ($\frac{3}{4}$ in. long), 3 larger (the largest over 1 in. long) and 2 smaller petals and slender narrowly 4-winged pods; Kakatown and Sino Basin, *Whyte!*

- Cassia occidentalis*, *L.*: an annual or biennial bushy herb with leaves of 8—10 leaflets, short racemes or fascicles of slightly irregular yellow flowers, 1 in. or more across, and flat linear pods, 4—5 in. by $\frac{1}{4}$ in., with stout sutures; Monrovia and Grand Basā, *Vogel!*; Kakatown, *Whyte!*—The seeds are occasionally used as a substitute for coffee.
- C. tora*, *L.*: an annual herb with leaves of 4—6 membranous obtuse leaflets, solitary or paired yellow flowers, about 1 in. across, and slender curved linear more or less quadrangular pods, 4—8 in. by $\frac{1}{6}$ — $\frac{1}{4}$ in.; Kakatown, *Whyte!*; abundant near habitations, Cape Palmas, *Vogel!*
- C. podocarpa*, *Guill.* and *Perr.*: a shrub or small tree with leaves of 8—10 membranous obtuse leaflets, and peduncled dense racemes of yellow flowers, about 1 in. across, and broad linear flat almost papery pods, 4—5 in. by $\frac{1}{2}$ — $\frac{3}{4}$ in.; very common on native farms, about 70 miles up the St. Paul's River, *Reynolds!*
- C. mimusoides*, *L.*: an annual or perennial herb with leaves $\frac{1}{2}$ —4 in. long, and of 10—80 close pairs of straight or falcate narrow leaflets, $\frac{1}{12}$ — $\frac{1}{2}$ in. long, solitary or fascicled (2—3) flowers, $\frac{1}{2}$ in. across, and flat linear pods, 1—2 in. by $\frac{1}{8}$ — $\frac{1}{2}$ in.; a common weed; Kakatown, *Whyte!*; Cape Palmas, *Ansell!*
- **Dialium dinklagei*, *Harms.*: a moderate-sized tree with an umbrella-like top with 21—23-foliolate leaves, 6—8 in. long, coriaceous leaflets, 1—1 $\frac{1}{2}$ in. long, and terminal large panicles of numerous small brownish apetalous flowers; along the streams in the littoral, Fishtown, *Dinklage*, 1709!
- **Polystemonanthus dinklagei*, *Harms.*: a tree with pinnate 10—14-foliolate leaves, more or less silky below, shining above and up to 1 $\frac{1}{2}$ ft. long, stout paniced racemes of very sweet-scented white flowers, almost 2 in. across, with 4 silky brown sepals and 5 clawed petals and very numerous stamens, the buds enclosed in large thick subsistent bracteoles; banks of the St. John's River near Grand Basā, *Dinklage*, 1700!
- **Macrobium obliquum*, *Stapf*: a shrub with pinnate 14-foliolate

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glabrous leaves, oblique lanceolate leaflets up to 6 in. by $2\frac{1}{2}$ in., and sparingly branched rusty hairy panicles of involucrate flowers with a large 2-lobed standard, whilst the other petals resemble the small linear sepals, the involucre formed of 2 bracteoles, $\frac{1}{2}$ in. long; Sino Basin, *Whyte!*

M. palisoti, *Benth.*: similar to the preceding species, but with 4—8-foliolate leaves, silvery silky beneath, and smaller flowers, the bracts of the involucre $\frac{1}{5}$ — $\frac{1}{4}$ in. long; Kakatown, *Whyte!*

***Loesenera kalantha**, *Harms.*: a tall shrub with coriaceous glabrous 6—8-foliolate leaves, terminal racemes of pinkish flowers with 4 sepals and 3 larger ($\frac{1}{2}$ in. long) and 2 very small petals, and brown woody pods up to 6 in. by 3 in.; in moist bush, Grand Basā, *Dinklage*, 1805!

Berlinia acuminata, *Hook. f.*: a tree with large 6—12-foliolate coriaceous leaves, terminal racemes or corymbs of white flowers with the dorsal petal long-clawed, and much larger ($1\frac{1}{2}$ —3 in.) than the others, the buds enclosed in a pair of large bracteoles, and with flat pods, $\frac{3}{4}$ —1 ft. by 2 in.; Monrovia, *Whyte!*; Grand Basā, *Ansell!*

***Didelotia engleri**, *Dinkl. and Harms.*: a shrub or small tree with 10—14-foliolate coriaceous leaves, 3 in. long, and narrow drooping panicles (up to 10. in. long) of small crimson apetalous flowers; in humid woods of the littoral, Fishtown, *Dinklage*, 2033!

***Copaifera dinklagei**, *Harms.*: a glabrous shrub with simple long-acuminate leaves and paniced spikes of small whitish apetalous flowers with 4 sepals and 8 stamens; banks of the Bisō River near Grand Basā, *Dinklage*, 1695!—A species allied to *C. dinklagei* furnishes the Sierra Leone "copal," an elastic white gum, much used in the manufacture of varnishes.

Cynometra afzelii, *Oliv.*: a shrub with slender branches and 2—4-foliolate leaves (the lower pair of leaflets being much smaller than the upper, if at all present) and with small racemes of white flowers supported by petaloid white bracteoles, $\frac{1}{6}$ — $\frac{1}{5}$ in. long; Monrovia, *Whyte!*

***Monopetalanthus pteridophyllum**, *Harms.*: a tree with coriaceous leaves ($\frac{1}{2}$ ft. long) of 17—20 pairs of asymmetric rectangular leaflets, up to 1 in. long, and short axillary racemes of white monopetalous flowers, $\frac{1}{3}$ in. long; banks of St. John's River near Grand Basā, *Dinklage*, 1700!

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- Dichrostachys platycarpa**, *Welw.*: a small acacia-like tree with straight spines, $\frac{1}{2}$ — $1\frac{1}{2}$ in. long, bipinnate leaves (leaflets $\frac{1}{8}$ — $\frac{1}{6}$ in. long), dense first yellow then purple axillary spikes, 1 — $1\frac{1}{2}$ in. long, and coriaceous curled or wavy pods, $\frac{1}{2}$ — $\frac{3}{4}$ in. wide; Kakatown, *Whyte!*
- Mimosa pudica**, *L.*; a weed, the well-known "Sensitive Plant" of Tropical America; Monrovia, *Whyte!*
- ***M. dinklagei**, *Harms.*: a shrub or small tree with an umbrella-like top, bearing bipinnate leaves (with 25—35 pairs of pinnae, each pinna with 20—30 pairs of oblique linear leaflets, $\frac{1}{2}$ — $\frac{1}{3}$ in. long), and small solitary or paired axillary heads of white flowers; in dry woods of the littoral, Grand Basā, *Dinklage*, 1827!
- Albizzia fastigiata**, *Oliv.*: a shrub or tree with a loose top and pendulous branches, bipinnate leaves of 4—7 pinnae, each pinna of 8—15 pairs of oblique leaflets, $\frac{1}{3}$ — $\frac{1}{2}$ in. long, and numerous solitary fascicled corymbose heads of fragrant white flowers; Monrovia and Sino Basin, *Whyte!*

ROSACEÆ

- Chrysobalanus icaco**, *L.*: a tall shrub, a native of America, with coriaceous very blunt elliptic leaves, small tomentose panicles or cymes of pink flowers and greenish purple plumlike edible fruits, known in its native country as "Icaco" or "Cocoa Plums"; common by the sea and on the edges of swamps, Grand Basā, *Vogel*, 108!; Cape Palmas, *Vogel*.
- C. ellipticus**, *Sol.*: a shrub or small tree very like the preceding, but with less blunt often shortly acuminate leaves and white flowers in panicles, which are often deformed and witch-broomlike; Grand Basā, *Ansell!*; *Vogel*, 91!; Sino Basin, *Whyte!*
- Parinarium macrophyllum**, *Lab.*: a tomentose shrub or tree with ovate or elliptic leaves, 4—8 in. by $2\frac{1}{2}$ —4 in., and long simple or paniced spikelike racemes of pinkish flowers, and somewhat farinaceous yellowish fruits of the size of a goose-egg; Monrovia, *Whyte!*—The fruits are eaten and known as "Gingerbread Plums."
- ***Acioa dinklagei**, *Engl.*: a tall shrub with drooping branches, coriaceous oblong leaves, and whitish tomentose racemes or panicles of very fragrant flowers, $\frac{2}{3}$ in. across, with the filaments,

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which are 2 in. long, united for two-thirds into a tube, slit on one side; in the bush of the littoral, Grand Basā, *Dinklage* 1648, 2023!

- **A. tenuiflora*, *Dinkl.* and *Engl.*: a tall shrub or slender tree similar to the preceding, but with almost glabrous racemes or panicles of smaller reddish brown (when dry) flowers, $\frac{2}{3}$ in. across, and filaments 1 in. long; in the bush of the littoral, Fishtown, *Dinklage*, 1675, 1772, 2101!
- **A. whytei*, *Stapf*: a shrub also similar to *A. dinklagei*, but with almost glabrous racemes of greenish white flowers, $\frac{3}{4}$ in. across, and filaments $1\frac{1}{4}$ in. long; Monrovia and Kakatown, *Whyte*!

CRASSULACEÆ

- Bryophyllum calycinum*, *Salisb.*: a succulent herb with a shrubby base, crenate leaves, frequently producing young plants from the notches, and green and reddish purple pendulous flowers; Monrovia, *Whyte*!

RHIZOPHORACEÆ

- Rhizophora racemosa*, *G. F. Mey.*: a shrub or small tree with opposite broad lanceolate very coriaceous leaves, dichotomous axillary corymbs of greenish yellow tetramerous flowers with very coriaceous sepals, and ovoid fruits germinating on the tree; it forms the bulk of the Mangrove woods on the banks of the rivers near Grand Basā, *Vogel*, 113!; Monrovia and Sino Basin, *Whyte*!—The bark of the Mangroves is used in tanning.
- **Cassipourea cæsia*, *Stapf*: a shrub with very slender branches, remarkably glaucous opposite leaves and little clusters of small flowers having densely woolly petals; Kakatown, *Whyte*!
- C. parvifolia*, *Stapf* (*syn.* *Dactylopetalum parvifolium*, *Scott Elliot*): a glabrous shrub with small solitary inconspicuous hairy flowers (the small petals being in the upper part fringed with filiform lacinix) in the axils of the opposite coriaceous leaves; Monrovia, *Whyte*!

COMBRETACEÆ

- Conocarpus erectus*, *Jacq.*: a small shrub with lanceolate coriaceous leaves, acutely angular branches, and small apetalous flowers in paniced globose heads; Grand Basā, *Vogel*.—The same

species occurs in America, where it is a common constituent of the Mangrove woods in an arborescent form which possesses a hard, dense, and very durable wood. It is there known as "Button Mangrove."

- Laguncularia racemosa**, *Gaertn.*: a gregariously growing shrub or small tree of the Mangrove woods with fleshy coriaceous opposite elliptic leaves, and ultimately very loose spikes of small inconspicuous flowers and ribbed 1-seeded fruits, $\frac{3}{4}$ in. long; Grand Basā, *Vogel*, 110!
- ***Combretum calobotrys**, *Engl. and Diels.*: a climbing shrub with more or less opposite glabrous coriaceous leaves and long racemes of deep red flowers with a campanulate receptacle (calyx), $\frac{1}{5}$ in. long; in bush on laterite, Fishtown, *Dinklage*, 1575, 1862!; Kakatown, *Whyte*!
- C. fuscum**, *Planch.*: a tall shrub with opposite glabrous coriaceous leaves, drying almost black, and rusty tomentose dense usually paniced spikes of small flowers (receptacle $\frac{1}{8}$ in. long) and 4-winged fruits; in the bush of the littoral, Fishtown, *Dinklage*, 1673!; *Ansell*!
- C. grandiflorum**, *G. Don.*: a climbing shrub with opposite almost glabrous firmly membranous leaves, dense one-sided spikes of handsome flowers with a funnel-shaped receptacle, $\frac{3}{4}$ —1 in. long, and crimson petals and 4-winged fruits; Monrovia, *Vogel*!; Kakatown, *Whyte*!; in the bush of the littoral near Grand Basā, *Dinklage*, 1756!; Cape Palmas, *Schoenlein*!
- C. comosum**, *Don.*: a climbing shrub with thinly coriaceous almost glabrous leaves, usually in whorls of 3, large panicles of crimson flowers with funnel-shaped receptacles, $\frac{1}{6}$ in long, and 4-winged fruits; Kakatown, *Whyte*!

MYRTACEÆ

- Eugenia calycina**, *Benth.*: a shrub with opposite coriaceous leaves and paired or solitary long-pedicelled rather large myrtle-like flowers, 1 in. across; Monrovia, *Whyte*!; Grand Basā, *Vogel*, 85!; Sino Basin, *Whyte*!
- E. callophyloides**, *DC.*: a shrub with downy young twigs, dull green very coriaceous leaves and dense axillary clusters of subsessile small white flowers; Monrovia, *Whyte*!

Liberia

- ***E. whytei**, *Sprague*: very similar to the preceding species, but the young twigs glabrous and the leaves less coriaceous; Monrovia and Sino Basin, *Whyte*!
- ***E. memecyloides**, *Benth.*: a shrub similar to the preceding species but with simple rod-like stems rising to 4 ft. from the ground; Grand Basā, *Vogel*, 96!
- Syzygium rowlandi**, *Sprague* (nov. spec.): a shrub or tree (?) with square slightly winged branchlets; leaves oblong or obovate acuminate, 3—6 in. by $1\frac{1}{2}$ — $2\frac{1}{2}$ in., dark and shining above, paler and dullish below; flowers white (?) in a terminal corymb (4—5 in. across) of umbel-like cymes of 5—9 flowers each; tube of the receptacle about $\frac{1}{3}$ in. long; calyx lobes unequal, rounded, $\frac{1}{4}$ — $\frac{1}{8}$ in. long, $\frac{1}{2}$ — $\frac{1}{8}$ in. broad; petals falling off together in a cap when the flower opens; Kakatown, *Whyte*!—*Vogel's* specimen from Grand Basā, mentioned in *Flora Nigritiana* as *Syzygium owariensis*, *Benth.*, also seems to belong rather to this species than to *Syzygium owariense*, *Benth.* (= *Eugenia owariensis*, *Beauv.*). *S. rowlandii* also occurs in Lagos.
- Psidium guajava**, *L.*: a shrub or small tree with large fragrant white flowers and pear-shaped or plum-shaped yellowish, greenish or purplish berries, cultivated near Monrovia according to *Vogel*.—Commonly cultivated on account of the edible fruit, the well-known "Guava" of America, and not rarely naturalised in Africa.
- Napoleona vogelii**, *Hook.* and *Planch.*: a small glabrous shrubby tree with alternate coriaceous leaves and subsessile flowers having an almost rotate crenate corolla (yellow with a red ring at the base) with a yellow to white corona, consisting of very numerous linear segments, and with fruits like a pomegranate; Cape Palmas, *Vogel*, 45!

MELASTOMACEÆ

- Osbeckia tubulosa**, *Sm.*: a weak annual with 4-angled stems, bristly along the angles, small ultimately distant pink flowers in slender one-sided spikes, the calyx produced into a long tube covered with stalked stellate bristles; Kakatown, *Whyte*!
- ***O. liberica**, *Stapf*: a slender coarsely hairy herb with lanceolate leaves and scanty panicles of rose-coloured flowers over $\frac{3}{4}$ in. across; Monrovia, Kakatown, and Sino Basin, *Whyte*!

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- Tristemma hirtum**, *Vent.*: a hirsute herb or undershrub with involucrate sessile terminal heads of pink flowers, $\frac{3}{4}$ in. across, the calyx tube having 3 narrow membranous bristle-fringed superposed rings; Kakatown, *Whyte*!
- ***Dissotis paucistellata**, *Stapf*: a hirsute herb with 5-nerved ovate leaves and involucrate heads of rather large rose-coloured flowers almost 2 in. across; Monrovia, Kakatown, and Sino Basin, *Whyte*!
- D. rotundifolis**, *Triana*: a slender hairy decumbent herb with membranous leaves, $\frac{1}{3}$ — $\frac{1}{2}$ in. by $\frac{1}{3}$ — $\frac{2}{3}$ in., and shortly peduncled beautiful pink flowers, 2 in. across, at the ends of the branches; Kakatown, *Whyte*!
- D. cornifolia**, *Hook. f.*: a herb with almost glabrous stems, 5-nerved leaves with closely adpressed hairs and bracteate heads of rose-coloured flowers; common on marshy ground, Monrovia, *Naumann*; Kakatown, *Whyte*!; Grand Basā, *Vogel*, 80!
- D. multiflora**, *Triana*: a herb of the aspect of an *Osbeckia* with a shrubby base, with membranous pale green softly hairy 5-nerved leaves and often large panicles of pale purple flowers with hirsute ovoid receptacles (calyces, at length $\frac{1}{3}$ in. long); common on marshy ground, Monrovia, *Naumann*.
- Memeeylon spathandra**, *Bl.*: a shrub up to 12 ft. high having dull coriaceous 3-nerved glabrous leaves, 4 to over 6 in. by $2\frac{1}{2}$ —4 in., with panicles or corymbs of small azure-blue flowers and globose berries over $\frac{1}{8}$ in. in diameter; in the bush of the littoral, Grand Basā, *Dinklage*, 1689!; *Vogel*, 148!; Monrovia and Kakatown, *Whyte*!
- ***M. simii**, *Stapf*: a shrub with coriaceous leaves up to $5\frac{1}{2}$ in. by $2\frac{1}{4}$ in., without any distinct side-nerves, and bearing loose axillary clusters of small blue (?) flowers; Sino Basin, *Whyte*!

ONAGRACEÆ

- Jussiaea villosa**, *Lam.*, var. **linearis**, *Oliv.*: a herb, hairy in the upper part, with linear leaves, yellow flowers, and slender capsules up to $1\frac{1}{4}$ in. by $\frac{1}{10}$ in., crowned by the persistent sepals, $\frac{1}{8}$ in. long; common in stagnant and running water, Grand Basā, *Vogel*, 5!

SAMYDACEÆ

Homalium molle, *Stapf*: a shrub with softly downy leaves and more or less drooping panicles of very numerous flowers, the small persistent petals of which form, in the mature state, wings ($\frac{1}{12}$ in. long) to the fruits; Sino Basin, *Whyte*!

PASSIFLORACEÆ

Passiflora fœtida, *L.*: a herbaceous climber with 3-lobed leaves and white flowers, supported by a much-divided ("mossy") involucre; a native of America; Sino Basin, and Kakatown, *Whyte*!

***Androsiphonia adenostegia**, *Stapf* (Plate 249): a glabrous shrub with chartaceous leaves, rigid terminal panicles of greyish green flowers supported by almost coriaceous bracts, having a large gland (black when dry) on each side of the base; Monrovia and Kakatown, *Whyte*!

Smeathmannia lævigata, *R. Br.*: an erect almost glabrous shrub with glossy serrate or slightly wavy leaves and white flowers, over 1 in. across, mostly on the underside of the spreading branches, and with red crustaceous ovoid or globose fruits, 1 in. long; Monrovia, *Whyte*!

S. pubescens, *R. Br.*: similar to the preceding species, but much more hairy and with larger flowers (2 in. across) and fruits, not exceeding the calyx; Kakatown, *Whyte*!; Grand Basā, *Vogel*, 58!; Cape Palmas, *Schoenlein*!

Barteria nigritiana, *Hook. f.*: a very ornamental shrub or small tree with large coriaceous leaves, 6—10 in. by 2—3 in., and sessile clusters of white sweet-scented Camellia-like flowers, to over 3 in. across, on the underside of the spreading branches; *H. H. Johnston* (from a drawing).

***Soyauxia grandifolia**, *Gilg* and *Stapf*: a shrub with coriaceous linear-oblong leaves, almost 1 ft by $1\frac{1}{2}$ —3 in., and very dense long velvety spikes of small flowers with very numerous stamens; Grand Basā, *Dinklage*, 2051!; Sino Basin, *Whyte*!

***Modecea tenuispira**, *Stapf*: a diœcious glabrous climber with long fine tendrils, oblong thin leaves and green tubular flowers $\frac{1}{3}$ in. long; Sino Basin, *Whyte*!



M. Smith del.

249. ANDROSIPHONIA ADENOSTEGIA

1. Flowering branch (nat. size). 2. Floral leaf (enlarged). 3. Section of flower (enlarged). 4. Part of corona (enlarged). 5. Staminal tube laid open (enlarged). 6. Section of ovary (enlarged).

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- M. lobata**, *Jacq.*: a tall woody climber with tubercled stems, long tendrils, very polymorphous leaves and green tubular or almost bell-shaped sweet-scented flowers; Monrovia, *Whyte*!; Grand Basā, *Vogel*, 115!

CARICACEÆ

- Carica papaya**, *L.*: the well-known "Papaw" Tree, a native of America, cultivated near Grand Basā, according to *Vogel*.

CUCURBITACEÆ

- Luffa cylindrica**, *Roem.*: an almost cosmopolitan trailing or climbing herb with scabrid 5—7-angled or lobed leaves, bright yellow flowers, 1½—3 in. wide, and cylindric gourd-like fruits; Sino Basin, *Whyte*!—The young fruits are cooked and eaten, whilst the vascular network of the mature fruit serves as a sponge or scrubbing-brush and the seeds yield oil.

- Momordica charantia**, *L.*: a prostrate or climbing herb with deeply 5—7-lobed leaves, yellow flowers and bright yellow ovoid-spindle-shaped fruits with tubercled ridges; Cape Palmas, *Schoenlein*!—Cultivated for the fruits, the "Banyan Gourds" of East Africa, which are cooked and eaten.

BEGONIACEÆ

- ***Begonia whytei**, *Stapf*: a hirsute epiphytic herb with peltate oblique membranous leaves and yellow flowers, over $\frac{3}{8}$ in. across, and 4-winged pyramidal capsules; Sino Basin, *Whyte*!
- ***B. simii**, *Stapf*: an epiphytic glabrous herb with a succulent purple stem, oblique leaves and rose-coloured flowers, over $\frac{1}{2}$ in. across, and 3-winged capsules; Sino Basin and Kakatow, *Whyte*!

UMBELLIFERÆ

- Hydrocotyle bonariensis**, *Lam.*: a creeping herb with peltate leaves on often long petioles and racemes of small white whorled flowers, the racemes gathered in umbels; in marshy ground, Grand Basā, *Vogel*, 74!; *Ansell*!; Cape Palmas, *Vogel*, 50!

CAPRIFOLIACEÆ

Sambucus canadensis, *L.*: a shrub, very like the common Elder, with large corymbs of white flowers and deep purple or black berries, a native of the Atlantic coast region of North America, known as "American Elder," introduced in Liberia; Monrovia and Sino Basin, *Whyte!*

RUBIACEÆ

Sarcocephalus esculentus, *Afz.*: a tree or climbing shrub with elliptic thinly coriaceous leaves, 2—8 in. by 1—4 in. (opposite as in all the *Rubiaceæ* enumerated here), white fragrant flowers in globose heads, 2 in. across, and deep red fruit-heads of the size of a man's fist; abundant near Monrovia, according to Vogel.—The fruit is edible and known in Liberia as "Country Fig" or "Country Peach."

Uncaria africana, *G. Don.*: an almost glabrous shrub climbing by means of axillary spinescent hooks with dense globose heads of yellowish outside silky tubular flowers, and long-pedicelled spindle-shaped capsules and winged seeds, fruit-heads 3 in. across; Kakatow, *Whyte!*

Virecta multiflora, *Sm.*: a spreadingly hairy annual with much-contracted leaf-supported corymbs or clusters of slender white funnel-shaped flowers, $\frac{1}{2}$ in. long, the branches of the corymb ultimately lengthening with the small sessile capsules on the inner side; Kakatow, *Whyte!*

V. procumbens, *Sm.*: similar to the preceding, but more or less procumbent, less conspicuously hairy, with very scanty and permanently contracted clusters of hairy flowers, $\frac{1}{3}$ in. long; Kakatow, *Whyte!*

Otomeria guineensis, *Benth.*: a herb, 1—2 feet high, hirsute in the upper part with ovate leaves and tubular white flowers, under $\frac{1}{2}$ in. long, in ultimately long loose spikes with one sepal foliaceous and larger than the rest; Grand Basā, *Vogel*, 39!; *Ansell!*; Sino Basin, *Whyte!*

Oldenlandia peltospermum, *Hiern.*: a glabrous climbing shrub with ovate-lanceolate acuminate papery leaves, 2—4 in. by 1—1 $\frac{3}{4}$ in., panicles of distant very slender and loose spikes of pale blue flowers, $\frac{1}{3}$ — $\frac{1}{4}$ in. long, and globose capsules; Kakatow, *Whyte!*

Liberia ♣

- O. heynei**, *Oliv.*: a slender much-branched weed with linear leaves and numerous small white mostly axillary flowers on capillary pedicels, $\frac{1}{3}$ — $\frac{3}{4}$ in. long; Monrovia, *Whyte*!
- O. lancifolia**, *Schweinf.*: a glabrous straggling annual with distant pairs of linear to lanceolate leaves, solitary or fasciated small white flowers and fine pedicels, $\frac{1}{2}$ —1 in. long; Kakatown, *Whyte*!
- ***O. caespitosa**, *Hiern.*: a small prostrate herb with linear-oblong leaves and minute white axillary flowers on short pedicels, $\frac{1}{8}$ — $\frac{1}{6}$ in. long; Cape Palmas, *Vogel*, 51!
- Mussaenda conopharyngiifolia**, *Stapf*: a shrub or small tree (?) with large elliptic leaves, over 6 in. by $3\frac{1}{2}$ in., and hirsute corymbs of slender orange-coloured flowers (1 in. long), with a few sepals in each corymb much enlarged, leaflike and white; Sino Basin, *Whyte*.
- M. macrosepala**, *Stapf*: a rather hairy shrub or small tree (?) with many-nerved leaves, 4 in. by 2 in., densely hirsute cymes of orange-coloured tomentose flowers, over 1 in. long and the limb 1 in. across, with all the sepals lanceolate and 1 in. long; Kakatown and Sino Basin, *Whyte*!
- Urophyllum hirtellum**, *Benth.*: a more or less hairy shrub or small tree with many-nerved papery leaves, 4—11 in. by $1\frac{1}{2}$ —4 in., axillary corymbs of small greenish flowers and globose berries; Sino Basin, *Whyte*!
- Sabicea discolor**, *Stapf*: a climbing shrub with ovate leaves, softly greyish tomentose beneath, on petioles not much over $\frac{1}{2}$ in. long, and short hirsute panicles of numerous pink tubular flowers, almost $\frac{1}{2}$ in. long; Sino Basin, *Whyte*!
- ***S. loxothyrsus**, *K. Schum.* and *Dinkl.*: very similar to the preceding but with longer petioles (1— $1\frac{1}{2}$ in.) and whitish flowers and berries; in bush near Grand Basā, *Dinklage*, 1903!
- ***S. lasiocalyx**, *Stapf*: a climbing shrub with many-nerved leaves, 6—8 in. by $2\frac{1}{2}$ —4 in., and cinnamon-coloured beneath, and long-peduncled involucrate globose very hirsute flower-heads, at length 2 in. across; Monrovia, Kakatown, and Sino Basin, *Whyte*!
- Heinsia jasminiflora**, *DC.*: a shrub or small tree with glossy papery lanceolate to elliptic leaves, slender erect branches and small cymes of fragrant flowers, 1 in. across, pure white and yellow-

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centred, and with dry red (?) berries; Monrovia, Kakatown, and Sino Basin, *Whyte!*; Cape Palmas, *Schoenlein!*—Called “Bush Apple” in Sierra Leone.

- Bertiera glabrata**, *K. Schum.*: a glabrous large-leaved climbing shrub with terminal spike-like pendulous panicles of reflexed tubular flowers, $\frac{3}{4}$ in. long; Kakatown and Sino Basin, *Whyte!*
- B. africana**, *Rich.*: a softly hairy shrub or tree with shortly petioled ovate-oblong acute membranous leaves, 6—8 in. by 2— $3\frac{3}{4}$ in., slender spike-like flexuous panicles (6 in. long) of white (?) flowers, $\frac{1}{3}$ in. long, and many-seeded berries, $\frac{1}{8}$ in. across; Kakatown, *Whyte!*
- ***Webera gracilis**, *Stapf*: a shrub with slender branches, thin acuminate leaves, $2\frac{1}{2}$ —4 in. by $1\frac{1}{2}$ — $1\frac{3}{4}$ in., and corymbs of numerous white (?) flowers, almost $\frac{1}{2}$ in. long; Kakatown, Sino Basin, *Whyte!*
- Randia acuminata**, *Benth.*: a glabrous shrub or small tree with slender branches, papery lanceolate or obovate-lanceolate leaves, 4—12 in. by 2—4 in., and small axillary more or less pendulous panicles of deep pink or crimson flowers, not quite 1 in. long, and large ovoid channelled berries (up to 4 in. long); Kakatown and Sino Basin, *Whyte!*
- R. maculata**, *DC.*: an elegant little tree with glossy coriaceous leaves and fragrant slender tubular white flowers, over 6 in. long, tube $\frac{1}{6}$ in. wide, throat funnel-shaped, to $\frac{3}{4}$ in. across; Kakatown, *Whyte!*
- R. malleiflora**, *Hiern*: a shrub or small tree with large very fragrant brownish white flowers (tube velvety, up to 5 in long, and almost $\frac{1}{4}$ in. wide, throat 2—3 in. wide, bell-shaped), the style club-shaped and long exserted; Kakatown, *Whyte!*; 70 miles up the St. Paul's River, *Reynolds!*; Sino Basin, *Whyte!*
- Amaralia calycina**, *K. Schum.*: a climbing shrub with papery lanceolate to elliptic leaves, and axillary usually paired violet bell-shaped flowers, $1\frac{1}{2}$ in. long and with large foliaceous sepals; Monrovia and Sino Basin, *Whyte!*
- Oxyanthus formosus**, *Hook. f.*: a glabrous weak shrub with oblong papery leaves, 8—11 in., by 3—4 in., and racemes or panicles of very long and slender white flowers (corolla tube over 6 in. long and $\frac{1}{8}$ in. in diameter); Cape Palmas, *Vogel, 27!*
- ***O. tenuis**, *Stapf*: similar to the preceding species, but with few-

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flowered cymes and somewhat smaller and still slenderer flowers ;
Sino Basin, *Whyte* !

Tricalysia coriacea, *Hiern* : a shrub with coriaceous elliptic or oblong leaves, sessile axillary clusters of white inside woolly flowers, $\frac{1}{8}$ in. long, and 1—3-seeded berries ; common near Grand Basā, *Vogel*, 112 !

T. biafrana, *Hiern* : a small glabrous tree with ovate-lanceolate to oblong leaves, 4—6 in. by $1\frac{1}{2}$ —2 in., and dense subsessile axillary clusters of white flowers, $\frac{1}{8}$ in. long, a villous corolla-mouth and exerted stamens ; Kakatown, *Whyte* !

Vanguiera euonymoides, *Schweinf. ex Hiern* (?) : a shrub or small tree with very slender branches, papery leaves, $1\frac{1}{2}$ —2 in. by $\frac{3}{4}$ —1 in., and small greenish flowers, borne on pedicels $\frac{1}{8}$ in. long and having their corolla lobes tightly reflexed ; in bush, Grand Basā, *Dinklage*, 2035 !—I give here the Berlin determination, but am rather doubtful as to its correctness.

Cuviera acutiflora, *DC.* : a shrub with stout coriaceous oblong leaves and greenish white flowers scarcely $\frac{1}{2}$ in. long in numerous loose panicles, distinguished by the great similarity of the linear-lanceolate sepals and bracts, $\frac{1}{4}$ — $\frac{1}{3}$ in. long ; Monrovia, *Whyte* ! ; Grand Basā, *Vogel*, 72 ! 82 !

Craterispermum laurinum, *Benth.* : a glabrous shrub or tree with yellowish green coriaceous leaves and peduncled axillary clusters of funnel-shaped white flowers, $\frac{1}{4}$ in long ; Monrovia and Kakatown, *Whyte* !—The bark yields a yellow dye.

Ixora radiata, *Hiern* : a glabrous large shrub with sessile lanceolate to elliptic coriaceous leaves and handsome bunches of slender rose-coloured or white flowers, the tube up to $2\frac{1}{2}$ in., the lobes $\frac{1}{4}$ in. long ; Liberia, *Millen*, 196 !

I. laxiflora, *Sm.* : a glabrous shrub or small tree with lanceolate or oblong coriaceous shortly petioled leaves, lax often nodding corymbs of slender fragrant white rose-tipped flowers, over 1 in. long, and red berries ; Monrovia, *Whyte* ! ; Grand Basā, *Vogel*, 73 ! ; Cape Palmas, *Vogel*, 6 ! 61 ! ; *Ansell* ! ; *Schoenlein* ; Sino Basin, *Whyte* !

***I. congesta**, *Stapp* : a glabrous shrub with long acuminate leaves, 1 ft. by 2—4 in., and very dense long-peduncled corymbs of slender flowers, in bud up to 1 in. long ; Sino Basin, *Whyte* !

***I. atrata**, *Stapp* : a shrub with slender divaricate branches, con-

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spicuously veined lanceolate leaves which turn bluish black in drying, and loose trichotomous cymes of white (?) flowers (corolla tube 3 lines, lobes 4 lines long); Monrovia, *Whyte!*

Coffea liberica, *Bull ex Hiern*: the "Liberia Coffee," similar to the common Coffee, but taller (to over 20 ft. high) with larger leaves and larger black berries of the size of a cherry; indigenous around Monrovia according to Vogel, cultivated at Cape Palmas, *Vogel*, 63!

C. nudiflora, *Staff*: a deciduous shrub with whitish or greyish branches, axillary solitary or paired white flowers, in the mature bud $\frac{1}{2}$ in. long, produced before the leaves, and red berries; Monrovia and Sino Basin, *Whyte!*

C. ligustrifolia, *Staff*: an evergreen shrub with divaricate rigid branches, lanceolate leaves, $3\frac{1}{2}$ —5 in. by $1\frac{1}{2}$ —2 in., and axillary solitary or paired white flowers, in the mature bud 1 in. long; Kakatown and Sino Basin, *Whyte!*

Rutidea parviflora, *DC.*: a very hairy climber with papery or membranous leaves, clusters of white flowers ($\frac{1}{4}$ in. long) usually arranged in slender drooping panicles, and yellow berries; Monrovia, Kakatown, and Sino Basin, *Whyte!*; Cape Palmas, *Vogel*, 26! 39!

R. smithii, *Hiern*: a more or less pubescent shrub with obovate membranous leaves, 3—4 in. by $1\frac{1}{2}$ —2 in., and pyramidal often dense panicles of whitish flowers with reflexed corolla lobes and exserted anthers; Kakatown, *Whyte!*

Morinda longiflora, *G. Don.*: a glabrous rambling or scandent shrub with slender branches, coriaceous lanceolate to elliptic acuminate leaves, freely flowering, with heads of fragrant tubular white flowers, 2 in. long, and deep orange-coloured berry-heads, with the berries connate; Monrovia, *Whyte!*

Psychotria calva, *Hiern*: a glabrous shrub with pale green papery lanceolate to oblong leaves, panicles or corymbs of small white flowers, $\frac{1}{3}$ in. long, and red berries; Sino Basin, *Whyte!*

P. bidentata, *Hiern*: a glabrous shrub with thinly coriaceous lanceolate to elliptic leaves, drooping panicles, made up of a few dense clusters of more or less sessile white flowers, $\frac{1}{4}$ in. long, and with whitish berries; Grand Basā, *Vogel*, 40!

P. vogeliana, *Benth.*: a shrub with membranous elliptic-lanceolate acute many-nerved leaves, 3—8 in. by $1\frac{1}{2}$ —3 in., and peduncled

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- corymbs of small clusters of white flowers and whitish berries, the corymbs and all young parts rusty hairy ; Kakatown, *Whyte*!
- Grumilea micrantha*, *Hiern* : a glabrous shrub with light green foliage and slender drooping panicles of distinctly pedicelled very small white flowers, $\frac{1}{6}$ — $\frac{1}{8}$ in. long ; Monrovia and Sino Basin, *Whyte*!
- Chasalia laxiflora*, *Benth* : a glabrous climbing shrub with papery long acuminate leaves and terminal corymbs of waxy tubular orange and crimson flowers, about $\frac{1}{2}$ in. long ; Monrovia, *Whyte*! ; Grand Basā, *Ansell*! ; Sino Basin, *Whyte*!
- Cephaelis peduncularis*, *Salisb.* : a glabrous shrub or undershrub with prostrate stems, papery many-nerved leaves, 3—9 in. by $1\frac{1}{2}$ — $3\frac{1}{2}$ in., compact involucrate long-peduncled heads of small white flowers and yellow berries ; Monrovia, Kakatown, and Sino Basin, *Whyte*! ; Cape Palmas, *Vogel*, 9! 40! 62!
- Lasianthus batangensis*, var. *longipetiolata*, *K. Schum.* : a shrub with quadrangular branches and axillary solitary small sessile flowers and blue (?) berries ; in bush, Fishtown, *Diuklage*, 1750.
- Diodia breviseta*, *Benth.* : a rambling shrub with quadrangular branches, rough membranous very obliquely nerved leaves and sessile axillary clusters of white flowers ($\frac{1}{6}$ in. long) and with 4 sepals ; Monrovia, *Whyte*! ; Grand Basā, *Vogel*, 84!
- D. vaginalis*, *Benth.* : a succulent trailing or rambling herb with crowded narrow acute leaves and axillary white flowers ($\frac{1}{2}$ in. long) with 6 sepals and exserted from the cuff-like fusions of the leaf-bases and stipules ; Grand Basā, *Vogel*, 68!
- D. rubricosa*, *Hiern* : a trailing herb with rough elliptic fleshy coriaceous leaves and axillary white flowers, similar to those of the preceding species, but smaller and with 2 sepals ; Sino Basin, *Whyte*!
- Spermacoe globosa*, *Schum.* and *Thonn.* : a glabrous herb or shrublet with lanceolate linear-oblong membranous leaves and solitary superimposed globose compact heads of minute white flowers ; common in sandy plains, Monrovia and Kakatown, *Whyte*! ; Grand Basā, *Vogel*, 37! ; Sino Basin, *Whyte*!

COMPOSITÆ

- Ageratum conyzoides*, *L.* : a herbaceous weed with opposite ovate crenate leaves and dense terminal corymbs of violet flower-

heads, $\frac{1}{4}$ in. in diameter, with a bristly pappus ; Monrovia and Kakatown, *Whyte* !

Mikania scandens, *Willd.* : a glabrous climber, 10—15 ft. long, with slender stems, long-petioled triangular opposite leaves and usually paniced corymbs of numerous slender whitish flower-heads, $\frac{1}{4}$ in. long, with white pappus bristles ; Kakatown, *Whyte* !

Sclerocarpus africanus, *Jacq.* : an erect hispid annual with mostly alternate leaves and sessile or peduncled yellow flower-heads, $\frac{1}{2}$ — $\frac{2}{3}$ in. in diameter and supported by foliaceous bracts without a pappus ; Cape Palmas, *Ansell* !

Blumea lacera, *DC.* : a strong-scented more or less hairy or shaggy annual with coarsely toothed leaves and long narrow panicles of numerous pink or purple flower-heads, $\frac{1}{2}$ in. long, with copious pappus hairs ; Kakatown, *Whyte* !

Siegesbeckia abyssinica, *Oliv.* and *Hiern* : an erect annual with opposite toothed leaves and more or less sticky panicles of yellow flower-heads, $\frac{1}{4}$ in. across, without pappus and with curved smooth fruits ; Kakatown, *Whyte* !

Eclipta alba, *Hassk.* : a much-branched annual with rough lanceolate opposite leaves and short or long-peduncled scattered or paired white flower-heads, $\frac{1}{4}$ — $\frac{1}{3}$ in. across, without pappus ; Kakatown, *Whyte* !

Spilanthes acemella, *L.* : a herb with a creeping base, opposite ovate leaves and long-peduncled yellow flower-heads, $\frac{1}{6}$ — $\frac{3}{8}$ in. across, without a pappus or with only 2—3 bristles ; Kakatown, *Whyte* ! ; Cape Palmas, *Vogel*, 41 !

Emilia sagittata, *DC.* : a glaucous annual with mostly sagittate leaves and deep orange-coloured flower-heads, $\frac{1}{4}$ to almost $\frac{1}{2}$ in. in diameter, with a soft hairy pappus ; Monrovia and Kakatown, *Whyte* !

GOODENOVIACEÆ

Scævola lobelia, *L.* : a prostrate shrub with fleshy leaves and yellow 5-lobed corollas cleft at the back ; common on or near dunes, Grand Basã, *Vogel*, 116 !

CAMPANULACEÆ

Cephalostigma perrottetii, *DC.* : an erect annual with wavy lanceolate leaves and numerous small blue flowers, $\frac{1}{6}$ in. long, on

Liberia

capillary pedicels and arranged in racemes or often very long loose panicles; Monrovia, *Whyte*!

APOCYNACEÆ

***Landolphia florida*, Benth. (syn. *L. comorensis* var. *florida*, *K. Schum.*):** a very tall powerful climber with flagelliform tendrils, more or less elliptic obtuse or shortly acuminate glabrous leaves (3—7 in. by 3 in.), terminal many-flowered corymbs of fragrant showy white flowers with a yellow centre, and globose yellow fruits up to 4 in. in diameter; Murphytown and Batombatown, *Whyte* (from drawings).—The latex of this liane, which is common throughout Tropical Africa, is worthless; but it is frequently used by the natives as an admixture to better kinds. The pulp of the fruit is edible and of a pleasant acid taste.

***L. owariensis*, Beauv. (Plate 250):** a climbing shrub attaining sometimes considerable dimensions with long hook-branched tendrils, more or less oblong acuminate or almost obtuse leaves (3—6 in. by 1—3 in.), many-flowered brownish-tomentose cymes, often arranged in panicles, small white flowers which soon turn brown, and wrinkled or irregularly grooved globose fruits, yellow mottled with red, up to $2\frac{1}{2}$ in. in diameter; Greenville, near the Sino River, *Sim* and *Whyte*!—This is one of the principal sources of West African rubber, and probably the most valuable rubber liane.

***L. spec.* (1):** a robust climber with rather stout compressible glabrous shoots, elliptic to oblong or sub-acuminate leaves which are rounded or cordate at the base (5—6 in. by $2\frac{1}{2}$ — $4\frac{1}{2}$ in.) and glabrous, and possess about 5 very oblique nerves which are connected by bold arches near the margin; they are borne on short stout petioles which are connected across the stem by a prominent ridge. The flowers are unknown. The fruits, according to a drawing by *Whyte*, are borne on short stout pedicels in panicles which are partly transformed into tendrils; they are ellipsoid globose, 3 in. by $2\frac{1}{2}$ in., yellow and smooth, and contain about a dozen seeds; Sino, near the coast, *Whyte*!; Greenville, *Sim*, 31!—This yields, according to the collectors, excellent rubber.

***L. spec.* (2):** a climber, known only from a drawing and notes by



M. Smith. det.

250. LANDOLPHIA OWARIENSIS

- 1, Flowering branch without tendrils (nat. size). 2, Inflorescence, partly transformed into tendrils (nat. size). 3, Leaf (nat. size). 4, Section of calyx and pistil (enlarged). 5 and 6, Anthers (enlarged). 7, Fruit (nat. size).

Liberia

Whyte, with tendrils, sessile obovate very obtuse leaves, 5 in. by 3 in., and perfectly round smooth yellow fruits resembling an orange, and about 3 in. in diameter; Batombatown, *Whyte*! —The latex of this plant is used by the natives in rubber-collecting.

L. (?) *spec.* (3): a climbing shrub with long branched tendrils, obovate-elliptic to obovate-cuneate very obtuse leaves, which are 6—8 in. by $3\frac{1}{2}$ —4 in., glabrous, rather thin and borne on petioles up to $\frac{3}{4}$ in. long; they have about 5 very oblique nerves on each side and very loose and slender transverse veins; neither flowers nor fruits are known; Sino Basin, *Whyte*, 13!

L. (?) *spec.* (4): a climber with cinnamon-coloured finely downy branchlets and tendrils, and obovate very obtuse leaves tapering towards the base, up to 9 in. by $4\frac{1}{2}$ in., glabrous above and almost so beneath and dotted with minute warts; they have a stout midrib and about 7 oblique side-nerves on each side and rather obscure veins; the petiole is stout and about $\frac{4}{5}$ in. long; neither flowers nor fruits are known; Greenville, *Sim*, 31 bis!

**Clitandra nitida*, *Stapf* (Plate 251): a glabrous climber with long tendrils, more or less elliptic abruptly acuminate coriaceous glossy leaves, $2\frac{1}{2}$ —4 in. by $1\frac{1}{2}$ —2 in., having about 10—16 rather straight side-nerves of the first order on each side, a thickened margin and a petiole $\frac{1}{3}$ — $\frac{1}{2}$ in. long, with 6—12-flowered short axillary cymes, small flowers (corolla tube $\frac{1}{8}$ in., lobes $\frac{1}{4}$ in. long) and globose reddish or yellow fruits, solitary or in clusters of 2—4, 1— $2\frac{1}{2}$ in. in diameter and covered with warts all over; Kakatown and Batomba, *Whyte*!; Sino, *Whyte*!; Greenville, *Sim*, 24!—"This is the red rubber of the French Sudan" (*H. H. Johnston*).

**C. membranacea*, *Stapf* (Plate 252): a glabrous slender climber with very long and fine tendrils; leaves more or less lanceolate, acuminate, papery, minutely cordate at the base, 3—4 in. by $1\frac{1}{4}$ — $1\frac{1}{2}$ in., having 7—9 very slender oblique side-nerves on each side, and short petioles; flowers greenish, solitary in the leaf axils (corolla tube $\frac{1}{2}$ in., lobes $\frac{1}{3}$ in. long) fruit, according to a drawing by Mr. Sim, conical, rather pointed, with 5 or more longitudinal ribs ending in tubercles at the truncate base, 4 in. long, $2\frac{1}{2}$ in. broad at the base; Greenville, *Sim*, 1!



251. CLITANDRA NITIDA

1. Flowering branch (nat. size). 2. Flower (enlarged). 3. Calyx and pistil (enlarged). 4. Anther (enlarged).
5. Fruit, from tracing (nat. size).

Whyte collected a very similar plant in the sterile state near Sino, and made sketches of two others which are either identical with or very closely allied to *C. membranacea*, at Batombatown. Of the latter two he states that the latex is used by the rubber-collectors.

- C. spec. (1):** a glabrous climber allied to *Clitandra barteri*, Stapf, with long slender tendrils, leaves more or less oblong, abruptly acuminate, 3—4½ in. by 1½—2 in., coriaceous, dark above, yellowish (in the dry state) beneath, with very numerous (8—9 to an inch) much-spreading side-nerves and short petioles; fruits, according to a drawing by Whyte, ovoid-oblong, narrowed at the top, dull yellow with whitish stripes, 3 in. by 1½ in.: Sino, *Whyte*, 4!—This species is also tapped by the rubber-collectors.
- C. spec. (2):** similar to the preceding species but the leaves more rounded at the base, 4—6 in. by 2—3 in., with more distant side-nerves and, according to a drawing by Sim, globose dark yellow fruits, about 4 in. in diameter, and marked with very irregular winding grooves; Greenville, *Sim*, 14!
- *Carpodinus oocarpa**, *Stapf* (Plate 253): a climber with flagelliform tendrils; branches softly downy when young; leaves elliptic or oblong, acuminate, minutely cordate at the base, 2½—5 in. by 1¼—2 in., coriaceous, hairy on the midrib below, with 4—6 side-nerves connected by bold arches towards the margins and with very short petioles; flowers in small sessile axillary clusters, slender (corolla tube over ½ in. long, lobes of the same length); fruit, according to a drawing by Whyte, egg-shaped to almost globose, with or without a distinct point, yellow, 2—2½ in. long; Murphytown and Kakatown, *Whyte*!; Greenville, *Sim*, 7! Stated by Whyte to yield good rubber.—It is very similar to *Carpodinus dulcis*, Sabine, the "Sweet Pishamin" of Sierra Leone, a species with edible fruits and a sticky latex, which is used as bird-lime according to Scott Elliot.
- C. hirsuta**, *Hua* (?): a tall, robust climber with scanty tendrils and rather stout densely hirsute branches, the spreading hairs being violet when fresh; leaves oblong shortly acuminate, subtruncate or almost cordate at the base, 3—4½ in. by 1½—2 in., or in barren shoots 7 in. by 3½ in., papery, hirsute on the nerves below, with 6—8 oblique curved side-nerves and petioles not quite ½ in. long; flowers in compact sessile axillary clusters,



M. Smith del.

252. CLITANDRA MEMBRANACEA

1. Flowering branch (nat. size). 2. Branch with tendril (nat. size). 3. Flower, just opening (enlarged).
 4. Section of calyx and pistil (enlarged). 5. Section of corolla (enlarged). 6. Anther (enlarged).

Liberia

densely hairy, small (corolla tube $\frac{1}{6}$ in. long, lobes of the same length); fruit globose, smooth, resembling an orange, 2— $3\frac{1}{4}$ in. in diameter; Greenville, *Sim*, 35!—The yellow pulp of the fruit is edible. *Sim*'s specimen consists of barren branches only, and the determination is therefore not quite certain.

A very similar if not identical liane occurs on the Gold Coast and in Lagos. It is the "Ibo Tree" of Moloney, a name which seems to be applied to several rubber vines in Upper Guinea.

C. spec. (1): a climber very similar to *C. oocarpa*, Stapf, but with more distinctly cordate thinner leaves and oblong-cylindrical fruits, 3 in. long and $1\frac{1}{3}$ in. in diameter; Sino Basin, *Whyte*, 3! 9!; Greenville, *Sim*, 27!—In the *Flora of Tropical Africa*, vol. iv. p. 598, I identified it with *C. oocarpa*, but I am now rather inclined to consider it as distinct. The material at my disposal is, however, too meagre to give a complete technical description.

C. spec. (2): a glabrous climber with slender very rough (from corky warts) branches; leaves oblong, acuminate, acute or rarely obtuse at the base, thinly coriaceous, $2\frac{1}{2}$ —6 in. by $1\frac{1}{4}$ — $2\frac{1}{4}$ in. long, rather pale green, with 7—9 straight slightly oblique side-nerves on each side, which are connected by distinct arches towards the margins, finer veins very obscure, petiole $\frac{1}{8}$ — $\frac{1}{6}$ in. long; flowers unknown, fruits cylindric, 3— $4\frac{1}{2}$ by $\frac{3}{4}$ in., yellow with reddish brown rough irregular warts; Murphytown and Kakatown, *Whyte*!; Sino River, *Whyte*, 8! 15! *Sim*, 9!;—*Whyte* states that this yields good rubber.

Whyte and *Sim* collected several more species of *Carpodinus* or *Clitandra* in Liberia, but only in barren branches. They are very similar, and it would require very detailed and technical descriptions to bring out the differences. None of them are stated to be used in collecting rubber.

Picalima (?) spec.: a glabrous shrub or tree with slender branches, oblong and abruptly long-acuminate coriaceous leaves, $3\frac{1}{2}$ —4 in. long by $1\frac{1}{2}$ in., on petioles $\frac{1}{4}$ — $\frac{1}{3}$ in. long, and traversed by very numerous very slender side-nerves which spread almost at right angles from the dark reddish midrib, and with fruits (according to a sketch by *Sim*) consisting of 2 oblong-ovoid baccate follicles which diverge, but are contiguous in the lower third, yellow towards the base and brown at the tips; Sino District, *Sim*, 2!



M. Smith del.

253. CARPODINUS OOCARPA

1. Flowering branch (nat. size). 2. Section of calyx with pistil (enlarged). 3 and 4. Anthers. 5. Branch in fruit (nat. size).

Liberia

Pleiocarpa spec.: a shrub with slender branches, oblong to lanceolate long-acuminate leaves about 3 in. by $1\frac{1}{4}$ in. on short petioles, and globose or globose-ellipsoid berries from the old wood, the berries being shortly stalked, $\frac{3}{4}$ —1 in. long, yellow and mottled with brown and enclosing 1—4 seeds; Batombatown, *Whyte* (drawing).—This is one of the plants which according to *Whyte* are used in collecting rubber.

***Polyadoa** (?) **simii**, *Stapf* (nov. spec.): a glabrous shrub with slender branches; leaves elliptic, shortly acuminate, sub-obtuse at the base, 4—5 in. by 2 — $2\frac{3}{4}$ in., coriaceous, pale green, with 7—8 slender oblique side-nerves and faint loose veins and a petiole $\frac{1}{4}$ in. long; flowers in terminal and axillary sessile small dense clusters, shortly pedicelled; sepals coriaceous with membranous tips, coated with resin within, rounded, very small; corolla over $\frac{1}{2}$ in. long, tube somewhat longer than the narrow lobes; anthers just above the middle of the tube; ovary 2-carpellary glabrous with 4 ovules in two rows in each carpel; fruit, according to a drawing by *Sim*, consisting of 2 divaricate oblong yellow follicles produced into long slender beaks, $2\frac{1}{2}$ by $\frac{3}{4}$ in.; Sino District, *Sim*, 16!—*Sim* states that it yields good rubber. It has quite the habitus of a *Polyadoa*, but differs in the small number of ovules from the other species of that genus. As, moreover, the fruit of *Polyadoa* is unknown, the generic position of the plant is somewhat doubtful. No species of *Polyadoa* and their immediate allies (*Pleiocarpa* and *Hunteria*) are known to yield rubber.

Rauwolfia cumminsii, *Stapf*: a glabrous shrub with slender quadrangular branches, membranous leaves in whorls of 3—4, small flowers (not quite $\frac{1}{2}$ in. long) in lax umbel-like glabrous inflorescences, and small red single or paired compressed drupes; Sino Basin, *Whyte*!

***R. liberiensis**, *Stapf* (Plate 254): a glabrous shrub with terete branches, membranous leaves in whorls of 4, small flowers (about $\frac{1}{4}$ in. long) in lax umbel-like glabrous inflorescences; fruit unknown; Sino Basin, *Whyte*!

R. vomitoria, *Afz.* (*syn.* *R. senegambica*, *DC.*): a glabrous shrub or small tree with quadrangular branches, membranous leaves in whorls of 3—4, small white flowers (about $\frac{1}{3}$ in. long) in umbel-like much-branched finely downy inflorescences and



M. Smith del.

254. RAUWOLFIA LIBERIENSIS

1. Flowering branch (nat. size). 2. Flower (enlarged). 3. Calyx and pistil (enlarged).
4. Section of corolla (enlarged).

Liberia

with single or paired small red ellipsoid drupes; Monrovia and Sino Basin, *Whyte!*; Greenville, *Sim*, 5!—The fruits are a powerful emetic, according to Afzelius. *Sim* states that the latex yields good rubber; there is, however, no corroborating evidence, although the species is widely spread throughout Tropical Africa.

Allamanda cathartica, *L.*: a spreading shrub with showy yellow funnel-shaped flowers, a native of tropical South America, cultivated and occasionally naturalised in Tropical Africa; Monrovia, *Whyte!*

Lochnera rosea, *Reichb.*: a small undershrub with solitary or paired axillary pretty pink or white flowers and slender spreading follicles, probably a native of the West Indies, now widely naturalised in the tropics, chiefly near the coasts; Monrovia, *Whyte!*

Callichilia subsessilis, *Stapf* (*syn.* *Tabernæmontana subsessilis*, *Benth.*): a climbing or erect shrub or small tree with thin leaves and showy snow-white flowers (tube slender, 1 in. long, lobes broad, over 1 in. long), and with paired rostrate baccate follicles, about 1 in. long; Kakatown, *Whyte!*

Two of *Whyte's* sketches, drawn from plants observed at Batombatown, may possibly have to be referred to this species, but the follicles are less distinctly beaked and up to $2\frac{1}{2}$ in. long; they are described as bright yellow. *Whyte* states of those plants that they are tapped by the natives for rubber.

***C. stenosepala**, *Stapf* (Plate 255): a shrub similar to the preceding but with longer and narrow sepals, to over $\frac{1}{2}$ in. long, and with shorter corolla lobes; Grant's Farm on the Sino River, *Whyte!*

Gabunia glandulosa, *Stapf*: a climbing shrub with slender fistular branches, oblong long-acuminate leaves and dense corymbs of showy fragrant white flowers (tube about 2 in. long, oblique long tapering lobes over 1 in. long); Monrovia and Sino Basin, *Whyte!*

Conopharyngia longiflora, *Stapf* (*syn.* *Tabernæmontana longiflora*, *Benth.*, Plate 256): a tree with more or less oblong leaves (4—10 in. by 2—5 in.) and small clusters of pedicelled large fragrant white fleshy flowers (calyx $\frac{1}{3}$ — $\frac{1}{2}$ in., tube 3— $3\frac{1}{2}$ in.,



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255. CALLICHILIA STENOSEPALA

1. Flowering branch (nat size). 2. Sepal, inner side (enlarged). 3 and 4. Anthers (enlarged). 5. Ovary (enlarged).

lobes $2-2\frac{1}{2}$ in. long) and paired baccate follicles of the size of a small orange; Sino Basin, *Sim*, 6! 8!

C. crassa, *Stapf* (*syn.* *Tabernæmontana crassa*, *Benth.*, Plate 257): a small tree or shrub with elliptic or oblong leaves (6—9 in. by $3-4\frac{1}{2}$ in.) and 12—15-flowered corymbs of shortly pedicelled white fleshy flowers (calyx up to $\frac{1}{8}$ in. long, corolla tube about 1 in. long) and paired baccate follicles of the size of a child's head, "the seeds resting in an almost woody pulp" (Vogel); Grand Basā, *Vogel*, 21!; *Dinklage*, 1434!; Sino Basin, *Whyte*, 19!—This was credited with yielding part of the rubber of Upper Guinea, but experiments made with a specimen cultivated in Ceylon, under the name of *Tabernæmontana crassa* were unsuccessful. A few other species of *Conopharyngia* have also had the reputation of being rubber-producing; but our actual knowledge on this point is of the slightest, and rather suggests that the rubber derived from them is either useless or only obtainable in small quantities.

***Voacanga caudiflora**, *Stapf* (Plate 258): a glabrous shrub with slender branches, papery lanceolate leaves, nodding few-flowered inflorescences, tubular calyces, $\frac{2}{3}$ in. long, and yellow (?) corollas (tube $\frac{3}{4}$ in. long, lobes tail-like $\frac{2}{3}$ in. long); Kakatow, *Whyte*!

V. bracteata, var. *lanceolata*, *Stapf*: a shrub similar to the preceding, but with a shorter calyx ($\frac{1}{3}$ in. long); Kakatow, *Whyte*! and smaller corollas (tube $\frac{1}{2}$ in. long, yellow, lobes broad reflexed, violet-brown, $\frac{1}{8}$ in. long); Sino Basin, *Whyte*! *Sim*!

***Pleioceras whytei**, *Stapf* (Plate 259): a glabrous shrub with thin ovate to elliptic leaves and many-flowered panicles of rather small flowers with a fringe of more or less thread-like appendages in the throat; near Sino River, *Whyte*

Strophanthus gratus, *Franch.* (Plate 219): a climbing glabrous shrub often of very considerable dimensions with coriaceous oblong leaves, 3—6 in. by 2—3 in., terminal few to 12-flowered cymes of handsome funnel-shaped flowers, white or tinged with pink with narrow purple scales in the throat (tube $1\frac{1}{2}$ in. long, lobes $\frac{3}{4}-1$ in. long) and with divaricate follicles, $8\frac{1}{2}-15$ in. by $1\frac{1}{4}-2$ in., containing glabrous spindle-shaped seeds bearing a plumose awn, 2—3 in. long at one end, the hairs of the plume being turned away from the seed; Monrovia, *Krause*; Kakatow, *Whyte*!—The seeds are the most important source of strophan-



M. Smith del.

256. CONOPHARYNGIA LONGIFLORA

- 1 Flowering branch (nat. size). 2. Sepal, inner side (enlarged). 3. Anther (enlarged). 4. Pistil (enlarged).
 5. Fruit, from tracing (nat. size).

Liberia

thine, an alkaloid of great medical value. As they are perfectly glabrous (hence known in commerce as "*Strophanthus glabre*" or *S. glaber*), they cannot well be adulterated or confused with the hairy seeds of other species of *Strophanthus*.

- S. sarmentosus**, *A. P. DC.* (*syn.* *S. paroissii*, *Franch.*): a tall climbing glabrous deciduous shrub with papery ovate to oblong leaves and small clusters of white long-tailed flowers with pink marks inside and purple scales in the throat (funnel-shaped corolla tube $\frac{3}{4}$ —1 in. long, tailed lobes 2—2½ in. long) and with horizontally spreading spindle-shaped follicles, 8—12 in. by almost $\frac{3}{4}$ in., containing brown silky seeds bearing a plumose awn at one end, the awn 2—3 in. long; Monrovia, *Whyte*!
- Isonema smeathmannii**, *Roem.* and *Schult.*: a more or less hairy climbing shrub with narrow stiff rusty tomentose panicles of reddish flowers (corolla tube $\frac{1}{3}$ in., lobes $\frac{1}{4}$ in. long) and spindle-shaped brown velvety follicles, 5—6 in. long; Kakatown, *Whyte*!; Grant's Farm by the Sino River, *Whyte*!
- Funtumia africana**, *Staff* (*syn.* *Kickxia africana*, *Benth.*, Plate 260): a tree from 15 to 80 ft. high with oblong-acuminate leaves usually with some minute down in the nerve-axils on the underside, with dense axillary clusters of white or yellowish waxy flowers (over $\frac{1}{2}$ — $\frac{3}{4}$ in. long in the adult bud, with the lobes $\frac{1}{4}$ — $\frac{1}{3}$ in. long) and spindle-shaped, acutely acuminate divaricate follicles, 8—9 in. long, containing numerous plumose seeds resembling those of a *Strophanthus*, but with the plume of the awn pointing towards the seeds; Sino Basin, *Whyte*! *Sim*, 4!—The rubber obtained from this tree is sticky like bird-lime, and therefore worthless.
- F. elastica**, *Staff* (*syn.* *Kickxia elastica*, *Preuss*, Plate 261): a tree up to 100 ft. high, similar to the preceding species, but distinguishable by the leaves having on the underside minute pits and no down in the nerve-axils, the smaller flowers (up to $\frac{1}{2}$ in. long in the adult bud with the lobes up to $\frac{1}{4}$ in. long) and the oblong-clavate very obtuse and woody follicles (6 in. long); by the Sino River, about 40 miles inland, *Sim*!—This is one of the most important rubber trees of Africa, concerning which much information can be found in Schlechter's book *West-Afrikanische Kautschuk-Expedition*. The name *Kickxia* is not applicable to this tree and its African congeners, as it has



M. Smith del.

257. CONOPHARYNGIA CRASSA

1. Top of leaf-branch 'nat. size). 2. Inflorescence (nat. size). 3. Calyx and pistil (enlarged). 4. Anther (enlarged)
5. Fruit, from tracing (nat. size).

Liberia

already long been in use for a perfectly distinct Malayan genus of *Apocynaceæ*.

- **Alafia whytei*, *Staff*: a glabrous climbing shrub with rich almost sessile corymbs of white (?) flowers (corolla tube over $\frac{1}{3}$ in. long, lobes almost orbicular, $\frac{1}{4}$ in. across); Sino Basin, *Whyte*!
- **A. parciflora*, *Staff* (Plate 262): a glabrous climbing shrub with few-flowered umbel- or raceme-like cymes of yellow (?) flowers with a red centre (corolla tube over $\frac{1}{3}$ in. long, narrow lobes over $\frac{1}{4}$ in. long); Greenville, *Sim*, 25!
- Baissea odorata*, *K. Schum.* ex *Staff*: a climbing shrub with very loose short terminal and axillary panicles of rather small, funnel-shaped flowers (corolla-tube over $\frac{1}{6}$ in., linear lobes $\frac{1}{4}$ in. long), probably white and streaked with purple; Greenville, *Sim*, 32!

ASCLEPIADACEÆ

- Periploca nigrescens*, *Afz.*: a slender twining shrub with axillary panicles of reddish black flowers; Sino Basin, *Whyte*!
- **Tylophora liberica*, *N. E. Brown*: a twiner with glabrous hollow stems and lateral or sub-axillary panicles of small greenish flowers; Sino Basin, *Whyte*!

LOGANIACEÆ

- Usteria guineensis*, *Willd.*: an erect or climbing shrub with corymbose copious panicles of fragrant lavender-blue or white flowers having one of the calyx lobes enlarged, foliaceous, and white; Monrovia and Kakatown, *Whyte*!; Cape Palmas, *Schoenlein*.
- **Strychnos dinklagei*, *Gilg.*: a rambling glabrous shrub with 3-nerved coriaceous leaves and copious terminal long-peduncled dense panicles of very small whitish flowers; in the bush of the littoral, Grand Basã, *Dinklage*, 1690!
- Gaertnera paniculata*, *Benth.*: a shrub or small tree with large loose terminal panicles of greenish white flowers and small globose fruits; Grand Basã, *Vogel*, 20! 71!

HYDROPHYLLACEÆ

- Hydrolea guineensis*, *Choisy*: a glabrous herb with lanceolate leaves and small axillary racemes of azure-blue flowers with deeply 5-fid corollas $\frac{1}{2}$ in. long; in swamps near Monrovia, *Whyte*!



M. Smith del.

258. VOACANGA CAUDIFLORA

1. Flowering branch (nat. size). 2. Leaf (nat. size). 3. Calyx laid open with pistil (enlarged).
4 and 5. Anthers (enlarged).

BORAGINEÆ

- Ehretia cymosa**, *Schum.* and *Thonn.*: a glabrous shrub with ovate leaves, copious terminal panicles of white flowers, $\frac{1}{2}$ in. long, with a very short tube and small 4-stoned drupes; Cape Palmas, *Vogel*, 20!
- Heliotropium indicum**, *L.*: an annual hairy herb with variable leaves, usually 4 in. by 3 in. and small lilac or white flowers in long dense one-sided involute gradually unrolling spikes; Monrovia, *Whyte*!

CONVOLVULACEÆ

- Bonamia cymosa**, *Hallier f.*: a twining shrub with densely hairy branches, oblong leaves, glabrous above and brown tomentose beneath, and very dense one-sided narrow short or long panicles of small white Convolvulus-like flowers, $\frac{2}{3}$ in. long; Monrovia and Kakatown, *Whyte*!
- Prevostea heudelotii**, *Hallier f.*: a tall glabrous climber with coriaceous leaves, axillary fascicles of bell-shaped white flowers, $\frac{3}{4}$ —1 in. long, on slender pedicels, and winged fruits, the wings formed by the enlarged 2 outer very thin sepals, one cordate-orbicular, 2 in. in diameter, the other much smaller; Kakatown, *Whyte*!
- Quamoclit vulgaris**, *Choisy*: a twining herb with finely pinnatifid leaves and long tubular crimson flowers, over 1 in. long; Monrovia, *Whyte*!
- Ipomœa involucrata**, *Beauv.*: a twining or trailing herb with cordate leaves and small heads of pink Convolvulus-like flowers almost 2 in. long, supported by a pair of large connate bracts; Monrovia and Kakatown, *Whyte*!; Cape Palmas, *Vogel*, 43!
- I. biloba**, *Forsk.*: a trailing plant with a woody stem of sometimes enormous length, 2-lobed somewhat fleshy leaves and large pink or purple Convolvulus-like flowers; common on the coast, mainly on sand-dunes from Monrovia to Cape Palmas, *Vogel*, 23! 44!—This is an excellent sand-binder.
- I. palmata**, *Forsk.*: a long twiner with palmately divided leaves and violet or purple Convolvulus-like flowers, 1 in. (or more) long; Monrovia, *Whyte*!
- I. batatas**, *Poir.*: the well-known "Sweet Potato" or "Batata," a native of South America, cultivated at Grand Basā and Cape Palmas, according to *Vogel*.



M. Smith del.

259. *PLEIOCERAS WHYTEI*

1. Flowering branch (nat. size). 2. Flower (enlarged). 3. Calyx and pistil (enlarged).
 4. Corolla segment with appendages (enlarged). 5 and 6. Anthers (enlarged).

SOLANACEÆ

- Solanum anomalum*, *Schum.* and *Thonn.*: a coarse tomentose herb with prickly stems and leaves, bluish white nodding flowers and red erect berries; Kakatown, *Whyte*!; Grand Basā, *Vogel*, 83!; Grant's Farm by the Sino River, *Whyte*!; Cape Palmas, *Vogel*, 13!
- S. aculeatissimum*, *Jacq.*: similar to the preceding but less coarse, glabrous or more or less finely setose, prickly all over, including the flowers, with nodding scarlet berries, 1 in. across; Kakatown, *Whyte*!
- Capsicum* sp.: "Various sorts of *Capsicum*" are cultivated at Grand Basā according to *Vogel*. They belong evidently to *C. frutescens*, L., an originally American species, which is cultivated in numerous varieties throughout the tropics. The red or yellow fruits, "Chillies," yield the well-known "Cayenne Pepper."

SCROPHULARIACEÆ

- Scoparia dulcis*, L.: a much-branched somewhat stiff weed, with lanceolate dentate leaves in whorls of 3 and very small white 4-fid flowers solitary or in pairs and on capillary pedicels; Kakatown, *Whyte*!; Grand Basā, *Vogel*, 47!
- Lindernia diffusa*, *Wettst.*: a small creeping marsh herb with opposite roundish leaves and small axillary white 2-lipped flowers; Kakatown, *Whyte*!
- Alectra communis*, *Hemsl.*: a species which has long been confused with *A. melampyroides*, Benth., from which it differs in having distinctly stalked spreading leaves and bracts longer than the flowers. A coarse herb parasitic on the roots of other plants. Leaves small, opposite or alternate in the inflorescence; flowers small in crowded spikes; corolla not much longer than the calyx, yellow, veined with red or brown, shrivelling and twisting soon after expansion and persistent around the ripe seed-vessel; Kakatown, *Whyte*!

BIGNONIACEÆ

- Newbouldia lævis*, *Scem.*: a pinnate-leaved shrub or tree with dense short panicles of showy pink flowers resembling a Foxglove,



260. FUNTUMIA AFRICANA

1. Flowering branch (nat. size). 2. Section of corolla (enlarged). 3. Pistil (enlarged). 4. Fruit, one follicle cut off (nat. size). 5. Fruit ($\frac{1}{3}$ nat. size). 6. Seed (nat. size).

Liberia

long slender fruits breaking up into 2 linear valves and hyaline-winged seeds; Monrovia, *Whyte!*

PEDALIACEÆ

Sesasum indicum, *L.*: a sparingly hairy or almost glabrous herb with long-petioled (4—6 in.) leaves (the lower 3-foliolate, the upper entire, deeply toothed, 3—6 in. by 1—2 in.), axillary pale purplish obliquely campanulate flowers, 1 in. long, and beaked erect capsules, $\frac{3}{4}$ —1 in. by 3—4 in., with smooth seeds; Monrovia, *Naumann*; Kakatown, *Whyte!*; Grand Basā, *Vogel!*—The “Sesam” plant, of African or Indian origin, cultivated in most warm countries for the oil which is extracted from its seeds.

S. radiatum, *Schum.*: similar to the preceding, but of unpleasant odour, more or less glandular-pubescent, with simple leaves, up to 2½ in. by 1½ in., on pedicels not over 1 in. long, and with radially wrinkled seeds; Kakatown, *Whyte!*—Said to be used for similar purposes in Africa, but whether it is actually cultivated is doubtful.

ACANTHACEÆ

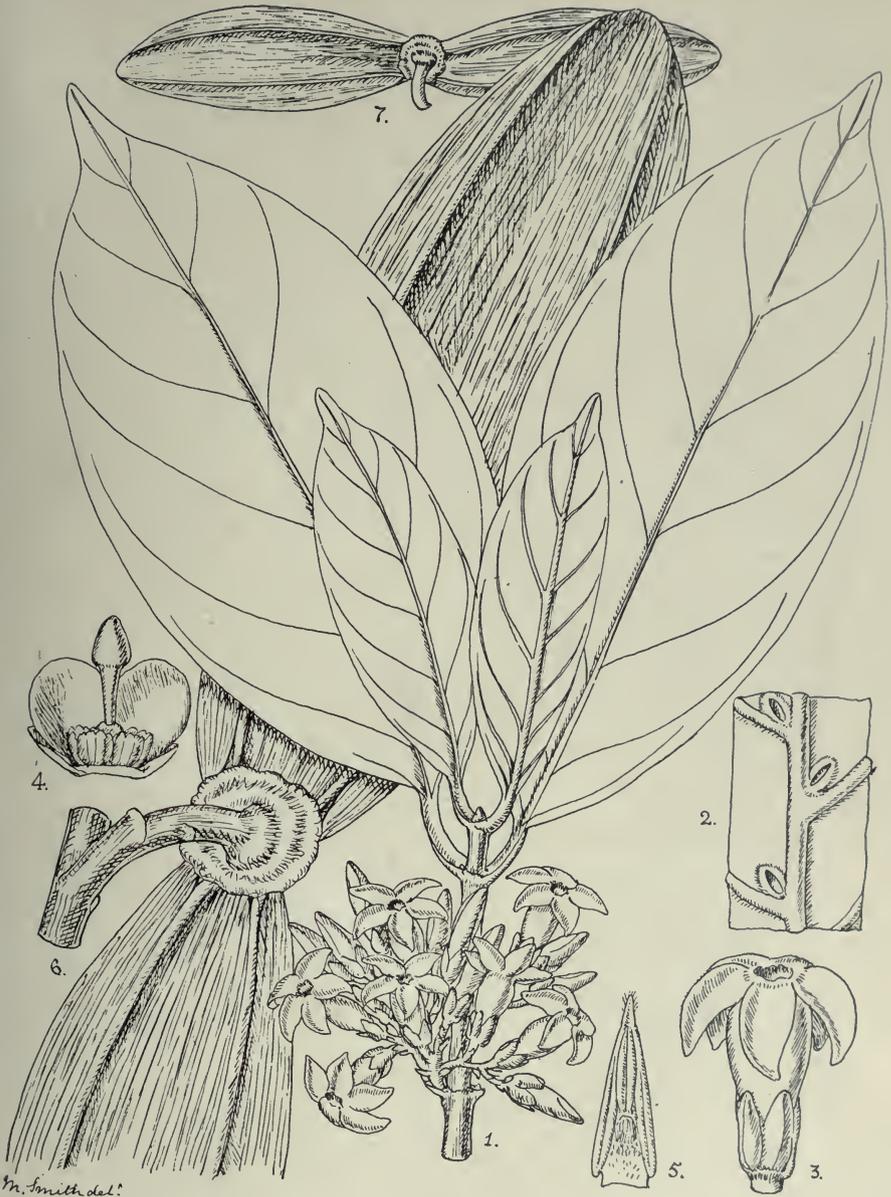
Thunbergia alata, *Boj.*: a twiner with opposite (as in all other *Acanthaceæ*) more or less hastate leaves and solitary flowers supported by a pair of bracts ($\frac{3}{4}$ —1 in. long), with the throat usually claret-coloured and the lobes yellow to white; Kakatown and Sino Basin, *Whyte!*

Elytraria crenata, *Vahl.*: a herb, 2—9 in. high, with the leaves crowded in a rosette and slender rigid spikes of pale blue or white 2-lipped flowers, $\frac{1}{4}$ — $\frac{1}{3}$ in. long; Grand Basā, *Vogel*, 93!; *Ansell!*

Brillantaisia lamium, *Benth.*: a herb with cordate leaves and lax panicles of rather large blue to violet flowers, resembling those of a Sage; Sino Basin, *Whyte!*; Cape Palmas, *Ansell!*

Endosiphon obliquus, *C. B. Clarke*: a herb with harsh oblique leaves (one of each pair much reduced) and axillary spikes of purple or blue flowers, having a slender tube, 2 in. long, a funnel-shaped throat and spreading limb; Monrovia, *Whyte!*

Paulowilhelmia polysperma, *Benth.*: a shrub with long-petioled ovate leaves and short loose cymes of purple flowers with a very



261. FUNTUMIA ELASTICA

1. Flowering branch (nat. size). 2. Portion of leaf, showing the pits in the nerve axils (enlarged). 3. Flower (enlarged).
 4. Section of calyx with pistil (enlarged). 5. Anther (enlarged). 6. Fruit, one follicle (nat. size). 7. Fruit (3 nat. size).¹

Liberia

slender corolla tube ($1\frac{1}{2}$ in. long) and a one-sided 5-fid limb; Kakatown, *Whyte*!—This is, according to Dr. Easmon, used on the Gold Coast for poisoning fish.

Whitfieldia subviridis, *C. B. Clarke*: a tall shrub with elliptic leaves, up to 10 in. by 4 in. and showy panicles of large white flowers (petaloid calyx $1-1\frac{1}{2}$ in., corolla tube up to 2 in. long, lobes narrow and long); Monrovia, *Whyte*!

W. lateritia, *Hook.*: a shrub similar to the preceding, but with terminal downy racemes of red flowers, 1 in. long; Kakatown, *Whyte*!

***W. colorata**, *C. B. Clarke* (sp. nov.): a glabrous shrub with terminal dense, short, very handsome brilliantly coloured panicles (bracteoles $\frac{2}{5}$ in. long, brick red; corolla 1 in. long, paler with purple tips); Kakatown, *Whyte*!

***W. latiflos**, *C. B. Clarke* (sp. nov.): a glabrous shrub with terminal dense spikelike one-sided panicles of red (or purple?) flowers; Kakatown, *Whyte*!

***Lankasteria brevior**, *C. B. Clarke*: a herb with small spikes of pure white flowers (slender tube, $\frac{3}{5}$ in. long, lobes 5, almost equal, oblique) supported by rigid glossy bracts; Monrovia and Kakatown, *Whyte*!

Phayloopsis falcisepala, *C. B. Clarke*: a decumbent or sub-erect shrublet with the leaves of each pair more or less unequal and dense cylindric or ovoid spikes of white or purplish corollas, $\frac{1}{3}$ in. long, 2-lipped with 5 almost equal lobes; Kakatown, *Whyte*!

Acanthus montanus, *T. Anders.*: a small shrub with pinnately lobed leaves with spinous teeth, spinous bracts, bracteoles, and calyx segments and dense glabrous spikes of pink 1-lipped flowers, almost 2 in. long; Kakatown, *Whyte*!

***Sclerochiton vogelii**, *F. And.*: a small undershrub with entire elliptic leaves and terminal clusters of white flowers with rigid bracts, sepals drawn out into long fine points and over 1 in. long and dorsally split corollas with the 5 lobes on one side, the whole corolla $1\frac{1}{4}$ in. long; Cape Palmas, *Vogel*, 54!; *Ansell*!

Asystasia coromandeliana, *Nees.*: a herb with ovate entire leaves, 3 in. by 1 in., and one-sided racemes (often gathered in panicles) of white, creamy or purplish flowers with a tube $\frac{3}{4}$ in. long, an inflated throat and a 5-fid hardly 2-lipped limb; Monrovia, *Whyte*!; Kakatown, *Whyte*!; Grand Basā, *Vogel*, 87!; Cape Palmas, *Vogel*, 56!



M. Smith del.

262. ALAFIA PARCIFLORA

1. Flowering branch (nat. size). 2. Calyx and pistil (enlarged). 3. Section of corolla (enlarged). 4. Anther (enlarged).

Liberia

- A. scandens**, *Hook.*: a straggling shrub with leaves up to 7 in. by 3 in. and terminal compound glandular inflorescences of pale mauve or white rather small flowers, with a tube $\frac{1}{3}$ in. long and much inflated in the upper part; Kakatown, *Whyte*!
- A. vogeliana**, *Benth.*: a straggling undershrub with leaves up to 7 $\frac{1}{2}$ in. by 2 $\frac{1}{2}$ in., and terminal compound loose inflorescences of pale purple or white flowers with a long (2 in.) slender corolla tube; Kakatown, *Whyte*!
- Justicia galeopsis**, *T. Anders. ex C. B. Clarke*: a straggling herb with distant leaves, up to 3 $\frac{1}{2}$ in. by $\frac{3}{4}$ —1 in., and small purple or yellow 2-lipped flowers, over $\frac{1}{2}$ in. in length, solitary or 2—3 in the leaf axils; Monrovia and Kakatown, *Whyte*!
- J. laxa**, *T. Anders.*: a herb or undershrub greyish tomentose in the young parts, with leaves 9 in. by 4 in. and large loose spreading panicles of greenish 2-lipped flowers, $\frac{1}{2}$ — $\frac{2}{3}$ in. long; Monrovia, *Whyte*!; Kakatown, *Whyte*!
- J. anselliana**, *T. Anders.*: a nearly glabrous herb with distant narrow leaves and small ($\frac{1}{4}$ in.) white flowers in 2—8-flowered cymes; Cape Palmas, *Ansell*!
- Rhinacanthus communis**, *Nees.*: a rambling herb with loosely ovate to lanceolate leaves and paniced clusters of slender white 2-lipped flowers, about 1 in. long, the upper lip linear, the lower broad 3-lobed; Kakatown, *Whyte*!

VERBENACEÆ

- Stachytarpheta indica**, *Wahl.*: a herb, 2—3 ft. high, with opposite, elliptic to spatulate crenate glabrous leaves and long, rigid, slender dense spikes of small blue or white flowers, seated in small excavations of the rhachis; corolla with a slender tube and an oblique 5-lobed limb.—A decoction of the leaves is used by the natives as a purgative or febrifuge; common in the coast-region, *H. H. Johnston*! This is widely spread throughout the tropics of the Old World and is more or less a weed.
- Lantana camara**, *L.*: a shrubby weed with globose heads of small flowers, the outer red, the inner yellowish to white, a native of Tropical America, elsewhere naturalised and occasionally a very troublesome weed; Monrovia, *Whyte*!

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- Premna hispida**, *Benth.*: a hairy shrub or tree with opposite oblong leaves and short, dense, very hairy corymbs of white flowers with a tube $\frac{1}{6}$ in. long and a 2-lipped limb; Monrovia, Kakatown, and Sino Basin, *Whyte*!
- Clerodendron splendens**, *G. Don.*: a small tree or shrub (sometimes climbing) with opposite oblong leaves and ample handsome corymbs of red flowers with a tube $\frac{3}{4}$ —1 in. long, and 5 lobes $\frac{1}{3}$ — $\frac{1}{2}$ in. long, and long exserted stamens; Monrovia and Kakatown, *Whyte*!
- C. scandens**, *Beauv.*: a rambling finely downy shrub with opposite cordate-ovate leaves and ample loose panicles of pretty white flowers (1 in. long) with a red centre and long exserted stamens, and with deep black-green drupes supported by the ultimately red calyx; Monrovia, Kakatown, and Sino Basin, *Whyte*!; Cape Palmas, *Vogel*, 53!
- Vitex grandifolia**, *Gürke*: a small glabrous tree with digitate leaves, corymbs of yellowish flowers up to $\frac{1}{2}$ in. long, and fruits resembling small plums; Sino Basin, *Whyte*!—The fruits are eatable and, according to Millen, used for making a kind of rum.
- Avicennia africana**, *Beauv.*: a tree, 12—40 ft. high, with lanceolate leaves, tomentose beneath, and small white flowers in globose heads, arranged in paniced spikes; a frequent constituent of the Mangrove woods, Grand Basā, *Vogel*; Sino River, *Whyte*!—The compact fibrous wood is said to be very useful for shipbuilding.

LABIATÆ

- Ocimum viride**, *Willd.*: a strong-scented herb, up to 5 ft. high, with (as in all the following *Labiatae*) opposite elliptic-lanceolate acuminate long petioled leaves and slender often paniced racemes of small white 2-lipped flowers having a calyx with a very broad upper and 4 smaller pungent lateral and lower teeth; Kakatown, *Whyte*!—Known as “Fever Bush” or “Tea Bush” and used in fever to promote perspiration.
- Solenostemon ocymoides**, *Schum.* and *Thom.*: an annual herb with nettle-like leaves and long spike-like racemes of subverticillate 2-lipped lilac flowers, $\frac{1}{5}$ in. long; Grand Basā, *Vogel*, 44!; Sino Basin, *Whyte*!
- Hyptis brevipes**, *Poit.*: a coarse straggling more or less glabrous

Liberia

- annual with numerous usually short-peduncled axillary globose very compact heads of small whitish flowers, the calyx $\frac{1}{8}$ in. long with spinescent teeth ; Kakatown, *Whyte* !
- H. atrorubens**, *Poit.* : a procumbent or ascending pubescent weed with peduncled globose heads of small whitish 2-lipped flowers, the calyx $\frac{1}{4}$ in. long with bristle-like teeth ; Kakatown, *Whyte* !
- H. suaveolens**, *Poit.* : a much-branched and strong-scented annual with few-flowered axillary peduncled cymes of small whitish 2-lipped flowers, $\frac{1}{8}$ in. long, a native of Tropical America, naturalised in many parts of the Old World ; Monrovia, *Whyte* !
- Leonotis pallida**, *Benth.* : an annual hairy herb with ovate, crenate leaves and dense globular axillary whorls of pale yellow tomentose flowers, 1 in. long, with spinescent bracts and calyx teeth ; Cape Palmas, *Vogel*, 36 !
- L. nepetæfolium**, *R. Br.* : a coarse pubescent weed with 2—4 distant very dense globular whorls of scarlet or orange-coloured flowers (of the shape of those of a dead-nettle) and spinescent calyx teeth ; Kakatown, *Whyte* !

AMARANTACEÆ

- Celosia laxa**, *Schum.* : a climbing herb with compact compound spikes of greenish white scarious flowers ; Monrovia, *Whyte* ; Grand Basā, *Vogel*, 82 !
- Amarantus spinosa**, *L.* : a spiny much-branched weed with panicles of long flexuous continuous or interrupted spikes of clustered small green flowers ; Kakatown, *Whyte* !
- Cyathula prostrata**, *Bl.* : a weed with stems ascending to 1—3 ft. from a creeping base, opposite leaves and slender spikes of ultimately reflexed sessile hook-spined clusters of small greenish flowers ; Kakatown, *Whyte* !
- Alternanthera achyranthoides**, *Forsk.* ; a decumbent herb with small sessile axillary clusters of minute white scarious flowers ; Cape Palmas, *Vogel* !

POLYGONACEÆ

- Brunnichia africana**, *Welw.* : a glabrous shrub, climbing high and far, with bifid terminal tendrils, long very loose racemes of solitary or

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fascicled small green and red flowers and ovoid pendulous fruits borne on the lengthened ribbon-like blood-red pedicels, up to $2\frac{1}{2}$ in. by $\frac{1}{2}$ in. ; Kakatown, *Whyte!*

ARISTOLOCHIACEÆ

Aristolochia sp. (from drawing by *Sir H. H. Johnston* and reported by *Mr. John Gow*). (For Illustration, *vide* p. 539.)

PIPERACEÆ

Heckeria subpeltata, *Kunth.*: a climber with long-petioled deeply cordate leaves, $\frac{1}{2}$ ft. by $\frac{2}{3}$ —1 ft., and shortly peduncled umbels of 4—7 spikes, 4 in. by $\frac{1}{8}$ in. ; Sino Basin, *Whyte!*—This is considered by some botanists as identical with the South American *Heckeria umbellata*, *Kunth.*, which possesses an aromatic root (*Radix periparobo* or *cupeba* of commerce) and eatable berries from which an oil similar to anis oil is prepared.

MYRISTICACEÆ

**Pycnanthus dinklagei*, *Warb.*: a diœcious tree, 30 ft. high, with drooping branches, elliptic leaves, short axillary moderately divided rusty downy panicles of very small heads of minute male flowers (female flowers and fruits unknown); on laterite in the hinterland of Grand Basã, *Dinklage*, 1624!—The seeds of an allied species, *P. kombo*, *Warb.* (*syn. Myristica kombo*, *Baill.*, *M. microcephala*, *Benth.*) are said to contain as much as 73 per cent. of fat, and to burn like a candle. They have occasionally been imported into Europe as "African oil seeds."

LAURACEÆ

**Afrodaphne caudata*, *Staff* (Plate 263): a tree (?) with oblong long-acuminate glabrous coriaceous leaves up to 9 in. long and loose finely downy panicles (to 8 in. long) of inconspicuous turbinate flowers, $\frac{1}{8}$ in. long; Sino Basin, *Whyte!*

**A. euryneura*, *Staff*: a tree (?) similar to the preceding species, but with shortly acuminate or aristulate leaves and smaller flowers $\frac{1}{12}$ in. long; Sino Basin, *Whyte!*

THYMELÆACEÆ

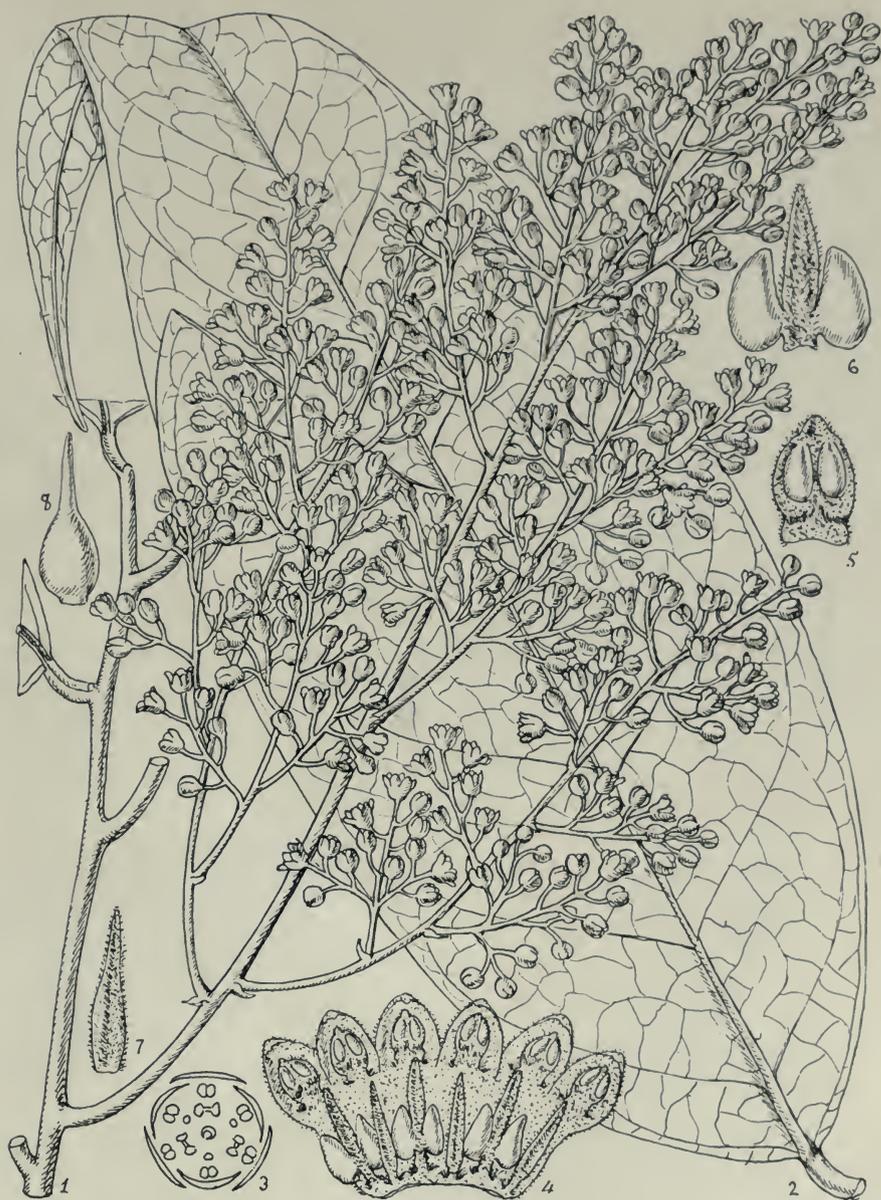
**Octolepis decalepis*, *Gilg.*: a small shrub with usually solitary or paired axillary small white silky flowers and globose berries; in very shady places in the bush of the littoral, Fishtown, *Dinklage*, 1741, 1860, 2044!

LORANTHACEÆ

Loranthus belvisii, *DC.*: a shrub, parasitical on trees, with ovate coriaceous leaves and sessile clusters of slender flowers, 1 in. long, and red with white lines; common on shrubs and trees near Grand Basā, *Dinklage*, 1908!; *Ansell!*; Sino Basin, *Whyte!*

EUPHORBIACEÆ

- Euphorbia prostrata*, *Ait.*: a small prostrate much-branched annual weed with opposite leaves, $\frac{1}{6}$ — $\frac{1}{4}$ in. long and minute solitary or clustered cyathia ("Euphorbia flowers"); Grand Basā, *Vogel*.
- E. indica*, *L.*: a prostrate or ascending much-branched annual weed with opposite asymmetric leaves, $\frac{1}{2}$ — $\frac{2}{3}$ in. long, terminal and axillary shortly peduncled clusters of very small cyathia and fruits; Cape Palmas, *Ansell!*
- E. pilulifera*, *L.*: an annual weed very similar to the preceding species but more hairy, with larger leaves and loose inflorescences; Kakatown, *Whyte!*
- Elæophorbia drupacea*, *Staff* (*syn.* *Euphorbia drupacea*, *Schum.* and *Thonn.*): a tree with succulent spinous branches, bearing at their ends tufts of fleshy obovate-cuneate deciduous leaves and umbels of cyathia, and with drupes of the size and shape of an olive; Grand Basā according to *Vogel*.—The new genus *Elæophorbia* resembles very much certain tree-Euphorbias, but differs from all true Euphorbias in the structure of the fruit, which possesses a fleshy pericarp and a stony endocarp not dehiscent after the manner of Euphorbia capsules and containing 1 or 2, rarely 3 seeds. All parts of the plant are rich in a very acrid latex, which if brought in contact with the eye is said to cause blindness.



M. Smith del.?

263. AFRODAPHNE CAUDATA

1. Flowering branch (nat. size). 2. Leaf (nat. size). 3. Diagram of flower (enlarged). 4. Perianth laid open (enlarged).
 5. Fertile stamen (enlarged). 6. Staminode of the 3rd whorl (enlarged). 7. Staminode of the 4th whorl (enlarged).
 8. Ovary (enlarged).

Liberia

- Anthostema senegalense*, *Juss.*: a tree with coriaceous leaves and dense axillary sessile clusters of small asymmetrical cyathia; Grand Basā, *Dinklage*, 1769!
- **Cleistanthus liberica*, *N. E. Brown*: a monœcious shrub with coriaceous leaves, ending in a long linear point and inconspicuous fascicled male flowers in small rusty downy racemes; Sino Basin, *Whyte*!
- Amanoa bracteosa*, *Planch.*: a monœcious small tree with coriaceous leaves and rigid bracteate dense spikes of clusters of 7—9 flowers, of which the central is female, the others male, all with petaloid greenish sepals; Monrovia, *Whyte*!
- A. *strobilacea*, *Müll.-Arg.*: a tree similar to the preceding, but with the flowers in axillary or terminal sessile heads of the size of a pea or small cherry; Sino Basin, *Whyte*!
- Phyllanthus floribundus*, *Müll.-Arg.*: a monœcious (like all the following species of that genus) shrub with slender more or less spinous branches, distichous leaves and copious fascicled extremely delicate racemes of minute greenish flowers; Monrovia, *Whyte*!
- *P. *profusus*, *N. E. Brown*: similar to the preceding, but with stouter more rigid racemes of copious fascicles of greyish flowers; Sino Basin and Kakatown, *Whyte*!
- P. *capillaris*, *Schum.* and *Thonn.*: a spreading or trailing shrub with very small elliptic leaves and solitary very small flowers, pendulous on long capillary pedicels; Sino River, *Whyte*!
- P. *niruroides*, *Müll.-Arg.*: an undershrub with very small oblong leaves and very shortly pedicelled minute white flowers, all on one side of the branch; Monrovia and Sino River, *Whyte*!
- Jatropha curcas*, *L.*: a monœcious shrub or tree with more or less lobed leaves and yellowish green flowers in small axillary inflorescences, and with 3-valved capsules; a native of Tropical America, cultivated at Cape Palmas, according to Vogel.—The seeds, resembling those of *Ricinus*, but larger, contain an oil which is a strong purgative and emetic (hence the name of the seed "Physic-nut"); it may be also used for lighting and lubricating purposes.
- **Croton dispar*, *N. E. Brown*: a monœcious tree with ovate long petioled leaves and long terminal slender minutely scaly

racemes of small whitish male flowers with villous petals ;
Monrovia, *Whyte* !

Manniophyton africanum, *Müll.-Arg.*: a diœcious climbing shrub with long petioled cordate or deeply lobed leaves and long slender sparingly branched panicles (bearing more or less sessile male flowers in small clusters and scattered female flowers on longer pedicels), and with large deeply 2—3-lobed rusty tomentose capsules ; Grand Basā, *Dinklage*, 1758 !

Crotonogyne caterviflora, *N. E. Brown*: a diœcious shrub with papery leaves and compact clusters of minute scaly male flowers on the old branches, or in slender scaly very loose spikes ; Sino River, *Whyte* !

Manihot utilissima, *Pohl.*: a monœcious shrub with large fascicled roots, digitate leaves, dark green above, very glaucous beneath, and terminal racemes of dull yellow flowers ; the well-known "Bitter Cassava" or "Manioc," a native of America ; cultivated near Grand Basā, *Vogel*, 63 ! ; Kakatown, *Whyte* !—The roots are in the fresh state poisonous on account of the presence of prussic acid, which has to be removed before they are used for food.

M. palmata, *Müll.-Arg.*, var. **Aipi**, *Pohl.*: very similar to the preceding species but with non-poisonous roots ; the "Sweet Cassava," a native of America, extensively cultivated throughout the tropics ; Grand Basā, according to *Vogel*.

Erythrocoeca aculeata, *Benth.* var. **acutissima**, *N. E. Brown*: a diœcious thorny shrub with membranous leaves and small clusters of minute male flowers in short delicate racemes and scattered axillary female flowers, and with bright red small capsules ; Sino River, *Whyte* !

Hasskarlia didymostemon, *Baill.*: a diœcious tree, 40—80 ft. high, with bright or yellowish green membranous leaves and slender yellowish catkins of small male flowers and scattered axillary female flowers ; Monrovia, *Whyte* !

Claoxylon barteri, *Hook f.* ; a diœcious shrub or small tree with thin membranous leaves and slender more or less pendulous racemes or clusters of small male flowers and scattered female flowers and with small didymous capsules ; Sino Basin, *Whyte* !

Alchornea hirtella, *Benth.*: a diœcious small shrub with lanceolate to elliptic leaves and numerous very slender flexuous spikes, the

Liberia

male with the small flowers in pinkish clusters, the female with solitary larger flowers having 2 long filiform styles; Grand Basā, *Vogel*, 34!

- A. cordata**, *Benth.*: a dicecious small tree with long petioled ovate leaves and paniced spikes resembling those of the preceding species; Sino Basin, *Whyte*!—This is the “Christmas Bush” of Sierra Leone.

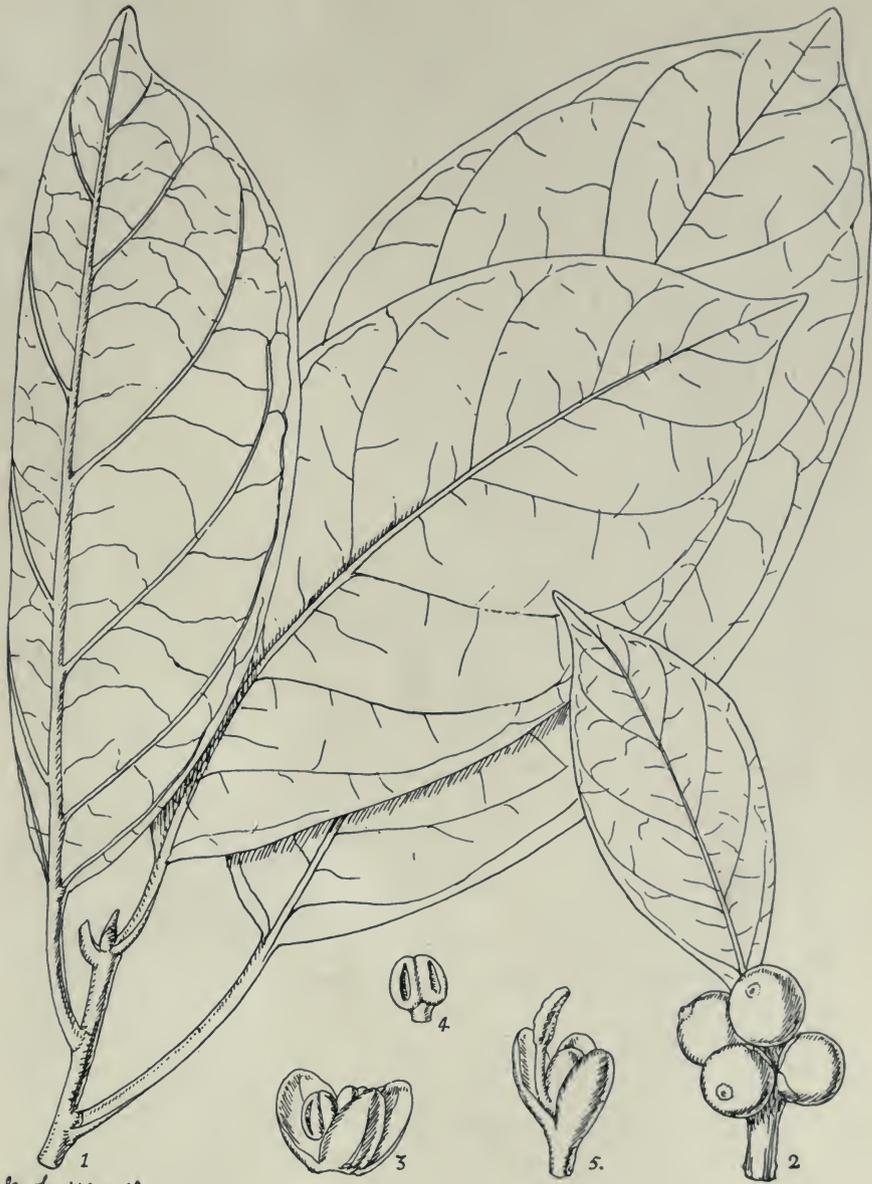
URTICACEÆ

Ficus vogelii, *Miq.* (Plate 264): a glabrous tree, 20 to 40 ft. high, with shortly ovoid adpressedly hairy terminal buds, large long petioled elliptic or obovate-oblong leaves (6—12 in. by 4—6 in.) with 5—6 oblique side nerves on each side and close fine reticulation, and with brownish receptacles (“fruits”) $\frac{1}{3}$ to almost $\frac{1}{2}$ in. in diameter, and usually paired in the leaf axils or in clusters of 4—6 below the leafy ends of the branches; about 70 miles up the St. Paul’s River, *Reynolds*!; Grand Basā, *Vogel*!; Sino Basin, *Whyte*, 19!; Greenville, *Sim*, 25!; Cape Palmas, *Vogel*, 47!—According to some authorities *Ficus vogelii* would yield the best Liberian rubber; but recent investigations seem to show that the rubber derived from this species is of inferior quality, being not very resilient and rather resinous. (See Warburg, *Les Plantes à Caoutchouc*, pp. 250-53.)

F. sp.: very similar to the preceding species with lanceolate conical quite glabrous buds, $\frac{3}{4}$ in. long, rather abruptly acuminate or acute-oblong leaves having slightly wavy margins and about 10—14 side nerves, of which the lowest are very oblique whilst the others spread much; Greenville, *Sim*, 13! Kuru Country, Sawya’s Town, *Whyte*, 17!—This yields rubber, according to *Sim*.

***F. whytei**, *Stapf* (sp. nov.): a glabrous large forest tree with reddish branchlets, almost subulate terminal buds ($\frac{3}{4}$ in. long), very large ovate or elliptic-oblong shortly acuminate leaves with asymetrically cordate bases (12—16 in. by $5\frac{1}{2}$ —7 in.) with short stout petioles, about 13 rather spreading side nerves and a rather conspicuous reticulation similar to that of *F. vogelii*) and paired receptacles, *Whyte*!—This yields abundant rubber, according to *Whyte*.

F. triangularis, *Warb.*: a tree, sometimes scandent with triangular-



M. Smith del.

264. *FICUS VOGELII*

1. Leaf-branch, leaves rather smaller than usual (nat. size). 2. Branch with receptacles (nat. size).
 3. Male flower (enlarged). 4. Anther (enlarged). 5. Female flower (enlarged).

Liberia

cuneate leaves ($1\frac{1}{2}$ —3 in. long, and broad at the top) and pedicelled solitary or paired receptacles; about 70 miles up the St. Paul's River, *Reynolds!*; Sino Basin, *Whyte*, 10!; Greenville, *Sim*, 36!; Grant's Farm, *Sim*, 36!

F. guineensis, *Staff* (*syn. Sycomorus guineensis*, *Miq.*, exclud. *F. Brassii*, *R. Br.*): a large tree, glabrous with the exception of the youngest parts and stipules, with slender conical terminal buds (under $\frac{1}{2}$ in. long), firmly herbaceous elliptic coarsely serrate or crenate leaves (4—8 in. by 3—5 in.) on petioles 1—3 in. long, and globose shortly stalked receptacles, about $\frac{3}{4}$ in. in diameter; Sino Basin, *Whyte*, 7!; Greenville, *Sim*, 19!; Cape Palmas, *Vogel*, 48!—*Sim* states that very good rubber is produced from this tree.

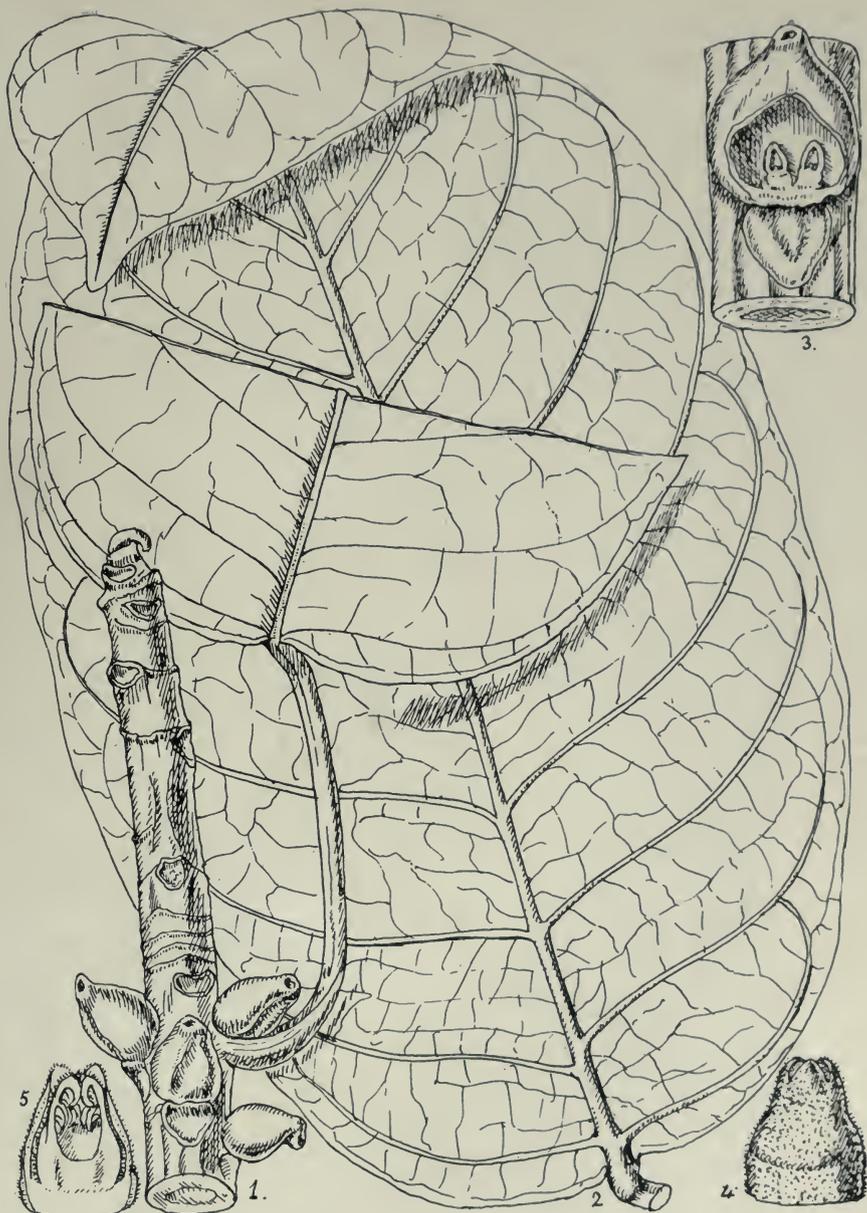
F. barberi, *Sprague*: a perfectly glabrous shrub or small tree sometimes epiphytic, with linear acutely and long acuminate glossy coriaceous leaves (6—10 in. by 1—2 in.) and orange-coloured shortly stalked receptacles (not quite $\frac{1}{2}$ in. in diameter); about 70 miles up the St. Paul's River, *Reynolds!*; Greenville, *Sim*; 10!—Produces good rubber, according to *Sim*.

***F. johnstonii**, *Staff* (spec. nov.—Plate 265): a perfectly glabrous tree, allied to *F. calyptata*, *Schum.* and *Thonn.* with short stout terminal buds, stout branchlets, ovate-elliptic subacuminate, at the base almost truncate loosely and finely reticulated leaves (8 in. by 4 in.) having 11—13 side nerves (spreading almost at a right angle) and borne on petioles 2 in. long, and with the young greyish velvety receptacles enclosed in pairs in urn-shaped involucre, not quite $\frac{1}{2}$ in. long; Liberia, without precise locality (communicated by *H. H. Johnston!*)—This is also supposed to yield rubber.

Myrianthus serratus, *Benth.*: a dioecious tree or shrub, often climbing, with oblong or elliptic very sharply and coarsely serrate leaves, silvery beneath, much-divided peduncled small male panicles, the upper divisions of which are densely covered with confluent masses of small flowers, small shortly peduncled heads of female flowers and fruits resembling a mulberry; Sino Basin, *Whyte!*—The fruits are pleasant to eat.

Fleurya æstuans, *Gaud.*: a herb resembling very much a nettle with large greenish panicles; Sino Basin, *Whyte!*

F. podocarpa, *Wedd.*: a softly hairy herb with nettle-like leaves and



M. Smith del.

265, *FICUS JOHNSTONII*

1. Flowering branch (nat. size). 2. Leaf (nat. size). 3. Common involucre with two young receptacles, a leaf-scar below (enlarged). 4. Receptacle, enclosed in its special involucre (enlarged). 5. The same, cut longitudinally (enlarged).

Liberia

clusters of small whitish flowers in flexuous continuous or interrupted often long spikes; Cape Palmas, *Ansell!*

Urera obovata, *Benth.*: a dioecious climbing shrub with stinging hairs and much-divided rather dense and short panicles of small green flowers and small fruits enclosed in the ultimately fleshy orange-red perianth; Sino Basin, *Whyte!*

ARTOCARPACEÆ

Artocarpus incisa, *L.*: the "bread-fruit" tree; introduced by American colonists; (from photographs by *Sir H. H. Johnston*); throughout the coast region.

ORCHIDACEÆ

* **Megaclinium endotrachys**, *Kränzl.*: an epiphyte with a much-flattened rachis bearing small greenish yellow flowers; Grand Basā, *Dinklage*, 1852!

Eulophia lurida, *Lindl.*: an epiphyte up to 2 ft. high with lanceolate leaves, over 1 ft. by about 1 in., and large loose panicles of dull purple flowers, $\frac{1}{4}$ in. long, with a yellow lip; Kakatown, *Whyte!*

Lissochilus longifolius, *Benth.*: a terrestrial orchid with grass-like leaves up to over 1 ft. long and racemes of distant nodding middle-sized flowers; in open meadow-like marshes, Grand Basā, *Vogel*, 8!; *Ansell!*; Grant's Farm on the Sino River *Whyte!*

L. roseus, *Lindl.*: a most magnificent terrestrial orchid, 5—7 ft. high, with lanceolate leaves, 2—3 ft. by 1—3 in., and long racemes of large flowers (almost 1 in. long) with chocolate-brown sepals and rose-coloured petals; Kakatown, *Whyte!*

Polystachya præalta, *Kränzl.*: an epiphyte with 3 papery leaves (9 in. by 1 in.) and short nodding paniced racemes of small yellowish flowers; Grand Basā, *Dinklage*, 2069!

Listrostachys caudata, *Rchb.*: an epiphyte with thick fleshy leaves, the greenish white flowers with spurs 7—8 in. long; Grand Basā (*Sir H. H. Johnston*, from drawing).

Angræcum eichlerianum, *Kränzl.*: epiphyte with short fleshy leaves, flowers with green petals except lip, which is white; short hooked nectary; Eastern Liberia (*Sir H. H. Johnston*, from drawing).

ZINGIBERACEÆ

- Aframomum melegueta**, *K. Schum.* (*syn.* *Amomum melegueta*, *Roscoe*): a perennial herb with distinct leaf- and flower-stems, leaf-stems up to 5 ft. high with sessile or subsessile linear-lanceolate caudate-acuminate glabrous blades, 7—11 in. by $\frac{3}{4}$ —1 in.; flower-stems 3—5 in. long, consisting of a short bracteate peduncle and a single trumpet-shaped flower springing from a spike-like cluster of bracts, white or pinkish with a large broad rounded violet or pink lip; berry bottle-shaped not grooved, 2 in. long, with very aromatic seeds $1\frac{3}{4}$ in. across.—The seeds of this species are known as “grana paradisi. Bentham (in *Flora Nigritiana*, p. 534) mentions that Vogel collected “*Amomum granum paradisi*, L.” near Grand Basā; there is, however, no specimen of Vogel’s from this locality at Kew. It is very likely that Bentham, in this place, understood under “*Amomum granum paradisi*, L.” what is now called *Aframomum melegueta*, although he coupled with it, in the same passage, a specimen collected by Vogel at Abo in Nigeria which is preserved at Kew and is clearly not *A. melegueta*.
- ***A. sulcatum**, *K. Schum.* (*syn.* *Amomum sulcatum*, *Oliv.* and *Hanb.* ex *Baker*): similar to the preceding species, but with broader leaves, an almost subsessile flower-spike and grooved fruits; Grand Basā, *Benson*, 17!; Cape Palmas, *Hoffmann*, 14! *Gibson*! —The pulp of the berries is eaten. Vernacular name “Bla” or “Blē.”
- A. latifolium**, *K. Sch.* (*syn.* *Amomum latifolium*, *Afz.*): leaf-stems up to 3 ft. high with lanceolate leaves (10 in. by $2\frac{1}{2}$ in.), flower-stems with a peduncled spike of 3—4 white flowers and berries almost 3 in. long; Grand Basā, in *Hanbury’s* herbarium.
- A. longiscapum**, *K. Schum.* (*syn.* *Amomum longiscapum*, *Hook.f.*): leaf-stems not quite 1 ft. high with lanceolate caudate-acuminate blades with a cordate base, 1 ft. by $2-2\frac{1}{2}$ in., flower-stems with long-peduncled (2 ft.) heads of 2—4 flowers with a crisp-edged labellum, $1\frac{1}{2}$ in. wide; Cape Palmas, *Schoenlein*.
- ***A. rostratum**, *K. Schum.* (*syn.* *Amomum cereum*, *Baker*): leaf-stem up to 6 ft. high and more, with densely crowded lanceolate

Liberia

leaves, up to almost 1 ft. by 2 in.; flower-stems with slender peduncles (16 in. long) and few-flowered spikes, berries bottle-shaped, $2\frac{1}{2}$ in. long, not grooved; gregarious, forming extensive reeds; Cape Palmas, *Crummel*.

***Renealmia longifolia**, *K. Schum.*: a very tall perennial herb, with petioled linear-lanceolate long-acuminate leaves, 1—2 ft. by $1\frac{1}{2}$ — $2\frac{1}{2}$ in., and terminal narrow erect or nodding panicles of bracteate flowers (corolla unknown) and small ellipsoid red or ultimately black capsules; Kakatown, *Whyte!*; in humid forest by the Cestos River near Grand Basā, *Dinklage*, 1945!

***R. maculata**, *Stapf* (sp. nov.): a perennial herb with distinct leaf- and flower-stems; leaf-stems, including the blades, about 1 ft. high, with about 4 elliptic or lanceolate-elliptic shortly acuminate purple-blotched petioled leaves, 7—9 in. by 2 to almost 4 in., flower-stems rather slender, 3—5 in. high, representing a shortly peduncled panicle with short few-flowered branches, supported by more or less persistent and adpressed bracts with spreading pedicels, in the mature state $\frac{1}{2}$ — $\frac{2}{3}$ in. long, and oblong-ellipsoid capsules, $\frac{1}{2}$ — $\frac{2}{3}$ in. by $\frac{1}{4}$ in., containing numerous seeds with yellow arils; Kakatown, *Whyte!*—This is similar to *R. africana*, Benth., but smaller, with more and permanently adpressed bracts and more oblong fruits.

Costus afer, *Ker.*: a perennial herb with slender stems, 6—9 ft. high, lanceolate caudate-acuminate glabrous or (below) more or less adpressly hairy leaves, 4—7 in. by $\frac{3}{4}$ — $1\frac{1}{2}$ in., and dense terminal bracteate heads of white flowers (with a yellow centre) supported by an involucre of large foliaceous bracts, the flowers paired in the axils of the bracts; Monrovia and Kakatown, *Whyte!*; in humid places in primary forest by the River Cestos, *Dinklage*, 1640.—The juice of the very closely allied *C. lucanusianus*, J. Braun and K. Schum., is used by the natives of the Cameroons in the preparation of Funtumia rubber.

C. littoralis, *K. Schum.*: similar to the preceding species, but less tall, with larger leaves and solitary flowers in the axils of the bracts; in bush in the littoral near Fishtown, *Dinklage*, 1701.—Scarcely distinct from *C. afer*.

MARANTACEÆ

Sarcophrynium brachystachyum, *K. Schum.* (*syn.* *Phrynium brachystachyum*, *Koern.*): a perennial tall herb with a creeping rhizome producing tufts of basal leaves with oblong to elliptic blades (up to 20 in. by 10 in.) on very long petioles, and flower-stems which imitate a basal leaf with a fascicle of 2—3 densely bracteate spike-like racemes springing from its petiole, with white or pale violet flowers, not quite $\frac{1}{2}$ in. long, and red globose more or less fleshy fruits, about $\frac{1}{2}$ in. in diameter; often gregarious in forests near water, Grand Basā, *Vogel*, 77!; Cape Palmas, *Vogel*, 29!

***S. spicatum**, *K. Schum.*: a perennial herb about 4—5 ft. high, with asymmetrically elliptic leaves, and simple peduncled spikes (1 in. long) of white flowers; in primary forest near the mouth of the River Cestos, *Dinklage*, 1946.

Trachyphrynium violaceum, *Ridl.*: a shrub with a smooth simple stem up to 10 ft. high and numerous long scandent branches with oblong leaves, rounded or truncate at the base and borne on stout thickened petioles, with simple or forked spike-like compound zigzag racemes, the 2-flowered branches of which are encased in deciduous bracts with white and reddish flowers, under 1 in. long, and trigonous densely muricate fruits, measuring 2 in. across; Kakatown, *Whyte*! (imperfect specimens).

***Clinogyne arcta**, *Stapf* (*sp. nov.*): a perennial tall herb, similar to *C. flexuosa*, *K. Schum.*; blades ovate-oblong, acuminate, the upper 6 in. by 2—2 $\frac{1}{2}$ in., on short thickened petioles, the lower with much longer petioles of which only the upper end is thickened; racemes slender flexuous, compound, solitary or in panicles of 2—4, to more than 6 in. long; bracts up to 8 or more and over 1 in. long, persistent and permanently adpressed branchlets of the raceme 2-flowered and about 1 $\frac{1}{2}$ in. long, flowers purplish, not quite $\frac{1}{2}$ in. long, with villous ovaries; Sino Basin and Kakatown, *Whyte*!

Maranta arundinacea, *L.*: the well-known "Arrow-root" plant, a native of America, generally cultivated in the tropics on account of its farinaceous tubers; grown near Monrovia, according to *Vogel*.

CANNACEÆ

Canna indica, *L.*: a herb with large leaves from a creeping rhizome, paniced very showy crimson or yellow flowers and muricate capsules, a native of America, frequently cultivated, and naturalised in some places in tropical Africa; Kakatown, *Whyte*!

MUSACEÆ

Musa paradisiaca, *L.*: the "Banana" and "Plantain," cultivated in Liberia, but nothing is known as to the varieties grown there.

AMARYLLIDACEÆ

Crinum natans, *Baker*: a bulbous aquatic herb with submersed long strap-like leaves and umbels of large white or pinkish flowers with a slender tube, $\frac{1}{2}$ ft. long, and usually narrow lobes, 3 in. long; in gently running streams, Monrovia, Kakatown, and Sino Basin, *Whyte*!

Hæmanthus manni, *Baker*: a bulbous herb with a tuft of 5—6 elliptic acute short-peduncled leaves and long-peduncled umbels of bright red flowers, the inflorescences on separate stems and appearing after the withering of the leaves; Liberia, without precise localities, *Carder*.

H. multiflorus, *Martyn*: similar to the preceding species, but with usually larger leaves and much more copious flowers, their tubes being twice as long as the lobes; common in forests about 70 miles up St. Paul's River, *Reynolds*!; Sino Basin, *Whyte*!

***H. longitubus**, *C. H. Wright*: similar to *H. multiflorus*, but the flower-tube as long as the lobes (over 1 in.); Sino Basin, *Whyte*!

Hymenocallis littoralis, *Salisb.*: a bulbous herb with long rather thick linear leaves and long-peduncled heads of large white flowers, having a slender tube, to 6 in. long, narrow segments 4 in. long, and a wide funnel-shaped corona 1 in. long; a shore plant, Sino, *Whyte*!

DIOSCOREACEÆ

Dioscorea prehensilis, *Benth*: a diœcious glabrous slender twining shrub with elliptic-rotundate 5-nerved firm opposite leaves and

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numerous fascicled spikes of small male flowers gathered in often large panicles, solitary axillary long slender spikes of female flowers and deeply 3-lobed capsules ; Kakatown, *Whyte* !

LILIACEÆ

Dracæna surculosa, *Lindl.* : a much-branched shrub or tree with opposite or whorled firm oblong parallel-veined leaves and numerous white more or less umbelled flowers ($\frac{3}{4}$ in. long) and red berries ; Monrovia, Kakatown, and Sino River, *Whyte* !
Sir H. H. Johnston.

***D. prolata**, *C. H. Wright* : a shrub (?) with elliptic coriaceous leaves, 7 in. by 3 in., and short congested panicles of white flowers, over $\frac{1}{2}$ in. long ; Monrovia and Sino Basin, *Whyte* !

Chlorophytum laxum, *R. Br.* : a herb with tufted linear membranous leaves and very lax simple or forked racemes of small white or reddish white flowers, $\frac{1}{8}$ — $\frac{1}{6}$ in. long ; common near Grand Basã, *Vogel*, 41 !

Gloriosa virescens, *Lindl.* : a large rambler or climber with leaves ending in long filiform tendrils and handsome large nodding flowers having the petals reflexed, first yellow then scarlet ; Grand Basã, *Vogel*, 22 !

COMMELINACEÆ

Palisota thyrsoflora, *Benth.* : a herb, 3—15 ft. high, shaggy in its young parts, with more or less lanceolate leaves and long rather narrow panicles of small white or violet flowers and blue berries ; Monrovia and Kakatown, *Whyte* ! ; Grand Basã, *Vogel*, 67 ! ; Sino Basin, *Whyte* ! ; Cape Palmas, *Vogel* !

Commelina nudiflora, *L.* : a diffuse often decumbent herb with few-flowered racemes of small brilliantly blue or white flowers ; Sino Basin, *Whyte* !

C. capitata, *Benth.* : a struggling or diffuse herb, 1—3 ft. high, with (apparently) terminal heads of yellow or white flowers, supported by large folded bracts ; Kakatown, *Whyte* ! ; Cape Palmas, *Vogel*, 52 !

Anellema beninense, *Kunth.* : a trailing herb with terminal dense panicles of very small blue or white flowers and shining cap-

Liberia ☞

sules; Kakatown, *Whyte!*; Grand Basā, *Vogel*, 40!; Sino Basin, *Whyte!*; Cape Palmas, *Ansell!*

- A. **ovato-oblongum**, *Beauv.*: a trailing herb with very slender loose panicles of very small lilac or white flowers and shining capsules; Cape Palmas, *Ansell!*

RAPATACEÆ

- ***Maschalocephalus dinklagei**, *Pilg.* and *K. Schum.*: a perennial herb with basal tufts of long firm ensiform leaves (including the sheaths to 20 in. high by over 1 in.) with sessile axillary heads of yellowish white tubular very slender flowers (tube $1\frac{1}{2}$ in., lobes $\frac{1}{2}$ in. long) and small triangled capsules; in marshy very shady places in primary forest near Fishtown, *Dinklage*, 2088!

PALMÆ

- Phoenix reclinata**, *Jacq.*: stem 3—4 ft. high, leaves 3—5 ft. long with 50 or more rigid lanceolate pungent pinnæ (1 ft. long by 1 in.); female inflorescences peduncled, branched, about 2 ft. long, fruits resembling a small date; Monrovia and Cape Palmas, according to *Vogel*.—Sometimes called “wild date.”
- Calamus barteri**, *Bell.* ex *Drude*: a tall climber with very slender stems and leaves having lanceolate oblong pinnæ (up to 8 in. by $\frac{3}{4}$ in.), armed with very fine pungent spines on the rachis, the margins and primary nerves; Kakatown, *Whyte!*—The rattan palm.
- Raphia vinifera**, *Beauv.*: a palm with a middle-sized stem bearing an elegant tuft of pinnatisect leaves, 6—8 ft. long; pinnæ spinulous; fruits oblong-ellipsoid, about 3 in. long, covered with smooth hard scales in 8—9 rows.—The stems of this palm, which is known as “bamboo palm” to British colonists, are used for building, the leaves for thatching, the bast for fibre, and the sap of the trunk for making a sort of wine. This is the “piassava” palm of the Americo-Liberians and produces the fibre known by that name; in the coast region, *Sir H. H. Johnston!*

- Borassus flabellifer** var. *æthiopum*, *Warb.* (*syn.* B. *æthiopum*, *Mart.*): a palm, 60—80 ft. high, with a straight stem thickening more or less from the middle upwards, flabellate leaves, 5—12 ft. long and divided almost to the middle into ensiform segments, and

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orange-coloured fruits of the size of a child's head and enclosing 3 seeds; very common in the coast region, *Sir H. H. Johnston* (from photographs.)—A palm of manifold use, the stems serving as timber, the leaves furnishing thatch and fibre for ropes, sieves, and other similar articles, and the sap a kind of sweetish toddy, whilst the outer fibrous part of the fruit is sucked on account of its pleasant taste; known to the Liberians as the "Fan palm."

This palm was, by Martius, separated as a distinct species from the Indian *Borassus flabellifer* on account of the thickening of the stem below the leaf, a character which is said to be absent in Indian specimens.

Elæis guineensis, *Jacq.*: the well-known "Oil palm" of West Africa; Monrovia and Grand Basā, *Vogel*; Cape Palmas, *Vogel*, 65!

Cocos nucifera, *L.*: the well-known coconut palm, the uses of which are innumerable; everywhere in the coast region, *Sir H. H. Johnston* (from photographs).

PANDANACEÆ

Pandanus candelabrum, *Beauv.*: a branched tree supported by aerial roots with the spinous leaves in dense spirals (hence the generic name "Screw-pine"); in swamps near Grand Basā and on "dry ground" at Cape Palmas, according to *Vogel*.

ARACEÆ

Anchomanes dubius, *Schott*: a tuberous-rooted herb with a solitary prickly leaf, 2—3½ ft. long, having 3 pinnatisect or dichotomously divided divisions and a long-peduncled boat-shaped pale purplish or (within) cream-coloured spathe, 6—12 in. long, and a slender spadix (up to 8 in. long); Liberia (from cultivated specimens).

Rhektophyllum mirabile, *Baker*: a climbing aroid; in Liberian forests (from drawing by *Sir H. H. Johnston*).

Nephtytis afzeli, *Schott*: a herb with a creeping root-stock and 2—3 sagittate long-peduncled leaves (with the basal lobes ½ to 1 ft. long), and broad obtuse green spathes (2—2½ in. long), with a slender cylindrical spadix (¼ in. by 1¾ in.); Monrovia, *Naumann*.

***Culcasia liberica**, *N. E. Brown*: a climbing herb with lanceolate to elliptic leaves 8—9 in. long, and fasciated (7—8) more or

Liberia

less convolute green spathes, $1\frac{3}{4}$ in. long, with a shortly exerted spadix; Sino Basin, *Whyte*!

Cyrtosperma senegalense, *Engl.*: a herb with a large tuber, sagittate basal leaves (including the basal lobes to over $2\frac{1}{2}$ ft. long), and stout prickly peduncles, overtopping the leaves and bearing lanceolate yellowish green and dark-red-striped spathes (1 ft. or more long), with a dark violet spadix ($2\frac{1}{2}$ —7 in. long); Grand Basā, *Vogel*, 94!

XYRIDACEÆ

Xyris indica, *L.* (?): a perennial herb with a basal tuft of narrow strap-shaped spongy 1—2 ft. long leaves and a peduncled head of small yellow flowers with dark red-brown bracts; in swamps near Monrovia, *Naumann*.—I suspect this is not *X. indica*, which is not known from Africa, but more probably the very similar *X. decipiens*, N. E. Br.

ERIOCAULONACEÆ

Mesanthemum radicans, *Koernicke*: a perennial herb with a tuft of linear leaves (3—6 in. by $\frac{1}{8}$ — $\frac{1}{2}$ in.) and long-peduncled flat compact heads ($\frac{1}{2}$ in. across) of small white flowers with an involucre of numerous downy obtuse scales; in marshes, Kakatown, *Whyte*!; Grand Basā, *Ansell*!

CYPERACEÆ

- Kyllinga erecta**, *Schum.* and *Thonn.*: a few inches high, with a creeping rhizome and solitary terminal ovoid spikes, commonly showing a golden tinge and supported by 3—4 bracts, 1—3 in. long; Basā Cove, *Ansell*!
- K. peruviana**, *Lam.*: 12—20 in. high, with a densely scaly rhizome and solitary terminal globose spike supported by 3 bracts up to 1 in. long; Monrovia, *Naumann*; Grand Basā, *Ansell*!
- K. pumila**, *Mich.*: 4—18 in. high, with fibrous roots and terminal heads of 3—1 greenish white spikes with 2—4 leaf-like bracts, the lowest 2—6 in. long; Monrovia, *Naumann*.
- K. cylindrica**, *Nees.*: 6—18 in. high, with a short or no rhizome, leaves often longer than the stem, heads of 3—1 white or brownish spikes (middle spike cylindric) and 3—4 leaf-like bracts, the lowest 1—6 in. long; Basā Cove, *Ansell*!

- Pycreus polystachyus**, *Beauv.*: 1—2½ ft. high, with fibrous roots and more or less compound umbelled spikes of 10—50 permanently erect brownish spikelets, $\frac{2}{3}$ in. by $\frac{1}{2}$ in.; Cape Palmas, *Ansell!*
- Cyperus haspan**, *L.*: with stems 4—28 in. long, distant on long creeping rhizomes and with usually compound or decompound umbels (sometimes overtopped by bracts) of digitate clusters of 2—6 compressed spikelets, $\frac{1}{5}$ — $\frac{1}{2}$ in. by $\frac{1}{24}$ — $1\frac{1}{2}$ in.; in the town of Monrovia, *Naumann.*
- C. tenax**, *Boeck.*: with trigonous stems, 4—16 in. long, and usually simple umbels of upwards of 7 spikes of 3—16 digitate dark chestnut-coloured spikelets, $\frac{1}{5}$ — $\frac{1}{3}$ in. by $\frac{1}{12}$ in.; the umbels overtopped by leaf-like bracts, Monrovia, *Naumann.*
- C. sphacelatus**, *Rottb.*: an annual with slender tufted stems, 6—24 in. long, and simple or compound umbels of spikes of 5—12 speckled spikelets, straw-coloured and $\frac{1}{2}$ in. long, the umbels often over-topped by the lowest bract; Grand Basā, *Ansell!*
- C. zollingeri**, *Steud.*: with trigonous slender stems, 1—2 ft. high, and irregular straggling or much-contracted umbels of loose spikes of 3—9 yellowish green spikelets, 1 in. by $\frac{1}{6}$ in., the umbels when contracted much overtopped by the leaf-like bracts; Monrovia, *Naumann.*
- Mariscus umbellatus**, *Vahl.*: with stems 1—2½ ft. long, thickened at the base and trigonous at the top, and with simple 5—12-rayed umbels of solitary cylindric spikes of very numerous straw-coloured spikelets, spreading rectangularly when ripe, the umbels supported by 5—10 leaf-like bracts; Monrovia, *Naumann, Whyte!*; Kakatown and Sino Basin, *Whyte!*
- M. rufus**, *H. B. K.*: with robust stems 1—4 ft. long, trigonous at the top, and umbels of numerous cylindric congested spikes of spreading or reflexed reddish brown spikelets, $\frac{1}{5}$ in. by $\frac{1}{16}$ in., the umbels supported by 4—7 bracts; Monrovia, *Naumann.*
- Eleocharis capitata**, *R. Br.*: a leafless annual with tufted stems, 2 to over 12 in. high, with a solitary terminal lanceolate dense dull greenish red spikelet, $1\frac{1}{2}$ in. long; Cape Palmas, *Vogel.*
- *E. naumanniana**, *Boeck.*: a very slender flaccid olive-coloured water-plant, proliferously branched, $1\frac{1}{2}$ ft. long, with solitary very slender 1-flowered spikelets, $\frac{1}{6}$ in. long; Monrovia, *Naumann.*
- Fimbristylis diphylla**, *Vahl.*: an annual with tufted stems, 7—28 in.

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long, and compound umbels of usually numerous solitary straw-coloured brown spikelets, $\frac{1}{6}$ — $\frac{1}{2}$ in. long, the umbel supported by leaf-like bracts; about 70 miles up the St. Paul's River, *Reynolds!*

- F. ferruginea**, *Vahl.*: with densely tufted stems, 8—28 in. long, and umbels of 5—10 or more reddish or variegated densely flowered spikelets, $\frac{2}{3}$ in. by $\frac{1}{6}$ in., the umbels supported by usually short bracts; Monrovia, *Naumann*; Grand Basā, *Vogel*, 55!
- F. exilis**, *Roem.* and *Schult.*: an annual with tufted slender stems, 4—16 in. long, usually spreadingly hairy and with an umbel of 3—14 reddish spikelets, $\frac{1}{4}$ — $\frac{1}{3}$ in. by $\frac{1}{8}$ in., the umbels supported by bracts as long as the rays; Grand Basā, *Ansell!*
- F. obtusifolia**, *Kunth*: with stems 4—16 in. long, very rigid leaves and compound umbels of small heads of spikelets (or the whole umbel contracted into a head) $\frac{1}{8}$ in. long, the umbel supported by leaf-like bracts; Grand Basā, *Vogel!*
- Bulbostylis barbata**, *Kunth*: a densely tufted annual with very slender stems, 1—10 in. long, setaceous leaves and heads of 3—12 spikelets, reddish to dark brown and $\frac{1}{8}$ — $\frac{1}{4}$ in. long, supported by setaceous bracts; Grand Basā, *Vogel.*
- B. laniceps**, *C. B. Clarke*: a perennial with densely tufted stems, 8—16 in. long, setaceous leaves and more or less hairy globose heads of about 20 spikelets, $\frac{1}{8}$ — $\frac{1}{6}$ in. long, the heads supported by setaceous bracts; Grand Basā, *Vogel*, 92!
- Fuirena umbellata**, *Rottb.*: a more or less hairy perennial, with a woody rhizome and stems $1\frac{1}{2}$ —5 ft. high, leafy all along and with irregular panicles of often numerous dense clusters of dull green or brown hairy spikelets, $\frac{1}{4}$ — $\frac{1}{3}$ by $\frac{1}{8}$ — $\frac{1}{6}$ in.; Monrovia and Kakatown, *Whyte!*; Basā Cove, *Ansell!*
- Lipocarpha triceps**, *Nees.*: an annual with tufted triangular stems, 4—16 in. high, basal leaves and solitary heads of cylindric usually purple or dark reddish spikelets, $\frac{1}{3}$ in. by $\frac{1}{8}$ in.; Cape Palmas, *Ansell!*
- Rhynchospora wallichiana**, *Kunth*: a perennial with tufted slender stems, 6—20 in. long, basal setaceous leaves and solitary heads of many rusty brown spikelets $\frac{1}{5}$ — $\frac{1}{4}$ in. long, the heads supported by often villous or ciliate long bracts; Grand Basā, *Vogel*, 105!
- R. aurea**, *Vahl.*: with robust stems, 3—6 ft. high, leafy all along,

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and long panicles of corymbs (2—5 in. in diameter) of numerous clustered brown spikelets $\frac{1}{3}$ in. long; Monrovia, *Naumann*; Kakatown, *Whyte*!

- Hypolytrum nemorum**, *Spreng.*: a perennial with leafy stems, 15—30 in. high, leaves 1—2 ft. by $\frac{3}{8}$ —1 in., and panicles (4—6 in. long and broad) of 50—150 solitary or clustered spikes of 10—20 spikelets, $\frac{1}{4}$ in. long; Kakatown and Sino Basin, *Whyte*!
- H. africanum**, *Nees.*: a perennial with leafless stems, 1—2 ft. long, from the axils of the crowded basal leaves, 16—30 in. by $\frac{1}{2}$ in., and with corymbs of 8—80 slender cylindrical brown spikes, $\frac{1}{3}$ in. long; Sino Basin, *Whyte*!
- Scleria spiciformis**, *Benth.*: a perennial 1—2 ft. high with 3-winged leaf-sheaths, spike-like oblong axillary panicles of dusky brown spikelets, $\frac{1}{4}$ in. long, and hard white smooth almost globose fruits; Grand Basā, *Vogel*!
- S. ovuligera**, *Nees.*: a hairy perennial, 1—2 ft. high, with triquetrous leaf-sheath, 3—4 remote pyramidal panicles of almost glabrous spikelets, $\frac{1}{5}$ in. long, and hard white smooth almost globose fruits; Monrovia, *Naumann*; Grand Basā, *Vogel*, 60!; *Ansell*!; Sino Basin, *Whyte*!
- S. barteri**, *Boeck.*: a rambling or climbing perennial, up to 20 ft. long, with rough-edged leaves, 8 in. by $\frac{1}{8}$ in., remote axillary pyramidal panicles (1—1 $\frac{1}{2}$ in. by 1 in.) of chestnut-brown spikelets, $\frac{1}{5}$ in. long, and white or brown to purple shining fruits; about 70 miles up the St. Paul's River, *Reynolds*!; Grand Basā, *Dinklage*, 2010!
- S. vogelii**, *C. B. Clarke*: with stems 3—6 ft. high, unequally 3-winged leaf-sheaths, rough-edged blades, 1—2 ft. by $\frac{1}{2}$ —1 $\frac{1}{4}$ in., axillary panicles 2—3 in. long (running into a terminal compound panicle) of pale spikelets $\frac{1}{3}$ in. long, and shining white or brown fruits; Kakatown, *Whyte*!; Grand Basā, *Vogel*, 59!; Sino Basin, *Whyte*!

GRAMINEÆ

- Zea mays**, *L.*: the well-known "Maize" or "Indian Corn," a cereal of American origin, cultivated in Liberia, according to *Vogel*.
- Coix lacryma**, *L.*: a branched soft-leaved grass with ivory-like more or less globose ultimately hard receptacles with an orifice at the top from which the short male spikelets and the stigmas

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of the enclosed female spikelets are exerted; of Indian origin, cultivated and naturalised all over the tropics; Kakatown, *Whyte!*—This is the grass known as “Job’s Tears.”

Saccharum officinarum, *L.*: the “Sugar-cane,” cultivated in Liberia, according to Vogel.

Andropogon leptocomus, *Trin.*: a perennial much-branched grass, up to 5 ft. high, with loose leafy panicles of very slender spike-like short racemes of lanceolate finely awned spikelets, $\frac{1}{3}$ in. long, each raceme supported by a very narrow sheath and borne on a long fine peduncle; in woods near Monrovia, *Naumann.*

A. sorghum, *Brot.*: the “Sorgho,” “Durra” or “Black millet,” cultivated in numerous varieties all over Africa, and also in other warm countries, the most important cereal of Tropical Africa; Kakatown, *Whyte!*; Cape Palmas, *Vogel.*

Paspalum distichum, *L.*: a short grass with long creeping rhizomes and paired spike-like racemes of oblong acute spikelets; Monrovia, *Naumann.*

P. conjugatum, *Berg.*: a slender grass with 2 or more very slender dense spike-like racemes of spikelets, $\frac{1}{18}$ in. long, quite flat on one side and more or less fringed along the edge with white loosely adpressed hairs; Kakatown, *Whyte!*

Isachne buettneri, *Hack.*: a graceful grass with a loose very finely divided panicle of subglobose spikelets, not much over $\frac{1}{4}$ in. long, each containing 2 fruits in the mature state; Cape Palmas, *Ansell!*

Digitaria horizontalis, *Willd.*: a rather weak annual with numerous very slender spike-like racemes of lanceolate spikelets, $\frac{1}{2}$ in. long; common on cultivated ground near Grand Basā, *Vogel, 27!*

Panicum muticum, *Forsk.*: a stout grass, up to over 6 ft. high, with leaves 6–10 in. by $\frac{1}{2}$ – $\frac{2}{3}$ in., and erect panicles of spike-like rather distant dense racemes of ovoid acute green or purplish spikelets, $\frac{1}{8}$ in. long; Grand Basā, *Vogel, 32!*—This is known in some parts of the tropics as “Water-grass” and is considered excellent fodder.

P. lineatum, *Trin.*: with a very loose and scanty panicle of ellipsoid rather obtuse spikelets; $\frac{1}{8}$ long; Kakatown, *Whyte!*

P. lætum, *Kunth*: a branched grass with a much-divided loose panicle (about 4 in. long and wide when quite open) of greenish

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- spikelets, $\frac{1}{8}$ in. long; about 70 miles up the St. Paul's River, *Reynolds!*
- P. chætophorum**, *Roem. and Schult.*: an elegant grass with much-divided loose panicles of oblique obovate dark spikelets, about $\frac{1}{12}$ in. long, the long capillary branches and pedicels of the panicle bearing very long fine scattered hairs; Kakatown, *Whyte!*
- P. brevifolium**, *L.*: a much-branched weak grass with short broad leaves and very lax finely divided panicles of oblong spikelets up to $\frac{1}{8}$ in. long; Kakatown, *Whyte!*
- Opismenus africanus**, *Beauv.*: a somewhat weak grass with distant one-sided fascicles of short spikes having stiff awns, green below and purplish at the blunt tips; Kakatown, *Whyte!*
- Setaria sulcata**, *Raddi*: a perennial grass, up to 8 ft. high, with large leaves (up to 2 ft. by 2 in. or more and folded fan-fashion) and rather loose panicles, 1—2 ft. long, of ovoid spikelets, $\frac{1}{8}$ in. long, with more or less numerous bristles among them; 70 miles up the St. Paul's River, *Reynolds!*
- Pennisetum purpureum**, *Schum. and Thonn.*: a coarse grass up to 15 feet high, with stiff cylindric very dense bristly spikes, 3—12 in. by 1 in., of yellowish green to blackish purple spikelets; Kakatown, *Whyte!*
- P. parviflorum**, *Trin.*: a tall branched grass up to 6 ft. high with flexuous slender cylindric spikes, 3—6 in. by $\frac{1}{4}$ in., of yellowish or purplish spikelets, with involucre of soft bristles; Grand Basā, *Vogel, 93!*
- Eleusine indica**, *Gaertn.*: a weedy grass with more or less digitate stiff one-sided spikes of crowded greenish spikelets $\frac{1}{8}$ in. long; about 70 miles up the St. Paul's River, *Reynolds!*
- Centotheca lappacea**, *Desv.*: a perennial grass with a loose panicle of green several-flowered spikelets, $\frac{1}{8}$ — $\frac{1}{4}$ in. long, and often armed with stout reversed bristles; Kakatown, *Whyte!*; Cape Palmas, *Vogel!*
- Eragrostis tremula**, *Hochst.*: a graceful annual grass, 1—2 ft. high, with large very loose panicles of pale green or purplish 10—40 flowered spikelets, often nodding on capillary pedicels; Basā Cove, *Ansell!*
- E. sclerantha**, *Nees.(?)*: in woods near Monrovia, *Naumann.*—The determination of this grass, which I have not seen, is certainly

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wrong. *E. sclerantha* is a South African grass of dry localities.

- Oryza sativa**, *L.*: The "Rice," cultivated in Liberia, according to Vogel.
- Olyra latifolia**, *L.*: an erect or straggling bamboo-like grass, 4—15 ft. high, with netted-veined leaves, 4—7 in. by 1—3 in., and panicles of 1-flowered unisexual spikelets, the male and female of different shape, the female larger, ovoid, caudate, the "fruit" white and shining; Kakatown, *Whyte*!
- Oxytenanthera** sp.—a species of **Bambuseæ**: a bamboo, possibly introduced, but growing wild seemingly in many districts near the coast; *Sir H. H. Johnston* (from photographs).

FILICES

- Pteridium aquilinum**, *Kunth*: the "Bracken," an almost cosmopolitan fern, Liberia, *Millen*, 200!
- Polypodium phymatoides**, *L.*: an epiphytic fern with far-creeping rhizome, more or less dissected fleshy coriaceous leaves, up to 3 ft. long, and immersed sori: Monrovia and Sino Basin, *Whyte*!
- Gleichenia dichotoma**, *Willd.*: a climbing or rambling fern with scattered repeatedly dichotomous leaves, often gregarious; Kakatown, *Whyte*!; without precise locality, *Millen*!
- Platyserium æthiopicum**, *Hook.*: an epiphytic fern, the well-known "Stag's-horn."

LYCOPODIACEÆ

- Lycopodium cernuum**, *L.*: an erect shrublet, much branched and resembling a miniature tree with minute subulate leaves and nodding spikes of sporophylles at the ends of the branchlets; Kakatown, *Whyte*!; 70 miles up the St. Paul's River, *Reynolds*!

SELAGINELLACEÆ

- Selaginella vogelii**, *Spring.*: much branched, to over 2 ft. high, ascending from a creeping rhizome, the tips often growing out into whip-like shoots up to 9 in. long, the whole plant more or less shining; Sino Basin, *Whyte*!
- S. scandens**, *Spring.*: an often very long climber, rooting from the glabrous stems, primary branches simply branched except near the base, branchlets ending with spikes (up to $\frac{2}{3}$ in. long) of sporophylles; Cape Palmas, *Schoenlein*; Sino Basin, *Whyte*!



266. *LANDOLPHIA OWARIENSIS* GROWING ROUND A FIG TREE
Note the white *latex* trickling from scratches or slits in the bark

CHAPTER XXIII

FAUNA: MAMMALS

IT is to be feared that the most prominent aspect of the fauna of Liberia which impresses the recently arrived stranger is its absence! In no part of Africa that the present writer has visited has there been a more striking absence of beasts, birds, reptiles, and insects from the landscape, at first sight, than has been the case whenever he has visited the coast regions of Liberia. That it was not always so, at any rate in regard to the mammalian fauna, we know from the old accounts of voyagers in the fifteenth, sixteenth, and seventeenth centuries. Regions like the vicinity of Cape Mount were said to have swarmed with game of all kinds—elephants, antelopes, buffaloes, and wild swine. At the present day those who visit the interior of the forests outside the line of coast plantations see something more of wild life, while further back still the three or four English, French, and Liberian explorers who have penetrated beyond a hundred miles from the sea-coast have noticed the more abundant fauna. According to the intelligent Mandingo traders who travel from these interior regions to the Liberian coast towns, what we should describe as “big game” is fairly well represented on the Mandingo Plateau.

The forests round Monrovia and in the vicinity of the Lower St. Paul's River are sadly destitute of beasts and birds. In the mangrove and pandanus swamps about the Mesurado lagoon the black and white fishing vulture is a common object,

• Fauna : Mammals

and the white-necked crow is seen occasionally. Crocodiles of no great size lie on the mud-banks, and a few colobus and mangabey monkeys swish through the tangle of mangrove roots



267. BLACK AND WHITE FISHING VULTURE (GYPHOHERAX)

and branches. But all along the coast it is the same story: a marked absence of wild life from native towns, gardens, plantations, uncultivated bush, and dense forest. One reason for this scarcity of life is the perpetual hunger that seems to

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assail the indigenous natives of Liberia, who when they have succeeded in killing any bird, beast, or reptile eat it up even to its skin. In fact, this scarcity of wild life dates a good deal from the time when guns and gunpowder were introduced into Liberia. The elephant is never heard of now within fifty miles of the coast.

Insects may be included among the classes which are scarce (to the eye). This is a fortunate deprivation, as nearly all insects are enemies to man's welfare or comfort. But the scarcity of butterflies in the coast regions is a loss to one's æsthetic enjoyment. Nowhere on the Liberian littoral have I seen the lovely spectacles that greet one so often in the equatorial woodlands of the Uganda Protectorate and in parts of the Congo region, where myriads of butterflies—scarlet, mauve, white, blue, opalescent, green, brown, and black—flit along the path before the traveller and settle in hundreds on moist places, scattering the ground as though with the gorgeous fallen petals of innumerable flowers. Termites (white ants) appear from early records to have troubled the first settlers on Cape Mesurado, but nowadays one never hears of them in Monrovia, nor are they a plague in any part of Liberia that has come under my notice. Mosquitoes are frequently absent from great stretches of forest country or from most of the coast towns. The one undoubted insect pest of the country is the bellicose driver ant (*Anomma*) which is very abundant in the forest regions, and whose armies are perpetually crossing the narrow paths and interrupting the progress of caravans by their savage attacks on all who dare to pass anywhere in their vicinity.

But part of the apparent scarcity of animal life is due to the denseness of the forest or bush, which enables beasts, birds, and reptiles to hide themselves from persecuting man. Residence

• Fauna: Mammals

in the country and patience in investigation will soon reward the traveller with a glimpse of some of the most interesting examples of the African fauna.

In its fauna and flora Liberia, though it is not strikingly delimited by a geographical boundary from the rest of West Africa, nevertheless possesses a somewhat peculiar character, because in many respects it is the culmination of the West African region. It is here that the West African forest reaches its most extended development. Yet it is cut off by hundreds of miles from the next great forest region to the east, the country between Old Calabar, the Cameroons, and the Upper Congo. It is therefore the refuge (perhaps) of a few strange lingering forms that have died out in the deforested regions of the Gold Coast and Dahome, or it has developed in course of time a few species peculiar to its own forests. Naturally enough, the Liberian district of the West African sub-region is not strictly confined within the political boundaries of the Liberian Republic. Liberia in the zoographical sense includes a portion of the eastern hinterland of Sierra Leone, and crosses the Cavalla River into the territory of the French Ivory Coast. In this direction it would seem to be cut off from the Ashanti forests by the intervening grassy plateaux behind the Ivory Coast, as well as by the forest destruction which has taken place to a greater extent amongst the agricultural peoples of the Ivory and Gold Coasts. Liberian forests on the west and north-west are separated from the forest region of Portuguese and French Guinea by the highlands of Futa Jalon.

The mammalian fauna of Liberia may perhaps, without offence, be called "Miocene" in the sense that it has many points of resemblance with the fauna of France and Southern Germany during the Miocene period. Of course there are no Miocene formations in Liberia, a country with a petrology

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mainly archæan and primary. But to these forests have come for refuge the beasts, birds, and reptiles developed in Europe and Asia during the Miocene—middle—period of the Tertiary Epoch. If North Africa is “Prehistoric” and “Pleistocene” in its existing mammals, Tropical Africa is mainly “Pliocene”; and Liberia and similar parts of West Africa are “Miocene.”

The Chimpanzee has long been noted as a Liberian mammal. It seems to have been commonest on the coast in the territories between Sherbro and Cape Mount. It is found at the present day wherever there is primeval forest in Liberia, and specimens are frequently sent to the coast from the Cavalla River. According to the stories of the natives (which are well summarised and confirmed by the researches of Büttikofer and his companions), although the Chimpanzee, possibly of two varieties or sub-species, is found throughout Liberia (except actually in the long-cultivated settlements near the coast), it has no fixed residence, but seems to be constantly in movement from place to place in search of food. The natives state that the females do not give birth to their young in the trees, nor do they build shelters there, as has been related of them in other parts of Africa. But in Liberia the migratory life of the chimpanzee would appear to be led commonly on the ground, amongst the dense cover afforded by the herbaceous plants and bushes. These apes apparently only take to the trees when molested by man or when they ascend them for the purpose of plucking fruits or nuts.

The young chimpanzees are not infrequently caught by the natives and brought to the coast for sale, where they find eager purchasers. According to Büttikofer, whose statements are always carefully made, the natives reported that although adult chimpanzees are untamable, young ones might be actually domesticated, and would show the tenderest affection for those

who looked after them. They informed him that these young chimpanzees could be trained to bring firewood, scare birds from the rice-fields, and even to act as nurses to little children!

I saw in 1904 a young female chimpanzee from the Cavalla River in the possession of the German Consul at Cape Palmas. It would have been difficult to meet with a more human creature not actually of the genus *Homo*. This chimpanzee lived in her owner's house as a child might have done, with a negro nurse to look after her. She was generally allowed complete liberty, and did not abuse this freedom by breaking or spoiling anything within her reach, and, strange to say, was wonderfully clean in her habits, a virtue too often wanting in chimpanzees. "Puppe" would come when her name was called, and fling herself into her master's arms. Puppe's sympathy with strangers was discriminating. If she liked the person introduced, she would climb on to his knee and tender charming caresses, pushing out the long lips in a pout to be kissed.

Of course these animals when taken to Europe nearly always die in a year or two, usually of diseases resulting from cold or damp. Mr. G. A. Boulenger, who has made a considerable study of the life habits of the chimpanzee in Europe, is of opinion that those who die in menageries perish as much as anything from sheer mental unhappiness as from any other cause. He would have them treated like human beings, clothed (to counteract the chills of our climate), and not kept in confinement. From one cause and another, however, it seems very little use to make humanising experiments with these interesting creatures (on the whole the nearest living relations of man) in our climate; but Liberia would appear to be an excellent *locale* in which to make a strenuous endeavour to tame and educate the chimpanzee. Here it would be at home in its own climate. If it be really true, as Liberians told Büttikofer, that these creatures

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when caught young can be trained to such services as bringing firewood, scaring birds, and above all, minding children, who shall say what further developments might not come in the course of centuries?

The chimpanzees of Liberia, judging from such skulls as I have seen brought from the far interior, and from information collected by Büttikofer and others, do not attain a very large size; they are not yet known to become such big animals as *Simia vellerosus*. An old male measured by Büttikofer was about 3 feet 3 inches from the brow-ridges, over the head and along the back to the end of the rump. The Hon. Walter Rothschild in his paper on Anthropoid Apes,¹ following Professor Matschie, distinguishes the Liberian chimpanzees as belonging mainly to the species *Simia pygmæus*, but he differentiates them from other varieties of this small chimpanzee as *S. pygmæus fuscus* (the chimpanzee of Southern Liberia, the Ivory Coast, and the Gold Coast) and *S. pygmæus leucoprymnus* of Western Liberia and Sierra Leone. The last-named receives its sub-specific title from the distinct patch or wisp of white hair growing on the rump, the wisp of hair being sometimes so long as to deceive people into thinking that this form of chimpanzee has a small, erect tail, which of course is not the case.

S. pygmæus fuscus is described as having hair of a reddish tinge. I have not noticed this colour in the two or three chimpanzees which I have seen between 1882 and 1904 at Cape Palmas, chimpanzees which had been brought down from the Cavalla River. Their hair was perfectly black. According to Mr. Rothschild, Professor Matschie the German zoologist believes that he has distinguished two other sub-species or varieties of chimpanzee from Liberia. All the forms I have seen myself on the coast of this country seem to have been of the

¹ *Proceedings*, Zoological Society, April, 1905.

type described by Mr. Rothschild as *S. pygmaeus leucoprymnus*. I append for the information of those who may be studying locally the zoology of Liberia the definitions of *Simia pygmaeus fuscus* and *Simia pygmaeus leucoprymnus*.¹

The Americo-Liberians call the chimpanzee "baboon," generally pronouncing the word *bábboon*. This leads to a great deal of confusion in the accounts given by Liberians or even of Americans of journeys in the interior forests, wherein allusions are often made to the terror or the respect which the natives feel for the "baboon" (meaning chimpanzee), or to that most weird experience of the African forest, the yells and cries and shouts of the chimpanzees. In reference to this last characteristic of the animal, Dr. Ernest Lyon, the American Minister in Liberia, writes in February, 1905: "The only animal which the native [he is here referring to the Kpwesi tribe] seems to fear is the 'baboon.' He will entrap an elephant, chase a leopard, and pursue a hippopotamus; but he will fly in mad haste from the hideous yells of a [chimpanzee], which resemble the cry of a man in distress. This sound unnerves him, and despite his reputation for courage he will desert you in the densest forest. Our party had an illustration of this during the trip. When in the midst of the thick bush, ten miles away from any settlement, we heard this doleful noise, which we mistook for the cry of distress of some misguided traveller, the natives came to a halt. They knew what it was, and in their discomfiture started to leave us in the thickest forest;

¹ The brief description of *Simia pygmaeus fuscus* (the Gold Coast chimpanzee) is: "Face pale flesh colour, ears not large, blunt, flat at the top; hair of head spreading from central whorl (without a middle parting), beard whitish on chin, below chin beard is entire and long. Hair of body reddish brown." *Simia pygmaeus leucoprymnus* (Liberian chimpanzee) is: "Hair on head sparse, parted through the middle, head and body hair black, except chin hairs which are brownish; ears are large; beard short and thick."

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but the sudden discharge of our firearms brought them to their senses.”¹

Some of the interior natives whom I met on the coast in August, 1904, told me in describing the chimpanzee that it beat with its hands on hollow logs, accompanying the action by hooting, and that quite a party of these apes would gather together for this drumming and shouting. The information was given without any attempt to elicit it on my part, and corresponded most curiously with similar stories gathered through the natives of Unyoro and Toro in the Uganda Protectorate.

In spite of the constant talk of Liberians about “baboons,” by which, as before stated, they mean the chimpanzee, it is by no means certain that any real baboons are found in the forest region of Liberia. Those that are met with in coast towns seem to have come from the regions nearer the Sierra Leone frontier, or have been brought down by Mandingos from the plateaux beyond the forest. It is doubtful whether in any part of West Africa baboons inhabit the dense forest. They prefer the more open country of rocks and grass plains. No species of baboon (*Papio*) has been recorded as indigenous to Liberia by Büttikofer, or by any other European collector. On the other hand, the sooty mangabey (*Cercocebus fuliginosus*) is very common. I have seen it myself in the mangrove swamps, where it is often in company with the Ursine colobus. This particular mangabey is of an almost uniform chinchilla-grey in colour, with a pinkish yellow face and the white eyelids so characteristic of this genus. The Mangabeys are nearly related to the baboons in structure, and have very baboon-like habits, such as, for example, their method of greeting friends with a rapid smacking of the lips.

¹ From “A Journey to Kpondia Hill,” *Liberia*, February, 1905.

Of monkeys of the large genus *Cercopithecus*¹ there are at least five kinds. Two of these belong to the white-nosed group, which in varying forms is distributed from Senegambia right across to Uganda, and from these regions of forested Africa southwards to the Zambezi basin. The white-nosed monkeys of Liberia would appear to be peculiar species—*Cercopithecus stampflii* and *C. buettikoferi*. The last-named differs most markedly from the common West African *Cercopithecus petaurista*, in that it has a long white mark over the ridge of the eyebrows, stretching from the bridge of the nose right across the face to below the ear. In *C. stampflii* the place of this white line is taken by an indistinct patch of hair. There is also no black band, as in *C. petaurista*, stretching over the top of the skull.

According to Büttikofer, Stampfli's *Cercopithecus* is the largest species of the white-nosed group. Its tail is exceedingly long, over a yard in length, and the body a little less. The colouring of this monkey he gives as being mottled yellow-green and black from the back down to the middle of the tail. The top of the head, neck, arms, and outer side of hands and the last half of the tail are black. The chin, breast, inside of the arms, and upper half of the stomach are white. The white patch on the nose also extends farther up towards the brows.

The Green monkey (*Cercopithecus callitrichus*) is fairly common in the western parts of Liberia, near the Sierra Leone frontier. It is a pretty little animal, allied to the white-nosed type, but without that distinguishing feature. The Green monkey has yellowish white whiskers, throat and stomach, and a very narrow whitish line along the brows which joins the

¹ For which a comprehensive English name is much required. The French call this type of monkey *guenon* and the Germans *meerkatze*.

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light-coloured whiskers and is carried round the head to the back of the ear. The bare skin of the face is blackish, and the crown of the head, the outer side of the hands, and the upper part of the tail are black. The rest of the upper parts are a greenish tint caused by the parti-coloured black and yellow hairs. The under-side and extremity of the tail are bright yellow, and there is often a grey patch at the end of the back by the root of the tail. This green monkey is really only a brighter-coloured variety of the grivet monkey which is found in North-Eastern Africa, and probably stretches right across the continent to Senegal, grading by degrees into the West African type, the Green monkey. The presence of the Green monkey, therefore, in North-western Liberia would seem to be an incursion of a Senegambian type into this more purely forest region.

Campbell's monkey (*Cercopithecus campbelli*) is a fairly common species throughout West Africa, from Senegambia to the Gaboon, including the island of Fernando Po. It belongs to that section of the Cercopithecine genus which may be described as the "Diana monkeys," though it is of a much less developed type and is without the white streak on the haunches characteristic of the Diana and Mona monkeys. The general colour of the upper parts is blackish green, fading here and there into a yellowish grey. There is a white brow-ridge which passes without any break or interruption into the whitish whiskers and short beard. The chest, under-side of the limbs, and stomach are yellowish white.

The true Diana monkey is probably not found in Liberia, where this genus develops a special type—the Bay-thighed monkey (*Cercopithecus diana ignita*), of which I give an illustration. The bay-thighed Diana is coloured much like the typical form, but is easily distinguished from it inasmuch as the



The Bay-thighed Diana Monkey (*Cercopithecus ignita*)

white on the outer edge and inside of the thighs becomes a bright chestnut-red, almost flame-colour.¹ The bay-thighed monkey is one of the most charming pets imaginable. Usually of a gentle and caressing disposition, it utters melodious chirruppy cries of pleasure when approached by friends. It quite revels in its own beauty of form and colour, and naïvely solicits admiration, showing itself off in the prettiest postures. For coloration it is perhaps the most beautiful of all mammals and comes nearest to the bright colours of birds in its tints of flame and lemon. To enhance this gorgeousness, the skin of the male genitals is pale azure-blue. The Liberians call the Diana monkey "Dandy Jack," a not inappropriate nickname on account of the pleasure this creature takes in its own appearance and its fastidious cleanliness.

The Colobus monkeys form a very distinct group by themselves, limited in their range to Tropical Africa between Abyssinia on the north and the Zambezi on the south. This genus has no cheek pouches (unlike the baboons, mangabeys, and *Cercopithecus*) and their stomachs are sacculated—that is to say, divided into a number of pouches like the closely allied genus of *Semnopithecus* in Tropical Asia. The *Colobi* are even more markedly leaf-eaters than is the case with their Asiatic

¹ For the information of those readers who may wish to distinguish the true Diana from this sub-species, it might be stated that its coloration is as follows: The very long beard, the whiskers and long hair on the chest and inner side of the fore-limbs and hind-limbs, together with the outer edge of the thighs, are pure white, very beautifully tinged here and there with lemon-colour. Along the brow-ridge is a crescent-shaped fringe of white hairs, which gives rise to the name because of its supposed resemblance to the crescent of the Hunting Goddess. Across the haunches is a distinct though narrow streak of white sometimes tinged with yellow. The top of the head and a line from the temples to the ears are black. The bare skin of the face is bluish black. The upper part of the body and the back are black, which is grizzled or speckled with white, giving the animal a greyish mantle. The tail is jet black. The rump under the tail is chestnut-brown, and the sides of the animal above the white streaks on the haunches are also bright chestnut.

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relations, and one reason why they thrive so badly in confinement (away from Africa) is that their leaf dietary has been overlooked or has proved difficult of supply; so that most *Colobus* monkeys reaching England alive die in a short time from diseases of the digestive organs due to unsuitable food.

Their distribution across the continent of Africa has been horizontal rather than longitudinal. A peculiar species of reddish brown colobus is found in the island of Zanzibar. Another reddish coloured monkey of this genus is met with on the Upper Tana River, and reappears again in Western Uganda, and no doubt in the Congo Forest. In Liberia, as in other parts of West Africa, there is a red colobus, *Colobus ferrugineus*, the range of which stretches as far westwards as the Gambia Colony. Very probably the original colours of this genus were chestnut-brown and grey, but it is best known by its most recent developments, which are black, with more or less distinct patches of grey or white.

The most splendid development of the *Colobus* genus is probably to be found in Southern Abyssinia (*C. guereza*), in which the long tail is heavily plumed with very long white hairs while the sides of the body develop a long and thick silky white mane. On Kilimanjaro Mountain this form of *Colobus* has evolved a peculiar variety in which the tail is more or less thickly plumed with white from its base to its extremity.

In Liberia this black-and-white type of *Colobus* is apparently represented (according to Büttikofer) by *C. polycomus*, which is much more commonly met with in Sierra Leone. In this monkey the forehead, sides of the face, throat and short beard are dazzling white. So also is the long mane on either side of the body. The long tail is white throughout its whole length, and has a *small* white tuft at the end. The rest of

the hair is glossy black. So far, this *Colobus polycomus* has only been noted in the western regions of Liberia. A much commoner species throughout the country is the Ursine Colobus (*C. ursinus*). In this form the long tail is white, with a small plume, and the mane on each side of the body is not very long and is of a greyish colour. There is grey also on the chest, in the long hairy whiskers, on the top of the head, and on the outer side of the thighs.

Colobus cristatus is perhaps the commonest of the thumbless monkeys of Liberia. It is usually known as the Mangrove monkey, because troops of it frequent the mangrove thickets. Büttikofer describes it in his work on Liberia as *Colobus verus* or *versus*. *Verus* was an alternative name given by Van Beneden in 1838, but the correct designation is *Colobus cristatus*. Its coloration is as follows: The head, neck, back, and base of the tail are an olive-brown colour, the hairs being finely ringed with black. This part of the fur sometimes assumes quite a greenish tinge. The nape of the neck is dark brown, and the fur under the tail round the black callosities of bare skin is also rich dark umber. The long tail is grey, becoming almost black at the tip.

In the Red Colobus (*C. ferrugineus*) the back of the animal down to about half-way on each side, and the top of the head, are a bluish black or very dark grey. The whiskers, throat, stomach, flanks, and the arms and legs are a rich chestnut brown. The greater part of the tail is also this chestnut-brown, but there is a patch of black on either side of the root of the tail. The ears and the bare skin of the face are lead-grey, as in most of the *Colobi*; but the nose and lips are pale pinkish white.

Although the generic name "Colobus" means "mutilated," and is given to this group because the adult monkeys are

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thumbless (having only four fingers on the hands), this loss of thumb is evidently not an ancient or well-established feature. Examples of nearly all the species may be met with in the adult stage still showing a minute tubercle tipped with a tiny nail as vestige of the thumb, but in the young the presence of the thumb is most marked. I have seen the young of *Colobus rufomitratus*, which is the Red Colobus of Eastern Equatorial Africa, in which the thumb was nearly as well developed as in any *Cercopithecus*. As this Colobus grows up, however, the thumb gradually dwindles in size until it disappears altogether or is reduced to a mere tubercle.

The Lemurs are represented in Liberia by the Potto (*Perodicticus potto*), and by at least one species of Galago (*Galago demidoffi*). The Potto, together with an allied species from Old Calabar and the Cameroons, the Angwantibo,¹ is a very peculiar and specialised development of the lemurs, somewhat analogous to the still more extraordinary Loris of Eastern Asia. The Potto has a short, thick, stumpy tail, apparently thicker at its abrupt termination. It may be easily distinguished from the much rarer Angwantibo by the greater length of the tail, for in the latter animal the tail is reduced to a mere half-inch stump.

The thick, soft, woolly fur of the Potto is a warm reddish-grey on all the upper parts of the body; the throat, inner side of the limbs, and under-parts being an ochre-yellow. The somewhat changing greyish yellow fur on the upper parts is produced by each individual hair being dark grey nearest the skin, bright chestnut-red in the middle, and whitish grey at the tip. The nose, lips, and chin are without hair, and of a pale flesh-colour. The large eyes, with perpendicular slit-

¹ There are probably several species of Angwantibo. This last lemur is sometimes classed in the separate genus *Arctocebus*.

like pupils, are pale yellow. A marked peculiarity of the hands is the reduction of the first or index finger to a mere rudiment. The potto has another remarkable peculiarity, perhaps unique in existing mammals: the spinous processes of the vertebræ of the neck are, in the case of four or five of these vertebræ, much elongated, and their points project beyond the muscular integument and almost beyond the skin, the tips being merely covered with a thin cuticle, so that they form a series of knobs along the back of the neck. As in all the lemurs, the second toe of the foot is somewhat shorter than the other toes, and is furnished with a sharp claw. All the other toes, including the opposable big toe, are armed with flat nails. This peculiarity is very characteristic of all the known lemuroids, and sharply distinguishes them from the true apes, with the exception of the marmoset family.¹

The Potto lives of course mainly on insects. It sleeps throughout the day, and is active at night-time, uttering some of those loud and unearthly cries characteristic of the Liberian forest during the dark hours. These cries are easily associated in the native's mind with malevolent spirits. The Americo-Liberians call this animal the "Softly," from its stealthy movements. The indigenous Negroes regard it with awe, and weave curious stories and superstitions round it, declaring that its hands and feet possess extraordinary grasping power, and that these little animals are able to catch and hold large monkeys.

The Galagos are a very interesting group of African lemurs, with representatives also in the island of Madagascar. Whilst the two pottos of West Africa² are closely related to the lorises of South-eastern Asia, the galagos have no known

¹ In which practically *all* the fingers and toes are armed with claws instead of nails.

² It might be mentioned that the range of the common Potto extends right across Africa from Sierra Leone to Uganda.

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Asiatic connections, and probably descend from the more generalised European lemurs of the Eocene period. The galagos as a sub-family have a remarkable feature in their skeleton which reappears in that aberrant long-limbed Asiatic lemur, the tarsier: this is the elongation of the heel and ankle bones. The calcaneum (the principal bone of the heel) and the navicular bone of the ankle are produced into the form of rods growing side by side.

The meaning of this peculiar development of the bone at the heel-end of the foot may bear some relation to the extraordinary jumping powers of the galagos. In other works which I have written on Africa I have referred to this agility on their part, on which sufficient emphasis has never been laid by other writers describing the life habits of the African galagos. The species which is found in Liberia and other parts of West Africa (*Galago demidoffi*) is especially remarkable for this power of leaping relatively great distances into the air, upwards, horizontally, and downwards. I have had one of these galagos, tame, sitting on my hand and perhaps drinking milk out of a spoon. Suddenly it observed a buzzing bluebottle-fly on a window-pane three or four yards distant. Like a flash, the little animal has left my hand, has appeared on the window, caught the bluebottle, and leapt back again, if not on to my hand, at any rate on to the adjoining table or chair. The leaps of the galago remind one irresistibly of the beginnings of flight in such animals as the bat. The Bats, though originating from primitive Insectivora, were not distantly related to the primal types of the Anthropeidea, of which the nearest representatives at the present day are the Lemurs. The beginnings of the Bats developed enormous hands, with long, skinny fingers, like those of that aberrant lemur, the "Aye-aye," and no doubt leapt after their insect prey with outstretched

fingers as do the modern galagos. In time these leaps would be sustained by the beating of the air with the webbed fingers, while the loose skin of the body acted as a parachute, and so by degrees the wings and flight of the modern bats were evolved.

The teeth of the Galagos resemble those of the true Lemurs in number and form, but the lower incisors are perhaps not quite so procumbent (horizontal in setting), at any rate in three of the species of which *Galago demidoffi* is one. This last is the only galago which has, as yet, been recorded from Liberia.

A peculiarity of the Lemurs, distinguishing them sharply from the true monkeys and the remote ancestors of man, is the incisiform character of the lower canine teeth, which indeed by Gray and earlier biologists were regarded as true incisors. The tooth in the lower jaw which appears to be the canine and corresponds with the upper canines, is really the first premolar, and is an upright sharp tusk in shape; but in *Galago demidoffi* these dental peculiarities are not quite so strongly marked as in most other lemurs. The procumbent lower canine is a little more separated from the two incisors, and not quite so horizontal, and the first lower premolar does not move so far forward or assume so markedly the look of a lower canine tooth.

An archaic feature in the Galagos shared by *Galago demidoffi* is the presence of four mammae, one on each breast, and the other pair between the thighs. This feature only occurs elsewhere amongst the lemurs in the true lemurine genus *Hapalemur*. In the Madagascar Aye-aye there are only two teats, and these are placed on the abdomen. In all probability the parent anthropoid forms, from which originated the Lemurs, Monkeys, and Man, retained two pairs of teats from out of the three or four pairs of the more generalised mammalia.

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Occasionally in the human species there is a reversion to this condition ; for women are known to develop rudimentary, non-functional mammæ on the abdomen, similar to the third pair of non-functional teats on the udder of oxen.

The Galagos also utter loud cries at night, and are chiefly nocturnal in their habits, being sleepy and unwilling to move in bright daylight, at any rate until they become thoroughly tamed. They will often move about a house during the daytime because they are sheltered from bright sunlight, which they dislike. I have not observed in the Liberian type of Galago that tendency to make use of the hands as weapons of offence which is so marked in some of the larger forms of galago in East and South Africa. These will stand erect on their hind legs and box like a man. In fact, they defend themselves with their hands quite as much as with their teeth against aggression on the part of a dog or cat, delivering blows with the knuckles as well as "pulls" and snatchings. Like some other lemurs, the galagos resort a good deal to bipedal progression, running, walking, and jumping on their hind-legs in a nearly upright position, and reserving the hands for offence and defence. With a quick, darting motion of the hand whilst progressing on their hind-feet they will seize insects. The human principle of locomotion on the hind-limbs began far back amongst the lemuroids, many of the monkeys and apes having reverted to a quadrupedal movement.

Bats are very abundant in Liberia. The Fruit-eating forms (*Megachiroptera*) are represented by *Hypsignathus* and four *Epomophori*, by two or three species of *Rousettus*,¹ and by at least one brush-tongued bat—*Megaloglossus*.

¹ The older name, *Rousettus*, has recently been revived (unhappily, because of the law of priority) in lieu of *Xantharpyia*. Büttikofer's, or rather Jentink's *Leiponyx*, given to one doubtful Liberian specimen from which claws on the index fingers were accidentally absent, is not now admitted without further evidence.

The *Epomophori* are peculiar to Africa, which they range from Egypt to the Gambia and Natal. In these bats the head is unusually large and long; but it is so monstrous and hideous in the biggest of the sub-family—the hammer-headed bat, *Hypsignathus*—as to provoke the appropriate specific term of *monstrousus*. This animal is the creation of a nightmare imagination. It might be recommended to the designers of an instructive pantomime or Wagnerian opera.¹

All the *Epomophori* are remarkable for their much-developed fleshy, pendulous lips, usually supposed to be evolved for the special purpose of absorbing the juice of succulent fruits. The type of head is somewhat different from that which characterises the fox-bats of Asia (*Pteropus*) or those of the genus *Rousettus* which are also found in Liberia. Another feature in the structure of the *Epomophori* is the short tail (except in *Hypsignathus*). In many of the Fruit-eating bats an external tail is practically absent or reduced to a mere rudiment; whereas in the Insect-eating bats the tail plays an important part in the structure of the flying apparatus.

A remarkable feature in the *Epomophori* is the air-sac under the skin in the males, on each side of the neck. These air-sacs communicate with the pharynx and can be distended at the will of the animal. They are probably most inflated during the breeding season, when the male bats are very noisy.² The bones at the base of the tongue (hyoid) and the form of the larynx (voice organ) are quite peculiar in their construction, and are no doubt correlated with the air-sacs in the male *Epomophori*.

In addition to their air-sacs, both sexes (but especially the

¹ It is called in Vai "Tuña": Insect-eating bats are distinguished as "Dérë."

² These bats in Liberia (as also the allied species at Zanzibar) make a loud noise like the quacking ducks or the croaking frogs, in the daytime as well as at night.

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males) have glands at the junction of the neck and shoulder from the mouths of which project long, coarse yellow hairs, which grow down so as to form tufts or epaulets on the bat's shoulders.

Two or three species of the genus *Rousettus* (*Xantharpyia*) are recorded from Liberia—*R. collaris*, *R. stramineus*, and perhaps *R. buettikoferi*.¹

The bats of this genus, as already stated, have a short tail like some of the Epomophores, the tip of which is free from the wing membrane. The muzzle is rather long and slender. The males have a gland on each shoulder like that of the Epomophores, and from the aperture of this gland radiate long hairs, which in *R. stramineus* form almost a half-collar round the neck. The colour of *R. stramineus* is pale brown, becoming yellowish on the loins, while the head is dark umber. The half-collar of coarse hairs round the throat of the male is a reddish yellow.

There is a specialised sub-family of frugivorous bats—the *Carponycteriinæ*, which among other features is characterised by a very long tongue, armed at the lower end with recurved papillæ like those on the tongue of a lion. These “brush-tongued bats,” as they are sometimes called, also have very narrow molar teeth, scarcely rising above the level of the gums. The number of the teeth in their West African representatives (at least in *Megaloglossus*) is thirty-four—an unusually large number for a fruit-eating bat (only equalled in *Pteropus*²); but the teeth are small and tending towards disappearance owing to the increasing use of the tongue, which nourishes the bat by rasping the thin skin of certain fruits and coating itself thickly with

¹ *Rousettus collaris* is the *Cynonycteris torquata* of Büttikofer; the third species—*Rousettus buettikoferi*—is the very doubtful *Leiponyx buettikoferi* of Jentink.

² *Pteropus* likewise has thirty-four teeth. As a rule the teeth in the *Megachiroptera* are reduced to twenty-eight or thirty.

viscous juice. The *Carponycteriinae* are small bats, one of them being quite the smallest of the *Megachiroptera*. The muzzle is slender, long, and pointed. They are represented in Liberia and adjacent parts of West Africa by one species (the rest of the distribution being confined to the far east of Asia and the Malay Archipelago): this is usually called *Megaloglossus woermannii*.¹ Its small teeth are thirty-four in number; there is no external tail, and the first finger (index) is armed with a claw. The colour of this brush-tongued bat is dark brown. Besides *Megaloglossus* there ought to exist a form of *Scotonycteris* in the Liberian forests, but no specimen of this yellowish brown brush-tongued bat, with a white spot on the nose, has yet been recorded from this country.

The Insect-eating Bats of Liberia include eight recorded species, but are probably represented by many more of migratory habits not yet sent home by collectors. Of the Rhinolophine family of leaf-nosed bats, to which our greater and lesser horseshoe bats of England belong, there is *Hipposiderus fuliginosus*. This has large broad ears and small antitragus (or imitation earlet), a fleshy nose-leaf or complicated shield of naked skin rising above the nostrils. The nose-leaf is of very moderate dimensions compared to those of other horseshoe bats, especially the extraordinary *Trienops* of Eastern Africa. In *H. fuliginosus* (as in other species of the same genus) there is a kind of pouch or sac on the forehead behind the nose-leaf (scarcely developed in the female), the sides of which can be extended and everted by the bat when it is excited. The sides of this pouch are slimy or waxy with an odorous secretion.

Of the bats of the Nycterid family there are two Liberian examples—*Nycteris hispida* and *N. grandis*. They are without a nose-leaf, but the centre of the forehead is deeply hollowed and

¹ This genus is sometimes styled *Trygenycteris*.

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expanded. A deep, sharp-edged groove extends from the nostrils through the middle of the forehead to the band of skin which connects the bases of the very large ears. The sides of this frontal depression are fringed by small nodules of naked skin. The lower jaw projects beyond the upper, so that this bat is "under-hung." Unlike the other leaf-nosed bats of the preceding family, there is a distinct tragus or earlet to the ears.

Vespertilio (*Vesperugo*) *stampflii* and *V. nanus* are allied in structure and appearance to the English Serotine bat. They are of course small bats, with flat broad heads. The ears are not particularly large, and the tragus is small and curved inwards. The nostrils are set somewhat wide apart and are slightly projecting, and the middle of the lower lip has a naked space which is slightly excrescent. These bats also possess a post-calcaral lobule of the wing membrane, just below the heel-spur.

Pipistrellus is represented by *P. minutus* and *P. tenuipinnis*. These bats are very like our common English pipistrelle, the smallest and commonest bat in England. It is probable that the relatively large bat of the genus *Scotophilus* (*S. gigas*) of Equatorial Africa, the forearm of which measures nearly three and a half inches, is also found in Liberia; but it has not yet been sent home, nor has the remarkable white-winged bat (*S. albofuscus*) of the Gambia, though it is also probably an inhabitant of Liberia.

The last of the Liberian bats to be recorded is the brightly coloured *Kerivoula africana*, which is not much larger than the English noctule. Its large ears very nearly touch over the middle of the forehead. The tragus is long and erect, the eyes are very small and placed low down near the base of the ears. There is considerable breadth between the nostrils, but the nose is simple and only marked by a slight groove. The colours of this bat are orange-brown and brownish black.

The Insectivora are represented in Liberia by four species of Shrew, three belonging to the genus *Crocidura*. The two species of *Crocidura* are apparently peculiar to Liberia; at any rate, they have not as yet been recorded in any other part of West Africa. They were discovered by Dr. Büttikofer, after whom and his companion Stampffi they have been named. The *Crociduræ* are smallish, shrew-like animals, larger than the true shrews, the size of house mice or small rats. They have a more or less strong smell of musk, which betrays their recent presence by lingering on the objects they have touched. Their teeth are completely white, and not tipped with orange or brown as in the true shrews. The tail is armed by a fringe of stiff hairs.

It is probable that there are one or more representatives of the genus *Sylvisorex* in Liberia, as in other parts of West Africa, but they have not yet been discovered. One shrew of this genus is the smallest or very nearly the smallest mammal in the world, and the specimen which the present writer collected—*Sylvisorex johnstoni*—was picked up by him in mistake for a beetle, its tail being curled under the body. There is also in all probability a species of hedgehog, *Erinaceus diadematus*, with long spines on the forehead, or *E. albiventris*, with a white-haired stomach and only four toes on the foot.

The Rodents are well represented. First may be mentioned representatives of that remarkable family of the Squirrel section, the *Anomaluridæ*. These are usually termed "flying squirrels" and in a sense they are distantly related to the squirrels, and have developed expansions of the skin along the sides of the body and upper part of the limbs, so this designation is not as inaccurate as it might be. But they form a peculiar African family of rodents, quite distinct from, though perhaps allied to, the squirrels. They have no special connection with the

true flying squirrels, which are a parallel development. These Anomalures are found right across Equatorial Africa, from Zanzibar to the West Coast; but they are perhaps most developed in West Africa. They are rather large animals, about the size of cats, and differ from the real flying squirrels in the greater elaboration of their parachute membrane. This membrane is supported by a rod of tiny cartilage, which arises from the elbow joint instead of from the wrist (as in the true flying squirrels). There is, however, no expansion of the membrane between the neck and the inner surface of the arm (as in the flying squirrels). The tail is long, and rather bushy for three-quarters of its length; but that half of the tail which is nearest to the body is naked on the under-side, and is also armed underneath by about five rows of overlapping, sharp-edged scales. These scales assist the animal in "swarming up" a tree trunk or branch. The feet are armed with very strong, curved, sharp claws, which enable the Anomalure to adhere closely to any rough surface. This creature is justly described by Mr. G. L. Bates as the most arboreal of existing mammals. It can leap easily from tree to tree, sailing or skimming through the air, but on the ground it is perfectly helpless. When climbing up a tree it moves like a caterpillar, humping up the hindquarters and getting much leverage and purchase out of the scales on the under-surface of the tail-base.

Büttikofer relates that these Anomalures make a twittering noise at night, thus betraying their presence to the native hunter. They are absolutely silent during the day, and most frequently retire inside hollow trees. If remaining outside they are closely pressed and spread out over the surface of a branch or tree trunk. Thus they are almost indistinguishable in appearance and colour, even to the sharp eyes of the natives, looking as they do very much like an excrescence or bulging of the bark.

They live chiefly on fruit, nuts, leaf-buds, and the soft, juicy inner bark immediately next to the woody fibre of branches.

The true Squirrels (*Sciurus*) are represented by at least six species, the largest of which is Stanger's squirrel. This is a creature nearly the size of a rabbit, with coarse rough hair. According to Büttikofer, it lives much on the tops of the oil palms, feeding on the orange-coloured nuts, which have their outer rind full of rich oil. He considers that the vivid orange colour on the breast and belly of this large squirrel partly arises from the staining of their skins by the brightly coloured fat that exudes from the rind of the nuts; but in this he is mistaken, as allied species found in British Central Africa, where they do not specially live on the oil palms, exhibit the same bright coloration. The flesh of these squirrels is much appreciated by natives and Americo-Liberians, partly because of their rich fattening diet.

The common Ground squirrel, *Xerus erythropus*, is one of the few creatures that are really common and frequently seen in Liberia. Although always on the alert, it has little fear of man, and like most of the true squirrels is active in the day-time. The hair of these ground squirrels in almost all the four species is coarse or even spiny. The general colour is reddish yellow. There are only two mammae. The most striking feature, however, is the almost complete absence of ear conches. The ears look as though they had been cropped.

Xerus is one of what may be called the "Miocene" genera of Liberia, as a fossil example of that period has been discovered in France (according to Lydekker). But the genus *Xerus*, though nowadays restricted to Africa, is found pretty well all over that continent from Algeria to the Cape.

The dormice are represented by several species of *Graphiurus* (sometimes erected into the separate genera of

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Eliomys and *Claviglis*). The two dormice *Graphiurus* (*Eliomys*) *crassicaudatus* and *G. (E.) nagtglasii* are distinguished from *Graphiurus hueti* by having bushy tails; whereas in the more distinctive *Graphiurus* type the tail is not very long, is rather rat-like, and tufted or pencilled at the end.

Büttikofer records nine species of true mice from Liberia, including the hateful brown rat of world-wide distribution (which, however, is only met with on the coast, where of course it has landed from ships), the common black rat, which here, as throughout Tropical Africa, has become the house rat of the native huts, and the Alexandrine rat of Egypt—little else than a variety of the black rat, but differently coloured, with a white belly and reddish grey fur above. A mouse (*Mus musculooides*) very like (but smaller than) the common house-mouse of Europe and Asia is present in Liberia. Here, however, it leads a life more resembling in habits that of the harvest mouse. The pretty Barbary mouse, white below and striped horizontally with blackish brown on yellow-brown above, is also a native of this country.

A little larger than the true rats is the Pouched Rat, *Cricetomys gambianus*, which is distinguishable from them at once by its outward appearance. It has a yellowish brown colour, with white under-parts and a white tail, which is hairy and not scaly like a rat's tail. This creature is called "bush rat" by the Americo-Liberians. According to Büttikofer, it lives in deserted ant-hills, and as elsewhere in Africa, is very fond of burrowing under native paths or smooth places devoid of vegetation. The natives are clever at following up these burrows and catching the bush rat, which they eat. Its habit of sitting upright on the long feet with the tail as part of the tripod is kangaroo-like, as is also its method of progression, which is generally by leaps from the strong hind-limbs.

Of the true porcupines there are two kinds, the common species (*Hystrix cristata*), which inhabits Southern Europe, North-east and West Africa ; and the Brush-tailed Porcupine, *Atherura africana*. The last-named is easily distinguished from the first, because it is a smaller animal, the spines are less markedly developed, and the tail is much longer and tipped with a bundle of flattened quills. *Atherura* is one of the



268. BRUSH-TAILED PORCUPINE (ATHERURA)

numerous genera of mammals and birds which are common to West Africa and South-eastern Asia, though absent in the modern period from the intervening regions of East Africa and India.

Another family of porcupine-like rodents exhibits a different relationship in African geographical distribution. This is the group of Octodonts, which is at the present day represented by numerous genera and species in South America and the West Indies, and by two genera in Africa—*Pteromys* and *Thrynomys*.

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There are not a few features in the West African fauna which suggest a land connection with Brazil across the Atlantic in the late Secondary and early Tertiary times, but it is not altogether necessary to invoke this change in the bed of the Atlantic to account for the presence of two octodonts in Tropical Africa, since besides the North African *Ctenodactylus*, which belongs to an allied family, there are the fossil remains of an octodont in Sicily. This *might* lead us up through Europe to



269. BRUSH-TAILED PORCUPINE

that less ancient connection with North America which united the Old and the New Worlds. On the other hand, a good many further problems in zoographical distribution postulate this Eocene connection between West Africa and Brazil, and if in early Tertiary times two or more genera of octodont rodents entered West Africa, they might well have pushed their way northwards as far as Southern Europe.

The only octodont found in *West* (as well as *East*) Africa is the well-known ground pig or ground rat (*Thrynomys*

swinderenianus).¹ This is a creature nearly as large as a rabbit, and resembling the rabbit also in its delicious flesh.² It makes a hare-like "form" in long grass or herbage. The fur is coarse and bristly and of a grizzled black and yellow colour. The clumsy thick head has rather small eyes, but very striking incisor teeth, strong, broad, and of a bright orange-colour. The large nostrils are almost depressed into a cavity of bare pink skin.

The Carnivora of Liberia, so far as they have yet been noted, consist of the Leopard, Serval, Golden Cat, Civet, a Genet and a Paradoxure, three kinds of Ichneumon and two Otters. It is possible that in addition the lion and the spotted and striped hyænas may be found in the extreme northern parts of the country, on the Mandingo Plateau.

Several Mandingos from the far interior whom I questioned persisted in stating that the lion was known in their country. They recognised pictures of it and described it accurately; but their knowledge of this animal might very well apply to regions of the Mandingo country farther north, beyond the political limits of Liberia. The lion, however, has its place in the folklore of all Western Liberia down to the sea-coast. This may be because all these peoples came



270. THE AFRICAN GROUND-RAT OR OCTODONT (*Thrynomys*)

¹ Known as "koañya" by the Vai.

² Why not try to acclimatise and breed the *Thrynomys* in Europe, say in France and other Mediterranean countries, for the European food market? It is a hardy animal and would be a treat to any *gourmet*.

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from the north at one time or another, from beyond the forest at any rate.

The Leopard is universally found throughout the country, though not quite so abundant at the present day in the vicinity of Monrovia as it was ten or fifteen years ago. I have seen one, or two exceedingly large skins of this animal at Monrovia in the possession of Dr. Ernest Lyon, American Minister, one

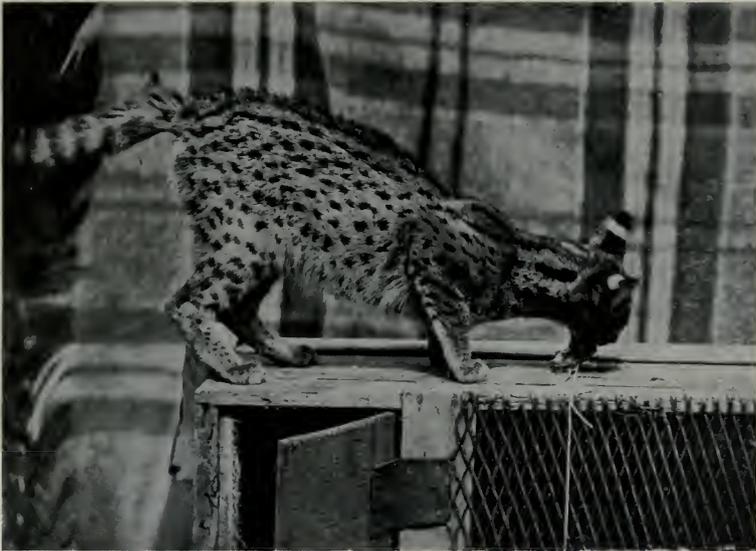


271. HEAD OF GROUND-RAT (THRYNOMYS), TO SHOW BARE AND RATHER DEPRESSED NOSTRILS

skin being almost equivalent to that of a small lioness in size, though shorter in the legs. This skin was very boldly marked with large black rosettes, and like all forest-dwelling leopards in Equatorial Africa, more resembled the Indian variety than the smaller-spotted leopard of the African open country. The leopard is much dreaded everywhere for its ferocity and cunning, and it enters considerably into the folklore of the people.

• Fauna : Mammals

A remarkable feature in African folklore, by the bye, is the relative scarcity of stories about the lion. The leopard and hyæna figure in most of them; so do the hare, elephant, chimpanzee (where it exists), monkey and baboon. The rarity of or the inconspicuous part played by the lion in these stories is remarkable, since one would have thought it would have made as great an impression on the primitive



272. THE SERVAL CAT (WEST AFRICAN SPECIMEN FROM LIBERIAN BORDER)

Negro mind as on that of the prehistoric and even historic natives of Europe. Is it possible that the lion in Africa south of the Sahara, like the tiger in India, may be a recent arrival? This seems difficult to believe.

The Serval cat is fairly common in Liberia; elsewhere in Africa it is more associated with an open country than with dense forest. A scarcer but more interesting species

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is the Tiger Cat of the Liberians—the Golden Cat of our museums (*Felis celidogaster*). This animal is not peculiar to Liberia, but its distribution, so far as we know, is absolutely confined to the forest region of *West* Africa. Its range on the west begins at the Gambia. There is no reason why, like so many other forest forms, it should not extend eastwards to the north-eastern limits of the Congo Basin. But hitherto it has not been recorded from farther east than Dahome.

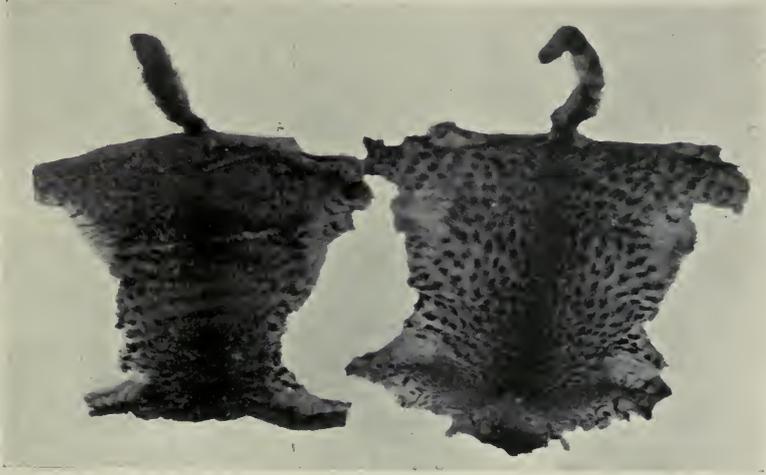
A remarkable and hitherto unexplained feature of this type of forest cat is the existence apparently side by side of two well-marked varieties. One form of *Felis celidogaster* is almost coppery red in the general coloration on the upper parts, the spots being small and faint, and fusing so much into the reddish grey colour of the intervening fur that in some lights the whole upper surface of the body appears to be copper-colour. Nearer to the whitish flanks, on the cheeks and breast, these spots, however, become black, and occasionally lengthen out into short stripes. Between the white parts and the deep reddish brown of the upper there is not infrequently a beautiful pale gold tinge in the fur. The other variety is somewhat larger in size, with a proportionately bigger head, rather shorter, smoother hair, with larger and very distinct dark brown spots on a lighter grey ground. This greyer type has also these patches of pale golden-yellow between the under and upper parts of the body and on the lower cheeks. The grey type in the males sometimes grows to almost the size of a caracal, but the copper-coloured variety is scarcely larger than a big domestic cat. Both of these types occur side by side in Liberia.

Until I was able to prove this by the collection of skins of both types from the same locality (of which a photographic



The Golden Cat (*Felis celidogaster*)

illustration is here given) I thought that the copper-coloured variety was characteristic of the western, and the larger grey form of the eastern, part of Liberia. Apparently German collectors have shown the presence of both these types in Togoland, to the east of the Gold Coast. This cat is of an extremely savage and untamable disposition, though it is sometimes seen in menageries and will live in captivity. It is



1
273. SKINS OF FELIS CELIDOGASTER FROM CENTRAL LIBERIA
1. Smaller, copper-coloured type. 2. Large grey and dark-spotted type.

said by the Liberians to be most bloodthirsty, and to do as much damage amongst fowls and the smaller domestic animals as the leopard; in fact, it is often called “the leopard’s brother.”

The big Civet “cat” is very common throughout Liberia, and in former centuries provided by its musk gland an important article in Liberian commerce. The Pardine Genet is still more frequently met with, and equally abundant is the two-spotted Paradoxure or Palm civet, *Nandinia binotata*. This

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last is a very tamable creature if caught young. The Liberians call it the "bush cat" (they actually misname the civet "raccoon"!). It is a pretty little animal, of grey, with dark brown spots. This creature, together with the genet, is such a splendid mouser and ratter that it is surprising it has not been more effectively domesticated by the Liberians, who prefer to import domestic cats from England, though in some of the villages the aborigines keep these paradoxures or genets. The two-spotted palm civet is chiefly nocturnal in its habits, but when kept in captivity it is not reluctant to move about in the daytime.¹

There are two species of Ichneumon or mongoose, *Herpestes pluto* and *H. gracilis*. There is one species of Smooth-nosed mongoose, the Kusimanse (*Crossarchus obscurus*). This creature is very much given to burrowing and using its long and flexible nose like a snout to root out insects from all sorts of crevices. It is a dull yellow-brown in colour, with a not very long tail, which is most heavily bushed near the base, and not at the tip. This Kusimanse, which is very common in Liberia, and often kept as a tame animal by the Americo-Liberians, has become largely an insect-eater in its diet, and is consequently most useful in ridding the houses of insect pests, especially cockroaches. It is extremely rapid in its movements, and most inquisitive, becoming rather a pest at last by the interest which it takes in one's movements. It keeps up a rather fidgety, querulous, purring noise. Still, it is an animal of which the domestication should be encouraged by bounties in West Africa on account of the vigorous war it carries on against the vile insects, scorpions, spiders, mice, and small snakes.

I have stated that Hyænas may stray within the limits

¹ Like the civet, it lives partly on vegetable food, fruits, and nuts.

of Northern Liberia. This probability has also been mentioned, quite independent of my own researches, by French explorers. The Mandingos who gave me information about the creatures of the country beyond the forest were positive in asserting the existence there of the spotted hyæna, and some of them in their stories discriminated between a spotted and a striped hyæna, so that both forms may be found co-existing on the Mandingo Plateau, as they are known to do in a band of Africa stretching right across the continent from the basin of



274. THE TWO-SPOTTED PARADOXURE (NANDINIA)

the Gambia to Kilimanjaro.¹ The Mandingos call the hyæna *djawa* and *djani* (or *diawa*, *diani*). It is possible that the first term is applied to the spotted and the second to the striped form.

But in addition to their stories of these two types of known hyænas, they persist in describing a third kind, said to be much

¹ An example of the striped sub-genus of hyænas—*H. brunnea*—also reappears in South Africa, co-existing there likewise with the spotted form.

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larger than either of the other two, which they know by the name of "Siruku," and describe emphatically as a "very bad animal." They say that this Siruku is extremely ferocious and dangerous to life. It is a striped beast, and, curiously enough,



275. THE TWO-SPOTTED PARADOXURE, OR PALM CIVET

when I was endeavouring to ascertain if the zebra existed on the Mandingo Plateau and showed them pictures of zebras they called them at first "siruku," and said, "That is the bad animal in our country that kills so many human beings." When I explained that the zebra was merely a striped horse,

they thought in that case that it certainly could not be the siruku, and one man told me the latter was more like "a great dog." They were positive that the siruku had nothing to do with the leopard, which animal they call "soli."

Some months after these conversations were noted down, I was reading the work *De la Côte d'Ivoire au Soudan*, by Captain d'Ollone. (Captain d'Ollone, together with M. Hostains, conducted a remarkable journey of exploration through Eastern and Northern Liberia in 1898-1900.) In this book, on p. 293, may be found the following statements: "Il me faut mentionner . . . l'existence de deux sortes d'hyènes [he is writing of the Mandingo country, on or within the boundaries of Liberia] beaucoup plus grandes, plus fortes et plus hardie, que celles d'Algerie ou d'Orient. Mais l'une surtout, que les indigènes appellent 'sowara' (cheval-panthère)¹ serait formidable et inspire un très grande terreur. Un sowara avait tué un sergent français dans une case peu avant notre passage. Cette hyène serait, paraît-il, tachetée."

Captain d'Ollone distinguishes this hyæna as spotted, whereas my Mandingo friends said it was striped. I have noticed that in a variety of the spotted hyæna on the north-eastern borders of the Congo Forest the markings are black, and very distinct, and the spots run here and there into short horizontal stripes. Can it be possible that the regions of the Mandingo Plateau preserve a fifth species of African hyæna, possibly something like the Cave hyæna of Inter-Glacial Europe?

Although no specimen of Jackal has yet been sent home from Liberia or recorded by collectors, the natives constantly refer to a species of wild dog, possibly the side-striped jackal of West Africa. This creature is called in the Vai language "korigbere."

¹ The "sowara" might, of course, be a large cheetah (*Cynælurus*).

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The Clawless Otter (*Lutra* or *Aonyx capensis*) is found in Liberia as well as in most of the rivers of South and West Africa. It is a much larger animal than the European otter, or than the spotted-necked otter, which is the other kind found in Liberia. This type of otter (the sub-genus also exists throughout Tropical Asia) is noteworthy from the almost complete absence of claws on its feet. There is scarcely a trace of the claws on the fingers of the fore-feet; but on the toes of the hind-feet there are rudiments of claws on the middle toes, and small pits or depressions on the outer toes. These pits may also be distinguished on the fingers of the fore-feet. The colour of the shining fur is uniform brown. *Lutra maculicollis* (the spotted-necked otter), which ranges in its distribution nearly all over Tropical Africa, is about the size of the European otter. Its throat is whitish yellow, the upper parts of the body being a dark glossy brown. The edges of this white patch are very jagged, so as to give it the appearance of detached white spots on the neck, whence its name. These yellowish white spots and patches occur on the chest and belly as well.

The hoofed mammals of Liberia include several peculiar or interesting types. There is perhaps only one species of Tree Hyrax (*Procavia dorsalis*).¹ Some ten members out of fifteen of this genus² are really tree-dwelling mammals, about the size of a rabbit. For a long time the best-known species were

¹ Büttikofer distinguishes two species, *Procavia dorsalis* and *P. stampflii*; the last-named form was apparently described from a single specimen collected by Stampfli. Büttikofer's companion. Its specific distinction from *P. dorsalis* has not yet been admitted.

² *Hyrax* was in general use as the Latin name of this genus, but has been displaced lately in favour of *Procavia*. An attempt has been made to provide an English name for these animals by adopting the Cape Dutch term, "dassy" (which really means *badger*); but it seems to the present writer more convenient to retain the familiar name "hyrax" as the vernacular title. Many zoologists retain

those of Southern and Eastern Africa, Syria and Arabia, which had taken, like the baboon, to living amongst rocks instead of trees ; but even the rock-dwelling hyraxes are able to climb, being able, like their arboreal congeners, to ascend almost perpendicular surfaces by the sucker-like action of the naked foot-pads on the under-side of the paws.

Procavia dorsalis is perhaps the largest of the hyraxes, the size of a big domestic rabbit. It is covered with long hair, grey towards the tip, so that the animal has a somewhat grizzled appearance. Along the lower part of the back, just over the spine, is a long patch of white hair, such as is met with in most of the tree hyraxes. This white mark, which covers a gland in the skin, is particularly noteworthy in *Procavia dorsalis*, the common tree hyrax of West Africa. When the animal is excited it makes all its hair stand out rather like a porcupine's quills, and the white hairs above this gland then part somewhat from side to side, showing a patch of bluish naked skin. The uses of this gland, so strangely placed, do not seem yet to be known.

Procavia stampflii, if it be a valid species or subspecies, is distinguished from *P. dorsalis* by being of smaller size.

These tree hyraxes differ from the steppe and rock-haunting members of the genus in the number of their vertebræ and in the pattern of the molar teeth. The almost rudimentary tail which remains concealed within the body has, however, four more vertebræ, ten in all, in the tree hyraxes.

The animals of this group are really much modified descendants of an extremely primitive and ancient type of

two genera in this family, *Procavia* and *Dendrohyrax*, the last-named for the tree-dwelling members of the group; but there is scarcely a sufficient generic distinction between them.

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ungulate.¹ The toes in the hind-feet are restricted to three in number, but the hands are really five-toed, though the first toe (our thumb) is reduced to a mere rudiment concealed beneath the skin. As regards the teeth, the adult hyraxes are much more specialised than their young, for the milk teeth in these animals show a dentition of three pairs of incisors above, two pairs below, and a pair of canines in both jaws. The old animal has one pair of incisors and a pair of canines in the upper jaw, and two pairs of incisors and no canines in the lower jaw, the grinding teeth in both jaws consisting of the common mammalian formula of four pairs of premolars and three pairs of molars. The canine tooth in the upper jaw usually drops out when the second set of teeth makes its appearance. Consequently, the usual dentition of these animals in the adult form and to ordinary observers consists of a very rodent-like pair of gnawing teeth above and two pairs of gnawing teeth below, with a considerable interval in the front of each jaw between these small tusks (as they ultimately become). This space is less marked in the young animal, as it is filled up, in the upper jaw, by a minute middle pair of incisors, which afterwards drop out. The upper incisors project considerably from the animal's cloven lips, and the natives of Liberia assert (as do other Africans) that these tree hyraxes help themselves in their climbing by driving their tusks into the bark. They can of course inflict very serious bites with these sharp incisors.

The molar teeth alone would serve to class the hyrax amongst the great group of ungulates ; but these little creatures are in another sense hoofed animals, in that (with one ex-

¹ Dr. Chalmers Mitchell in the *Transactions* of the Zoological Society for December, 1905 (on the Intestinal Tract of Mammals), demonstrates the "primitive mammalian" pattern of the intestines in the *Hyracoidea*. They have, for example, a well-developed pair of *cæca* (blind guts).

ception) the toes are armed with broad hoof-like nails, little hoofs in fact. The exception is a very remarkable one. The innermost or second toe (the hallux or big toe is wanting) is armed not with a hoof but with a long curved claw, thus recalling one of the features of the lemurs. There may be more in this than a mere accidental resemblance. The lemurs seem to be connected by fossil forms with the basal stock from which originated the ungulates, and there is much else about the hyraxes which suggests their descent from a very primitive and generalised type of mammal, that in relationships was not far removed from the parent forms of the *Anthropoidea*.

The tree hyraxes are nocturnal in habits in Liberia as in other parts of forested Africa. They eat leaves chiefly, and dwell in holes in the trees, which they enlarge and excavate with their gnawing teeth. As on Kilimanjaro and Ruwenzori, so in Liberia, they terrify the natives by their weird night-cries, which ring through the forest.

The Elephant is still abundantly met with in Liberia at a distance of forty or fifty miles from the coast, and thence inland till the Mandingo Plateau is reached. In fact, the dense forest is full of elephants, to a degree which sometimes makes travelling dangerous, for the Liberian elephant seems unusually prone to attack mankind without provocation. The elephants do enormous damage to native plantations, but if they are undisturbed in these ravages do not seem to interfere with the native houses. Either they are not so abundant, however, as one or two centuries ago, or the natives are more cowardly about attacking them, for the output of ivory from Liberia has dwindled to a very small quantity; whereas when the land was first visited by Europeans elephants' tusks were brought for sale in large quantities.

Captain Scarvell Cape, who explored the western parts of Liberia in 1903, considered that elephants were still very

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abundant near the Mano River, where the natives are bold hunters and collect much ivory.

So far as my information goes, the largest tusk that has been seen and weighed in the country of late years did not scale more than 75 lb.,¹ and it is generally reported that the elephants in Liberia, as in other parts of forested West Africa, do not grow to the same size and weight as the enormous developments of Eastern Equatorial Africa, wherein 250 lb. for a single tusk is about the record. There is a persistent story told by several recent travellers in Liberia and the neighbouring Ivory Coast that the country produces a pygmy breed of elephant, as it does a pygmy hippopotamus—that is to say, a variety of elephant which does not grow to a large size. I can only repeat this story, which may have some truth in it ; but it is quite possible that the idea has arisen from seeing young elephants with their milk teeth, and taking them for adults. Another feature of interest which should be inquired into is the shape and relative size of the ear. We have not yet arrived at a correct classification of the African elephant, any more than we have completely classified the African anthropoid apes. Professor Matschie, the Hon. Walter Rothschild, and other authorities have asserted of late that the African elephant is divisible into four or five local varieties or sub-species, and that the elephant of forested West Africa differs from those of the open country and of East Africa by having a proportionately smaller ear, which instead of ending below in a long pointed lobe is rounded and curtailed in the lower part. I hope these lines may meet the eyes of any Europeans or Liberians who may chance to kill an elephant and who will take the trouble to photograph or measure the shape and size of the ear.

The Mandingos of the northern parts of Liberia assert that

¹ I think 80 lb. is the recorded limit.

a Rhinoceros exists in their country. They recognised at once pictures of the common two-horned rhinoceros, and named it "kowuru." This is a very interesting question to be examined into in the future. It seems strange that the rhinoceros should be absent from the open country of West Africa at the back of the forest, since it is found so abundantly in the Eastern Sudan, in Eastern, South-western¹ and South Central Africa. But although its existence is constantly asserted or reported by



276. SKULL OF LIBERIAN HIPPOPOTAMUS (HIPPOPOTAMUS LIBERIENSIS)

Arabs, Hausas, or Mandingos in the regions of West Central Africa between Lake Chad and the Upper Niger, no vestige of a rhinoceros has ever been sent to Europe or America from those regions. Until therefore some direct evidence of its existence can be laid before us we must consider the question "not proven."

¹ The author saw a rhinoceros killed in the southern part of Angola (Lower Kunene River) when with Axel Eriksson in 1882 (Lord Mayo's expedition). The rhinoceros ranges north from the Zambezi into the southern part of the Congo Basin.

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The same doubt exists about any species of horse being indigenous in the western third of Africa. So far, no form of zebra or wild ass has ever been collected for science west of Lake Chad. When the present writer visited the Tunisian Sahara, much-travelled Berbers or Tawareq assured him that far to the south, in the western Sahara Desert, there were wild asses, similar, in the description they gave, to the wild ass of Nubia; and seeing the identical conditions of the country west of Lake Chad with the country east of it, it is difficult to understand why the ass should have stopped short in its westward range. Still farther south, in the better watered lands, it is equally difficult to understand why there should be no zebras in the Niger Basin and at the head-waters of the Senegal, the Gambia, and the Sierra Leone rivers; but so far, although many familiar East African mammals have been obtained on the Upper Gambia (such as the giraffe, which is also reported to exist on the Mandingo Plateau) no trace of either zebra or rhinoceros has yet been obtained.

One of the peculiar forms of Liberia is the Pygmy Hippopotamus. This relatively rare creature probably exists also in the rivers of the Ivory Coast and of Eastern Sierra Leone, though it has never yet been recorded from either country. The big hippopotamus seems to be completely absent from this part of forested West Africa. I cannot say whether it has ever been found on the rivers of the Gold Coast, but it is certainly present east of Dahome in all the important streams, and is of course abundant in parts of the Niger, Cameroons and Congo, whilst it was once very common in the Senegal, the Gambia, and in the rivers to the west of Sierra Leone, as well as being abundant in the Upper Niger and in all the Niger affluents. But although in some works of natural history it has been asserted that the big hippopotamus was found on

the Cavalla River, this is strenuously denied by all the European explorers and educated Liberians who have visited the Cavalla. All persons, native and foreign, whom I have questioned on the subject in Liberia declare that the only type of hippopotamus known within the limits of that country is the pygmy form (*Hippopotamus liberiensis*).

The dwarf hippopotamus of West Africa is in some respects slightly more specialised than its big relation. I am not aware that it is specially related to the pygmy hippopotamus of Malta and Sicily, now extinct. It is usually found with only one pair of incisor teeth in the lower jaw (having, like the common hippopotamus, two pairs of incisors in the upper jaw). But this is not a constant feature, as the number of incisors in the lower jaw may sometimes be three. I give an illustration of this from a skull in the British Museum. The pygmy hippopotamus is also thought to walk more on the two^d middle toes of each foot than on the whole four, the side toes being slightly raised from the ground. It has a larger brain case and a shorter muzzle (proportionately) than the big form. It has the same tendency to bristles on the broad upper lip, though perhaps these are not quite so markedly developed as in the big hippopotamus. There are a few bristly hairs at the end of the tail.



277. LOWER JAW OF PYGMY HIPPO-
POTAMUS

Showing occasional *three* incisor teeth

The coloration of the naked skin of the body differs from that of the big hippopotamus in being more of a bluish or greenish grey, without so much tendency to purple or to pink or pinkish grey or pinkish brown on the lower parts and under the great folds of skin. The colour of the living Liberian

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hippopotamus is not such a deep bluish black as in the only three or four stuffed specimens in museums (so at least I am told by those who have seen it alive or freshly killed).¹ It is a bluish grey above, warming here and there into a purplish tint, and on the belly changing into yellowish grey.

The Liberian hippopotamus, especially where it is much disturbed by man, is very nocturnal in its habits, concealing itself in the daytime in the water or in the dense vegetation² surrounding the streams, and coming out at night to feed. It has been asserted by Büttikofer and others that it frequents the water less than the big hippopotamus, and is more of a forest-haunting animal; but this description is not borne out by the natives or by other European observers, who all assert that it frequents the streams nearly if not quite as much as its big brother.³ It does, however, undoubtedly make considerable journeys into the forest at night, and I should think went farther away from the water than the big hippopotamus, being of course more agile in its movements. It is perhaps only one-third the size of a full-grown specimen of the common hippopotamus.

The only *recorded* species of swine indigenous to Liberia is the handsome Red river hog. Dapper in his accounts of the Grain Coast and the vicinity of Cape Mount states that there are two kinds of wild pig in the country, the first being the Red river hog and the second a much larger species, tall and black of hair, with sharp tusks and of a very fierce

¹ Mr. Gow, however, writes: "The skin is about half an inch thick: very smooth and *chocolate*-coloured." This refers to specimens he saw in 1904 in the Dukwia River.

² The Pygmy hippopotamus pushes its way through the dense herbage of reeds, grass, marantaceous plants, giant arums, and bushes of diverse kinds so as to form long tunnels (rather than paths) through the vegetation in which it often remains concealed during the daytime.

³ "Frequents the water very much."—Gow.



The Pygmy Hippopotamus (*Hippopotamus liberiensis*)

disposition, much dreaded by the natives. Curiously enough, Mr. Maitland Pye-Smith, who resided for some months in the eastern part of Liberia on behalf of the Monrovia Rubber Company, wrote to me that in the Kelipo country the natives asserted the existence in the surrounding forest of a large black pig, which they described as being five or six feet long. Mr. Pye-Smith was struck with the resemblance that their



278. THE RED RIVER HOG (*POTAMOCHÆRUS PORCUS*)

stories offered to the description which had just reached him through *The Field* newspaper of the forest pig of Eastern Equatorial Africa—*Hylochærus meinertzhageni*. This animal, which is perhaps the biggest of existing pigs,¹ was described recently by Mr. Oldfield Thomas as being of a type offering relationships both to the river hogs of Africa (*Potamochoerus*)

¹ Unless Mr. Walter Rothschild's "Colossochærus" of the Congo Forest exists and is the size he estimates—that of a rhinoceros.

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and the wart hogs (*Phacocharus*), and perhaps to certain extinct types of Southern Europe. The examples he described reached him from the forests round Mount Kenia; but prior to the arrival of these specimens from the Kenia district in Eastern Africa, examples of this forest pig had already been discovered in the north-eastern part of the Congo Forest.¹ Legends of the existence of this giant pig had earlier still been transmitted by the late Sir Henry Stanley and myself from the same regions. G. L. Bates, the well-known collector, who has made such a remarkable study of the fauna of the Cameroons region, first sent back similar stories of a giant black pig found in that part of the African forest region, and then actually discovered and transmitted its skull;² so that it is quite conceivable that a species of *Hylocharus* may still be found lingering in the interior forests of Liberia, having been killed out by man in the intervening country.

The Red river hog is found abundantly throughout Liberia, and its geographical range probably stretches from the vicinity of the Gambia on the west to the borders of the Uganda Protectorate on the east, and from the west coast of Tanganyika to Angola and the Lower Congo. It is the only handsome member of the pig family, the head not being quite so disproportionately large, and the body being well covered with thick, short, glossy hair (except on the back, where the hair lengthens into a mane), while the ends of the ears are tufted with long white plumes.

The colour of this animal is a bright orange-red, with black and white marks on the face, white tufts at the end of the ears, and a long white mane along the back. The young

¹ To be seen in the Congo Museum at Tervueren, Brussels.

² The Cameroons type of Forest pig has been named by Mr. Oldfield Thomas *Hylocharus rimator*. This is a more specialised form than the East African type.

of this pig are very brightly marked with long parallel stripes of yellowish white on a blackish or umber ground. These horizontal white lines on the upper surface of the body from the nape of the neck to the tail are succeeded on the flanks by short vertical stripes, with perhaps one or more horizontal stripes along the sides of the belly. In fact, the young of this *Potamochærus* seem to exhibit more clearly than the young of any other known pig the white stripes of the primitive ungulates. These, we know, may also be seen in the young of the tapir. It is probable that the original markings in the Horse family were white or light-coloured on a dark ground. The fragment of hide that was found in a Patagonian cave belonging to an extinct genus of horses (*Hippidium*) was said to have been foxy red, marked with faint white spots. In most of the existing species of horse the white stripes and spots¹ have grown and extended until the original patches of dark hair between them (which also in most cases have darkened from a bay-brown to umber or black) appear to be stripes, instead of actually the last vestiges of the original dark colour of the intervals between the white markings. When in this way the lighter markings have so grown and extended that they have cleared away nearly all the dark colour, they have darkened at the same time from white to mouse-colour or russet-brown. These primitive ungulate spots and stripes of white are retained by most of the chevrotains (*Tragulidæ*), and by a large number of ruminants (*Pecora*).

The young of the wild boar of Europe and Asia, of some of the Asiatic pigs of the genus *Sus*, and of all the pigs of

¹ It is possible that the North European breed of dappled horses so frequently seen in London streets—dappled in white and dark grey—may be descended from a wild form which was largely spotted with white on a dark grey ground. The dapplings or faint light spots may be distinguished through the chestnut brown of most domestic horses on the hindquarters.

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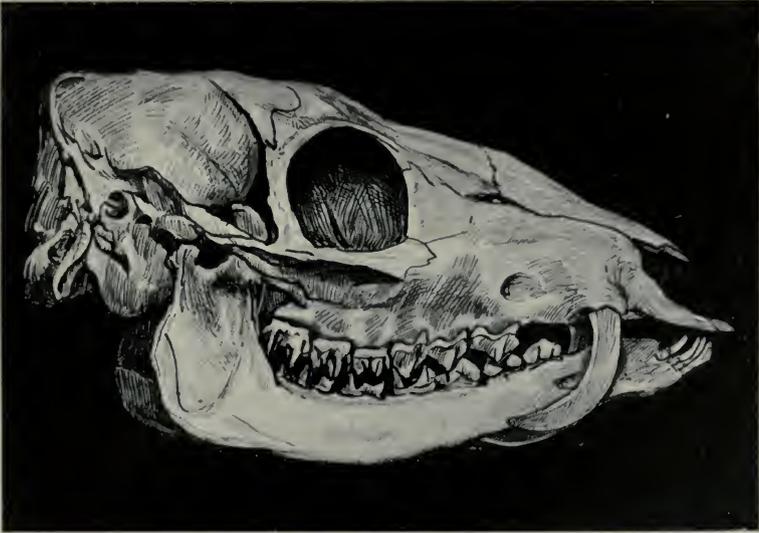
the genus *Potamochoerus* are marked with light-coloured spots and stripes during immaturity; but this spotted condition has passed away from the young wart hogs, from the babirusa, and, it is generally asserted, from the young of the domestic pig. It is, however, interesting to observe that the domestic pigs of Liberia frequently produce young that are marked in the orthodox way with horizontal and vertical whitish stripes. Either this is due to some degree of hybridising with the red river hog, or these domestic pigs of Liberia are descended from a more primitive stock nearer to the original wild boar, and have retained or regained this archaic feature of the spotted young.

The Red river hog in Liberia, as in so many other parts of forested Africa, is readily tamed when caught young. It is, in fact, the only indigenous African animal that the Negro has made even a slight attempt to domesticate. The Red river hog exists (we were told by Schweinfurth) in a semi-domesticated state amongst the Mangbettu of the Nile-Congo watershed, and it is occasionally tamed in parts of the Lower Niger and West Africa.

Although mostly reared in captivity, and very willing to mingle with herds of domestic swine, no Negro race has yet succeeded in getting this pig *established* as a domestic animal. The single examples that are caught and tamed from time to time do not seem to be encouraged to breed with their own species; all they do is to inter-breed with the domestic pig (if any are present), and thus to some extent influence that race.

The flesh of the Red river hog is excellent eating, equally appreciated by black men and white. It is, as I have said, a really handsome animal, and the Liberians would do well to make a determined effort whilst it is still common in

their country to domesticate it for good and all. It is very cleanly in its habits, and dislikes dirt or dirty surroundings, and seems to be naturally very good-tempered. Büttikofer gives a charming description of the affection that grew up between a young chimpanzee and a river hog in the garden of his house in Liberia. The chimpanzee used to ride the river hog astride on its back. It is pleasant to note that the



279. SKULL OF MALE WATER CHEVROTAIN (*DORCATHERIUM*)
From a specimen in British Museum ; to show long, curved, and flattened upper canines

pig which figured in this anecdote of Büttikofer's lived long and happily, after it left Liberia, in the Zoological Gardens at Amsterdam.

We now come to the consideration of a remarkable beast native to Liberia and a good deal of the coast and forest regions of West Africa, one of those animals which entitle one to refer to Liberia as being still in the "Miocene" period. This is the Water chevrotain—*Dorcatherium aquaticum*.

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The Chevrotains constitute the family of *Tragulidae*. It is dangerous to speak of any existing animal as a "connecting link" between one genus or family and another, because, although the world is full of arrested developments at every



280. FORE-LEG OF WATER CHEVROTAIN

stage amongst the manifestations of life, very few forms, even with a pedigree stretching back to the Secondary or Primary Epochs, have come down to us at the present day absolutely unaltered. But with this reservation it might be said to the general reader that the Chevrotains or *Tragulina*—especially in the form of their most generalised archaic representative, the water chevrotain of West Africa—are very near to the intermediate types of even-toed ungulate which connect the Pig and the Camel groups with the *Pecora* (deer, giraffes, antelopes, oxen, and sheep). The *Pecora*, together with the camels and the tragulids, form a great sub-order of living and extinct ungulates called the *Selenodontia* or the *Ruminantia*¹ in

¹ This word means crescent-like teeth, and is given to these ungulates because their molar teeth develop on the grinding surface a series of crescentic folds.

reference to the structure of their molar teeth or the specialisation of their stomachs connected with the re-chewing of food. In the Chevrotains, the stomach is less specialised than the digestive apparatus of the *Pecora* and Camels, having but three (instead of four) separate compartments. Although the molar teeth of the chevrotains are selenodont—that is to say, with a grinding surface crumpled into crescentic folds—the foremost of the premolars (as may be seen from my illustration of the skull) are narrow teeth with quite a sharp cutting-edge, a more primitive feature than can be met with in the Deer, Giraffes, Cattle, and Antelopes. The Chevrotains also offer more generalised characteristics in regard to the placenta.



281. HIND-LEG OF WATER CHEVROTAIN

But perhaps the most interesting feature in these little animals is the structure of the limbs. Any one glancing at the skeleton of a cow or sheep will notice that in the fore and hind limbs the bones between the wrist and heel joints and the knuckles or instep are fused into a single long bone, instead of being as many in number as the functional toes. The ox, for example, is a two-toed animal, walking on what would be equivalent in us to the third and fourth fingers (counting the thumb as the first finger). But the bones that are called the metacarpal and

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the metatarsal, answering to the bones in our hands and feet, instead of being two in number to match the two functional toes, are fused into a single bone, though there is in the ox the trace of a division up the middle of what is termed the "cannon bone." In many ruminants, however, there is not even the trace of an original division between these two bones, which are completely fused together. The oxen, sheep, antelopes, and especially the deer have vestiges on the sides of their cannon bones of the metatarsals and metacarpals of the side toes—that is to say, the second and fifth toes. Sometimes these vestiges are mere nodules of bone above the little side hoofs; in other instances they are slender splints, either growing upwards from the side toes to a vanishing-point half-way up the cannon bone, or starting from the wrist and heel joints and only descending half-way down the cannon bone from above. But the interesting feature above all in the West African *Dorcatherium* (for it is less markedly developed in the Asiatic members of the family) is that this animal retains complete and distinct all its four metacarpal and metatarsal bones, so that it is actually a four-toed animal like the pig. The bones of the hind-feet, it is true, are approaching a condition of fusion. The two side metatarsals are tucked away at the back of the two middle metatarsals, so that the hind-feet are as slender and compact in outward appearance as those of a deer. The fore-feet are likewise very slender and elegant, but the side metatarsals are more separate and distinct in development.

The Water Chevrotain nevertheless appears to walk on the edges or tips of its middle hoofs, and the side toes never touch the ground in normal progression.

It is perhaps needless to remark that the *Dorcatherium*, like the rest of its family, has no horns; but the male develops what are possibly weapons of offence in the upper canine teeth.

• Fauna: Mammals

There is no trace of any upper canine tooth or tusk in any adult sheep, ox, goat, antelope or giraffe; but these tusks are retained by many of the deer, and in some of them are developed to a much greater extent than in the tragulids. In all this great group of Selenodonts the *lower* canine tooth is pushed closely up to the lower incisors, and any ordinary observer



282. THE WATER CHEVROTAIN

From a female specimen from Central Liberia, presented by author to Zoological Gardens

would mistake it for a fourth incisor. In the Tragulids the lower canine is slenderer, slightly more pointed, and not pressed quite so close up to the third incisor as it is in all the *Pecora*. In the female Water chevrotain the upper canine is quite a small and useless tooth, a mere vestige, which only projects about an eighth of an inch from the gum; but in the full-grown

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male it is a curved tusk of over an inch in length. Its shape may be seen from my drawing of the skull.

The size of this animal is perhaps in the full-grown male about three feet long, from the tip of the snout to the end of the rump, the fluffy tail being about another eight inches. Its height at the shoulder is about two feet. It is quite the largest member of the family, the Asiatic representatives dwindling in size from that of a large rabbit to a tiny little creature, smaller than the smallest toy terrier, and consequently quite the most minute hoofed animal in existence. In coloration the Water chevrotain is a rich brown, which is slightly darker in the male than in the female, and this brown coat is marked more or less vividly with horizontal white streaks and spots. There is considerable individual variation in the arrangement of the spots, but the horizontal white streaks are pretty constant. The coloured drawing which I have made of this animal to assist its identification in Liberia is done from skins seen in that country and from the living example in the Zoological Gardens obtained from Central Liberia.

The Water chevrotain is still very little known in its habits and geographical distribution by the scientific world. It has been recorded hitherto from the southern portion of the Gambia country, and thence through the coast regions of Guinea past Sierra Leone and Liberia to the Ivory Coast. I believe it has not yet been met with on the Gold Coast or recorded from Lagos and the Niger Delta. The present writer found traces of its existence, however, in the country behind Old Calabar, and Mr. G. L. Bates has reported it to exist in the Cameroons region. It is probably found throughout the northern part of the Congo Basin, for Major Powell Cotton has recently obtained an example from the Ituri District (not far from Uganda). This is possibly a new species.



The Water Chevrotain (*Dorcatherium aquaticum*)

It is sufficiently abundant in Liberia and Sierra Leone to have entered much into the native folklore. The indigenous Negroes of Liberia highly respect its supposed intelligence or cunning. They say that it is an animal which sleeps with its eyes open, and is extremely difficult to surprise. It is largely nocturnal in its habits, taking during the daytime to the water, where it will remain for hours immersed, with only just its nose above the surface. It swims and dives with ease. Its food of course is vegetable (in spite of the native story that it eats fish), and it would appear to subsist mainly on grass, water-weeds, water-lily roots, etc.

In the folklore of the Vai and Mende peoples and perhaps elsewhere in Guinea, it sometimes takes the place of the hare,¹ "Brer Rabbit" (the hare being equivalent in many ways to our "Reynard the Fox"). Throughout Africa the Hare is the basis of many superstitions, prejudices and beast stories. This feeling about the hare, as we know, extended even to the ancient Jews, who for some reason highly disapproved of it as an article of food. There are apparently no hares in the densely forested regions of Liberia and Sierra Leone, and the place therefore of this (supposed) astute animal in the beast stories is taken by the Water chevrotain or the Royal antelope. The native name of the *Dorcatherium* in the Vai language is *gbérima*: in the Kru tongues, *tū*.

The natives declare that the Water chevrotain will sometimes walk or climb up a sloping and projecting tree trunk, branch, or snag which overhangs a stream, and lie prone along its surface. Its coat is then so like the dappled appearance of the bark that it is hard to distinguish the Chevrotain from

¹ It is not altogether certain that this is so. The little creature known as "Cunnie Rabbit" in the Sierra Leone English, or *san* in the Vai tongue, is probably the Royal antelope—*Neotragus pygmaeus*.

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its surroundings. The instant it is conscious of observation it dives into the water.

The *Pecora* are fairly well represented in Liberia, though these forest regions have not the wealth of antelope life which is such a splendid feature of the open country in Tropical Africa. The Tragelaphs are represented by the beautiful Harnessed antelope (*Tragelaphus scriptus*—see pp. 737 and 740), with its red-gold coat of long silky hair brilliantly striped and spotted with white; and by the still more magnificent Broad-horned tragelaph or Bongo¹—*Boocercus eurycerus*. There should also be, one would think, the Gigantic eland of West Africa—*Taurotragus derbianus*—which is found in the interior of the Gambia, French Guinea, Sierra Leone, and at intervals throughout West Africa till the Bahr-al-Ghazal and northern basin of the Congo are reached; but, so far, no record of this eland's existence in Liberia has been obtained. The Broad-horned tragelaph is perhaps found in the interior of the forested regions of Sierra Leone, but I do not think it has been recorded from any other part of Africa west of Sierra Leone. Its range, with one or two local variations of type, however, is a very wide one, as it extends throughout the coast regions of Western Africa (Sierra Leone and Liberia, the Ivory Coast and the Gold Coast), to the Cameroons, the Gaboon, and the greater part of the Congo Basin, right away to the easternmost frontiers of the Uganda Protectorate. In a remarkable way (akin possibly to the distribution of the forest pig) it reappears after a break in Uganda in the forested regions of the Nandi Plateau, north-east of the Victoria Nyanza. Here a hint of its rediscovery was first obtained by the late Captain B. L. Sclater. Mr. Jackson, a sub-commissioner in those regions, sent home horns of this tragelaph, and so did the present writer in 1901, who obtained them from Andorobo hunters in the Nandi forests.

¹ Called by the Germans the Lyre-horned antelope.

But these horns puzzled such authorities as Dr. Sclater, because though differing from tragelaphs of the Nyala type they were not exactly similar to those of the Bongo of West Africa. The mystery was cleared up by Mr. F. W. Isaac, who in 1901 and 1902 obtained magnificent specimens (now in the British Museum) of male and female Bongos from the forests of the Nandi Plateau. It was then seen that this East African type was very slightly different from the West African in its markings, and that the female bongo had horns, just as the female eland develops these appendages. It is probable, though it has not yet been established, that in the West African bongo the females are also horned.¹ The horns of the female are shorter and a little straighter and are not so widely separated in the middle as are those of the male.

There is very little difference in coloration between the East and the West African forms ; but it would seem as though in the East African type the large white spots on the cheeks were fused into a long white line, whereas in the West African type the spots remain separate. The East African type also may develop slightly larger horns in the male. In the size and shape of its body, and above all in the tail, which is long, cow-like and tufted, this animal resembles the eland more than any other tragelaph. It does not attain to the same beauty of outline and grace as may be witnessed in the kudu, but it is in coloration one of the brightest and handsomest of mammals. The coat is for the most part a splendid red-gold, boldly striped and marked with pure white. There are blackish brown patches on the inside of the ears ; the face, throat and limbs (chiefly on the inner side) have bold white markings, and this white

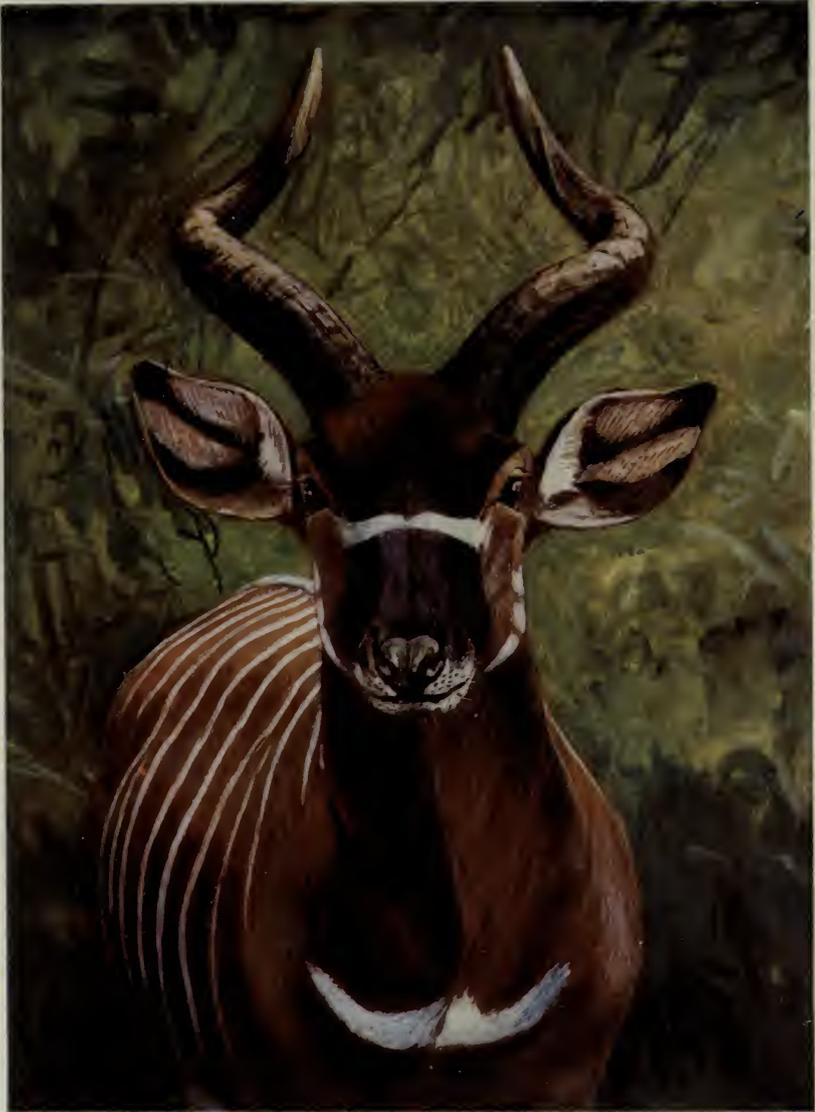
¹ Du Chaillu sent home from the Gaboon in 1858 a specimen which was obviously a female, though the possession of horns compelled Dr. Gray to class it as a male.

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coloration on the limbs is further set off by the black of their outer surface. The thin short mane along the neck and back varies from black to white. The broad, boldly twisted horns are white at the tip. This handsome tragelaph is found throughout the forest region of Liberia, from the Sierra Leone frontier to the Cavalla River. It is usually miscalled the "elk" by the Americo-Liberians; by the Vai it is known as *geñ*, and by the Kru peoples as *bodëbbë*. I have seen a pair of its horns obtained from a place within twenty-two miles of Monrovia.

Bovines are represented in Liberia by perhaps two species or varieties of buffalo—namely, the red buffalo of the Congo (*Bubalus nanus*) and the Senegalese or Lake Chad type of the smaller African buffalo (*Bubalus planiceros*). The last-named has blackish brown hair, and horns which are intermediate in type between the much-reduced horns of the Congo buffalo and the long out-spreading horns of the South and East African type. French explorers of Eastern and Northern Liberia assert that the red buffalo with the short horns is found in the forest region, and that where the forest gives way to the open country on the Mandingo Plateau its place is taken by what might be termed the Senegalese type, characteristic of the Gambia, upper and central Niger regions. This last I am able to illustrate by photographs of the living specimen from West Africa in the London Zoological Gardens. The illustration of the horns of the smaller red-haired type is reproduced from an example illustrated by H. S. Pel, the Dutch official and naturalist, who described (about 1850) a skull of this buffalo from the Gold Coast. It exactly resembles specimens which I have myself seen in the possession of Europeans and natives in the Liberian coast-lands.

Büttikofer obtained specimens of this red buffalo from the



The Bongo Tragelaph (*Boocercus euryceros*)

vicinity of Cape Mount and also from the Dukwia River. That from the Dukwia River could hardly be called a red buffalo. It was an old bull whose hide was almost hairless, such hairs as remained being rather of a greyish brown. On the other hand, the female specimen obtained by Büttikofer near Cape Mount was of the usual reddish yellow characteristic of this



283. HEAD OF WEST AFRICAN BUFFALO (SENEGALESE TYPE)—
BUBALUS PLANICEROS

type of buffalo on the Gold Coast and in the Congo Basin (the range of this red form stretches eastwards to the end of the Congo Forest and the westernmost frontiers of Uganda). Büttikofer's specimen from the Dukwia River seems to have been an abnormal individual, which owing to some injury in its youth had its horns growing in a convergent way, so that they were crossed at the tips. It may of course have been an

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example of the Senegalese type which had wandered southwards into the forest region, or, as is alleged to happen elsewhere in Africa, it may have been an old bull of the red-haired breed which with age assumed a greyish brown colour.

The forest-haunting buffalo of Liberia, however, is indisputably of a yellow colour in its pelage, darkening on the



284. SENEGALESE BUFFALO (*BUBALUS PLANICEROS*)
From specimen in London Zoological Gardens

front of the limbs into umber or blackish brown. The colour is perhaps not so much reddish as ochre-yellow. The horns of course are far simpler in shape and development than those of the big black buffalo. The animal is probably a rather primitive and ancient type, less removed from such forms as the anoa. It would be interesting if observations could be made on the exact coloration of the *young* of this dwarf red

buffalo to see if they exhibit any traces of the white cheek-



285. HORNS OF RED-HAIRED BUFFALO (*BUBALUS NANUS?*) FROM WEST AFRICA—
IVORY COAST OR GOLD COAST

(Copied from the illustration to H. S. Pel's Note on *Bos brachyceros*, published about 1850.)

spots or throat-band which appear in the anoa, and which are vestiges that some buffaloes still retain of the ancient markings

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with white spots and stripes already referred to in the case of the pigs and tragelaphs.

The red buffalo of Liberia is timid and shy unless wounded and standing at bay, when its fierceness and dangerousness are fully equal to those of its big relative on the east. The natives dread it less than the elephant but more than the leopard. The Americo-Liberians call it "bush cow," but have hitherto made no effort whatever to tame and domesticate the calves, though this might very easily be done in a land like Liberia, where domestic cattle thrive. The natives do not appear to recognise any difference between red and blackish brown buffaloes, calling both varieties by the same name for buffalo, which in Mandingo and Vai is *si* or *sigi*, in Kpvesi *teñ*, Gora *adyi*, and in the Kru languages *tii* or *jüñ*. Captain d'Ollone states that the two types of buffalo—*Bubalus nanus* and *B. planiceros*—are both found in Liberia; the former in the forests and the latter in the more open country in the north.

The most primitive group of the Antelopes is perhaps in some respects the Cephalophine sub-family, which includes the Indian four-horned antelope, *Tetraceros*, but which, with that exception, is an African group of something like twenty-three species. These African forms of the genus *Cephalophus* are usually known in English as duiker.¹ This is a Cape Dutch word meaning "ducker" or "diver." It was given to the smaller members of the group in South Africa by the Boers, from their habit of diving or ducking into the herbage to escape observation. With two exceptions they are small-sized antelopes. These exceptions, of which more will be said later, are both of them inhabitants of Liberia, one of them being apparently absolutely restricted to that country in its range.

¹ Pronounced in English "dyker," in Dutch "döiker."

286. SAME BUFFALO SKULL AS NO. 285, IN PROFILE.



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There are three duikers (*Cephalophus abyssinicus*, *C. coronatus*,¹ and *C. grimmi*) with long slender heads, long legs, and more gazelle-like build, remarkable also (as compared with the rest of the genus) for their light bay or ochreish grey coloration. But the rest of the duikers are as a rule more pig-like in build, often resembling very much in shape of head and body the water chevrotain. The nose and muffle are always naked and moist. The somewhat prominent and mobile nostrils in many of the duikers give the rather large head a pig-like aspect. On either side of the nose ridge is the anti-orbital gland, which opens into a long naked slit, very characteristic of the duikers. The horns, which are generally present in the females as well as the males in all the West African duikers of the forest region, are directed backwards in a line with the profile of the skull, and do not rise erect and more or less at right angles as is the case with the East African duikers. The first half or two-thirds of the short horns is more or less corrugated, with those annular markings characteristic of the true antelopes, goats, sheep, and capricorns. But in several forms of duiker the horns tend to be somewhat triangular in their lower half, with a tendency to form a slight ridge along the upper surface.

In most of the species there is a crest or tuft of long hair between the bases of the horns. All the duikers have four mammæ, and tails which are in some cases fairly long, never reduced to a mere stump or tuft. The side hoofs of the lateral toes are always present, though in the smaller duikers they are pressed so closely against the bones of the two central toes as to be scarcely discernible in the delicate feet.

It is stated that in one or more instances traces of upper canine teeth, not piercing the gum, have been found

¹ *C. coronatus* is possibly found in Northern Liberia.

• Fauna: Mammals

in young examples of Cephalophine antelopes. This upper canine is more frequently met with in the *Ourebia* genus of a nearly allied group, the Neotragine antelopes. It is possible that a more extended search, especially amongst young



287. SKIN OF HARNESSED ANTELOPE FROM CENTRAL LIBERIA

or fœtal examples of this group, might result in traces of the canine being found in the upper jaws. In most of the cephalophines the gall-bladder is said to be absent or reduced to a mere rudiment; otherwise in their anatomy they are

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among the least specialised antelopes, and offer some slight approximation to the capricorns (mountain antelopes) and even to the tragelaphs. It would seem as if in the one living Indian example of the group—the four-horned antelope—the characteristic tragelaphine white spot appears on the cheek, together with the remains of the tragelaphine white markings on the throat and fetlock. No trace of any such markings has yet been revealed in the African cephalophines, but the study of this group is very far from complete as regards anatomy, and any traveller in Liberia who may be reading these lines and may have an opportunity of collecting and forwarding in spirit fœtal or immature specimens of cephalophine antelopes might enable a good many moot points in their anatomy to be cleared up. These antelopes (at any rate all that section with procumbent horns) live almost entirely on leaves and bushes, and do not graze. They are not silent animals, except when wishing to remain unobserved ; most of them bleat like a goat.

Liberia is remarkable for its Cephalophines, two of which, so far as our present knowledge goes, would seem to be quite peculiar to that country in their distribution. These are the big Jentink's duiker (*Cephalophus jentinki*), and the small Zebra antelope (*Cephalophus doriæ*). There are also found in this country *Cephalophus sylvicultrix*, the largest of the duikers, *Cephalophus niger* (the Black duiker), Ogilby's duiker (*C. ogilbyi*—a small orange-brown antelope), and *Cephalophus maxwellii*, the little grey Maxwell's duiker. Mr. F. X. Stampfli, of Büttikofer's expedition, discovered Jentink's duiker, and Büttikofer re-discovered the Zebra antelope. The first-named is a large Cephalophus (the size of a very big sheep), the peculiar coloration of which is sufficiently illustrated in the accompanying coloured plate. This animal is called "Four-eyes" by the Americo-Liberians, and goes by a name of the



The White-shouldered Duiker, or Jentink's Duiker: known to the Liberians as
"Four-eyes" (*Cephalophus jentinkii*). Peculiar to Liberia

same meaning in some of the native dialects. This designation arises from the belief of the Negroes that the two large slit-like glands on either side of the nose are a means of vision. Jentink's cephalophus has also been misnamed the "Tapir," or the "Tapir Antelope," from the slight resemblance offered by its coloration to the Tapir of Eastern Asia. It is an exceedingly shy animal, supposed to exist still in some abundance in the central parts of Liberia, especially near the Dukwia and Farmington Rivers. But it lives in marshes or very dense jungle near the river banks, and I believe, in addition to Stampfli and Büttikofer, has only been seen by one other European—Mr. I. F. Braham. Büttikofer states that this antelope possesses large grease glands on either side of the inguinal region just inside the thighs, and that from these glands it rubs off fat on to its muzzle wherewith to lubricate the hair of the body.

The Zebra antelope is a medium-sized Cephalophus—about sixteen inches high at the withers—which is striped with black or orange-brown in the manner depicted in my coloured illustration. This has been drawn from specimens procured by Mr. Whicker from Central Liberia. Unlike Jentink's duiker, it is quite a common antelope in the interior of Liberia, and is known to the Americo-Liberians as the Mountain Deer, as it frequents hilly districts. In the early part of the nineteenth century a skin of this strangely marked Cephalophus reached the Zoological Society from either Sierra Leone or Liberia, and was named by Mr. Ogilby *Antelope doria* (after his wife, it is said¹). Fifty years afterwards, Büttikofer re-discovered the animal in Western Liberia, and knowing nothing of the skins in existence in London and Paris, very naturally supposed he was the discoverer of a remarkable

¹ Vide *The Book of Antelopes*, by Sclater and Thomas, p. 172.

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new species. It is a pity for once that a strict regard for priority of nomenclature allowed this very striking type to be saddled with the unmeaning name of *doriae*, instead of commemorating that of the naturalist-explorer of Liberia, Büttikofer. In any case, the Zebra antelope is one of the most typical examples of the Liberian fauna, and has not yet been obtained from other parts of West Africa. The horns of this cephalophine are barely two inches long in the male, and half that



288. THE HARNESSSED ANTELOPE (*TRAGELAPHUS SCRIPTUS*)

length in the female. On the outer side of the hocks stiff brushes of black hair conceal glands.

With regard to *Cephalophus sylvicultrix*, or the Yellow-backed duiker, this (as already mentioned) is the largest of the group, full-grown males sometimes

reaching to the size of a very large sheep or very small cow.

It is remarkable not only for its size but its peculiar coloration. The greater part of the body is a rich, glossy dark brown, with a reddish tinge in places, notably on the forehead. The long tuft of bristly hair between the horns is almost orange in tint. Along the median line of the back, beginning behind the shoulders, is a yellowish white streak of coarse hair, which broadens as it descends the back until it spreads

over on to each side of the haunches. Immediately above the tail is a patch of nearly bare skin on the rump. The hair round the naked muzzle and the chin is white. The tail is fairly long, and not much plumed, but is usually almost hidden between the long coarse hair of the projecting buttocks.



289. THE LARGE YELLOW-BACKED DUIKER (*CEPHALOPHUS SYLVICULTRIX*)
From a specimen recently living in the Zoological Gardens (in very bad condition)

The known range of this large duiker is very extensive, extending from French Guinea on the west through Liberia and the Gold Coast to the Cameroons, and the whole of the Congo Basin as far south and east as the north-western limits of

British Central Africa. The creature is scarce in Liberia, and does not seem to be clearly distinguished by the natives from the somewhat smaller Jentink's duiker. Its presence in the country,

however, has been noted by Büttikofer, and an immature specimen has been brought by the author from the neighbourhood of Monrovia.



290. HEAD OF YELLOW BACKED DUIKER

The smallest of the horned ruminants is found in Liberia : namely the Royal antelope (*Neotragus pygmaeus*).¹ This pretty little beast is only about ten inches high at the shoulder, and about twenty inches long from nose to rump. Except that its legs are longer, it is only the size of a rabbit. The feet are excessively fine, there are no side hoofs, and

the limbs are very slender. The chin and under-surface generally are pure white; the rest of the body, except the forehead and nose-ridge, which are blackish, is a golden-brown. The horns are about three-quarters of an inch in length.

¹ See p. 1085 for illustration.

perhaps nearly an inch in old males. They are almost smooth, with scarcely any trace of the annulations characteristic of the antelopes. This tiny *Neotragus* received the name of the "Royal antelope" from Pennant in the eighteenth century, under the impression that it was the "king of harts" referred to by Bosman, though Bosman in taking up and repeating native traditions about the beasts of Guinea was possibly referring in his "king of harts" to the water chevrotain, which is renowned in the folklore of West Africa for its extraordinary sagacity.¹

The Vai call this animal *sañ*, whereas they apply the name *gberima* to the water chevrotain. There is no doubt that it exists in all the coast region of Liberia, though it is so shy, so clever at hiding itself in the herbage, and able to take such tremendous leaps when surprised that it is very rarely captured. No specimen has yet been sent home from Liberia, but there is little doubt that Büttikofer was correct in identifying the animal known as *sañ* with the Royal antelope. Apparently the range of the Royal antelope extends from Sierra Leone along the West African coast-lands to the Niger Delta. It has not as yet been recorded from farther east than Lagos or farther west than the eastern part of Sierra Leone.

It is probable that the West African waterbuck, *Cobus singsing*, is found in the interior of Liberia, where the forest is less dense. Pictures of it and drawings of the horns seemed to be recognised by Mandingos and other natives of the interior whom I questioned. But so far the existence of this antelope has not been established by a recorded specimen. The same may be said about the Roan antelope (*Hippotragus equinus gambianus*), which seems to be present on the Mandingo Plateau.

¹ It is by no means certain, however, that Bosman did not really mean *Neotragus pygmaeus*. The natives seem to mix up both the Royal antelope and the water chevrotain in their stories.

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The West African hartebeest (*Bubalis major*) penetrates to the more open country at the back of the Liberian forests, and I give here a photograph of a pair of horns obtained in the interior of Liberia by Lieutenant-Colonel Powney in 1903. This seems to be the only form of true hartebeest found in West Africa outside the forest belt, apart from the one or more species of *Damaliscus*. The beautiful *Damaliscus korrigum*, with its satin-like mauve-brown coat marked on the front and hind limbs with velvet-black and elsewhere with pale yellow, a near relative of the allied South African sassaby and the East African topi (so near, in fact, that the distinctions are scarcely specific), may also be found to penetrate into the northern parts of Liberia.

The order of the *Sirenia* is represented in the rivers of Liberia by the well-known Manatee (*Manatus senegalensis*). Most of my readers will remember that the *Sirenia* are herbivorous aquatic mammals, represented at the present day by the manatee and the dugong, of vague, primitive, ungulate affinities, with no hind-limbs (of which, however, there are traces in some extinct forms), and the fore-limbs of five toes modified into paddles. The lips are enormously developed, and are of great assistance to the animal in grasping herbage. The Manatee has lost all traces of front teeth in the adult, merely retaining its molars for grinding, whereas the East Asiatic dugong retains the incisor teeth in the upper jaw. The manatee is found in all the Liberian rivers of any size from the sea-coast up to the first falls. It is said also to be found in the waters of the Upper Niger. If this is the case, and the statement is not due to an error or to confusing the manatee with the hippopotamus,¹

¹ According to various writers the manatee is a totem for a large section of the Mandingo race; but the writers like Koelle who make this statement seem to be not very clear in their discrimination between the hippopotamus and the manatee, classing both together as some herbivorous river-dwelling mammal.



291. HORNS OF WEST AFRICAN HARTEBEEST (*BUBALIS MAJOR*) FROM NORTHERN LIBERIA

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this is a remarkable fact, as it shows either that the manatee must have been able to scramble up and over the rocks of the Niger rapids between Busa and Sai so as to reach the placid waters of the upper stream from the Gulf of Guinea, or else that its presence on the Upper Niger is a sign of its extreme antiquity in that region, as it may have remained in these waters from that undetermined period of the Tertiary epoch when the northern basin of the Niger was an inland sea communicating with the Atlantic.

In any case, the existence of the manatee in all the rivers and estuaries of West Africa is another fact which goes to support the theory of a land bridge connecting West Africa with South America as lately as the end of the Eocene Period. From such evidence as we have before us at the present time the isolated order of the Sirenia, to which the manatee and dugong belong, originated in the lands bordering the Gulf of Mexico. In Jamaica fossil remains have been found of an ancestral type connecting the present Sirenia with some primitive mammalian group (near the base of the elephants and ungulates) that had the normal mammalian formula of teeth—incisors, canines, and molars. From this area of distribution in the early Eocene arose the Dugong, which no doubt made its way from the western coasts of America across the Pacific to Eastern Asia and Eastern Africa, leaving relations behind on the Northern Pacific coasts (like the Rhytina); and the Manatee, which extended its range through the West Indies to the eastern coast of South America, and thence by some chain of vanished islands, or even by the Eocene isthmus, across to West Africa. It is doubtful whether the Manatee could make such a long journey across the ocean as that from Brazil to West Africa. Even if it could change its diet from fresh-water vegetation to seaweed, it would scarcely survive the



The Zebra Antelope (*Cephalophus dorice*). Peculiar to Liberia

attacks of sharks or killer whales. The fishermen on the coast of Liberia say that if a manatee crosses the bars of the rivers from an estuary into the open sea, it is attacked and devoured by sharks.

No fresh-water dolphin or cetacean has as yet been discovered in the Liberian streams such as may be met with in the Cameroons River and the Congo, but it may likewise (if it be found) prove to be another evidence of former connection between Eastern South America and West Africa.

The "Edentates" in this country are represented by three species of the genus *Manis*—scaly animals with long tails, which are termed "ant-eaters" or "armadilloes" by the Americo-Liberians. There are two Orders of mammals in Africa which from want of any other indication of affinities are thought to be distantly related to the edentates of South America, though there is no evidence to show (at any rate at present) that these two divisions—*Pholidota* and *Tubulidentata*—either have an origin in common from one ancestral group, or that in like manner they are genetically related to the Edentates (armadilloes, sloths, and ant-eaters) of South America. All three groups are ancient and very primitive, with generalised or archaic features in their anatomy, suggesting an affinity, here with low ungulates, there with marsupials and insectivores. The *Orycteropus* or earth pig (aard-vark) is a large long-snouted beast of Southern, Eastern, and North-Eastern Africa, which once existed in Greece, Asia Minor, and perhaps also in other parts of the Mediterranean region. It has a long snout, long ears, and a long powerful tail; its body is hairy, with an inclination to baldness on the upper parts and on the tail. It has large eyes, a long flexible tongue, and no front teeth, but from eight to ten pairs of molar and premolar teeth in both jaws (eight pairs only in the lower jaw). But although it is stated

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(without positive proof) that the *Orycteropus* is found in parts of Senegambia and the drier regions of the Niger as well as in some parts of the Congo Basin, no trace of it has yet been reported from any part of the west coast region of the African continent or from Liberia. Consequently, the only "edentates" we have to consider in our review of the Liberian mammalia are the three species of *Manis*.

The *Manidae* of the order *Pholidota* are absolutely toothless, not even displaying any traces of teeth in the embryo. Except on the under-surface and inside the limbs, the skin is covered with an overlapping armament of large imbricated scales. These scales are little more than compressed hair cemented together by epidermic cells. In the embryo the scales, in fact, would seem to begin as lozenge-shaped patches of agglomerated hair. They are therefore very similar in composition to the "horn" of the rhinoceros. They differ from the armament of armadilloes or other South American edentates in that they do not contain any bony substance. There is a slight ridge generally down the centre of each scale which ends in a blunt point. In addition to this, in one species, *Manis tricuspis*, the terminal edge of the body scales (it is not so marked in those of the tail) possesses two other point-like projections or cusps. One is always warned by the natives in Africa to be careful in taking up a *Manis* that it does not suddenly straighten itself and pinch one's fingers between the edges of the scales. This seems to be its only method of offence, as apparently it does not use the strong and very long claws of the feet for scratching its enemies.

The *Manis* is the only "edentate" which at the present day extends its range into Asia. Several species are found in India, Ceylon, and Southern China. They differ from the African forms in possessing remnants of an external ear,

and in the presence of hairs on the upper surface of the body growing between the scales. In all four of the African species of manis the ear-hole has no conch—nothing but a thick fold of skin round its upper edge; and no hair grows on the upper surface of the body. On the other hand the belly of the smallest African manis (*M. tricuspis*) is well covered with thick whitish hair. The eye is fairly large, at any rate normal in proportionate size. The tongue is longer than the whole head, and is of course very slender. The mouth opening is quite small. The food of the animal in a wild state consists entirely of ants and termites, which it gathers in with the viscous saliva on the tongue. (In captivity it will eat in the same way very finely chopped meat or powdered biscuit.)

It is fond of milk, which it absorbs by the rapid protrusion and withdrawal of the tongue.



292. THE WHITE OR HAIRY-BELLIED
MANIS (*MANIS TRICUSPIS*)

The pointed scales are of great assistance to the animal in climbing or in retaining its hold of any rough surface to which it is affixed. Mr. L. Fraser, who was the first naturalist to record observations of the life habits of *Manis tricuspis* (about fifteen years ago), describes the power which this particular species possesses of using its sharp-clawed hind-feet and long tail (with its pointed scales) as a tripod support on the vertical trunks of trees. With the tail firmly adpressed against the bark of the tree, and the claws of the hind-feet grasping the same surface, the little manis could throw back its body in an almost horizontal position, the front feet being closely tucked up under the head. In this way it might sometimes remain perfectly immobile, deceiving any casual observer into the belief that it was merely a blunt end of a branch projecting from the tree ; or if it had no object in feigning immobility, it would sway itself backwards and forwards round half a circle without dislodging the grip of its tail. The same observer noticed that this manis would curl itself up into a ball and fall from a height of twenty feet to the ground without sustaining any injury, owing to the elasticity of the semi-erect scales, which caused its rolled-up body to bounce like a ball.

There are four species of *Manis* in West Africa, of which three at any rate are found within the limits of Liberia, these being the gigantic manis (*M. gigantea*), the long-tailed manis (*M. longicaudata*), and the white- or hairy-bellied manis (*M. tricuspis*). The fourth African manis (*M. temmincki*), which is distinguished from the other African forms by its very thick and relatively short tail, is present outside the region of dense forests in some parts of West Africa, and ranges over the rest of the continent south of the Sahara as far east as Zanzibar and as far south as Natal.

The Gigantic Manis is quite a large beast, perhaps as



Maxwell's Duiker (*Cephalophus maxwellii*). The Filantomba of Sierra Leone

much as four feet long (163 centimeters) in the biggest examples, and about two and a half feet high when raising itself on its hind-legs. This animal is terrestrial in its habits. The Liberians call it the Ant-bear, reserving the name of Ant-eater or armadillo for the smaller species. It lives in burrows, easily excavated with its enormous claws and generally made in some termite hill which it has attacked in order to immolate the



293. GIGANTIC MANIS (*MANIS GIGANTEA*)
From the specimen in the British Museum

white ants. The Gigantic manis, at any rate in adult forms, is nearly hairless on the under-surface of the body, with only a little yellowish hair growing sparsely on the leathery skin. Like the other forms, it has a tendency to rest or even walk on the doubled-up wrists after the manner of the American ant-eater, no doubt turning back the sharp claws so that they may not be too much blunted. According to Büttikofer, however, when pursued by man it is able to run very quickly

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over the ground. This species would appear to be a little less limited in its diet than the smaller kinds of manis, as Büttikofer found in its stomach, besides a quart or so of termites (white



294. A MANIS FROM THE SIERRA LEONE
BORDERLAND OF LIBERIA (? MANIS
GIGANTEA, IMMATURE?)

ants), a large quantity of true ants (the bellicose, venomous driver ants) (*Anomma*), and worms of a peculiar kind.

The Long-tailed Manis has developed this appendage to an extraordinary length. Its tail is nearly twice as long as the body,

and contains forty-nine caudal vertebræ, the largest number, by far, known amongst mammals. As it is rather difficult in theory to regard this extravagant length of the tail as characteristic of the primitive mammalian stock (from which this manis, like all other mammals, is descended), and as a feature which the Long-tailed Manis alone has retained, it is necessary to subscribe to the assumption that additional vertebræ of the tail can be formed in differentiation of species. If this be the case with *Manis longicaudata*, it would apply to other mammalia, and might dispose of several difficulties in classification, such



295. THE LONG-TAILED MANIS (MANIS LONGICAUDATA)

as, for example, the origin of the domestic sheep from a relatively short-tailed mouflon.

The Long-tailed Manis is hairy on the under-parts, and the hair is of a dark brown or blackish grey, with a tendency to a whitish line along the edge of the scaly armature. The White-bellied Manis (*M. tricuspis*), whose specific name emphasises the three-cusped edges of its scales, is rather a pretty little animal, a trifle more normal in aspect than its relations, owing to the relatively larger size of its eyes and its under-coat of soft hair, which is a yellowish white.

The *Manidae*, from what we know of their geographical

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distribution, past and present, would seem to have originated in Asia, and to have spread to Africa and Southern Europe, rather than to have been evolved in South America. The Asiatic forms are perhaps less extreme in divergence from the normal mammalian type than is the case with the African species of this genus. They would seem to have reached Africa from India, whilst closely allied forms travelled north-westwards into the Mediterranean regions. Here, in the island of Samos, are found the fossil remains (Pliocene) of a Gigantic manis, three times the dimensions of the existing *M. gigantea* of West Africa. A species indistinguishable from the existing African Giant manis is found fossil in cave deposits of the Madras Presidency in Southern India.

Like the Chimpanzee, the *Dorcatherium*, and many other forest-loving mammals, the three West African species of *Manis* disappeared from the intervening regions of Arabia and East Africa when the forests dwindled before the increasing drought of the Pleistocene and modern periods, leaving only *Manis temmincki* in the open country of East and South Africa.

APPENDIX V

I subjoin a list of mammals recorded from Liberia down to the present time. In this list the names put in brackets are those species reported on good authority to exist there, but not as yet represented in any European or American museum by specimens derived from Liberia.

PRIMATES

	AUTHORITY.
<i>Simia pygmaeus</i>	Büttikofer, Pye-Smith, Johnston.
(? <i>S. p. leucoprymnus</i>). . . .	
(? <i>S. p. fuscus</i>)	
<i>Cercocebus fuliginosus</i>	Büttikofer, Johnston, etc.
<i>Cercopithecus callitrichus</i>	,,

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	AUTHORITY.
<i>C. campbellii</i>	Büttikofer.
<i>C. buettikoferi</i>	Whyte, etc.
<i>C. diana ignita</i>	Johnston, etc.
<i>Colobus polycomus</i>	"
<i>C. ursinus</i>	Whyte, Johnston, etc.
<i>C. cristatus</i>	"
<i>C. ferrugineus</i>	Whyte, etc.
<i>Galago demidoffi</i>	"
<i>Periodicticus potto</i>	Gow, etc.

CHEIROPTERA

<i>Hypsignathus monstrosus</i>	Büttikofer.
<i>Epomophorus gambianus</i>	"
<i>E. franqueti</i>	"
<i>E. pusillus</i>	"
<i>E. veldkampii</i>	"
<i>Roussettus collaris</i>	"
<i>R. stramineus</i> (? also <i>R. buettikoferi</i>)	"
<i>Megaloglossus woermanni</i>	"
<i>Hipposiderus fuliginosus</i>	"
<i>Nycteris hispida</i>	"
<i>N. grandis</i>	"
<i>Pipistrellus minutus</i>	"
<i>P. tenuipennis</i>	"
<i>Vespertilio stampflii</i>	"
<i>V. nanus</i>	"
<i>Kerivoula africana</i>	"

INSECTIVORA

<i>Crociodura schweitzeri</i>	Büttikofer.
<i>C. buettikoferi</i>	"
<i>C. stampflii</i>	"
[<i>Erinaceus</i> sp. ?].	[Johnston].

RODENTIA

<i>Anomalurus beecroftii</i>	Büttikofer, Whyte, etc.
<i>A. fraseri</i>	"
<i>Sciurus stangeri</i>	"
<i>S. orbinii</i>	"

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	AUTHORITY
<i>S. rufobrachyatus</i>	Büttikofer.
<i>S. punctatus</i>	„
<i>S. poensis</i>	„
<i>S. pyrrhopus</i>	„
<i>Xerus erythropus</i>	„
<i>Graphiurus lueti</i>	Alexander Whyte.
<i>G. nagtglasii</i>	Büttikofer.
<i>G. crassicaudatus</i>	„
<i>Cricetomys gambianus</i>	„
<i>Lophuromys sikapusi</i>	„
<i>Mus rattus</i>	„
<i>M. decumanus</i>	„
<i>M. alexandrinus</i>	„
<i>M. musculoides</i>	„
<i>M. trivirgatus</i>	„
<i>Arvicanthis nigricanda</i>	„
<i>A. rufinus</i>	„
<i>A. barbarus</i>	„
<i>A. dorsalis</i>	„
<i>Thryonomys swindereniannus</i>	„
<i>Atherura africana</i>	„
<i>Hystrix cristata</i>	„

CARNIVORA

[<i>Felis leo</i> ?]	[Johnston].
<i>Felis pardus</i>	Büttikofer, Johnston, etc.
<i>F. serval</i>	„ Whyte, etc.
<i>F. celidogaster</i>	„ Johnston, Gow.
[<i>Hyena crocuta</i>]	[d'Ollone, Johnston].
[<i>H. striata</i>]	„ „
<i>Viverra civetta</i>	Büttikofer, Whyte, etc.
<i>Genetta pardina</i>	„
<i>Nandinia binotata</i>	„ Whyte, etc.
<i>Herpestes pluto</i>	„
<i>H. gracilis</i>	„
<i>Crossarchus obscurus</i>	„ Whyte, etc.
<i>Lutra maculicollis</i>	„ Whyte, etc.
<i>L. (Aonyx) capensis</i>	„

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UNGULATA

	AUTHORITY.
<i>Procapra dorsalis</i>	Büttikofer.
[<i>P. stampflii</i> ?]	"
<i>Elephas africanus</i> (West African variety ?)	" Braham, etc.
[<i>Diceros bicornis</i> ?]	[Johnston].
<i>Hippopotamus liberiensis</i>	Büttikofer, Pye-Smith, Johnston, etc.
<i>Potamocheirus penicillatus</i>	Büttikofer, etc.
(<i>Hylocheirus</i> sp. ?)	(Pye-Smith).
<i>Dorcatherium aquaticum</i>	Büttikofer, Braham, Johnston, etc.
<i>Bubalus nanus</i>	"
[<i>B. planiceros</i> ?]	[d'Ollone].
<i>Tragelaphus scriptus</i>	Büttikofer, etc.
<i>Boocercus euryceros</i>	"
<i>Cephalophus sylvicultrix</i>	" Johnston.
<i>C. jentinki</i> ¹	" Braham, etc.
<i>C. niger</i>	" Whyte, etc.
<i>C. dorsalis</i>	"
<i>C. doria</i>	" Pye-Smith, Gow.
<i>C. maxwellii</i>	" Whyte, etc.
<i>Neotragus pygmaeus</i> ²	"
<i>Bubalis major</i>	Powney.

SIRENIA

<i>Manatus senegalensis</i>	Büttikofer, etc.
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PHOLIDOTA

<i>Manis gigantea</i>	Büttikofer, Gow.
<i>M. longicaudata</i>	"
<i>M. tricuspis</i>	"

¹ The *Terpone longiceps* of Gray.

² The *Cephalophus spinigera* of Büttikofer.

CHAPTER XXIV

FAUNA: BIRDS

THE birds, like the mammals of Liberia, are not as varied and abundant as are those of the open countries of Tropical Africa—that is, bird life is not so obvious to the eye as, for example, in Senegal, in East Africa, and on the Great Lakes. This is, no doubt, partly because the forest conceals so much of the vertebrate fauna.

The ostrich, though it would seem to inhabit the more arid regions to the north of the Upper Niger and Senegal, probably comes nowhere near the frontiers of Liberia, though it is not infrequently kept as a pet and a curiosity by the Fula chiefs on the not far-distant plateau of Futa Jallon.

Amongst noteworthy gallinaceous birds there is the *Agelastes* guinea-fowl, which is confined in its distribution to the forest coast belt of West Africa, between the Niger on the east and Sierra Leone on the west. The nearest relation of this guinea-fowl, perhaps, is the still more primitive gallinaceous type, *Phasidus* (confined to the Gaboon and the countries to the north of the Lower Congo). The *Agelastes*, or white-necked guinea-fowl (*A. meleagroides*), is the smallest of that gallinaceous sub-family, and is not much larger than a bantam-fowl. In the adults the head is quite bare, and covered with bright red skin; but in the females, and still more in the young, there is a tendency for the head to be sparsely feathered with white or greyish white plumes, especially up the back of the neck and along the top

of the skull. The breast in both sexes is pure white, and the rest of the plumage is very dark bluish or brownish grey, with fine whitish vermiculations. There are no round spots, as in the typical guinea-fowl. The feet are armed with short, stout spurs in the male. The feet are rather large proportionately to the body, and are of a greenish grey. This bird seems to go about in pairs rather than in companies, and is exceedingly shy. It is found, nevertheless, throughout all the forest region of Liberia. The painting opposite p. 370 is done from specimens obtained by Mr. Harold Reynolds in 1904. The other Liberian guinea-fowl is the common crested guinea-fowl (*Guttera cristata*), with its partially bare neck and face of slaty grey; its silky black crest, black breast, white pinions, and rest of body bluish grey boldly spotted with white.

At the present time only three francolins out of the many African species have been recorded in Liberia in the forest region. These are Latham's francolin (*Francolinus lathamii*), rather boldly marked on the face, breast, and back with black and white (the female usually has brown where the male is black); the Ahanta francolin (*F. ahantensis*), upper parts brown or blackish brown, throat *white*, under-parts pale brown with white and black striations; and the two-spurred francolin (*F. bicalcaratus*), which is of a ruddier brown in parts, with a white throat and chest, and black streaks on the face. This species, of course, is easily distinguished by its two spurs.

The Americo-Liberians call the francolins "guinea-fowl" with singular inconsistency, seeing that true guinea-fowl *are* found in Liberia.

The Liberian pigeons include the common fruit-eating treron (*Vinago calva*), whose plumage of grey, olive, bright yellow, purple, cinnamon, and black accords strikingly with the colours of the leaves and branches; one, if not two species of

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Columba (the very rare *C. uncinata*—pale reddish grey below, ash and lead-colour above, with dark bluish scalelike edges to the feathers, white throat, bluish black tail, and blackish pinions; and the widespread *C. guinea*, with red upper parts marked by triangular white spots); a *Turturana* (*T. iriditorques*—grey, copper-colour, and slate above, glossed with metallic green and violet, and below wine-red and cinnamon); the common African turtledove (*Turtur semitorquatus*), with the broad black patch—a broken ring—round the neck; and three small doves of the genera *Tympanistria*, *Chalcopelia*, and *Calopelia*, all of which have metallic green or blue spots on the wings. *Calopelia puella* has a cinnamon-brown body with a pretty blue head. These little peristerine doves frequent the ground a good deal, and are very tame.

Amongst the Glareoline plovers, often called Pratincoles (which assume so much the outward aspect of large swallows), is the Liberian glareole (*Galactochrysea liberix*). This pretty little bird is coloured as follows: dark ashy or olive-brown above, with a broad band of white over the base of the tail, which is black; under-parts white or greyish white; a streak of white under each eye; face, throat, and breast dark grey, and a collar of bright yellow-brown round the neck; beak (except black tip) scarlet, also feet. It particularly frequents the rocky islands and cataract reaches of the rivers, especially the St. Paul's River, and would seem to nest on the bare rock, whereon (in adjacent parts of West Africa) I have sometimes seen the little nestlings, three or four in number, squatting closely, their variegated down being coloured very much like the mottled surface of the rock. Büttikofer states that the greyish green eggs mottled with umber are laid on sand. The range of this bird would seem to extend eastwards as far as the Lower Niger.

A form which Büttikofer and other collectors seem to have

overlooked is the common African jaçaná, or leaf-walker (*Phyllopezus africanus*). This pretty bird with enormous feet



296. THE AFRICAN JAÇANÁ, OR LEAF-WALKER (*PHYLLOPEZUS AFRICANUS*)

is found on pieces of stagnant fresh-water in Liberia, as elsewhere in Tropical Africa. The present writer obtained one

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from the St. John's River in 1888 (near Upper Buchanan), and has seen it in Maryland also. The jaçaná, though offering a superficial resemblance to the rails, belongs in its classification to the plover order. Its feet are large to commence with, but the extreme apparent length of the toes is due to the prolonged claws. The coloration is red and umber-brown, black on the head and face, white cheeks and neck, and a golden breast. The beak and very small frontal shield are leaden blue. This African jaçaná has mere knobs at the wrist-joint of the wing, no sharp or stout spur like its Asiatic and South American congeners.

Among the plovers may be noted the common West African spur-winged wattled plover (*Xiphidopterus albiceps*). Here, as in other parts of Africa, this bird is very "cheeky," knowing that it is not a favourite article of food, owing to its bitter flesh. It haunts the banks of rivers and swamps, and irritates the human stranger by its loud cries, as it flaps about in front of him with partly extended wings, elevated white crest, and pendent, lemon-coloured wattles. This bird has a strong spur on the wrist-joint of the wing, the object of which is not very clear, as it does not seem to use it for fighting. Very possibly in Liberia (as, according to my own observations, in other parts of Africa) it acts as the crocodile's friend, warning this reptile when on land of the approach of human enemies, and attending to the toilet of the crocodile's teeth. The latter, in lazy good humour, opens its mouth to allow the spur-winged plover to pick pieces of decaying flesh or intrusive grubs or worms from between the interstices of the white teeth.

The omnipresent curlew (*Numenius*) is to be seen on the Liberian coast, frequenting the mud-flats of the river estuaries. It is migratory, apparently. In Eastern Liberia a specimen of the Red phalarope (*Crymophilus fulicarius*) was obtained by

Mr. Maitland Pye-Smith in March, 1905. An account of this bird is given by Mr. Chubb in the appendix. This web-footed wading bird, related to woodcocks and snipe, is usually an inhabitant of northern—not to say Arctic—regions, and its occurrence in Africa had never been noted before. It was



297. THE YELLOW-WATTLED SPUR-WINGED PLOVER (*XIPHIDOPTERUS ALBICEPS*)

therefore remarkable to find it so far afield as Equatorial Liberia—a belated winter visitor, of course.

Most of the West African types of the rail order are found in this country, amongst them the aberrant and peculiar finfoot (*Podica senegalensis*). This is a bird the size of a duck, with a whitish breast and belly. The upper parts are brown, of various shades, with a greenish black gloss on the shoulders

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and back. On this upper part of the body, from the base of the neck to the wing-coverts, there are—especially in the adult male—a number of round yellowish spots, each spot surrounded with a ring of greenish black. It has a broad tail of fairly long stiff feathers. The neck is long and snaky, rather goose-like, with a whitish line down the middle on each side, extending from the eyebrow to the shoulders. The beak is rather long and heron-like. The feet are the most easily distinguished feature of the bird. There are four toes, of nearly equal length, which are webbed in separate lobes like the toes of a coot.

The finfoot dives and swims well, and is able in some way to depress its body when swimming, so that little more than the snaky neck and sharp beak (nearly continuous in outline with the forehead and throat) appear above the surface, moving backwards and forwards in just the same way as the uplifted head of a snake when it is swimming, and raises itself to observe what is going on. Several times the present writer has observed finfoots on West African streams, and taken them at first to be snakes swimming across the water.

The Finfoots are distributed nearly all round the world in the tropical belt. Büttikofer states that the end of the thumb in the wing is armed with a long, slender, only slightly curved claw, a feature which occurs in not a few other birds, such as the ostrich, the young of the duck, and so on. It does not appear to be specially developed in any specimens of the West African finfoot which have come under my notice. The finfoots, from their world-wide distribution and some features in their anatomy, are one of those indeterminate types not very closely identified with any particular order. No doubt their nearest affinities are with the rails, but they may be related to an older stock, which gave rise not only to the rails, but to the herons, and possibly the pelicans.

Our information about the life habits of this African finfoot are singularly lacking, considering that it is a bird found pretty well all over Tropical Africa in one or two species. Büttikofer learnt from a native that it nested amongst the *Cyrtosperma* arums by the waterside. In this nest the natives told him there were two eggs. The American genus of the finfoots is also reported to lay two eggs, or, at any rate, a single pair of young were found in a nest attributed to the American form. These young, in the case of the American finfoot, are said to be born naked. Absolutely nothing is known of the condition of the young in the African or Asiatic types. Persons who may read this book in Liberia might note that the finfoot is from many points of view an exceedingly interesting bird, and might use their best endeavours to obtain the nest (or a photograph of it), the eggs, and, above all, the nestlings or young birds for transmission to one or other of our museums. It would be interesting to observe whether or not the young of the African form was born naked or covered with down; whether not only the thumb, but the index-finger of the wing was armed with a claw, and whether the young aided themselves in moving over the ground by these claws on the naked wing.

According to Büttikofer, the finfoot was not observed by him in Liberia farther west than Monrovia. This, however, is not a point of much importance, since the very name of the Liberian species—*senegalensis*—shows that it is found as far west as Senegambia. Specimens have, in fact, been sent to the British Museum from Senegal and from the River Gambia. The present writer has also collected it on the Upper Congo, at Stanley Pool. It not only frequents fresh-water rivers, but also brackish estuaries and mangrove swamps. It moves over the mud or sand with considerable rapidity, and one of these birds seen by me on the Congo, scrambling up a river bank

to hide away in vegetation, seemed to me to aid itself with the outspread wings. Büttikofer doubts whether these birds really dive. On the three or four occasions when I was able to watch a *Podica* on the Upper Congo, and on tributaries of the Cameroons River, it appeared to me to disappear under the water when conscious of observation—that is to say, that the snaky head moving backwards and forwards (which was all that could be seen of the bird) occasionally ducked under the water. The present writer has never seen any of these birds in flight, but Büttikofer—an accurate observer—states that they fly with reluctance and difficulty, only taking to this method of escape when discovered on the water at some distance from land. Flight under these conditions would seem to make it improbable that they immerse themselves for long, or swim much under water. When flying, Büttikofer observed that they struck the water repeatedly with their short wings, and thus skimmed along the surface till they reached the land, when they scrambled into the vegetation or amongst reeds and trees with considerable agility, their coloration making it easy for them to become concealed from the eye.

In studying the life habits of this bird, one is reminded several times of a speculative guess thrown out by E. Ray Lankester as to the evolution of birds from a quadrupedal reptilian type. He suggests that the wing arose from the coalescing of three fingers of the hand into a broad, skin-covered, penguin-like flipper, with the clawed thumb left free as it is at present, and further supposes that this may have taken place in a reptilian form which frequented the water a good deal, using its fore-limbs for progression through the water, while the hind-limbs (less specialised) remained free for wading, leaping, and perching. Such an avian type of reptile may have skimmed the surface of the water a good deal, in much

the same manner as penguins might do. From beating the water with their pinions, they would take to leaps and skimming flights over the water, beating the air with the pinions instead—pinions on which were developing longer and longer quill-like growths, which eventually evolved into feathers. Having acquired the power of flight, most bird types took to a land and even an arboreal life; whilst others, like the ancestors of the ostrich, became essentially pedestrian, till their wings dwindled to uselessness. The finfoot suggests so many interesting resemblances to an early stage in the life of birds (no doubt partly by a process of reversion), that I hope these few lines may stir up educated Liberians to making a special study, for our further information, of one of the most interesting creatures in their country.

Büttikofer states that one of his assistants shot a flamingo in the vicinity of Cape Mount, in Western Liberia. Mr. Braham informs me that numbers of flamingoes may sometimes be seen on Fisherman Lake. In all probability the flamingo that visits Liberia in a more or less migratory fashion is of the genus or subgenus *Pheniconais*. It has a beak that is purple-and-rose-colour, and a plumage somewhat more rosy than that of the larger Mediterranean flamingo.

There are the usual ducks and geese of West African waters: the Spur-winged goose (*Plectropterus*), the widely distributed but very handsome Knob-nosed goose (*Sarcidiornis*), one or more species of Tree duck and teal (*Pteronetta*).

The gorgeous Hagedash ibis (*Hagedashia*) is common throughout Liberia. There is also the conspicuous olivaceous ibis (*Ibis olivacea*). This bird has a red beak and feet. The forehead is naked, and there is a considerable crest on the head of loose feathers with pale yellow centres and coppery green edges. The black skin of the face and forehead is

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naked. The general colour of the bird is a coppery green, rather dull, with cream-coloured centres to the feathers on the breast and belly.

There is apparently only one Stork—*Dissura episcopus*—a very common bird throughout Africa and Southern Asia. It is metallic black above and white on the belly. The top of the head is black, and the rest of the head and neck is sparsely covered with fleecy white feathers. The bill is black except the ridge and tip of the upper mandible, which are red. The feet and legs are also black in the Liberian type, not orange-red as in the more eastern forms. The beautifully coloured Saddle-billed stork¹ ought to be found on the rivers of this country, and probably is present here. The natives seem to know of it, but no specimen has as yet been secured for identification.

But if storks are scarce in this forested country, herons are abundant. I give an illustration here of the beautiful White heron (*Ardea alba*), widespread in its distribution through Southern Europe, Tropical Africa and Asia, with closely allied forms in America and Australia. But this beautiful big white bird is particularly common along the West African coast from Liberia to the Cameroons. It has seemed to me most abundant in the rivers of the Niger Delta and at Old Calabar, but it was amongst the few birds that I observed on the Liberian waterways, especially in my visit to that country in 1888. There are other species and genera of white herons in Tropical Africa smaller than *Ardea alba*, which may generally be seen in flocks. When they go to roost on riverside trees they make a beautiful spectacle; but the great white heron seems to be more solitary in its habits, and is generally seen alone or in couples, making a most striking object against the background of dark green riverside forest. Like the other white herons,

¹ *Ephippiorhynchus senegalensis*.



298. ARDEA ALBA (THE GREAT EGRET OR WHITE HERON)

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it is a bold bird, not easily alarmed. It may be that it is not attacked by natives, as the flesh is bitter. It has only to fear



299. THE SLATY BLUE HERON (*LEPTERODIUS GULARIS*)

the European with his gun and his senseless longing to slaughter everything that is striking and beautiful.



300. THE GREEN HERON (BUTORIDES ATRICAPILLA)

Another common heron in Liberia is *Ardea* or *Lepterochus gularis*, which is dark slate-grey with a white throat. In the breeding season this heron seems to be almost purplish black,

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and develops a long plume from the top of the head. A somewhat similar bird is the slate-coloured *Ardea ardesiaca*. *Butorides atricapilla* is one of the Green herons, with plumage of glossy green, black, grey, and chestnut. These birds are fairly common in Liberia, and assume the stiff attitude given in my sketch. This bird is especially common in the mangrove swamps, and although its habits are somewhat nocturnal it may be seen in the daytime perched on the mangrove roots, close to the waterside, immobile, as though it believed itself to be invisible by its colours harmonising with its surroundings.

Büttikofer records having met with two species of "bittern" in Western Liberia, in the mangrove woods along Fisherman Lake, but in this definition he was mistaken. There is apparently no true bittern in West Africa, though there is in South Africa. Büttikofer's "bitterns" were respectively *Ardeirallus sturmi* and *Tigrornis leucolopha*. The first named is a tiny little heron of slate-grey above and ochre-yellow or tawny brown below, with a white throat and a streak of bluish black down the middle of the throat. This strange-looking little bird will stand stiff, as if carved and painted, under the traveller's gaze, if it believes its "colour scheme" to have melted into the background of grey roots and brown sand. *Tigrornis* is a much larger bird, very handsomely coloured. Above it is greenish black, striped or banded with reddish yellow; below the ground colour is buff, barred with black and streaked longitudinally with white. There is a conspicuous white crest growing from the nape of the neck.

There are two night herons in Liberia, one the common species, and the other *Nycticorax leuconotus*, which is widely spread over Africa. It has a reddish neck. The general colour on the upper surface of the body is black, but the long plumes that start from the shoulders, and a patch underneath them on

the upper part of the back, are pure white. The lower part of the back, wings, and tail are a dusky slate colour, rather greenish in tone. The head is mainly black, with a long plume starting from the nape of the neck. There is a white patch round the eye, the upper throat is white, and the whole of the neck is a bright chestnut-orange, except the ridge along the spine, which is black. The large eyes are a bright gamboge yellow with a black pupil, so that this is a very striking and handsomely coloured heron.

The birds of prey are well represented in this country, firstly by the magnificent eagle *Spizaëtus coronatus*, a form found right across Africa to Uganda and Nyasaland. According to native stories (in which it figures a good deal¹), it lives principally on monkeys. An interesting and handsome object—one of the few common birds of Liberia—is the white and black Fishing vulture (*Gypohierax angolensis*), which is so abundantly met with in the coast regions, along the rivers and the estuarine creeks, where, every hundred yards or so, one of these strikingly coloured birds may be seen perched on the bare topmost branches of mangrove trees. The adults only of both sexes assume this brilliant black and white plumage, the pinions and back being chiefly black, whilst the rest of the body is white. The naked skin about the face and cere is pinkish grey, the feet and legs being a somewhat brighter pink. In some examples the crop below the neck seems to be bare of feathers, the skin being a yellowish flesh-colour. The young birds, however, are simply brown, light and dark, and travellers often take them for a distinct species, because they are three or four years old before they completely assume the black and white plumage of the adult.

This slow change from immature to mature plumage is

¹ The Vai call this bird Pö.

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met with in other accipitrine birds, especially in the case of the bateleur eagle and the sea eagles (*Haliaëtus*). The bateleur eagle, which ought also to be present in Liberia, but has not yet been recorded there, is quite four years old before it has assumed the handsome black, chestnut, and pale grey plumage of the mature bird.

The actual relationships of the Fishing vulture (sometimes called the Vulturine sea eagle) are uncertain. It seems to offer some slight affinities to the vultures, but perhaps is more nearly related to the huge Lammergeier. Some authorities have placed it near to the sea eagles, which it certainly resembles in mode of life and in that slow change of colour in the young birds. Though this bird lives chiefly on fish and occasional carrion, it is related of it, both in Liberia and in other parts of Africa, that it will occasionally devour the oily rind of the oil palm nut. Büttikofer states that when it has been feeding on this substance, its flesh is considered to be very appetising by the natives, who eat it under those circumstances.

The screaming Fishing eagle (*Haliaëtus vocifer*), which inhabits all Tropical Africa, is met with in Liberia along the coast, but is not so common a bird as in the less forested regions. Here also is found the Bat-eating hawk (*Mach. eramphus anderssoni*). This bird has a very wide gape, which gives it a misleading resemblance to a large type of goat-sucker. It flies about at dusk, and pursues bats, which seem to be its principal source of food. A handsome sparrow hawk (*Accipiter buettikoferi*), black or dark grey above and white or whitish grey below, with a flush of reddish brown on the sides, orange cere to the beak, orange-coloured eyes and orange legs, was discovered by Büttikofer, and is seemingly confined in its distribution to Liberia. A rare and remarkable-looking hawk is the short-winged, long-tailed *Dryotriorchis*, which is rather harrier-like in

its habits, and is stated by Mr. R. P. Currie to kill and eat snakes.

Among the Picarian and Passerine birds of Liberia may be singled out for notice the following. This country is rich in examples of that beautiful family peculiar to Africa in its distribution at the present day—the plantain-eaters or turacos (*Musophagidæ*). This group may be another instance of Eocene communication between Africa and South America. In the present age it is limited to the African continent, but in the Miocene period one or more forms strayed northwards as far as France.

The *Musophagidæ* are related to the cuckoos, which are a world-wide group; but they seem also to be connected with that extraordinary South American form, *Opisthocomus*, the other affinities of which are with the rails, and possibly the gallinaceous birds. In many ways *Opisthocomus* (which in outward appearance somewhat resembles the turacos) is a primitive or generalised type of bird, which exhibits still in its young a certain degree of quadrupedal locomotion—that is to say, the young scramble about “on all four legs,” using the wings with their clawed thumbs to scramble over branches. To the present writer it has seemed, in studying examples of young nestling turacos in Africa, that they also were inclined to move about, resting the finger-tips of the wings on the ground; but as his impressions were only derived from the possibly exceptional attitudes of three or four examples, it is a point which requires more confirmation before it can be asserted.

The Turacos in their breeding habits—like the finfoot already alluded to—are very little known indeed, although they are such striking birds in their coloration, and so bold in their habits that they are amongst the first to attract the attention of even the most heedless travellers. One or two species have,

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however, recently bred in confinement in England, but no information seems to have been secured as to the following points: Are the nestlings born naked, or are they (as it has seemed to the present writer) covered with a dark grey or slate-coloured down? Are they helpless when first born, like young pigeons, or do they evince soon after leaving the egg the power to move about and a restlessness which leads them to scramble out of the nest? In these movements do they make use of the hand (*i.e.* the wing) to assist them in locomotion? Do they at this stage show any signs of possessing claws on the thumb and index-finger?

Even if any or all of these points have been noted in the case of the one species of turaco which has bred in captivity, it would be interesting to know how far they apply to the other genera and species of the family. The most interesting of these birds to be studied in its life habits would certainly be the largest example, the magnificent *Corytheola cristata*, the great blue plantain-eater. This beautiful bird extends in its range through the forest region of West Africa from the vicinity of the Gambia River on the west to the Uganda Protectorate on the east, and from the basin of the Congo on the south to the Bahr-al-Ghazal on the north. It is very common in the Liberian forests, and is known by the Americo-Liberians as "the peacock." As this bird was illustrated in colour in my work on the Uganda Protectorate, it is hardly necessary to give a detailed description of it here. Its colours range from purple-black to verditer and ultramarine-blue, yellow-green, and chestnut-red. It is a very bold bird, and nests in trees, probably gathering together a rough platform of twigs. The eggs are said by the natives to be white, but we have no precise information on this subject. I believe the eggs of this plantain-eater do not exist in any collection.

This is a very noisy bird, which usually goes in troops of four or five companions. It is a species which does not seem to show any colour variation throughout its extensive range, examples collected by us in Liberia being precisely similar in colour to others which were collected in Uganda. In reviewing the specimens of this bird in notes on the Liberian fauna, put together for the Zoological Society, I made two mistakes: one was to say that the examples collected by Mr. Harold Reynolds in Liberia differed from the Uganda forms by the blue in the male inclining more to ultramarine, and also that the male of this species was considerably larger than the female, and brighter in coloration. But in examining a larger series of specimens from Liberia and Uganda, I find that although in both countries there are individuals that attain to a lighter and more greenish blue, there are other forms in which the colour inclines more to ultramarine; while the smaller, duller-coloured types which I took to be representative of the females were merely immature females, and resembled closely immature males of the same age. In this great blue plantain-eater, therefore, the same thing occurs as throughout all the other known members of the family: the males and females do not differ sensibly in coloration or in size.

The Grey parrot with a red tail does not exist in Liberia in a wild state. Its place is taken by the dull-coloured *Psittacus timneh* of Sierra Leone, the tail of which is dark grey, and not scarlet. The true red-tailed, ashen-grey parrot begins its range in West Africa on the Gold Coast, and extends thence across the continent to the eastern shores of the Victoria Nyanza, to Tanganyika and the northern edge of the Zambezi Basin. The Sierra Leone parrot (*Psittacus timneh*) is an uninteresting bird—a dull drab brown, with a dark grey tail that has a tendency to a purplish tinge in some examples. It is rather

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smaller than the ordinary grey parrot, and does not learn to talk. It seems to be a connecting link between the larger forms of *Pæocephalus* (some of which have a marked tendency to brownish grey in plumage) and *Psittacus*.

It would be an interesting study for some ornithologist to collect a series of *Psittacus* forms from, say, south of the Gambia River on the west, and along the coast to Angola, including the island of Principe in the Bight of Biafra, to see to what extent *Psittacus timneh* grades into *P. erithacus*—whether, for example, the grey parrot of the Ivory Coast has a true red tail or a tail that is more inclined to purple (as is the case with the Sierra Leone parrot), and in what locality the dun or brownish grey of *Psittacus timneh* changes into the light or dark ash-colour of the true grey parrot. The parrots of Principe Island are quite a well-established variety, in which the grey has become almost purplish—very dark—and the tail a purplish crimson.

The Grey parrot of Angola and the southern part of the Congo Basin tends to be a very light whitish grey, or to be flecked with patches of pink or light scarlet. Some examples of this variety are a pinkish scarlet all over, and are known as “king parrots.” It would seem as if the Grey parrot was in the process of developing at least two new species: that of Principe Island, which is becoming a purple bird, and that of Angola or the south-western Congo Basin, which is growing into a form scarlet all over.

The Grey parrot seems to have extended its range quite recently from the north-eastern verge of the Congo Forest, and perhaps the adjoining kingdom of Uganda, to Kavirondo, the Nandi Plateau, and even Kikuyu in East Africa, within three hundred miles of the Indian Ocean. It also seems to be spreading southwards, from Lake Tanganyika in the direction of Lake Nyasa. It is curious that at the same time there seems to be no



The Great Kingfisher (*Ceryle maxima*)

advance of the grey parrot westwards from the Gold Coast into the domain of its dull-coloured relation, *Psittacus timneh*.

The only other parrot that has as yet been recorded from Liberia is the pretty little West African love-bird (*Agapornis swindereniana*).

Amongst the Owls is a small reddish brown Eagle Owl—*Bubo lettii*—discovered by Büttikofer, and possibly peculiar in its range to Liberia. There are two other eagle owls found in this country, chiefly grey in plumage—*Bubo cinerascens* and *B. leucostictus*.

Amongst the Rollers may be mentioned as a common and a beautiful bird *Eurystomus gularis*, called by the Americo-Liberians “the daytime bat,” as it pursues insects through the air with open mouth. The allied species, *E. afer*, is also found in this country. My coloured illustration opposite p. 786, will give some idea of the bright colours of these birds, which are so commonly met with in many parts of West and Central Africa.

The Kingfishers are well represented here, but not as yet by any species peculiar to Liberia. Those which are most frequently seen by the riversides are the Great kingfisher (*Ceryle maxima*), and the very pretty *Alcedo quadribrachys*, with its black beak, rose-coloured feet, and beautiful contrasts of deep ultramarine, purple, cream-white, and chestnut-red. The grey, blue, green, brown, chestnut-coloured Halcyon kingfishers, with long red beaks, frequent the bush rather than the waterside, and live on insects chiefly. These birds are very common in the environs of Monrovia. They are of largish size for a kingfisher—from eight to nine inches long. The Crested kingfisher (*Corythornis*) is smaller, a brilliant little bird of emerald, ultramarine, and cobalt above with chestnut below. The small *Ispidina* kingfishers are ultramarine and black above, white and orange-tinged-with-lilac below, with red beaks.

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The Hornbills are represented by at least eight species, amongst which is the smallest member of this Asiatic and African group, *Lophoceros camurus*, a demure little bird, not larger than a pigeon, with a bright red beak. A much more striking example of this family is the long-tailed, white-crested *Ortholophus leucolophus*. This bird is sufficiently illustrated by my coloured drawing. It is, apparently, the more western species of the two known forms of the genus *Ortholophus*. It will be noted that the tips of the secondary and primary feathers of the wing are not marked with white terminal spots, as is the case with the larger and handsomer *O. albocristatus*,¹ but that the white on the ends of these feathers is either absent or limited to a very narrow margin. There is also a difference in the distribution of greyish white about the cheeks. *Ortholophus leucolophus* is also slightly smaller (it would seem) than the other species. Its range of distribution would appear to extend from Senegambia on the west to Lagos on the east, from which point to the eastwards begins and extends the range of the larger and handsomer *Ortholophus albocristatus*, which is particularly characteristic of the Niger, Cameroons, and Congo. But Cassin, who appears to have first described these white-crested hornbills in the early part of the nineteenth century, is supposed to have collected the type example of *Ortholophus albocristatus* at Sierra Leone. The point requires clearing up, but it seems very probable that the single specimen sent to America by Cassin, and marked Sierra Leone, must have been labelled in error, and really have been obtained from the regions of Lower Guinea. If, however, this type, so characteristic of the Congo, can be proved to exist in Sierra Leone, then the occurrence of the less specialised Liberian form (without the white spots on the wings) in a

¹ In an *immature* female specimen of *O. leucolophus*, obtained by Mr. R. P. Currie, the throat was black, and the white spot appeared on the tips of the primaries.



The White-crested Hornbill or "Monkey Bird" (*Ortholophus leucolophus*)

sort of enclave in the range of the bigger species will be very curious.

This Crested hornbill is well known to the Americo-Liberians, who call it the "monkey-bird," as it is supposed to frequent the society of monkeys in the forest. Two other striking forms of hornbill are fairly common in the forests. There is the Black hornbill (*Ceratogymna atrata*), the range of which extends right across the continent to Uganda, and the



301. THE BLACK HORNBILL (*CERATOGYMNA ABRATA*): FEMALE

nearly allied Elate hornbill (*C. elata*). Both these hornbills share in common with other members of the same family in eastern Asia the peculiarity that whereas the males have black heads and necks the females have a plumage of bright red-brown instead. This is illustrated in my painting, which has been made from specimens procured from Liberia in 1905. I also give a drawing of the head of a male Elate hornbill which died recently in the Zoological Gardens, London. Amongst other points of difference,

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this bird may be at once distinguished from the black hornbill by the mottled appearance of the short feathers below the throat.

The horns on the beaks of these birds vary very much, according to age and sex, in the degree to which the projection of the ridge is developed. In the females and in young males there is very little variation in the rounded outline of the ridge, but in adult males this swells at the sides and develops into a permanent "horn." Both these hornbills, like those of



302. THE ELATE HORNBILL (*CERATOGYMNA ELATA*): YOUNG MALE

the genus *Bycanistes*, utter loud, braying cries, especially whilst flying. Two species of *Bycanistes* (*B. subcylindricus* and *B. fistulator*) exist in Liberia, according to Büttikofer. They are large birds with big casques to the beaks and full crests, the plumage being a boldly contrasted combination of black-bronze-green and pure white, with some grey on the face and crest.

Amongst the passerine birds may be noted the presence of many lovely species of *Nectariniidæ* (Sun-birds), a brightly

coloured Ground thrush (*Pitta*) (one of the Malayan forms which reappears in West Africa); almost innumerable Weaver birds¹ and Waxbills, some of them gorgeously coloured; one or more examples of the Metallic starlings, the "Pepper-bird," a



303. HEAD OF MALE ELATE HORNBILL

kind of bulbul (*Pycnonotus barbatus*), a Thrush, an Oriole, a good many Shrikes (some of them very brightly coloured), and the familiar black and white Crow of Tropical Africa, *Corvus*

¹ The larger weaver birds of the genus *Hyphantornis*, principally, hang their nests on the fronds of oil palms, which they completely strip of their filaments.

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scapulatus. This is almost the only scavenger of forested Liberia, from which country vultures and marabou storks



304. PALM TREE HUNG WITH WEAVER BIRDS' NESTS

seem so curiously absent. The black and white crow is chiefly seen along the coast region.

The bird fauna of Liberia does not offer such striking local peculiarities as is the case with the mammalian. So far as is yet known, only six species are peculiar to this country,



Male and Female Black Hornbill (*Ceratogymna atrata*)
Female has Brown Head

all of them discovered by Büttikofer. But in common with the rest of forested West Africa—the Guinea Coast especially, from Senegambia to the Cameroons—Liberia presents in its avi-fauna, as in its “Miocene” mammalia, affinities with the regions of Eastern Asia (Burma, Malay Peninsula and Archipelago). This is due, no doubt, to the survival of forest-



305. THE BLACK AND WHITE CROW (*CORVUS SCAPULATUS*)

haunting forms in this part of West Africa which have become extinct in the deforested regions separating Central Africa from Indo-China. Many of these Liberian and West African types are continued in their distribution right across Africa to the territories north of the Victoria Nyanza (Uganda Protectorate).

Liberia ☞

In the following Appendix is a list of the known birds of Liberia, prepared for this book by Mr. Chubb, of the British Museum. It is based on the collections of Schweitzer, Büttikofer, Currie, Harold Reynolds, Alexander Whyte, John Gow, and J. Maitland Pye-Smith, as well as on notes and specimens collected by myself.

The Broad-mouthed Roller (*Eurystomus aler*), "Day-bat" of the Liberians



APPENDIX VI

LIST OF BIRDS

OBSERVED OR COLLECTED IN *LIBERIA* BY HERR SCHWEITZER, DR. BÜTTIKOFER, MR. R. P. CURRIE, AND BY SIR H. H. JOHNSTON, MESSRS. HAROLD REYNOLDS, ALEXANDER WHYTE, JOHN GOW, AND J. MAITLAND PYE-SMITH.¹

By CHARLES CHUBB

(*Zoological Department, British Museum*)

REFERENCES are given to the following papers and works which treat of the Ornithology of Liberia :

- (1) BÜTTIKOFER, J.—Zoological Researches in Liberia. A List of Birds, collected by J. Büttikofer and C. F. Sala in Western Liberia, with biological observations. Notes from the Leyden Museum, vii. pp. 129-256 (1885).
- (2) ——. Zoological Researches in Liberia. A List of Birds, collected by Mr. F. X. Stampfli near Monrovia on the Mesurado River, and on the Junk River with its tributaries. Op. cit. viii. pp. 243-68 (1886).
- (3) ——. Zoological Researches in Liberia. A List of Birds, collected by the author and Mr. F. X. Stampfli during their last sojourn in Liberia. Op. cit. x. pp. 59-106, plate 5 (1888).
- (4) ——. Zoological Researches in Liberia. Fourth List of Birds. Op. cit. xi. pp. 113-38 (1899).
- (5) ——. Zoological Researches in Liberia. On a series of Birds, collected by Mr. A. T. Demery in the district of Grand Cape Mount. Op. cit. xii. pp. 197-206 (1890).
- (6) ——. Reisebilder aus Liberia. Resultate geographischer, naturwissenschaftlicher und ethnographischer Untersuchungen während der Jahre 1879-82 und 1886-7. 2 vols. Leyden, 1890. 8vo. Vögel, ii. pp. 397-434, plates xxx., xxxi.
- (7) ——. On a Collection of Birds sent by the late A. T. Demery from the Sūlima River (West Africa). Notes from the Leyden Museum, xiv. pp. 19-30 (1892).

¹ The notes following the names of certain species apply nearly always to Mr. Reynold's collection.

Liberia

- (8) OBERHOLSER, H. C.—A List of the Birds collected by Mr. R. P. Currie in Liberia. Proceedings of the United States National Museum, xxii. pp. 23-37, plate vii.
- (9) CHUBB, C.—List of Birds collected in Liberia by Mr. Harold Reynolds. P.Z.S. 1905, vol. i. pp. 205-10.

Family PHASIANIDÆ

Francolinus lathamii, Hartlaub.

Francolinus lathamii, Hartl.; Büttik. Notes Leyd. Mus. vii. p. 231 (Bavia and Soforé Place), viii. p. 265 (Schieffelinsville), x. p. 99 (Hill Town and Waflah), xi. p. 127 (Farmington River); id. Reisebilder Liberia, ii. p. 426 cum fig.

No. 20. ♂ adult, St. Paul's River, Feb. 23, 1905.

Bill black; tarsi and feet yellow; claws black (Reynolds).

¹ *F. achantensis*, Temm.

F. bicalcaratus, L.

Family NUMIDIDÆ

Agelastes meleagroides.

Agelastes meleagroides, Temm.; Büttik. Notes Leyd. Mus. vii. p. 230 (Soforé Place, St. Paul's River), x. p. 98 (Schieffelinsville), xi. pp. 126, 136 (Galilee Mountain); id. Reisebilder Liberia, ii. pp. 424, 425, cum fig.; Grant, Cat. B Brit. Mus. xxii. p. 374 (1893); Chubb, P.Z.S. 1905, vol. i. p. 206 (St. Paul's River).

Guttera cristata.

Numida cristata, Pall.; Büttik. Notes Leyd. Mus. vii. p. 230 (Bavia and Buluma), x. p. 98 (Hill Town), xi. pp. 125, 136 (Mount Olive); id. Reisebilder Liberia, ii. pp. 424, 425, cum fig.

Guttera cristata, Grant, Cat. B Brit. Mus. xxii. p. 381 (1893); Chubb, P.Z.S. 1905, vol. i. p. 206 (St. Paul's River).

Family COLUMBIDÆ

Vinago calva, Temm.

Columba uncineta, Cass.

Turturæna iriditorques, Cass.

Turtur semitorquatus, Rüpp.

Calopelia puella, Schl.

Chalcopelia afra, Linn.

Tympanistria tympanistria, Temm.

¹ The names given without further references are nearly all attributable to Büttikofer.

Family RALLIDÆ

- Himantornis hæmatopus, Temm.
Ortygometra nigra, Gm.
Rallina oculate, Hartl.
Sarothrura pulchra (Gray).

Family HELIORNITHIDÆ

- Podica senegalensis, Hartl.

Family LARIDÆ

- Sterna cantiaca, Gm.
S. fluviatilis, Norman.
Hydrochelidon nigra, Briss.
Rhynchops flavirostris, Vieill.
Stercorarius cephus, Brunn.

Family PARRIDÆ

- Phyllopezus africanus, Gm.
Parra africana. Collected by Sir H. H. Johnston at Grand Basā (St. John's River), 1888.

Family CHARADRIIDÆ

- Xiphidopterus albiceps.
Lobivanellus albiceps, Gould; Buttik. Notes Leyd. Mus. vii. p. 236 (Soforé Place and Cobolia); id. Reisebilder Liberia, ii. p. 428.
Xiphidopterus albiceps, Sharpe, Hand-list B, i. p. 150 (1899).
No. 2. ♂ adult, Montserrado County, Feb. 25, 1905.
Bill and wattles yellow; tip of bill black; tarsi and feet pale greenish grey; iris yellow.
Vanellus inornatus, Swains.
Charadrius hiaticula, Linn.
C. cantiana, Lath.
C. forbesi, Shelley.

Family SCOLOPACIDÆ

- Numenius phæopus, Linn.
Totanus glottis, Linn.
Tringoides hypoleucus.

Liberia

Totanus hypoleucus (Linn.); Büttik. Notes Leyd. Mus. viii. p. 266 (Junk River), x. p. 102 (Dukwia River), xi. p. 127 (Farmington River).

Totanus [*Actitis*] *hypoleucus*, Buttik. Reisebilder Liberia, ii. p. 429. Nos. 42, 45. ♂ ♀ adult, E. Liberia, March 13, 1905.

Tringa subarquata, Gould.

Crymophilus fulicarius.

Crymophilus fulicarius (Linn.); Sharpe, Cat. B Brit Mus xxiv. p. 693 (1896).

No. 34. ♂ adult, E. Liberia (J. Maitland Pye-Smith), March 23, 1905.

Tarsi and feet greenish grey.

This appears to be the first record of this Red phalarope in Africa, as there is no mention of it in Capt. Shelley's *Birds of Africa* or Dr. Reichenow's *Vögel Afrikas*.

This species breeds within the Arctic circle of both the Old and New Worlds, and migrates south in winter. A great number of stragglers have been taken in England, chiefly during the autumn migration, and captured most frequently in the southern counties. In North America it ranges south to Pennsylvania on the east and California on the west, and has been found on the western side of South America as far south as Chile. It has also been found in India, and even in New Zealand (cf. Butler, *Birds of New Zealand*, ii. p. 30 [1888]). It is not surprising, therefore, that a bird which has such a wide range in its migration should be found in the Ethiopian Region; it is most interesting, however, to have discovered it. The following is a description:

The general appearance of the upper parts is slate-grey, some of the scapulars are black margined and broadly tipped with grey, the longer ones fringed with white, the shafts are black and reach almost to the tips of the feathers, which gives a streaked appearance, lesser wing-coverts dark slate-grey like the bastard wing, the longer feathers of the latter are tipped with white; primary coverts blackish, the inner ones fringed with white; median coverts slate-colour with narrow white edges; greater coverts broadly tipped with white; primaries black with white shafts and white on the inner webs towards the base; secondaries white at base, blackish towards the tips and fringed with white, the innermost feathers almost entirely white; the long tertiaries feathers are black down the middle followed by

brown, hoary grey at the tips and along the edges; upper central tail-coverts grey, the lateral ones almost entirely white; tail feathers grey, becoming grey towards their tips and fringed with whitish, one of the middle feathers margined with rufous: both this and the rufous brown on the tertiaries show an approach of the breeding dress; forehead, crown (nape grey), hind neck, sides of face, and under-surface of body white, inclining to cream-colour on the breast; sides of breast and body grey, becoming streaked with grey and white on the flanks; axillaries and under wing-coverts white.

Total length, 7·5 inches; wing, 5·15; culmen, 1·1; tail, 2·45; tarsus, 0·8.

Family GLAREOLIDÆ

Galactochrysea liberiaë.

Glareola megapoda, Gray, *nom. nud.*; Büttik. Notes Leyd. Mus. vii. pp. 233, 256 (St. Paul's River, Fisherman Lake, Mafa River); id. op. cit. x. p. 99 (Fisherman Lake); id. op. cit. xi. pp. 127, 136 (Farmington River); id. Reisebilder Liberia, ii. p. 427 cum fig.

G. nuchalis liberiaë, Schl. Notes Leyd. Mus. iii. p. 58 (1881: Liberia).

Galactochrysea liberiaë, Sharpe, Cat. B Brit. Mus. xxiv. p. 63, plate v. fig. 1 (1894); Chubb, P.Z.S. 1905, vol. i. p. 206 (St. Paul's River).

No. 4. Five males adult from Boporo, Feb. 16, 17, 1905.

Bill salmon-pink, dark at tip; tarsi and feet salmon-pink.

No. 38. ♀ adult from E. Liberia.

G. marchei, Oust.

This species was collected by Mr. R. P. Currie; cf. Oberholser, Proc. U.S. Nat. Mus. xxii. p. 25.

Family ŒDICNEMIDÆ

Œdicnemus vermiculatus, Cab.

Family CICONIIDÆ

Dissura episcopus.

Dissura episcopus (Bodd.); Sharpe, Cat. B Brit. Mus. xxvi. p. 294 (1898).

Liberia ☛

Ciconia episcopus, Büttik. Notes Leyd. Mus. vii. p. 242 (Buluma),
x. p. 101 (Junk and Dukwia Rivers); id. Reisebilder Liberia,
ii. p. 429.

No. 15. ♂ adult, Boporo, Feb. 21, 1905.

Bill black; culmenal ridge and tip scarlet; tarsi and feet black.

Family IBIDIDÆ

Hagedashia hagedash.

Ibis hagedash (Lath.); Büttik. Notes Leyd. Mus. vii. p. 242
(Buluma), p. 127 (Dukwia River); id. Reisebilder Liberia, ii.
p. 429.

Hagedashia hagedash, Sharpe, Cat. B Brit. Mus. xxvi. p. 19
(1898); Chubb, P.Z.S. 1905, vol. i. p. 207.

One adult bird, E. Liberia.

Ibis olivacea, Du Bus.

Family ARDEIDÆ

Ardea alba, Linn.

A. ardesiaca, Wagl.

A. gularis, Bosc.

Nycticorax leuconotus, Wagl.

N. nycticorax (Linn).

Ardeirallus sturmi, Wagl.

Tigrornis leucolopha, Jardinc.

Butorides atricapilla.

Ardea atricapilla, Afzel.; Büttik. Notes Leyd. Mus. vii. p. 239
(Grand Cape Mount), viii. p. 266 (Junk River), x. p. 101
(Dukwia River); id. Reisebilder Liberia, ii. p. 428; id. Notes
Leyd. Mus. xiv. p. 30 (Sūlima River).

No. 40. ♀ imm. E. Liberia.

Family PHŒNICOPTERIDÆ

Phœnicopterus (Phœniconais) sp. ?

Family ANATIDÆ

Plectropterus gambensis, Linn.

Sarcidiornis melanonotus, Penn.

Dendrocygna viduata, Linn.

Pteronetta hartlaubi.

Querquedula hartlaubi, Cass. ; Büttik. Notes Leyd. Mus. viii. p. 267 (Junk River), x. p. 105 (Old Field, Junk River) ; id. Reisebilder Liberia, ii. p. 433.

No. 29. ♂ adult, E. Liberia, March 4, 1905.

Bill black at base, tip yellow, nail black ; tarsi and feet black.

Family PHALACROCORACIDÆ

Phalacrocorax africanus.

Graculus africanus, Gm. ; Büttik. Notes Leyd. Mus. vii. p. 252 (Fisherman Lake), x. p. 106 ; id. Reisebilder Liberia, ii. p. 434

No. 22. ♀ adult, Boporo Station, St. Paul's River, Feb. 24, 1905.

Bill, upper mandible grey, lower mandible white ; tarsi and feet black.

Family PLOTIDÆ

Plotus rufus.

Plotus rufus, Lacép. et Daud. ; Grant, Cat. B Brit. Mus. xxvi. p. 412 (1898).

P. levaillanti, Licht. ; Büttik. Notes Leyd. Mus. vii. p. 251 (Mafa River), viii. p. 268 (Junk River), x. p. 106 (Junk River) ; id. Reisebilder Liberia, ii. p. 434.

No. 3. ♂ adult, Boporo, St. Paul's River, Feb. 16, 1905.

Bill brown ; feet greenish.

Family FALCONIDÆ

Polyboroides typicus, Smith.

Circus macrurus (S. G. Gmel.).

Urotriorchis macrurus (Hartl.).

Astur macroscelides, Hartl.

Accipter buettikoferi, Sharpe.

Spizaëtus coronatus.

Spizaëtus coronatus (Linn.) ; Büttik. Notes Leyd. Mus. x. p. 63 ; id. Reisebilder Liberia, ii. p. 397 cum fig.

Feet only, E. Liberia (Pye-Smith).

Asturinula monogrammica (Temm.).

Dryotriorchis spectabilis (Schlegel).

Haliaëtus vocifer (Daud.).

Liberia ☛

Gypohierax angolensis.

Haliaëtus angolensis (Gm.); Büttik. Notes Leyd. Mus. vii. p. 154
(Bavia and Grand Cape Mount), viii. p. 246 (Junk River),
x. p. 66 (Monrovia).

Gypohierax angolensis, Büttik. Reisebilder Liberia, ii. p. 398.

One adult from E. Liberia (Pye-Smith).

Milvus ægyptius (Gm.).

Machæramphus anderssoni (Gurney).

Pernis apivorus (Linn.).

Baza cuculoides (Swains.).

Family PSITTACIDÆ

Psittacus timneh, Fraser.

Psittacula swindereniana, Kuhl.

Family MUSOPHAGIDÆ

Corythæola cristata.

Turacus giganteus (Vieill. 1823); Büttik. Notes Leyd. Mus. vii.
p. 203 (St. Paul's River and Grand Cape Mount).

T. cristatus (Vieill. 1816); Büttik. Notes Leyd. Mus. viii. p. 262
(Junk and Dukwia Rivers), x. p. 92 (in high forest along the
Upper Dukwia River), xi. p. 134; id. Reisebilder Liberia,
ii. p. 417.

Corythæola cristata, Shelley, Cat. B Brit. Mus. xix. p. 449 (1891);
Chubb, P.Z.S. 1905, vol. i. p. 208 (St. Paul's River).

One adult specimen from E. Liberia.

Turacus macrorhynchus (Fraser).

T. persa (Linn.).

Family CUCULIDÆ

Clamator cafer.

Coccytes cafer (Licht.); Büttik. Notes Leyd. Mus. vii. p. 225
(Bavia, St. Paul's River), xi. p. 135, xiv. p. 29 (Sulima River);
Shelley, Cat. B Brit. Mus. xix. p. 221 (1891).

Clamator cafer, Chubb, P.Z.S. 1905, vol. i. p. 208 (St. Paul's
River).

No. 11. An adult bird from Boporo, Feb. 19, 1905.

Bill, tarsi and feet black.

Chrysococcyx cupreus.

Chrysococcyx cupreus (Bodd.); Büttik. Notes Leyd. Mus. vii. p. 225 (Monrovia), viii. p. 264 (Mesurado River), xi. p. 135; id. Reisebilder Liberia, ii. p. 423; Chubb, P.Z.S. 1905, vol. i. p. 208 (St. Paul's River).

C. klaasii, Stephens.

Centropus senegalensis.

Centropus senegalensis (Linn.); Büttik. Notes Leyd. Mus. vii. p. 223 (St. Paul's River and Grand Cape Mount), viii. p. 264 (Junk and Mesurado Rivers), x. p. 96 (Schieffelinville), xii. p. 205 (Robertsport); id. Reisebilder Liberia, ii. p. 422; id. Notes Leyd. Mus. xiv. p. 29 (Sülina River); Oberh. Proc. U.S. Nat. Mus. xxii. p. 27.

One ♀ adult, shot on old ricefield near station, March 14, 1905.

Eye red with small black centre.

C. francisci, Bp.

Ceuthmochares flavirostris.

Phanicophaës æneus, Büttik. (nec Vieill.) Notes Leyd. Mus. vii. p. 224 (Fisherman Lake), viii. p. 264 (Dukwia River).

Ceuthmochares æneus Büttik. (nec Vieill.) Notes Leyd. Mus. xi. p. 135, xii. p. 205 (Robertsport), xiv. p. 29 (Sülina River).

C. flavirostris (Swains.); Shelley, Cat. B Brit. Mus. xix. p. 401 (1891); Chubb, P.Z.S. 1905, vol. i. p. 208 (St. Paul's River).

Family INDICATORIDÆ

Indicator variegatus, Less.

Family CORACIIDÆ

Eurystomus afer.

Eurystomus afer (Lath.); Büttik. Notes Leyd. Mus. vii. p. 158 (St. Paul's River and Fisherman Lake), viii. p. 248 (Mesurado and Junk Rivers), x. p. 69 (Mesurado, Junk and Dukwia Rivers), xi. p. 117 (Galilee River), xii. p. 201 (Robertsport); id. Reisebilder Liberia, ii. p. 401; id. Notes Leyd. Mus. xiv. p. 22 (Sülina River); Oberh. Proc. U.S. Nat. Mus. xxii. p. 27.

Nos. 30 and 35. ♀ adult } St. Paul's River, March 13, 24, 1905.

No. 36. ♂ imm. } Bill yellow; feet olive-green.

Liberia ♀

E. gularis.

E. gularis Vieill.; Büttik. Notes Leyd. Mus. vii. p. 159 (Bavia and Soforé Place, St. Paul's River), xi. p. 130; id. Reisebilder Liberia, ii. p. 401; id. Notes Leyd. Mus. xiv. p. 22 (Sūlima River); Sharpe, Cat. B Brit. Mus xvii. p. 32 (1892); Oberh. Proc. U.S. Nat. Mus. xxii. p. 27; Chubb, P.Z.S. 1905, vol. i. p. 207 (St. Paul's River).

Family ALCEDINIDÆ

Ceryle maxima.

Ceryle maxima (Pall.); Büttik. Notes Leyd. Mus. vii. p. 160 (Fisherman Lake and Mafa River), viii. p. 248 (Junk River), x. p. 70 (Dukwia River), xi. p. 117 (Farmington River); id. Reisebilder Liberia, ii. p. 403 cum fig.; id. Notes Leyd. Mus. xiv. p. 22 (Sūlima River).

No. 9. ♀ adult, St. Paul's River, Feb. 1905.

Bill, tarsi and feet black.

One ♀ imm., Maho River, March 31, 1905.

C. rudis (Linn.)

Alcedo quadribrachys.

Alcedo quadribrachys, Bonap.; Büttik. Notes Leyd. Mus. viii. p. 248 (Junk and Mesurado Rivers), x. p. 71 (Dukwia and Farmington Rivers); id. Reisebilder Liberia, ii. p. 404; id. Notes Leyd. Mus. xiv. p. 22 (Sūlima River).

No. 28. ♂ adult, Maho River, March 4, 1905.

Bill black; tarsi and feet rose-colour.

No. 41. ♀ adult, E. Liberia, March 31, 1905.

Corythornis cyanostigma.

Alcedo cyanostigma, Rupp.; Büttik. Notes Leyd. Mus. vii. p. 159 (Mafa River), viii. p. 248 (Junk River).

Corythornis cyanostigma, Büttik. Notes Leyd. Mus. x. p. 70 (Dukwia River), xiv. p. 22 (Sūlima River); id. Reisebilder Liberia, ii. p. 404.

Nos. 6, 16. ♀ adult, Boporo, Feb. 18, 22, 1905.

Bill rose-colour, upper mandible rather darker, especially near the nostrils; tarsi and feet rose-colour.

Ispidina picta.

Ispidina picta (Bodd.); Büttik. Notes Leyd. Mus. x. p. 71 (St. John's and Sino Rivers), xi. p. 117 (Mount Olive), xii.



The Black-beaked Kingfisher (*Alcedo guentheri*).

p. 202 (Mafa River); id. Reisebilder Liberia, ii. p. 404; id. Notes Leyd. Mus. xiv. p. 22 (Sūlima River).

Alcedo picta, Büttik. Notes Leyd. Mus. vii. p. 160 (St. Paul's River and near Fisherman Lake).

No. 14. ♂ adult, St. Paul's River, Feb. 21, 1905.

I. leucogastra (Fraser).

Halcyon badius, Verr.

H. semicæruleus (Forsk.).

H. senegalensis.

Halcyon senegalensis (Linn.); Büttik. Notes Leyd. Mus. vii. p. 161 (St. Paul's River and Grand Cape Mount), viii. p. 249, x. p. 70 (Junk River), xi. p. 117 (Schieffelinville); id. Reisebilder Liberia, ii. p. 401.

Nos. 13, 23. ♀ adult } St. Paul's River, Feb. 21-5, 1905.

No. 17. ♂ adult } Tarsi and feet black.

H. cyanoleucus.

H. cyanoleuca (Vieill.); Büttik. Notes Leyd. Mus. vii. p. 162 (Bavia, St. Paul's River), xi. p. 130; id. Reisebilder Liberia, ii. p. 401.

H. cyanoleucus, Sharpe, Cat. B Brit. Mus. xvii. p. 245 (1892); Chubb, P.Z.S. 1905, vol. i. p. 207 (St. Paul's River).

No. 13. ♀ adult, St. Paul's River, Feb. 21, 1905.

No. 17. ♂ adult, St. Paul's River, Feb. 22, 1905.

No. 23. ♀ adult, St. Paul's River, Feb. 25, 1905.

H. forbesi.

H. forbesi, Sharpe, Cat. B Brit. Mus. xvii. p. 247, plate vi. fig. 2 (1892).

H. malimbica, Büttik. (nec Shaw), Notes Leyd. Mus. vii. p. 162 (Bavia and Buluma), viii. p. 249 (Junk River), x. p. 270 (Dukwia River), xiv. p. 22 (Sūlima River).

No. 8. ♂ adult, Boporo River, Feb. 19, 1905.

No. 7. ♂ adult, Maho River, Feb. 19, 1905.

Bill, lower mandible black, upper mandible lake-red; tarsi and feet rose-colour.

No. 27. ♂ adult, Maho River, March 4, 1905.

Nos. 43, 44. ♂ adult, E. Liberia, March 31, 1905.

One adult, E. Liberia.

Liberia

Family BUCEROTIDÆ

Bycanistes cylindricus, Temm.

B. fistulator, Cass.

Ceratogymna elata.

Ceratogymna elata (Temm.); Grant, Cat. B Brit. Mus. xvii. p. 388.

Buceros elatus, Büttik. Notes Leyd. Mus. vii. p. 204 (St. Paul's River and Grand Cape Mount), viii. p. 262 (Junk and Dukwia Rivers), x. p. 92 (Cess and Sino Rivers), xi. p. 125 (Mount Olive); id. Reisebilder Liberia, ii. p. 418.

Nos. 25, 26. ♂ ♀, head only, E. Liberia, March 3, 1905.

C. atrata.

Buceros atratus, Temm.; Büttik. Notes Leyd. Mus. vii. p. 205 (St. Paul's River), x. p. 93 (Hill Town), xi. p. 125 (Mount Olive); id. Reisebilder Liberia, ii. p. 389.

Ceratogymna atrata, Grant, Cat. B, xvii. p. 388 (1892); Sharpe, Hand-list B, ii. p. 66 (1900).

One adult male in entire black plumage except the outer tail-feathers, which are broadly tipped with white. This specimen was collected in Eastern Liberia by Mr. Gow.

Ortholophus leucolophus, Sharpe.

Lophoceros camurus.

Buceros camurus (Cass.); Büttik. Notes Leyd. Mus. xi. p. 210 (Soforé Place, St. Paul's River), viii. p. 262 (Junk River), x. p. 93 (Hill Town).

Tokus camurus, Büttik. Notes Leyd. Mus. xi. p. 134; id. Reisebilder Liberia, ii. p. 419.

Lophoceros camurus Grant, Cat. B Brit. Mus. xvii. p. 404 (1892); Chubb, P.Z.S. 1905, vol. i. p. 207 (St. Paul's River).

L. semifasciatus, Temm.

L. [Horizocerus] hartlaubi, Gould.

Family MEROPIDÆ

Merops albicollis.

Merops albicollis, Vieill.; Büttik. Notes Leyd. Mus. vii. p. 166 (Bavia and Buluma), viii. p. 249 (Junk River), x. p. 71 (Schieffclinsville), xii. p. 202 (Robertsport); id. Reisebilder Liberia, ii. p. 473; Oberh. Proc. U.S. Nat. Mus. xxii. p. 27.

No. 24. Two ♂ adults, Boporo Station, March 5, 1905.

- M. superciliosus*, Linn.
M. erythropterus, Gm.
M. gularis, Shaw.

Family CAPRIMULGIDÆ

Scotornis climacurus.

Scotornis longicaudus (Steph.); Büttik. Notes Leyd. Mus. vii. p. 156 (near Grand Cape Mount), viii. p. 248 (Junk River), x. p. 68 (Schieffelinsville), xi. pp. 116, 129 (Galilee Falls), xii. p. 198 (Robertsport); id. Reisebilder Liberia, ii. p. 392; id. Notes Leyd. Mus. xiv. p. 21 (Sūlima River).

S. climacurus (Vieill.); Hartert, Cat. B Brit. Mus. xvi. p. 596 (1892); Chubb, P.Z.S. 1905, vol. i. p. 207 (St. Paul's River).

Caprimulgus inornatus, Hengl.

C. fossii, Hartl.

Family STRIGIDÆ

- Bubo lettii*, Büttik.
B. cinerascens, Guér.
B. leucostictus, Hartl.
Syrnium nuchale, Sharpe.
Scotopelia peli, Bonap.
S. ussheri, Sharpe.
S. bouvieri, Sharpe.
Scops senegalensis, Hartl.

Family CYPSELIDÆ

- Cypselus apus*, Linn.

Family TROGONIDÆ

- Trogon narina*, Le Vaill.

Family CAPITONIDÆ

- Pogonorhynchus hirsutus* (Swains.).
Barbatula duchaillui, Cass.
B. subsulphurea (Fraser).
B. erythronota (Cub.).
B. scolopacea (Temm.).
Trachyphonus goffini, Schl.
Gymnobuceo calvus, Lafr.

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Family PICIDÆ

- Mesopicus pyrrhogaster, Malh.
Dendropicus lugubris, Hartl.
Dendromus maculosus, Valenc.
D. caroli, Malh.
D. arizelus, Oberh.
D. nivosus, Swains.

Family PITTIDÆ

- Pitta angolensis, Vieill.

Family HIRUNDINIDÆ

- Hirundo rustica, Linn.
H. nigrita, Gray.

Family CAMPEPHAGIDÆ

- Campephaga quiscalina, Finsch.

Family MUSCICAPIDÆ

- Parisoma plumbeum, Hartl.
Muscicapa grisola, Linn.
M. lugens, Hartl.
Platystira cyanea (P. L. S. Mull.).
Diaphorophya castanea (Fraser).
D. blissetti, Sharpe.
Artomyias ussheri, Sharpe.
Smithornis rufolateralis, Gray.
Bias musicus, Vieill.
Megabias flammulatus, Verr.
Cassinia finschii, Sharpe.
Tchitrea nigriceps, Hartl.
Trochocercus nitens, Cass.

Family PYCNONOTIDÆ

- Criniger verreauxi.

Criniger verreauxi, Sharpe, Cat. B Brit. Mus. vi. p. 73, plate iv. (1881, Fantec); Büttik. Notes Leyd. Mus. x. p. 79 (Hill Town and Schieffelsville), xi. pp. 121, 131, xii. p. 203 (Jarjee), xiv. p. 22 (Sūlima River); Chubb, P.Z.S. 1905, vol. i. p. 208 (St. Paul's River).

Stelgidillus liberiensis (Reichenow).

Chlorocichla gracilirostris, Strickl.

Andropadus latirostris, Strickl.

A. curvirostris, Cass.

Eurillas virens (Cass.).

Ixonotus guttatus, Verr.

Xenocichla syndactyla, Swains.

X. eximia, Hartl.

X. canicapilla, Hartl.

Pycnonotus inornatus.

Pycnonotus barbatus (Desf.); Büttik. Notes Leyd. Mus. vii. p. 180 (Buluma and Robertsport), viii. p. 256 (Mesurado and Junk Rivers), x. p. 83 (common along the whole coast of Liberia), xi. pp. 122, 132 (Mount Olive), xii. p. 204 (Robertsport); id. Reisebilder Liberia, ii. p. 408; id. Notes Leyd. Mus. xiv. p. 23 (Sūlima River); Oberh. Proc. U.S. Nat. Mus. xxii. p. 31.

P. barbatus inornatus, Hartert, Nov. Zool. ix. p. 329 (1902, Gold Coast).

P. inornatus, Chubb, P.Z.S. 1905, vol. i. p. 209 (St. Paul's River).

P. simplex, Hartl.

P. leucopleurus, Cass.

P. indicator, Verr.

P. serinus, Verr.

P. tricolor, Cass.

P. calurus, Cass.

Family TIMELIIDÆ

Hylia prasina (Cass.).

Stiphronis erythrothorax, Hartl.

Cossypha pœnsis, Strickl.

C. verticalis, Hartl.

C. cyanocampter (Bp.).

C. leucosticta, Sharpe.

Alethe poliocephala (Bp.).

A. diademata (Bp.).

Drymocataphus johnsoni, Büttik.

Turdinus gularis (Sharpe).

T. fulvescens (Cass.).

T. rufescens, Reichen.

Crateropus atripennis, Swains.

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Family TURDIDÆ

Geocichla princei, Sharpe.

Turdus pelios, Bp.

Pratincola rubetra.

Pratincola rubetra (Linn.); Büttik. Notes Leyd. Mus. xiv. p. 23
(Sülîma River); Sharpe, Hand-list B, iv. p. 171 (1903); Chubb
P.Z.S. 1905, vol. i. p. 209 (St. Paul's River).

Family NECTARINIIDÆ

Cinnyris fuliginosa (Shaw).

C. cyanolæma (Jardine).

C. verticalis (Lath.).

C. obscura (Jardine).

C. johannæ, Verr.

C. chloropygia (Jardine).

C. venusta (Shaw).

C. adalberti (Gervais).

Anthreptes hypodilus (Jardine).

A. rectirostris (Shaw).

A. gabonicus, Hartl.

A. idius, Oberh.

Zosterops demeryi, Büttik.

Z. obsoleta, Büttik.

Family SYLVIIDÆ

Sylvia hortensis, Bechst.

Phylloscopus trochilus, Linn.

Arcocephalus turdoides, Meyer.

Prinia mystacea, Rüppell.

Cisticola lateralis.

Cisticola lateralis (Fraser); Büttik. Notes Leyd. Mus. vii. p. 171
(Soforé Place, St. Paul's River), xi. p. 131; Sharpe, Cat. B
Brit. Mus. xii. p. 251 (1883); Chubb, P.Z.S. 1905, vol. i. p. 209
(St. Paul's River).

C. rufa, Fraser.

Sylviella stampflii, Büttik.

Camaropectera concolor, Hartl.

C. brevicaudata (Creszsch.).

Eremomela badiceps (Fraser).

Family PRIONOPIDÆ

- Fraseria ocreata, Strickl.
- F. cinerascens, Hartl.
- F. prosophora, Oberh.
- Sigmodus caniceps, Bp.

Family LANIIDÆ

- Lanius smithii, Fraser.
- Telephonus senegalus, Linn.
- Laniarius multicolor, Gray.
- L. melamprosopus, Reichenow.
- L. zosterops, Büttik.
- L. cruentus (Hempr. and Ehr.).
- Chaunonotus sabinei, Gray.
- Dryoscopus gambensis, Licht.
- D. leucorhynchus, Hartl.
- Nicator chloris.

Nicator chloris (Less.); Büttik. Notes Leyd. Mus. vii. p. 185 (Bavia and in the mountains of Grand Cape Mount), viii. p. 258 (Schieffelinsville), x. p. 87 (Hill Town), xi. p. 123 (Mount Olive and Galilee Mountains), xii. p. 204 (Robertsport and Jarjee); id. Reisebilder Liberia, ii. p. 411; id. Notes Leyd. Mus. xiv. p. 23 (Sūlima River).

No. 18. ♀ adult, Boporo Station, Feb. 22, 1905.
Bill, tarsi and feet black.

Family MOTACILLIDÆ

Motacilla vidua.

Motacilla vidua, Sundev.; Büttik. Notes Leyd. Mus. vii. p. 173 (Bavia, St. Paul's River), x. p. 73 (Dukwia, St. John, Cess, and Sino Rivers), xi. pp. 122, 132 (Farmington River); id. Reisebilder Liberia, ii. p. 409; Oberh. Proc. U.S. Nat. Mus. xxii. p. 30; Chubb, P.Z.S. 1905, vol. i. p. 209 (St. Paul's River).

- M. longicauda**, Rüpp.
- M. flava**, Linn.
- Anthus pyrrhonotus**, Vieill.
- Macronyx croceus**, Vieill.

Family PLOCEIDÆ

Vidua serena.

Vidua principalis (Linn.); Büttik. Notes Leyd. Mus. vii. p. 197 (Robertsport), viii. p. 259 (Junk River), x. p. 91 (Schieffelinville and Marshall), xi. pp. 124, 134 (Farmington, Junk, and Mesurado Rivers), xii. p. 204 (Robertsport); id. Reisebilder Liberia, ii. p. 416.

V. serena (Linn.); Reichen. Vög. Afrikas, iii. p. 217 (1904); Chubb, P.Z.S. 1905, vol. i. p. 209 (St. Paul's River).

Pyromelana flammiceps, Swains.**Coliopasser macurus**, Gm.**Quelea erythrops**, Hartl.**Pyrenestes coccineus**, Cass.**Zonogastris melba** (Linn.).**Ortygospiza polyzona**, Temm.**Estrela rhodopyga**, Sundev.**Pytilia schlegelii**, Sharpe.**Amauresthes fringilloides** (Lafr.).**Spermestes bicolor.**

Spermestes bicolor (Fraser); Büttik. Notes Leyd. Mus. vii. p. 202 (Soforé Place, St. Paul's River), viii. p. 261 (Monrovia and Junk Rivers), x. p. 62 (Schieffelinville), xi. pp. 125, 134 (Mount Olive), xii. p. 205 (Robertsport), Reichen. Vög. Afrikas, iii. p. 151 (1904); Chubb, P.Z.S. 1905, vol. i. p. 209 (St. Paul's River).

S. cucullatus (Swains.).**Nigrita emiliæ**, Sharpe.**N. bicolor** (Hartl.).**Sporæginthus melpodus.**

Estrela melpoda (Vieill.); Büttik. Notes Leyd. Mus. viii. p. 260 (Oldfield and Schieffelinville), xi. p. 134; id. Reisebilder Liberia, ii. p. 417; id. Notes Leyd. Mus. xii. p. 205 (Robertsport).

Sporæginthus melpodus, Sharpe, Cat. B Brit. Mus. xiii. p. 325 (1890); Chubb, P.Z.S. 1905, vol. i. p. 210 (St. Paul's River).

Ploceus nigerrimus, Vieill.**P. nigricollis.****P. tricolor**, Hartl.

P. aurantius, Vieill.

P. brachypterus, Swains.

Hyphantornis cucullatus.

Hyphantornis cucullatus (P.L.S. Müll.); Sharpe, Cat. B Brit. Mus. xiii. p. 451 (1890).

Ploceus cucullatus, Büttik. Notes Leyd. Mus. viii. p. 289 (Mesurado and Junk Rivers), x. p. 88 (Cape Mount to Cape Palma); id. Reisebilder Liberia, ii. p. 416.

One adult bird from St. Paul's River.

Cinnamopteryx castaneofusca.

Hyphantornis castaneofusca (Less.); Büttik. Notes Leyd. Mus. vii. p. 192 (Bavia and Robertsport).

Ploceus castaneofuscus, Büttik. Notes Leyd. Mus. viii. p. 258 (Mesurado and Junk Rivers), x. p. 88 (common throughout Liberia), xi. p. 204 (Robertsport), xii. p. 204 (Robertsport); id. Reisebilder Liberia, ii. p. 416.

Cinnamopteryx castaneofusca, Sharpe, Cat. B Brit. Mus. xiii. p. 472 (1890).

One specimen from St. Paul's River.

Malimbus scutatus.

Scyobius scutatus, Cass.; Büttik. Notes Leyd. Mus. vii. p. 296 (Soforé Place and Robertsport), viii. p. 259 (Schieffelinville).

Malimbus scutatus, Büttik. Notes Leyd. Mus. x. p. 90 (Hill Town), xi. p. 124 (Mount Olive), xii. p. 204 (Jarjee); id. Reisebilder Liberia, ii. p. 412 cum fig.; id. Notes Leyd. Mus. xiv. p. 27 (Sūlima River); Oberh. Proc. U.S. Nat. Mus. xxii. p. 34.

One adult from St. Paul's River.

M. malimbus, Daud.

M. cristatus, Vieill.

M. nitens, Gray.

M. bartletti, Sharpe.

Spermospiza hæmatina.

Spermospiza hæmatina (Vieill.); Büttik. Notes Leyd. Mus. vii. p. 198 (Buluma), viii. p. 260 (Oldfield and Schieffelinville), x. p. 91 (Hill Town), xi. p. 124 (Farmington River), xii. p. 205 (Mafa River); id. Reisebilder Liberia, ii. p. 475.

No. 1. ♀ adult, Boporo, Feb. 1905.

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Family ORIOLIDÆ

Oriolus brachyrhynchus, Swains.

Family DICRURIDÆ

Dicrurus modestus.

Dicrurus modestus, Hartl. ; Büttik. Notes Leyd. Mus. vii. p. 183
(Buluma and Caba, Mafa River), viii. p. 257 (Schieffelinville),
x. p. 86 (Hill Town); id. Reisebilder Liberia, ii. p. 411; id.
Notes Leyd. Mus. xiv. p. 23 (Sulima River).

One fully adult specimen from E. Liberia.

D. atripennis, Swains.

D. atactus, Oberh.

Family STURNIDÆ

Onychognathus hartlaubi, Gray.

Lamprocolius cupreicauda, Hartl.

L. purpureiceps, Verr.

Pholidauges leucogaster, Gm.

Graucalus azureus, Cass.

Family CORVIDÆ

Corvus scapulatus, Daud.

CHAPTER XXV

FAUNA: REPTILES, AMPHIBIANS, AND FISH

THE Reptiles of Liberia, so far as is known, offer no species restricted to that country in its geographical distribution, though there are here represented most of the forms peculiar to West Africa north of the Equator.

Amongst the long array of Snakes at least ten are poisonous, though it is remarkable how very seldom any death is reported to occur from snake-bite in this country, or in other parts of Africa, as compared with Asia, Australia, and America. Of the Viper group of poisonous snakes there are two puff-adders of the genus *Bitis*—*B. gabonica* and *B. nasicornis*, both very gaudily coloured¹ and differing one from the other in head markings, and also in that *Bitis nasicornis* develops two little pointed quill-like horns above the nostrils, which can be erected when the snake is angry. This horned puff-adder has more red-purple in the colour of its sides than the very similar Gaboon puff-adder.

Most of the vipers are viviparous (producing their young alive), but two African forms (also found in Liberia) (*Atractaspis* and *Causus*) lay eggs. In the case of the horned puff-adder, the young when born are a foot long. The adult puff-adders of these two species (which are generally called "cassava"

¹ *Bitis gabonica* is illustrated in my book on Uganda. Its range extends eastwards to the Victoria Nyanza.

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snakes by the Americo-Liberians) grow to between four and five feet.

Atractaspis is shorter (about three feet), and somewhat thick in the body. It does not at first suggest relationship to the vipers, as there is no well-marked "neck" or expansion of the jaws to enhance the separation of head and throat. This viper has only the poison fangs in the front of the upper jaw, and no other teeth behind, but it still retains a separate row of small teeth on the palate. It has a longer tail than the true vipers, and, as already mentioned, lays eggs, and does not bring forth its young alive.

Causus rhombeatus is very common in Liberia, just as it is throughout Africa south of the Sahara. It is a small, slender viper, with the head distinctly marked off from the neck. The *Causus* viper is only about two feet in length, but very venomous and dangerous from its insignificant appearance and size. It is olive-brown in colour with V-shaped brown marks along the back, and a reversed V or arrow mark on the top of the flat head.

Atheris chlorechis is a tree-dwelling viper of no great size, perhaps at most two feet in length. It is remarkable in the first place for its long and prehensile tale. Very few vipers are tree-haunting snakes, most of them being confined to the ground in their habits, and in consequence the tail is never very long, and does not seem to be prehensile. But in *Atheris* both body and tail are long and lithe in comparison with what characterises the true vipers. Moreover, *Atheris* in its bright green colouring differs from the brown, yellow, grey, and reddish black of the terrestrial vipers. The emerald-green of this snake (in *A. chlorechis*) is dotted here and there with small dark blue spots. The head is heart-shaped, and set on a rather slender neck. The scales on the head and especially on the

Causus rhombatus

Bitis gabonica
(Gaboon puff-addler)

Atheris chlorochis
(Tree-viper)



Atractaspis irregularis



Bitis nasicornis
(Rhinoceros puff-addler)

Naja melanoleuca
(a cobra)

Dendraspis viridis
(a tree-cobra)

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throat under the lower jaw have strong ridges or keels projecting somewhat at their points from the surface of the body. These rough scales on the throat are said to aid the snake in its progression up the trunks and branches of trees. The eyes are proportionately rather larger than in the true vipers.

The *Causus* viper already referred to has a habit (which may be observed when it is kept in captivity) of dribbling its venom from the points of the long fangs when it is angry and excited. This peculiarity has been much noticed by Europeans and natives in South and South-west Africa, where this little viper shares with the much larger cobra the nickname of "spitting snake." The Cobras, of course, are not connected with the vipers at all. They are simply a group of colubrine snakes that have independently acquired the feature of a poison gland and a perforated fang. They may be told at a glance from the average viper by the narrow jaws. The skin on the sides of the neck in the common African form of *Naja haje* is dilatable into a hood, but this feature is not so striking as in the common Indian cobra or the hooded snake (*Sepeidon*) of South Africa. The West African forms of cobra are regarded as separate species—*N. nigricollis*, from the black markings on the back of the neck spreading into a general black tinge, and *N. melanoleuca*, in which the general colouring is in bolder contrast of black and white. These cobras are fairly common in Liberia, where they often attain a length of four to eight feet. *Naja nigricollis* is not infrequently seen in native villages, which it visits on account of the rats and other vermin that form its food. The snakes frequent the thatch more especially, and do not generally interfere with human beings unless first attacked. Even then, instead of striking with their fangs they seem to prefer to eject the venom by compression of the muscles of

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the poison gland, so that, like the *Causus viper*, this serpent also bears the nickname of "spitting snake." I have never, myself, actually observed this ejection of the venom, nor, I believe, has the fact been certified by any scientific observer; but it is asserted to be the case all over Africa wherever cobras are found. The natives say that the snake aims at the eyes, and that if the venom enters the eye it causes a very severe inflammation, but nothing worse. One fact is certain (from my own observation): that these African cobras are very slow to strike with their fangs. I have once or twice nearly trodden on one, and the snake has rapidly withdrawn to a safe distance, and then adopted an attitude of menace.

A different story may be told of the far more dangerous Tree cobras of the genus *Dendraspis*. These snakes all over Africa are noted for their fierce disposition. They will frequently attack human beings unprovoked, this fury being probably connected with the breeding season. Males and females of the *Dendraspis* are extremely attached when they have paired, and either of them will attack a human being if it thinks that the life of the other is in danger. No doubt the stories of their flying at natives from the grass may be connected with the male or female defending the eggs, near which these snakes are said to keep watch whilst the hatching is going on. The West African *Dendraspis jamesonii*¹ is a bluish black in general colour, and about four feet long when full grown. As its name implies, it is usually an arboreal snake. The eggs, no doubt, are deposited in the hollows of trees.

There is a tree snake, *Dipsadomorphus*, greyish green above and yellowish white below, about five feet long. This snake belongs to a group (opisthoglyphous) which is somewhat

¹ The Liberian form is a green snake, *D. viridis*,

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poisonous and in which the poison-teeth are not immediately in the front of the upper jaw, but are preceded by a considerable number of small harmless teeth. The poison-teeth are sometimes three in number, and they are generally grooved for the descent of the venom and not perforated. The *Psammophis* and *Thelotornis* snakes also belong to this group of poisonous colubrine snakes which have grooved teeth at the back of the upper jaw and not in the front, like the cobras.

The egg-eating snake (*Dasyveltis*) and numerous harmless (aglyphous) colubrine snakes (mostly tree-dwellers) are present in Liberia.

There are at least two species of burrowing snakes (*Typhlops*). These are at once the most degenerate and yet generalised of snakes, descendants of an early branch of the sub-order which have become specialised for life underground and have nearly lost the functional use of their eyes. These typhlopine snakes offer a remarkable external resemblance to a large earth-worm, just as the enormous blue-green earth-worms of Liberia (*Acanthrodilus*) do their best to look and act like snakes. In *Typhlops*, as in some other burrowing serpents, the head looks so like the tail as to justify the name of "two-headed" snakes by which Americo-Liberians know them. The eyes are very minute and scarcely functional. The mouth is small, and these snakes live on insects and small worms.

The Python family is represented by two species—*Calabaria* and *Python*. *Calabaria* is an inconspicuous snake of somewhat dull coloration, about four feet long, with a relatively small head. It is sometimes styled the West African boa, but it is not nearer to the boas than to the other members of the same group (*Eryx*, *Boa*, *Python*, etc.). The name, therefore, is somewhat misleading. There is a veritable boa in Madagascar, a most remarkable fact in African zoography, because the

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chief home of the boas is South America; there is also, I believe, a form of boa in the Malay Archipelago, so that it is not absolutely necessary to account for the broken distribution of the *Boiaæ* by the Eocene bridge connecting West Africa with Brazil. No doubt this former equatorial land belt between South America and Africa is the real explanation of the boas found in Madagascar and Eastern Asia, the intervening types in West and Central Africa having died out. Or the reverse is possible—that the boas may be specialised pythons, which originated in Africa and spread thence to Madagascar and Eastern Asia on the one hand, and South America on the other.

The Python (*Python sebæ*) attains to enormous size in this country. Specimens sent from Liberia to European museums have measured twenty feet; it is recorded in the annals of the Liberian colony that the founder of the republic, Ashmun, killed a python near Monrovia which measured thirty feet. Stories of other pythons of this length are told and repeated from time to time. As elsewhere in Africa, although the python does a great deal of damage amongst domestic beasts and birds, it is scarcely ever known to attack man, and the natives of the country make little fuss about capturing these huge snakes, the flesh of which is eaten by some tribes.

Only two chameleons are as yet recorded from Liberia. These are the common species of West African chameleon, *Chamæleo senegalensis*, and the smaller *Chamæleo gracilis*. The chameleon attracts considerable notice from the natives, and figures constantly in their mythology or beast stories. It is supposed to have an exceedingly good opinion of itself, which is not surprising to any one who observes its puffings and swellings and pomposity of demeanour. In such a densely wooded country as Liberia it is strange that the chameleons should not be better represented by such forms, for example,

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as the remarkable horned chameleon of the Congo forests ; but no doubt further research will reveal the existence in Liberia of more than one species of this sub-order.

Amongst the Lizard sub-order there are noticeable the tame and pretty little geckos which frequent all houses, European and native, and render such signal services in the destruction of insects. There is a skink (*Lygosoma fernandi*), of which I give an illustration, as it is a reptile rather commonly met with in the country, and bears the unmerited reputation of being poisonous. Indeed, it is more dreaded by the Kruboyas than many a snake which is really venomous. A lizard which will often meet the eye of the European traveller, especially in the eastern parts of Liberia, is the common Red and blue *Agama* (*A. colonorum*). This lizard is normally a mottled olive-umber or grey-brown, which is in fact the colour of the females ; but the adult males, especially during the breeding season, are more or less brightly tinged with red and blue. The blue is sometimes a brilliant cobalt, or in other examples becomes a kind of kingfisher verditer-blue that makes the lizard a really beautiful object in the scene. These bright tints fade by degrees after the death of the lizard, but not so rapidly as is sometimes stated. In the case of the example of which I give a coloured illustration, my painting was done from the lizard some four or five hours after death. This lizard is a particularly characteristic form of the West Coast of Africa, for although its range is far more extensive than over this portion of the continent, it is only in West Africa that it seems to assume these particularly vivid tints. These examples of brilliant coloration in the breeding males do not seem to be so apparent to the westward of Sierra Leone as along the coast between Liberia and the Congo. As the Red-headed lizard is



The Red and Blue Lizard (*Agama colonorum*)

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a great consumer of flies, cockroaches, and other noisome insects, it is unharmed by the Negroes, and is frequently met with in towns and villages.

The family of the large Monitor lizards is represented by the common *Varanus niloticus*. These creatures—often six feet long—are miscalled throughout West Africa by Europeans and Americo-Liberians “iguanas.” Iguana is the name of



307. A SKINK, *LYGOSOMA FERNANDI*

a remarkable group of vegetarian lizards confined to America, the Pacific Islands, and Madagascar in its distribution. This, like so many other American names, has been imported into West Africa, usually in the corrupted form of “guana.” The correct English name of this type is “monitor.” The Latin name *Varanus* is derived from the Arabic *Waran*, the name given to these lizards in Egypt. This large monitor lizard

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is a great nuisance in Liberia as elsewhere in West Africa, because it preys on fowls and ducks, as well as on their eggs. It is very fierce, can bite, and inflict some damage with its whip-like tail. It frequents the water a good deal, and its skin is valuable in commerce.

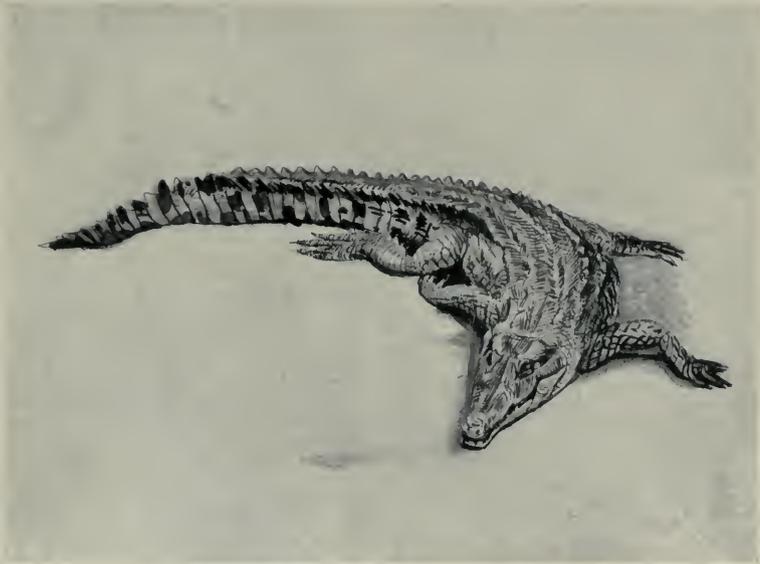
According to Büttikofer, the snake-like or worm-like lizard, *Amphisbæna liberiensis*, is found in this country. In outward appearance these creatures are singularly like large worms. They burrow in the ground, and live chiefly in ants' or termites' nests. Along their burrows they can move both backwards as well as forwards, and they get over the ground not by writhing from side to side or curving the body laterally like snakes and other lizards, but rather with the movements of a caterpillar or a worm—vertical undulations along a straight line. The head is exceedingly small, and over the snout and forehead there are large scales, at the side of which the tiny little pin-point eyes are half concealed. *Amphisbæna* is probably nearly blind. These creatures exhibit another interesting instance of relationship between the fauna of South America and Tropical Africa. The genus *Amphisbæna* is represented on both sides of the tropical Atlantic—in South America and the West Indies on the one hand, and in Western and Central Africa on the other.

In the Liberian fauna are included the three types of African Crocodiles, two of which are confined in their distribution to the West Coast of Africa. The common African form (*Crocodilus niloticus*) is fairly abundant in Liberian rivers and lagoons, and exists in water that is quite brackish. I do not think that the common crocodile grows to such a considerable length, however, in this part of West Africa as in the great rivers and lakes of the interior. But it is said to be dangerous to human life in Liberia, and to seize and drag under water

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men, women, and children who imprudently go down to the edge of a river. I have killed one of these crocodiles quite close to Monrovia. But they are far less common in the coast waters than they were seventy or eighty years ago when the Americo-Liberians first came to this country. The flesh of the crocodile is eaten by most of the inland tribes.

The Slender-snouted form (*Crocodilus cataphractus*) was



308. THE COMMON CROCODILE (*CROCODILUS NILOTICUS*)

supposed at one time to be a near relation of the Indian gharial, but this is not the case. It is simply an independent development of a long, slender-jawed type of true crocodile. This form grows to considerable size and length. It differs from the common crocodile not only in the slenderness of its snout but by the proportionate length of the bones of the upper jaw; also in the bony armour of the adult form:

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the scutes on the throat and belly of the slender-snouted crocodile solidify into bone, and offer a resemblance to the bony ventral armour of extinct forms. In colour the slender-snouted crocodile is very similar to the Nilotic form—a dark olive-brown above and a yellowish white below. Young forms are splotted with blackish markings, particularly vivid on the tail. These persist to some extent in the adult.



309. HEAD OF SLENDER-SNOUTED CROCODILE (C. CATAPHRACTUS)

Crocodilus cataphractus is not met with in the estuaries of the rivers, as it seems to dislike brackish water. It is consequently very seldom seen by Europeans in Liberia unless they leave the coast region and penetrate beyond the first rapids of the rivers. The accompanying photograph, which I owe to the kindness of Mr. Cecil H. Firmin, was taken from a large specimen of slender-snouted crocodile killed in the Mano River.

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The slender-snouted form lives mainly on fish. According to Dr. Gadow this crocodile is probably allied in origin to one of the crocodiles of the Orinoco River of northern South America (*C. intermedius*), and also to Johnston's crocodile of Northern Australia.

The Short-headed crocodile—*Osteolemus*—is apparently more restricted in distribution over West Africa than the slender-snouted type, scarcely reaching as far south as the Congo. It is easily distinguished from the other crocodiles by its very short broad head, turned-up nose, and much smaller size, which is not known to exceed five feet in length.



310. SHORT-HEADED CROCODILE (*OSTEOLÆMUS TETRASPIS*)

Like the slender-snouted crocodile, it has bony plates on the throat and belly. It lives exclusively on fish.

On the sea-coast of Liberia the Hawksbill Turtle (*Chelone imbricata*) is often met with; and although it is not liked by Europeans, it is eaten by the natives. Its carapace yields the tortoiseshell of commerce, so that the abundance of this animal on the Liberian coast might be a source of profit if the native fishermen were more enterprising. The Green or edible turtle (*Chelone mydas*) also visits this coast very frequently. The leathery turtle (*Dermochelys coriacea*), which is so distinct from other turtles or tortoises as to be included within a separate

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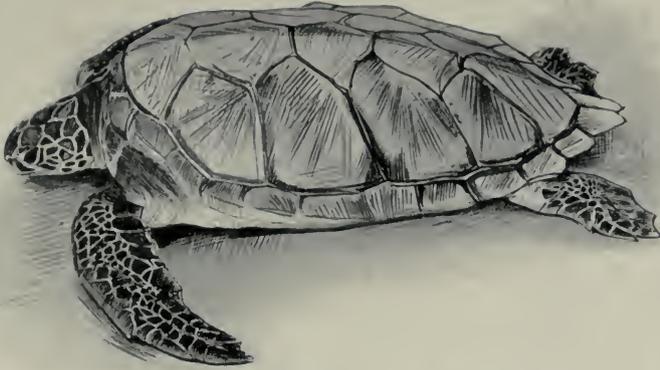
sub-order, is also a visitor to the Liberian sea-coast. Its leathery carapace rises into strongly marked ridges along the back and sides that are composed of small discs of bone, almost fused together, and covered with a leathery skin. This, together with the plastron or belly-shield (equally studded with ridges of bony nodules) is quite distinct from the bones of the vertebrae and the ribs, and in this particular therefore the leathery turtle differs from all the rest of the order. Its habits are entirely marine. The flippers are exceedingly long.

In the marshes and rivers of Liberia fresh-water tortoises are found of the genus *Sternotherus*. They may be distinguished from other groups by the sideways flexion of the neck when it is withdrawn under the shell. Other members of the order outside the side-necked families withdraw their necks under the carapace in perpendicular loops, or backwards into a sheath. The *Sternotheres* and their allies in Africa and America curve their long necks round to one side between carapace and plastron. *Sternotherus* frequents fresh water, and is carnivorous. The shell is bony, and the size of the animal is not large—perhaps a foot long. The *Trionychidae* or Soft tortoises, on the other hand, retract their necks into a sheath of loose skin. Their nostrils are prolonged into a short proboscis. The carapace is covered with a smooth, leathery skin with a crenellated edge. They can therefore at once be distinguished from land and water tortoises by the absence of the segments between the plates of the carapace. They do not grow to any great size, are almost wholly aquatic, very carnivorous and ferocious, and bite sharply with the bony rims of their jaws.

The true Tortoises are represented by the genus *Cinyxis*. In these forms the back part of the carapace over the loins is hinged, so that it can be moved independently of the front portion of the carapace. When these *Cinyxis* tortoises have

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withdrawn their legs and tail within the plastron or belly-shield, they can close down tightly the hinder part of their back carapace to meet the rim of the plastron underneath, so that they become completely screened from attack on any soft portion of their body. The rim or edge of the carapace, both in front, behind, and at the sides, is sometimes developed into



311. THE GREEN TURTLE (*CHELONE MYDAS*)

fantastic foliations or toothed processes, which are distinctly ornamental.

Amongst Amphibians there is a representative of the Apoda or limbless order—one of the *Cæciliidæ*. This creature, which was collected in Liberia by Dr. Büttikofer, is probably *Uræotyphlus seraphini*, though it was placed by Büttikofer in a different (East African) genus, *Hypogeophis*. There might well be in Liberia also another Cæcilian amphibian, *Geotrypetes petersii*. These creatures in appearance are easily mistaken for one of the big earth-worms found in Liberia, or a burrowing snake. They are slimy, viscous, a pale brownish flesh-colour,

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about eight inches long, and slender. Their skin is marked with a large number of rings or folds which originally corresponded with the vertebræ; but as the animal grows older the rings increase without correspondence with the segments of the spine. Under the skin, hard, bony scales are formed, which are thought to be vestiges of skin armour so characteristic of the *Stegocephali*, an ancient division of the Amphibia which existed and became extinct at a most remote period of the earth's history.

The genera *Urotyphlus* and *Geotrypetes*, like some other African, Asiatic, and American Cœcilians, possess in both jaws a double series of teeth—two parallel rows. The eye is a mere vestige concealed under the skin, and the Cœcilians are therefore totally blind. But something like a sense organ exists in the curious tentacles (which can be retracted or protruded at will) growing out just under the eyes, in the front of the face.

Very little is known about the life habits of the African Cœcilians, which is one reason why I have inflicted a description of these obscure animals on the reader in the hope that Liberians may recognise them and study their ways. One of the Indian species is known to take some trouble about the hatching of its eggs, round which the female coils herself. In all probability these blind, limbless amphibians are much dreaded by the Liberian Negroes, as they are by the natives of East Africa, from the belief that they are poisonous to handle. The slimy exudations from the skin certainly seem to be of an inflammatory nature.

The Toads and Frogs¹ of Liberia have been very im-

¹ There is not much scientific importance to be attached to the use of the terms "frog" or "toad," which do not accord markedly with the natural divisions amongst the tailless Amphibians.

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perfectly collected and studied. The list of species, when the country has been thoroughly investigated, ought to be a much longer one than I am able to give (quoting from Dr. Büttikofer) at the end of this chapter. There may yet be discovered other species akin to the remarkable "hairy" frogs of the northern Congo and Gaboon coast-lands, in which the flanks and thighs are covered with a fringe of blackish filaments (really excrescences of the skin) which resemble hair or bristles in appearance. As it is, three true frogs (*Rana* and *Rappia*¹) have been recorded from Liberia, a toad (*Bufo regularis*), and, lastly, a representative of a very peculiar sub-order of Tongueless frogs, *Xenopus*, a group which retains some archaic features and yet has become much modified and specialised along a line of its own.

The *Aglossa* or Tongueless frogs are confined in their distribution to Africa and northern South America, possibly another result of the former Eocene bridge connecting the two continents. The species which is found in Liberia—*Xenopus calcaratus*—is a little creature only about two inches long, which has very small eyes and a tiny tentacle projecting below the eye (like that in the blind Cœcilian). There is a spur or claw of some length on the ankle. The toes are armed with pointed nails, and are connected with broad webs. The hind limbs are very large in these *Xenopus* frogs, which lead a wholly aquatic life. The common form in West Africa (*X. calcaratus*—which has very small eyes) floats a good deal on the surface of the water or hides under duckweed and water-lily leaves. It is a type of amphibian that has reverted to an entirely aquatic existence just as the whale has done amongst mammals. These frogs have been observed by the

¹ *Rappia* differs from the large genus of *Rana* by having fingers as well as toes webbed and terminated with discs.

present writer to be very abundant in the stagnant fresh water behind the Sino settlements in Eastern Liberia.

The Fresh-water Fish of Liberia are characteristic of that vast region of Tropical Africa styled by Mr. G. A. Boulenger "Megapotamia": they are related more or less intimately to the fish of the Gambia and Senegal systems, the Niger, and the Nile.



312. ELECTRIC CAT-FISH (MALOPTERURUS)

It is known by now that the fish fauna of the Niger and the Nile presents much closer resemblances than is the case between the fish of the Nile, the Congo Basin, and the Zambezi, or even as compared to the fish of the Victoria Nyanza and those of the Nile and Lake Rudolf. For instance, in Lake Victoria Nyanza (which gives birth to the Victoria Nile, but

has probably only recently become connected with the Nile system) there has not yet been discovered any example of that remarkable African fresh-water fish, *Polypterus*; yet there is a *Polypterus* in the rivers of Liberia (*P. palmas*). It is true that this remarkable type of fish is also found in the Congo Basin, but it is quite absent from Lake Nyasa and the Zambezi. Of all existing fishes the *Polypteridae* probably offer the greatest number of affinities with amphibians, and therefore come nearest (though they may still be very far off) to that, as yet unknown, link between the fish and the land vertebrates

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which were the ancestors of the amphibians and reptiles, and thus links in the evolution of Man.

Of all the fresh-water fish which have been collected by Dr. Büttikofer, Mr. F. J. Whicker, and others in the Liberian rivers, about eight or nine are thought to be peculiar to the country. Of these four are Silurids (cat-fishes). These, of course, are fresh-water fish with naked bodies and a number of tentacles growing from the lips. Some of the cat-fish of Liberia—those of the genus *Clarias*—grow to a considerable size, especially where they inhabit isolated pools or meres. Some very large cat-fish are kept as fetish or totem objects by the natives of Boporo (or were before the former town was destroyed in civil wars), and it was reported both by Dr. Blyden and by Winwood Reade that dead slaves or criminals used to be thrown into



313. ELECTRIC CAT-FISH

the pools where the tame cat-fish lived in order that the fish might be nourished on human flesh.

The natives eat the pappy soft flesh of the cat-fish of whatever species, but prefer the electric cat-fish as an article of diet.¹ This is a small fish, seldom more than about twelve inches long. It is known scientifically as *Malopterus electricus*, and is generally common throughout Tropical Africa, but especially

¹ Büttikofer asserts that this last (*Malopterus*) is delicious. The present writer cannot agree, as the flesh tastes too much like fish which has been kept too long on ice, and has lost all firmness.

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so in the Liberian rivers. It dislikes the glare of the sun and always skulks in dark holes or under the banks of streams. Its scaleless skin is a dull greenish grey, irregularly spotted with black, but the body is covered with a thick slime which conceals this coloration. This gelatinous coating appears to be in some way connected with the glands on the surface of the skin which generate the electric current that is accumulated in the great cell at the front end of the spinal chord, near the base of the skull. This fish can give very powerful shocks to man and easily kills other fish.

Most Silurids, those of Africa and South America especially, have accessory organs of respiration which permit of the blood being oxygenated by direct assumption of air. *Clarias* can live for a long time away from the water—indeed, allied species in South America make long journeys over dry land from one pool to another.

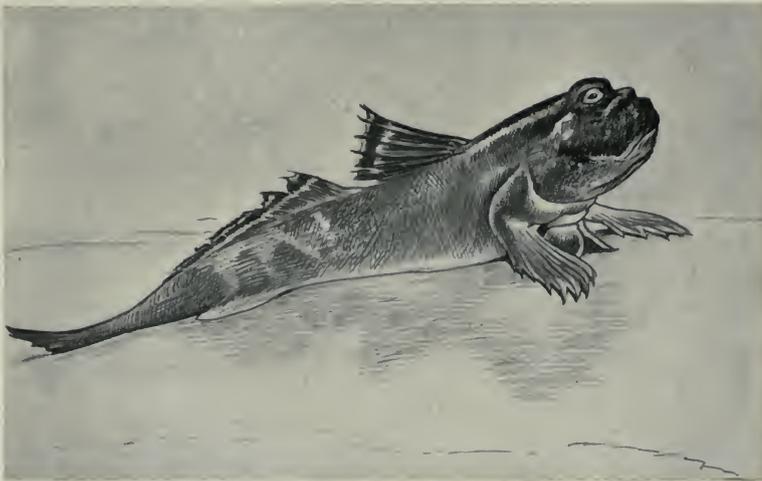
The Snake-headed fish (*Ophiocephalus*) of Liberian waters absorbs air direct through labyrinthine cavities behind the jaws and can live for a long time out of water. *Mastacembelus*, an eel-like fish with tiny sharp spines along the back, has its nostrils slightly prolonged into a slender snout through which, apparently, it sucks in air from above the surface of the water. An allied species in India is said to drown—suffocate—if it cannot reach the air to breathe. There are of course the celebrated lung-fishes of Africa, Australia, and America, which, though retaining gills, have converted their air-bladder into paired lungs and inhale air at frequent intervals. The African and American forms hibernate in mud-burrows during the dry season, away from water.

This African type of Lung-fish (*Protopterus*) ought to be found in Liberia, but has not as yet been collected there. In this country there is a species of *Anabas* (of the group called

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“climbing perch”) which is also able to breathe and exist for some hours on land.

But as regards “Fish out of water,” no form strikes the visitor to the coast region of Liberia so forcibly as the Mud-skipper or Bommi-fish (*Periophthalmus koelreuteri*). This little creature, the appearance of which is perhaps sufficiently indicated by my drawing, will hop about the sand and mud and even climb on to low boughs and roots of trees, remaining out of



314. THE BOMMI-FISH (*PERIOPHTHALMUS*)

the water (if unafraid) for some considerable time. The pectoral fins are quite serviceable arms and the pelvic fins become a kind of pedestal on which the body rests between the leaps. Watching this little fish emerging from the water and pursuing small insects and tiny crustaceans over the mud-flats in the mangrove swamps, one realises the way in which by slow degrees some fish genus of the Primary Epoch left the dreary water-world to found the stock of the land vertebrates, under

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the same impulse towards better things as had earlier turned water-worms to insects and crustaceans to spiders.

The *Mormyridæ* are a family of fresh-water fishes peculiar to Tropical Africa and the Nile, north of the southern tropic. They are usually so singular in appearance as to arrest attention even on the part of heedless people. The mouth aperture is always small, and the snout is more or less prolonged, sometimes with a bold curve, so that the heads of such types as *Mormyrus* and *Gnathonemus* resemble in outline an elephant, an ant-eater, a curlew, or a horse. At the extremity of the snout there is, below the mouth aperture in some of these fish, a hook-like finger of cartilage. The Mormyrids have exceedingly large and heavy brains (for fish), and are furnished with an electrical organ of weak power formed out of the muscles in the vicinity of the tail.

Several Characinid fish such as *Hydrocyon* attain to a considerable size in the St. Paul's River, the Lofa, and the Cavalla. The *Hydrocyon* has a slight outward resemblance to a large salmon, but has very formidable tusk-like teeth. The Carp family is represented by two species of barbel, and the *Cichlidae*, a group so characteristic of the lakes and rivers of Africa, have at least six types in Liberia, of which perhaps two are peculiar to that region.

As regards marine and estuarine forms, it may be said that the Liberian coasts constitute one of the best fisheries in West Africa, though of course nothing like so famous as the Sahara coast between Cape Blanco and the Rio de Oro. The best fishing season is probably between November and February. There is, no doubt, a certain migration in the sea fish of the Atlantic, dependent either on seasons of the year or the set of currents. Although most of the Liberian sea fish are common to the Mediterranean and warm Atlantic regions and even the

• Fauna: Reptiles, Amphibians, and Fish

Indian Ocean, a few forms seem to be limited in their distribution to the West African coast between the Gambia and the Gaboon.

Amongst these is the extraordinary *Psettus sebae*, which is literally broader than it is long. The back fin and the fins along the belly are, together with the ridge of the back and under-parts, prolonged in both directions to such an exaggerated extent that the depth of the fish is perhaps half again as much as its length from head to tail. This *Psettus* is present in all months of the year in the sea and salt-water lagoons off the Liberian coast. It is a beautiful object when freshly caught, as it is of such a silvery and metallic appearance that it might really be made of silver with a slightly tarnished appearance here and there.

Another fish which is perfectly beautiful from the colour point of view is a large sea bream, a member of the *Sparidae* family, allied to the snappers and groupers of Eastern seas. This fish (*Dentex* sp.?) is in general a bright vermilion all over, with mauve, pink, crimson, and yellow fluctuations. It may sometimes be as much as three feet in length. It is excellent eating, and can be caught with rod and line. Fish of this genus *Dentex* as well as other members of the *Sparidae* order are hermaphrodite—that is to say, both sexes are combined in the same individual.

The marine perches (*Serranidae*) are well represented in the Liberian fisheries. Several species of *Serranus* and *Lutianus* are also said to be hermaphrodite, and produce both milt and roe. They have exceedingly sharp spines in the long back fin. The "barracuda" (*Sphyræna*) grows to a considerable size—nearly eight feet, and is found not only in the sea but in the estuaries of Liberian rivers. It is a fierce fish, and the natives profess to be much afraid of it in the water. Büttikofer records having caught or seen an example of a barracuda in the Mafa River which measured as much as ten feet in length and which developed tusks of considerable size in both upper and

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lower jaw. The barracuda pursues other fish of small size with fury, and is no doubt very destructive. Its own flesh is good to eat, at any rate in the opinion of the natives.

Among other remarkable sea fish are the Marbled anglers, with mouths that open upwards, and large, arm-like pectoral fins. The naked skin is mottled in such a way as to give the fish a protective coloration and enable it to assimilate closely to the rocks amongst which it lies in wait for its prey.

The Horse-mackerel of the family *Carangidae* are very abundant, especially along the eastern coast of Liberia and up the Cavalla River. This broad boundary stream of Liberia, in fact, derives its name from the Portuguese word for "horse-mackerel," a fish with which the Portuguese were familiar on their own coast and which they recognised on the bar of the Cavalla River when exploring these West African coasts in the fifteenth century.

Grey mullet are abundant in Liberian waters, at any rate during part of the year, also flying-fish (*Exocoetus*), and the strange-looking gar-pike (*Belone*). The beautifully coloured wrasses are represented by the genus *Coris*, and there are as well flat-fish, pipe-fish (*Fistularia*, reaching a length of six feet), ribbon-shaped fish (*Trichiurus*), remoras (*Echeneis*—the small fish with the elaborate sucker on the top of its head which affixes itself to sharks and other big fish), blennies or wolf-fish, and the extraordinary *Tetrodon*, which can distend its spiny belly into a huge disc.

Allusion has already been made in the historical chapters to the Sharks that infest the coast of Liberia. In all probability these belong to the common genus *Carcharias*, but no specimens having been sent home the existence of definite species has not yet been established. Probably the blue shark is there (*Carcharias glaucus*).

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The Vai, Basā, and Kru fishermen tell many stories of the boldness and ferocity of these great fish, declaring that they will sometimes leap out of the water and capsize the narrow fishing canoes in order to snap up the fishermen. The sharks are particularly in evidence at the mouths of rivers. They watch the bars of these estuaries, no doubt because it is easier in this shallow water to catch the fish that are passing from sea to river or in the reverse direction, while there is always a chance of some canoes upsetting and their human occupants being caught at a disadvantage.

The Saw-fish (*Pristis*), sometimes attaining to a length of twenty-four feet, also frequents these coasts, and ascends the rivers till it is stopped by rapids. It is most destructive to the fishermen's nets.

Whip or sting rays (*Trygon*) are also of common occurrence. They frequent the brackish lagoons a good deal, lying half-concealed in the mud, ready to slash with their powerful armed tails at shoals of small fish passing overhead. In this position they are often harpooned by the fishermen.

The following Appendix, which has been prepared with the help of Mr. G. A. Boulenger of the British Museum, gives a list corrected down to date of the known Reptiles, Amphibians and Fish of Liberia. It is based on the collections of Professor Büttikofer and his companions, of the author, and of Messrs. F. J. Whicker, John Gow, I. F. Braham, and other servants of the British companies in Liberia. It is far from being adequate or final, and if the reader misses therefrom the enumeration of familiar West African forms, he need not conclude necessarily that these creatures are absent from Liberia, but only that as yet their existence in that country or in the adjacent seas has not been definitely established by collected specimens.

APPENDIX VII

REPTILES

FROM THE COLLECTIONS OF DR. BÜTTIKOFER, MR. F. J. WHICKER,
SIR H. H. JOHNSTON, AND OTHERS

OPHIDIA (Snakes)

<i>Typhlops punctatus</i>	}	Burrowing snakes.	
<i>T. liberiensis</i>			
<i>Python sebæ</i>	}	Boine snakes.	
<i>Calabaria reinhardtii</i>			
<i>Boodon niger</i>	}	Harmless colubrine snakes without grooved fangs.	
<i>Bothrophthalmus lineatus</i>			
<i>Tropidonotus ferox</i>			
<i>Gastropyxis smaragdina</i>			
<i>Hapsidophrys lineata</i>			
<i>Rhamnophis æthiops</i>			
<i>Thrasops flavigularis</i>			
<i>Grayia smythii</i>			
<i>Dasypteltis scabra</i>	}	Colubrine snakes with grooved posterior fangs.	
<i>Dipsadomorphus pulverulenta</i> (slightly poisonous)			" "
<i>D. blandingii</i>			" "
<i>Psammophis sibilans</i>			" "
<i>Thelotornis kirtlandii</i>	" "	}	
<i>Naja nigricollis</i> (very poisonous)	}		Cobras.
<i>N. melanoleuca</i> " "			
<i>Dendraspis viridis</i> " "			
<i>D. jamesonii</i> (?) " "			
<i>Causus rhombeatus</i> (very poisonous)	}	Vipers.	
<i>Bitis gabonica</i> " "			
<i>B. nasicornis</i> " "			
<i>Atheris chlorechis</i> " "			
<i>Atractaspis corpulenta</i> (poisonous)			

Fauna : Reptiles, Amphibians, and Fish

LACERTILIA

Hemidactylus mabuia
H. fasciatus
Lygodactylus gutturalis } Geckos.

Lacerta echinata
Agama colonorum } Lizards.

Lygosoma fernandi
Mabuia maculilabris
M. raddoni
M. bensoni } Skinks.

Varanus niloticus (the Monitor Lizard ["Iguana"]).

Amphisbæna liberiensis (the burrowing, limbless, worm-like Lizard).

Chamaeleo senegalensis
C. gracilis } Chameleons.

CROCODILIA

Crocodylus niloticus (Common African Crocodile).

C. cataphractus (Slender-snouted Crocodile).

Osteolemus tetraspis (Stumpy or Short-headed Crocodile).

CHELONIA

Dermochelis coriacea (Leathery Turtle).

Chelone mydas
C. imbricata } Sea Turtles.

Cinyxia erosa (Box or Hinged Tortoise).

Sternotherus derbianus
S. niger } Fresh-water Tortoises with necks retractile
sideways.

Trionyx triunguis (Soft-shelled river Turtle).

AMPHIBIA

APODA

Uræotyphlus seraphini
[*Geotrypetes petersii*?] } (Cœcilians, or worm-like, limbless Amphibians).

ECAUDATA

Rana occipitalis.

Rappia fuscigula.

R. vittigera.

Bufo regularis.

Xenopus calcaratus.

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LIST OF KNOWN **FISH** FOUND IN THE RIVERS OR OFF THE SEA COASTS OF LIBERIA

NOTE.—The really indigenous fish frequenting the fresh-water rivers and marshes or the brackish estuaries and lagoons of Liberia, have their names printed in heavy type: the names in Italics indicate sea fish only.

CARCHARIIDÆ (Sharks—Marine and Estuarine)

Carcharias sp.

TRYGONIDÆ (Whip-Rays—Marine)

Trygon margarita.

POLYPTERIDÆ (Fresh-water only)

Polypterus **palmas**.

ALBULIDÆ (Marine)

Albula conorhynchus.

MORMYRIDÆ (Fresh-water)

Mormyrops **deliciosus**.

M. **breviceps**.

Petrocephalus **simus**.

Gnathonemus **mento**.

G. **ussheri**.

Isichthys **henryi**.

NOTOPTERIDÆ (Fresh-water)

Notopterus **afer**.

Xenomystus **nigri**.

CLUPEIDÆ (Herrings, etc.—Marine)

Pellonula vorax.

Clupea maderensis.

CHARACINIDÆ (Fresh-water)

Alestes **macrolepidotus**.

A. **nurse**.

A. **longipinnis**.

Hydrocyon **forskalii**.

Sarcodaces **odoë**.

Neolebias **unifasciatus**.

• Fauna: Reptiles, Amphibians, and Fish

CYPRINIDÆ (Carp, etc.—Fresh-water)

Barbus camptacanthus.

B. ablabes.

SILURIDÆ (Cat-fish, etc.—Fresh-water)

Clarias salæ.

C. læviceps.

C. liberiensis.

C. buettikoferi.

C. buluma.

Chrysichthis buettikoferi.

C. nigridigitatus.

Eutropius mandibularis.

E. ultipinnis.

E. liberiensis.

Malopterurus electricus.

Arius parkii.

A. heudelotii.

MURÆNIDÆ (Sea Eels—Marine)

Ophichthys buettikoferi.

O. semicinctus.

Myroconger macrops.

CYPRINODONTIDÆ (Fresh-water)

Haplochilus spilauchen.

FISTULARIDÆ ("Flute-mouths"—Marine)

Fistularia tabaccaria.

SYNGNATHIDÆ ("Sea-horses"—Marine)

Syngnathus kaupii.

SCOMBRESOCIDÆ (Gar-pikes, Flying-fish—Marine)

Belone senegalensis.

Hemirhamphus schlegelii.

Exocoëtus lineatus (Flying-fish).

Liberia ♀

MUGILIDÆ (Mullet—Marine)

Mugil cephalus.
M. falcipinnis.

POLYNEMIDÆ (Marine)

Galeoides polydactylus.

SPHYRÆNIDÆ (Barracudas—Marine)

Sphyræna guacaucho.

OPHIOCEPHALIDÆ (Fresh-water)

Ophiocephalus obscurus.

ANABANTIDÆ ("Climbing Perches"—Fresh-water)

Anabas kingsleyi.

SERRANIDÆ (Marine)

Serranus æneus.
Lutjanus caxis.
L. macrolepis.

SCIÆNIDÆ (Marine)

Otolithus senegalensis.

GERRIDÆ (Marine)

Gerris gerrida.
G. nigri.

PRISTIPOMATIDÆ (Marine)

Diagramma macrolepis.
Pristipoma jubelini.
P. macrophthalmus.
P. suillum.
Smaris melanurus.

SPARIDÆ (Sea Bream—Marine)

Sparus sp.
Dentex maroccanus.
Box goreensis.

SCORPIDIDÆ (Marine)

Psettus sebae.

• Fauna: Reptiles, Amphibians, and Fish

CHÆTODONTIDÆ (Marine)

Ephippus gorcensis.

DREPANIDÆ (Marine)

Drepane punctata.

ACANTHURIDÆ (Marine)

Acanthurus monroviæ.

LABRIDÆ (Wrasses, brilliantly coloured—Marine)

Coris guineensis.

CICHLIDÆ (Fresh-water)

Tilapia lata.

T. nilotica.

Palmatochromis buettikoferi.

P. jentinki.

Hemichromis fasciatus.

H. bimaculatus.

CARANGIDÆ (Horse-mackerel—Marine)

Caranx chrysos.

C. africanus.

C. hippos.

C. carangus.

Trachynotus goreensis.

TRICHIURIDÆ (Ribbon-shaped fish—Marine)

Trichiurus lepturus.

PLEURONECTIDÆ (Flat-fish, Soles, etc., Marine)

Cynoglossus senegalensis.

Hemirhombus guineensis.

GOBIIDÆ (Gobies, Mud-skippers, etc.—Marine and Estuarine)

Gobius banana.

G. soporator.

Periophthalmus koelreuteri.

Eleotris buettikoferi.

E. pisonis.

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ECHENEIDIDÆ (Remoras, Sucking-fish—Marine)

Echeneis naucrates.

BLENNIIDÆ (Blennies, Wolf-fish, Sea Cat-fish—Marine)

Salarias vomerinus.

Blennius crinitus.

MASTACEMBELIDÆ (Estuarine or Fresh)

Mastacembelus *liberiensis.*

ANTENNARIIDÆ (“Marbled Anglers”—Marine)

Antennarius marmoratus.

A. multicellatus.

A. pinniceps.

BALISTIDÆ (the File or Trigger fishes, or Drummers—Marine)

Balistes maculatus. .

TETRODONTIDÆ (“Puffers” or Globe fishes—Marine)

Tetrodon guttifer.

T. lævigatus.

CHAPTER XXVI

FAUNA: INVERTEBRATES

SO far as LAND MOLLUSCS are concerned, Liberia would seem to come within the Senegambian province of the Central African sub-region, a region which includes much of South, East, and North Central Africa. This region is apparently much less rich in forms of land molluscs than the special West African province which extends from Cape Palmas to the mouth of the Congo. Amongst those which have been collected in Liberia is the slug-like *Veronicella*, which instead of a distinct shell has the back covered with a leathery mantle. *Streptaxis* offers one peculiar Liberian species. This is a mollusc with a compact shell in coils, and together with *Ennea* is carnivorous and not vegetarian in its diet. *Perideris* and *Limicolaria* have long spiral shells, to some extent translucent. The large *Achatina* land snails are familiar objects all over Africa, even to unobservant persons. They have usually very large shells, handsomely marked with black or brown on pearly white, sometimes fading into pinkish fawn colour or even becoming wholly white. These are much in vogue among the natives as ornaments or receptacles for snuff, salt, and other compounds. The whole group of the *Achatina* snails is peculiar in its distribution to Africa and South Arabia. *Achatina purpurea* has a beautiful purple tinge. *Achatina variegata* is perhaps the largest of known land-shells. It is sometimes six and a half inches in length, is pinkish brown, and has very faint zebra markings. The snails

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of this genus lay very large white eggs, nearly the size of a pea. Other snails of the same family (*Stenogyridæ*) lay eggs as large as those of a thrush, white and shaped like a bird's egg.

The FRESH-WATER MOLLUSCS of the order *Prosobranchiata* offer perhaps four species peculiar to Liberia in their distribution. The marine are of course of widespread distribution, and only those are catalogued here which are commonly met with out of water on rock or sand. Among these may be mentioned the limpet-like shells of *Siphonaria* and *Gadinia*, thickly clustered on the rocks up to high-tide mark and able to live for a long time out of water, content with the splashings of the high tides.

Büttikofer states that the fresh-water shells of the numerous kinds of *Melania* are so abundant in parts of the St. Paul's River that they are burnt by the Liberians to make lime. Several other molluscs of fresh and brackish water furnish lime to the Liberians through their shells, and this lime is used to make mortar for building as well as whitewash for the walls and ceilings. Large oysters, apparently of the genus *Ostrea* (besides the "fresh-water oysters" of the genus *Ætheria*), are familiar objects in the estuaries of all the Liberian rivers, growing as they do in bunches affixed to the mangrove stalks and the trunks and branches of other trees that lie in brackish water. These oysters are much eaten by the Liberians. Nevertheless, unless specially treated they are dangerous for Europeans (and probably also for black men, only that not so much attention is paid to the unrecorded sufferings of Negroes). This may be because they take some poisonous substance out of the mud or water into their intestines. Moreover, when drawn from the brackish water and not from the sea, they are so insipid in taste as to be quite repellent. When the present writer lived in the rivers of the Niger Delta, he, following the example of the European traders in that region, used to collect oysters

from the mangrove stalks and keep them for at least a fortnight in sea-water, feeding them meantime on oatmeal. At the end of a fortnight they were not only palatable and sufficiently salt but perfectly wholesome.

A "fresh-water oyster" of the *Unio* order—*Ætheria*—is found in the St. Paul's, in the Cavalla, and no doubt in all the other rivers of considerable size in Liberia, affixed to the rocks of islands or banks, and occasionally to the roots of trees growing in the water.

EARTHWORMS (*Oligochæta*) are represented by the striking genus *Acanthodrilus*. According to Büttikofer, examples of these worms grow to the length of a yard, and are about half an inch in diameter. Though the present writer has observed them frequently in Liberia, he never saw one of a greater length than twelve to fourteen inches. On the other hand, the examples he has collected are proportionately thicker than those mentioned by Büttikofer. These earthworms are remarked even by unobservant persons because of their brilliant colours, generally a bright verditer blue. They are very active, and not easy or pleasant to catch, as they readily slip through the fingers and bury themselves in the soil. Moreover, when they feel themselves grasped they squirt from the pores of their body a disgusting milky liquid which seems to be of a bitter or irritating nature. This is very observable if the worm is plunged into alcohol and feels itself at the point of death. It then squirts out such a quantity of thick milky fluid as completely to obscure the liquid in which it is immersed. The Liberians naturally believe this creature to be poisonous, and in the minds of the natives it is a good deal confused with the worm-like snakes, lizards, and amphibians described in the previous chapter.

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Leeches (*Hirudo?* or possibly *Limnatis*) are common in the swamps and even in the wet grass (*Hemadipsa*) in some districts, as will soon be discovered by any European traveller who is foolish enough to wade through swamps or streams with bare feet and legs.

Although Büttikofer noticed no case of guinea-worm (*Filaria medinensis*) in Liberia, this pest has evidently begun to spread southwards from the Mandingo hinterland, where it is very common. It is already frequently met with on the Ivory Coast, to the east of Liberia, and cases occur amongst the Mandingos in the western part of Liberia. But this worm is more associated with the drier regions of Africa than with the forest country of heavy rains. Some description of it is given in the chapter dealing with the diseases of the natives.

As regards the CRUSTACEA, they are abundantly represented in the coast region by the great land crabs of the mangrove swamps and river banks (*Cardisoma*). The fresh-water crabs of the widespread genus *Thelphusa* are found all over Liberia, often at some distance from water, in the trees or the damp undergrowth of the forest. At the breeding season they resort to holes in the river banks under the water. As *Thelphusa* is so often in evidence in the daytime, its habits cannot be so nocturnal as they are stated to be by Dr. Büttikofer. In the mangrove and pandanus swamps two small shore crabs are found of the genera *Gelasimus* and *Sesarma*. The first-named has the left claw disproportionately large and brightly coloured in the males, and the second (*Sesarma*) has blue claws. Both of these crabs can climb trees and even scramble along slender branches, no doubt in the pursuit of insects or other food.

The great land crabs of the coast region (*Cardisoma*) also have one claw (the left) disproportionately developed, and strong

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bristles on the other legs. They are nearly omnivorous, and attack and devour not only insects, worms, and fish, but also chickens and young ducks. The sandy beaches are alive with burrowing shore crabs of the genus *Ocypode*, which are exceedingly rapid in their movements. These crabs can make a purring or growling noise which is very uncanny as coming from a crustacean, and is supposed to be caused by rubbing a membrane on the inner side of the big claw. The coarser crabs (as the *Ocypoda* are sometimes called) live in burrows in the sea-sand, each in his own hole, being very jealous of any encroachment on their claim.

The *Grapsus* crabs, boldly spotted and very handsomely coloured, frequent the rocks at the mouths of rivers or along the sea coast. The *Calappa* crabs keep more to the shallow water in shore. They close up like a tortoise if meddled with, withdrawing their limbs within the carapace and belly shield, the much-broadened integument of the big claws assisting to form part of this compact, round Japanese puzzle-box, which Nature has painted most gaudily with a network of red streaks and spots.

Fresh-water crayfish (really large prawns of the genus *Palæmon*) are found in most of the rivers; and sea crayfish (*Panulirus*) are abundant in the estuaries and along the coast. The true prawns of the genera *Leander* and *Atya* are excellent for eating.

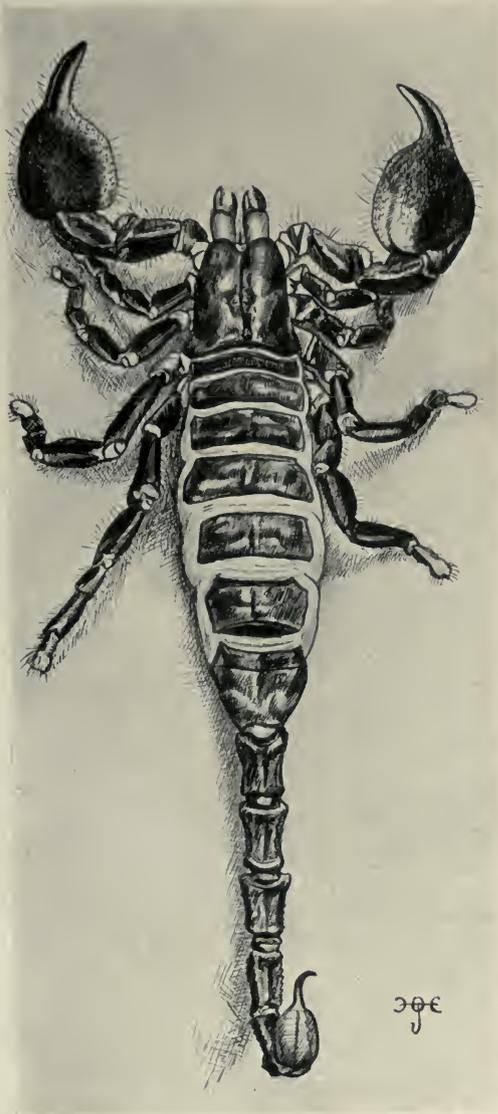
There are many species of Hermit crab along the sea-coast, and the extraordinary "mantis-shrimps" (the size of lobsters, with long, slender, toothed front claws shaped like those of a mantis) are found in the estuaries of rivers.

As regards ARACHNIDA, they are of course abundantly represented in this tropical region. Liberia, in common with

adjacent parts of West Africa, can boast of possessing the largest scorpion in the world—*Pandinus imperator*—which exhibits a good deal of greenish blue in its coloration. It is a very large size—sometimes nearly six inches long—and can of course inflict a terrible sting. This scorpion and its allies possess a sound-producing organ between the inner base of the big claws and the joint of the first leg. The stridulating of this produces a distinct and ominous hissing sound, which the scorpion uses as a warning towards enemies bigger than himself. This large bluish black and buff-yellow scorpion frequents the dense forests. In the more open cultivated regions there are smaller reddish yellow scorpions not yet identified. The Whip scorpions are represented by *Titanodamen bassamensis*, which is akin to the very large *T. johnstoni*, discovered twenty years ago in the Cameroons by the present writer.

Amongst Spiders, a large and hairy Mygalomorph (*Scodra brachypoda*) is frequently met with. This creature can give a very poisonous bite, but every effort should be made to explain to the Liberians, natives and Europeans, that these hairy mygaloid spiders perform valuable services in destroying cockroaches and other noisome insects. They do no harm whatever to humanity unless interfered with, and should certainly receive some degree of protection. Large scarlet or yellow and black spiders of the genera *Nephila* (*Epeira*) build coarse webs of drab or yellow colour very like floss silk. These hang loosely from bush to bush, and are most disagreeable obstacles to the pioneer who is forcing his way through the undergrowth. He may suddenly find himself enveloped in a hideous sticky veil of coarse spider's web in which are strewn the mummified bodies of flies and other insects.

A species of *Aranethra* is a very conspicuous arachnid, though not large. It has a carapace like a crab, and this is a



315. THE BIGGEST SCORPION IN THE WORLD ($6\frac{1}{2}$ INCHES)—
PANDINUS IMPERATOR

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bright lemon-yellow while the limbs and head are black. The common house spider on the brick walls of Monrovia is a species of *Heteropoda* (a sideways-walking spider). This large, grey, long-legged, flat-bodied spider is usually of the female gender, if observed by Europeans, because the male is smaller and much more restless. The female broods over her large white bag of eggs till they are hatched.

In the interior large tarantula spiders (*Lycosa*) are met with away from the forest ; and in the long grass there are the usual red ticks, whose bite is more or less poisonous.

CENTIPEDES of the genus *Scolopendra* sometimes attain a length of eight inches, and are lugubriously coloured in deep blue-grey with yellow at the joints and on the legs, somewhat after the fashion of the forest scorpion. The bite of these large centipedes is very poisonous. They frequent rotting wood, and any one going through the forest who feels tempted to rest by sitting on a fallen log by the wayside had better be cautious that in so doing he does not sit on or near a centipede, which may be coloured so like the blue-grey and yellow of the trunk as to be not readily distinguished. The present writer has observed a *Geophilus* centipede (reddish yellow, very long and serpentine) more than once in Liberia, also a species of *Scutigera* (short-bodied centipede with very long legs and antennæ), but did not succeed in transmitting the specimens for identification. The harmless millipedes (*Julus*) are very abundant in forest and field outside the towns. They grow to as much as eight inches in length, are thick and rounded in outline, generally black in colour, with red or orange legs, and are without pointed poisonous mandibles. They live on decaying vegetation, roll into a ball if touched, and for their protection

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emit a rather sickly smell, like oil of almonds or "cherry blossom" scent.

It is possible that the remarkable *Peripatus*, that creature which, if one may dare to say so, is a kind of transitional form between the worms, insects, and centipedes, may some day be discovered in the Liberian forests. It is found in South Africa, in parts of South America and the West Indies, in New Zealand and Eastern Australia. So far, however, its existence has not been established in the more tropical regions of Africa.

Amongst INSECTS, it is probable that those first attracting the attention of the foreigner in Liberia will be the large and disagreeable cockroaches (*Periplaneta americana*), which abound in most of the Americo-Liberian settlements. These disgusting insects are obviously harboured and bred in the heaps of refuse which accumulate in too many of the Liberian back-yards or compounds. They also find a congenial home in the masses of decaying leaves on the outskirts of the forest. There are indigenous species of *Blattidæ* (inoffensive and prettily coloured), but the cockroaches referred to are in all probability introduced by man from Tropical America through the ships that have passed to and fro between the two continents. These large cockroaches in the months of November, December, and January, and possibly also at the beginning of the rains in May, take short flights at night-time, especially in the direction of any light. With horrible fearlessness they land on a human being as voluntarily as on any other substance, and course wildly over one's face and hands or get entangled in one's hair. They are sometimes quite two inches in length. In some of the Liberian houses, which in all respects are furnished and appointed with comfort and even a certain elegance, the pleasure of the evening's

entertainment has been quite destroyed for the writer of these lines by the sight of the cockroaches scurrying over the carpet.

These insects, as elsewhere in the tropics, do not hesitate at night to attack human beings who are asleep. They creep to the corners of the mouth of the sleeping person to suck the saliva. They eat the toe-nails down to the quick, and above all, they gnaw at any sore place or ulcer on the skin, so that they may become almost dangerous. The Europeans who have experienced these horrors, however, are in most circumstances entirely to blame, as no one in these lands should sleep without the protection of a mosquito curtain, which if well tucked under the bed-clothes would keep out cockroaches like other insects. Dr. Büttikofer relates that he only saved his body from attack at one time by placing bowls of rice and sugar in his bedroom as a counter-attraction. It is difficult to understand why the simple expedient of a mosquito curtain did not occur to him. The present writer has been attacked in a somewhat similar way, but on board dirty and uncomfortable steamers on the West Coast a good many years ago. In the bunks of these steamers cockroaches swarmed, and there were of course no mosquito curtains to shield the unfortunate passenger, who would wake in the dead of night, in black darkness, to find two or three large cockroaches clinging to his lips.

Locusts as a plague are not unheard of in Liberia, rumours occasionally reaching the western part of that country of locusts' ravages on the Mandingo Plateau. But damage is done to vegetation in Liberia rather from what we should style grasshoppers than locusts. In some parts of the interior the Liberian indigenes collect certain grasshoppers or locusts, the repulsive large-headed, fat-bodied crickets, or the equally repulsive cicadas, and, after frying them in palm oil, grind up the insects into a powder which is eaten as a sauce.

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There are several *Gryllæ* or crickets that are predaceous and insectivorous in their food. They come out at night, and will pounce upon moths, literally tearing them in pieces, biting off and jerking aside the wings, and then attacking and devouring the soft body with their powerful jaws. Delighted as I always am to see insects destroyed (since they are the curse of creation) there is something rather shocking in the leopard-like pounces of these carnivorous crickets. Another very repulsive object is the Mole cricket (*Gryllotalpa*), with its enormous and powerful front legs adapted for digging.

The various kinds of Mantis are amongst the few insects that are really tolerable to the human observer. They are so exceedingly quaint in their ways, and are often of such delicate and even exquisite coloration, generally green in varying shades. One or more species have the wings marked with a great ocellus in black and pink. These insects can give one's skin a nasty pinch or scratch if they nip it between the toothed sections of the great fore-legs. But they are working on the side of humanity in being the leopards of the insect class, destroying and devouring all other insects that they can overpower.

In this country there are several species of Stick insects (*Phasmidæ*)—the slender *Bacillus gracilipes* (like a fragment of hay) and the monstrous *Palophus centaurus*, resembling a lichen-speckled branch with its divergent twigs hung with an occasional leaflet. Some of them grow to a length of eight inches.

TERMITES (white ants), probably *Termes bellicosus* and *T. mordax*, are found in Liberia, but it cannot be said that these insects are as great a pest or do as much damage in this country as in less forested parts of Africa. One very seldom hears about them in Liberian towns on the coast, though at no great distance from these settlements there are large, tall, castellated

ant-hills of red clay supposed to be made by the warlike termites—*Termes bellicosus*.

In the forest region a commoner type of termite is *Termes mordax*, which builds extraordinary mushroom-like dwellings out of a grey or bluish clay, probably derived from decayed vegetation. These grey ant-hills are exact imitations of a mushroom, with a cylindrical stem very loosely attached to the ground and a bulbous cap. When the hill has been in use some little time a new cap is added on top of the old one, so that at last a hill that has endured for years may be composed of four or five mushroom-like caps rising in tiers.

In the months of November and December the perfected male and female termites leave the hill and take to flight with their flimsy wings, rising sometimes in great clouds that quite darken the sky. After a few hours' flight, the one endeavour of the males, and perhaps of the females also, is to get rid of the wings. This of course they do by preference in a plate of soup, because it is the mission of all insects in tropical climates to make themselves odious to man in any way that occurs to them. It is no uncommon sight on a Liberian dinner-table to see the winged ants running round and round, trying to unship their wings at the joints by prising them off with their hind legs. One or more of the fertilised females find their way back to the nest in a wingless condition. They are then built into a large cell with many small openings through which food is introduced, and the eggs as laid are taken away. The lofty and large ant-hills of *Termes bellicosus* are the homes of many other creatures besides white ants. They harbour snakes, small and middle-sized, the blind *Amphisbæna* lizard and equally blind limbless amphibians (*Geotrypetes*); also large earthworms and beetles.

BUTTERFLIES are not nearly such striking objects in the

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Liberian forests as in those of Uganda and the Congo Free State. There are very few species peculiar to Liberia, and the appended list represents most of the butterflies known in Sierra Leone, the Ivory Coast, the Gold Coast, and the Niger Delta.

The BEETLES of this country are also slightly disappointing as compared to the extraordinary forms furnished by the Cameroons and Gaboon and the interior of the Congo Forest. Amongst interesting types, however, may be mentioned the *Ceratorrhina* beetles, remarkable for the beautiful or delicate coloration of their elytra (wing cases) and for the extraordinary rhinoceros horns borne by most of the males. One species (*C. aurata*) has the elytra delicately gilded, in another species these wing cases are dove-grey lined and spotted with black. The ceratorrhines are near allies of the large Goliath beetle, which so far has not been found in Liberia. The large white beetle grubs found in palm midribs and in decaying wood in the forests, which are such a favourite article of diet with the indigenous natives, develop into large shiny black beetles of the family *Passalidae*. The white larvæ possess a stridulating organ and probably remain several years in the larval stage. The Paussid beetles possess antennæ of extraordinary halberd-like form. They are small reddish brown insects that pass their lives (when mature) in ants' nests, flying about at night and entering dwellings when attracted by a light. They are able in their own defence to squirt a nasty-smelling vapour or gas from the abdomen.

The Fireflies of Liberia are probably one or more species of *Diaphanes*, a lampyrid beetle. The power of producing light from under the wing cases in the males (and perhaps from the lower abdomen in the female) is intermittent, but at some seasons very vivid. It is not due to phosphorescence, but (according to entomological authorities) to "the slow

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oxidation of a substance formed under the influence of the nervous system." In *Diaphanes* the light is greenish. There are many elaterid ("Click") beetles in Liberia, but apparently none of this family are luminous there as in South America. The buprestid beetles furnish many beautiful forms of metallic emerald-green or copper-red.

Amongst Flies and Dipterous insects, the first thing noticeable is a negative characteristic : gnats—otherwise known as mosquitoes—are singularly scarce. There is an exaggeration in the statements of those who have visited Liberia, and have reported that there were "no mosquitoes" in the country. That cannot be said truthfully. Not only are they present here and there, but the dreaded malaria-spreading *Anopheles* is found in Liberia, as elsewhere on the West Coast. Still, it is a pleasant thing to record that these teasing gnats are more remarkable for their absence than their presence in this country. Nevertheless, travellers should be most careful to use mosquito curtains at all times and seasons. Apart from their being a protection against cockroaches and other noisome insects, they may serve to keep out the one *Anopheles* that has wandered into the apartment. Also, in many Liberian houses, though no mosquitoes will be visible to the eye, or will rise more than three feet from the ground to attack the visitor, a few of these insects may collect under sofas and tables and find their way to the exposed ankles of the European ; so that any one valuing his health in Liberia will use ankle boots rather than shoes.

At certain times of the year sandflies or midges¹ are cruelly abundant. These creatures are nothing but a minute

¹ Probably of the genus *Ceratopogon* ; but there are possibly sandflies or buffalo gnats (a larger, stouter, blacker insect with short legs) of the widespread genus *Simulium* in the Liberian forest.

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gnat found almost all over the world in damp localities. Their bite is much more irritating and painful than that of the mosquito, but it does not apparently convey any germ of disease.

Large grey gadflies of the genus *Hæmatopota* are common in the vicinity of rivers, and can inflict a very painful thrust with the proboscis. The very handsome green-eyed, chestnut-backed *Pangonia* or hippo fly is also abundant near large streams, and inflicts a severe puncture. Another fly (not as yet identified) by means of its ovipositor deposits an egg beneath the surface of the skin, which develops in time into a small grub that works its way out from its human host through the boil or pimple which is raised by its irritation. But it must be admitted that most Europeans or Liberians, if they are properly clothed, are proof against the attentions of these pests. There is a species of *Glossina* fly allied to the tsetse, perhaps identical. But the nagana or tsetse disease does not seem to exist in Liberia. Nevertheless, as sleeping sickness is present there, *Glossina palpalis*, which conveys that malady, must also exist in Liberia.

The common Flea of course has been introduced, or at any rate is found, here and there, in the coast regions, though not to any great extent, the climate being too damp. But the jigger or burrowing flea (*Sarcopsylla penetrans*) has in its time been a great nuisance, as in other parts of Tropical Africa. This burrowing flea, which is a native of South America, probably reached Liberia thirty years ago. It seems to have effected its first lodgment in West Africa on the northern coast of Angola (Ambriz) in or about 1850, having been brought over from Brazil in sand ballast in some sailing ship. From Ambriz the burrowing flea penetrated north and south, but chiefly to the north. It gradually travelled along the coast

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of Guinea till it reached Liberia and Senegambia, while in the course of years it has made its way right across the Congo Basin to British Central Africa, Uganda, and Zanzibar. In Liberia, as in all these other countries, it became a terrible pest on its first arrival. The natives paid no heed to its ravages in their feet until the foot or limb mortified. After a time the increase of these burrowing fleas seems to be stopped by some natural action, and in Liberia as elsewhere they have died down until they have become a manageable pest, and one which scarcely ever affects Europeans and natives who wear boots. The jiggers, however, do a great deal of damage to domestic birds and beasts.

The common honey bee of Liberia, according to Büttikofer, is *Apis fasciata*, which lives mostly in the woodlands, especially in the hilly districts of the interior, building its hives in hollow trees. This bee has a sting, as, in other parts of Africa, the present writer has known to his cost, for these wood-bees sometimes attack passing caravans which heedlessly disturb the hive, or the tree on which it is established. *Apis fasciata* is apparently the bee which makes the beeswax that figures so largely in the trade of the Mandingos of Senegambia. There is no reason why wax should not be exported from the interior of Liberia, but at present the natives pay little heed to it, and only rob the hives for the sake of the honey. Büttikofer states that the honey of this *Apis fasciata*, like that of the small stingless bee (*Trigona*), is more or less permeated by formic acid. The stingless bee (*Trigona*), a small black insect, frequently builds its nest in or near native huts.

The large black and yellow Mason wasps (*Pelopæus*?) are exceedingly common, darting in and out of habitations to build their clay nests of several cells in any likely corner or in any receptacle, such as the mouth of a bottle or the trumpet of a

phonograph. Into these clay cells they stuff torpid grubs, caterpillars, or spiders that have first been half killed by the wasps' stings. It is said to be only the large, brightly coloured (black and gold) female that is known to us. The small male of this Mason wasp has not been clearly identified.

There are also glistening grey wasps, with very attenuated waists, possibly of the genus *Polistes* or *Belenogaster*, that build paper nests underneath branches or leaves. These can attack ferociously any traveller who disturbs them, inflicting severe stings. They are common in the mangrove swamps.

The lord of the Liberian forests is not the mighty elephant nor the cruel leopard, but the driver ant—of the genus *Anomma* or *Dorylus*.¹ This creature is a frightful pest, owing to its destructive capabilities. Where it comes from and whither it goes seems a mystery, because an unending stream of these ants—soldiers and workers—may be followed up for two miles or more without any diminution in its volume or without arriving at the fountain-head of this ant army. Their permanent homes are said to be in some pit or excavation round the roots of a huge tree. But the present writer has never been fortunate enough to discover the place of origin of these ants. Their home would have to be a large one to contain the millions that must be represented in these inch-wide runs that permeate the country in all directions.

The driver ants use some of these runs with a certain

¹ Perhaps *Dorylus diadenus*. About not a few ants of tropical countries there is a considerable confusion of nomenclature due to the difficulty of collecting and identifying all the individual types of each species. Some species are named from the adult breeding male or female; others from the wingless worker or soldier type. The winged male of these terrible drivers (? or the female) is a large hairy insect with a very long mobile body which seems to possess a sting. This creature with short wings and disproportionate body is usually named "*Dorylus*." It flies into houses at night when attracted by a lamp. The worker of this form is styled both *Typhlopone* and *Anomma*.

degree of permanency, but not without intermittence. Occasionally the smooth, hollow surface of the runnel which has been worn bare of vegetation by the constant passage of the ants is deserted. The next day it may be swarming with an army. Where the track crosses a road or open space the depression or causeway along which the worker ants are hurrying is often bridged over by the soldiers, who form with their linked bodies an arch to the runnel along which the stream passes. There is also a kind of hedge of soldiers along each lip of the hollowed track. The instant these are disturbed by any passing creature the soldier ants scatter themselves rapidly over the adjoining ground for several yards on each side of the track, looking for the enemy, and ready to attack him with their powerful jaws.

The driver ants are never found in a dry country; they frequent the moister parts of Africa. It is curious that one never sees them returning along these routes; they are always going in one fixed direction. This would look as though they were of migratory habits, passing from one temporary home to another, whereas if they merely sallied out on raids for food one would meet them occasionally proceeding along the beaten tracks in the reverse direction.

Owing to their ferocious disposition and great numbers, they have been very little studied hitherto in their life habits. Quite possibly the Liberian species, as elsewhere in Africa, have not been correctly identified or named; there is in all probability more than one kind of driver ant in this country belonging to the genus *Anomma* or *Dorylus*. I have never noticed these ants in the "civilised" part of Liberia. I think civilisation, cleared roads, the noise and bustle of European life do daunt these destroyers. In this way they may be finally got rid of. Travellers sometimes speak of them with some

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mitigation of hostility, because after the driver ants have passed through a dwelling or a camp they have for the time being cleared it of rats, mice, cockroaches, crickets, bugs, and other noisome pests; but at the same time they devour any unfortunate chickens or the smaller domestic birds and beasts that may be confined and unable to escape from their attacks. Even a human being, if he or she were held prisoner, would be devoured by these ants. In fact, it has been a common outlet for African cruelty to peg down men, women, or children across the path of the drivers to die a horrible and lingering death. In several parts of Africa I have seen the corpses of Negroes who have been killed in battle or have died of disease half eaten by these ants.

Büttikofer is inclined to suggest that the remarkable scarcity of the varied types of insects and the smaller beasts and birds in Liberia may be due to the excessive numbers of these predatory ants, both of the driver genus (*Anomma*) and of the red tree-ants (*Formica* sp.?). It is quite conceivable that in time this development of the most hateful class of living beings—insects—might depopulate a continent, as no intelligence below that of the human could cope with and destroy them. The red tree-ants above referred to are not so numerous as the drivers, and perhaps not quite so aggressive, in that they do not go far from the trees in which they dwell to attack the passer-by. But their bite is very much dreaded by the naked native, especially if he be sent up trees to search for orchids or birds' nests. The tree-ants make small nests in large leaves, which are rolled over into a cornucopia receptacle. If ever in gazing up at a tree you notice the grey under-side of a leaf to be convex, you will know almost to a certainty that it is full of reddish yellow ants with long, nimble legs and attenuated waists, ready to fall on you and nip you with their sharp mandibles,

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the bite being rendered the more painful by the injection of formic acid.

The minute yellow-red ants so abundant throughout the tropics that live chiefly on sugar or sweet food swarm, of course, in the houses of the coast region, and special precautions have to be taken in larders and store-rooms to place biscuits and other sweet things that are not sealed up in receptacles of water. These ants can be kept at bay by giving them a small depth of water to cross, as they are unable to swim.

There are also large pale grey ants, possibly of the species *Paltothyreus pestilentius*, emitting a most offensive odour. These creatures seem to go about in couples or singly, and their defence no doubt is the intolerable stench that they emit from their bodies. They and this smell, however, are sometimes associated with an antlike insect of the closely allied family of *Mutillidæ*—the wingless, white-spotted female (?) of the genus *Apterogyna*. Usually this form of antlike bee is captured by the European as the author of the horrible stench, which (as in the pismire ants) is really produced by the *Paltothyreus*.

It would be interesting if naturalists in Liberia would try to study the relations between ant-eating mammals, reptiles and birds, and the true ants of the driver and leaf-nesting types. So far as our observations go, the manis ant-eaters described in Chapter XXIII., together with the burrowing snakes and lizards, seem chiefly to attack the termites or "white ants." These last, though they are very destructive to property because of their attacks on wood and paper, are nevertheless far less serious pests than the true ants of the predatory kind referred to. Is the manis, for example, with its upper coat of scales and its tough skin, proof against the bites of the driver? When it licks up driver ants with its viscous tongue, can it subsequently in its mouth detach them from the tongue (into which they

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would have bitten deeply) and swallow them? If it can be shown that any of these creatures really devour the driver ant, then the Liberian Government (for example) ought to take special measures to preserve immune from destruction the ant-eating mammals, birds, and reptiles. Man indeed is almost obliged to call around him his brother vertebrates to contend with the insect hosts for mastery over the earth. These arthropods are almost as alien to him in ideals and development as the inhabitants of another planet.

If I have drawn a rather fearsome picture of Liberia as the home of disagreeable insects, I should like to conclude this chapter by assuring my readers that in this respect it is no worse than other parts of Africa: rather better than most, in fact. Life is far more tolerable here owing to the relative absence of mosquitoes, fleas, bugs, and ticks.

But to make Liberia more attractive to civilised man than it is at present there is nothing like agriculture and the judicious thinning of the forest. It is in the dense forest that the insect class has its principal stronghold and recruiting ground; and it is perhaps for this reason that the open spaces of Africa—very often unpromising desert or steppe to all appearance—are so much more richly endowed with the higher types of vertebrate life.

APPENDIX VIII

LISTS OF INVERTEBRATE ANIMALS OF LIBERIA

FOUNDED ON THE COLLECTIONS OF BÜTTIKOFER, REYNOLDS,
WHICKER, H. H. JOHNSTON, A. WHYTE, ETC.

MOLLUSCA

Sub-Class: GASTEROPODA

PROSOBRANCHIATA (Fresh-water or Marine Gasteropods)

- Fissurella obtusa.*
- Nerita atrata.*
- Neritina rubricata.*
- N. adansoniana.*
- N. oweniana*
- Littorina punctata.*
- L. striata.*
- Typanotonus fuscatus.*
- Ampullaria balanoidea.*
- A. vitrea.*
- Vivipara liberiana.*
- Melania nigritina.*
- M. sancti-pauli.*
- M. liberiensis.*
- M. buettikoferi.*
- Pachymelania (Claviger) matoni.*
- P. aurita.*
- P. byroni.*
- Cypræa stercoraria.*
- Cymatium (Triton) tranquebaricus.*
- Purpura hemastoma.*
- P. neritoides.*
- Melongenina morio.*

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OPISTHOBRANCHIATA (Marine Gasteropods)

Siphonaria grisea
S. venosa
Gadinia afra } Limpet-like in shell.

PULMONATA (Snails, Slugs, etc.)

Ennea liberiana.
Streptaxis monrovia.
Stenogyra involuta.
S. striata.
Achatina variegata.
A. purpurea.
A. knorri.
Veronicella pleuroprocta.
Limicolaria turbinata.
Perideris torrida.
P. interstincta.

Sub-Class : PELECYPODA

FILIBRANCHIATA (Mussels, etc.)

Mytilus senegalensis.
M. var. semistriata.
M. perna.

PSEUDOLAMELLIBRANCHIATA (Oysters)

Ostrea sp.

EULAMELLIBRANCHIATA (Unio Shells, etc.)

Ætheria plumbea (Fresh-water Oysters)
Dreissensia africana.
Cyrenoida dupontia.
Meretrix tripla.

CRUSTACEA

MALACOSTRACA (Crabs, Crayfish, etc.)

BRACHYURA (Crabs)

Cardisoma armatum (big land Crab).
Sesarma africana
S. angolensis
S. buettikoferi } Small land Crabs.

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Thelphusa africana (Fresh-water Crab).

Ocypode cursor
O. africana } Burrowing shore Crabs.

Grapsus maculatus
Goniopsis cruentatus } Shallow water, rock-dwelling Crabs.
Plagusia depressa }

Gelasimus perlatus (" Calling Crab "—shore-dwelling).

Neptunus validus
N. diacanthus
Calappa rubroguttata } Sea-dwelling swimming Crabs.

MACRURA (Hermit Crabs, Crayfish, etc.)

Petrochirus cavitarius
Clibanarius cooki
Diogenes pugilator
D. var. intermedia
D. denticulatus
D. brevirostris } Hermit Crabs.
Paguristes hispidus }

Panulirus regius (Sea Crayfish).

Palæmon macrobrachion
P. vollenhoveni (Fresh-water Crayfish) } Large Prawns.

Leander edwardsii
Atya scabra } Prawns.

STOMATOPODA (Mantis Shrimps).

Squilla empusa.

Lysiosquilla hoeveni.

ARACHNIDA

SCORPIONES (Scorpions)

Pandinus imperator (the Giant African Scorpion).

PEDIPALPI (Whip Scorpions)

Titanodamen bassamensis.

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ARANEÆ (Spiders)

Phoneyusa gigas.
Scodra brachypoda.
Nephila lucasii
Nephila cruentata
Nephila femoralis.
Heteropoda venatoria (?).
Aranæthra cambridgii (?).

MYRIAPODA

CHILOGNATHA (Millipedes)

Julus sp.

SYNGNATHA (Centipedes)

Scolopendra sp.
Geophilus sp.
Scutigera sp.

CHÆTOPODA

OLIGOCHÆTA (Earthworms)

Acanthodrilus schlegelii.
A. buettikoferi.
A. beddardi.

HIRUDINEA (Leeches)

Hirudo sp. ?
Limnatis sp. ?
Hæmadipsa sp. ?

NEMATHELMINTHES (Intestinal Worms)

NEMATODA

Filaria medinensis (the Guinea Worm).

INSECTA

NEUROPTERA

MYRMELEONTIDÆ (Ant Lions)

Palpures sp.
Cymothales sp.

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TERMITIDÆ ("White Ants")

Termes bellicosus.
T. mordax.

ORTHOPTERA

BLATTIDÆ (Cockroaches)

Temnopteryx sp.
Deropeltis sp.
Rhyparobia maderæ.
Periplaneta americana.
P. australasiæ.
Heterogamia ægyptiaca.

MANTIDÆ (Mantises?—Praying Insects)

Sphodromantis lineola.
Mantis sacra.
Miomantis pellucida.

PHASMIDÆ (Stick Insects)

Cyphocrania æstuans.
Bacillus gracilipes.
Palophus centaurus.

ACRIDIIDÆ (Locusts and Grasshoppers)

Tryxalis sp.
Acridium sp.
Schistocerca sp.
Catantops melanostrictus.

PHASGONURIDÆ (Green Grasshoppers)

Arantia sp.
Dolichopoda sp.

GRYLLIDÆ (Crickets)

Gryllus sp.
Gryllotalpa sp.

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HYMENOPTERA

FORMICIDÆ (Ants)

Formica sp.
Anomma sp.
Dorylus sp.
Paltothyreus sp.

SPHEGIDÆ (Mason Wasps)

Pelopæus sp.

SCOLIIDÆ

Apterogyna sp. (an ant-like, subterranean mutillid).

VESPIDÆ (Wasps)

Belenogaster sp.
Polistes sp.

APIDÆ (Bees)

Apis fasciata.
Trigona sp.

DIPTERA

CULICIDÆ (Gnats, Mosquitoes)

Culex sp.
Anopheles sp.

CHIRONOMIDÆ (Midges, Sandflies)

Ceratopogon sp.

TABANIDÆ (Gadflies)

Pangonia sp. (the Hippo Fly).
Hematopota sp. (Grey Gadfly).

MUSCIDÆ (Flies)

Glossina sp. (akin to Tsetse)
G. palpalis?

APHANIPTERA

PULICIDÆ (Fleas)

Sarcopsylla penetrans.

HEMIPTERA

REDUVIIDÆ (Bugs)

Platymervis horrida.

HOMOPTERA

CICADIDÆ (Cicadas)

Pycna limbata.

COLEOPTERA (Beetles)

1. PASSALIDÆ (Wood Beetles)

Didymus klugii.

Pentalobus barbatus.

2. LUCANIDÆ (Stag Beetles)

Mesotopus tarandus.

Metopodontus savagei.

M. swanzyanus.

Prosopocelus quadridens.

P. senegalensis.

Homöoderus mellyi.

3. SCARABÆIDÆ (Chafers, Dung Beetles)

Sisyphus sp.

Gymnopleurus sp.

Chalconotus cupreus.

Catharsius pilthecius.

Copris carmelita.

Onitis cupreus.

Onthophagus ritsemæ.

O. tridens.

O. liberianus.

O. deplanatus.

Bolboceras senegalensis.

Oryctes boas.

Argon centaurus.

Anachalcos cupreus.

Ceratorrhina frontalis.

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C. aurata.
C. guttata.
Chordodera pentachordia.
C. quinquelineata.
Heterorhina africana.
Polystalactica stellata.
Pachmoda marginata.
P. postica.
P. tridentata.
Diphrontis cruenta.
Porphyronota cinnamomea.
Diplognatha gagates.
Eriulis variolosa.
Pseudinca admixta.
Cænochilus ventricosus.
Incala stampflii.
Platygenia barbata.
Myoderma alutacea.
Polyblastus assarius.
Heteronychus claudius.

4. *CICINDELIDÆ* (Tiger Beetles)

Cicindela cincta.
C. interstincta.
C. caternautii.
C. versicolor.

5. *CARABIDÆ* (Ground Beetles)

Casonia cribriceps.
Drypta sp. aff. *melanarthra.*
Dendrocellus bocandei.
Galerita interstitialis.
G. leptodera.
Acanthogenius bimaculatus.
Meladroma umbraculata.
Pheropsophus marginatus.
Calleida ruficollis.
Thyreopterus flavosignatus.

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Pachyteles sp. aff. *luteus*.
Catascopus senegalensis.
C. savagei.
Stereostoma stolidum.
Buderes oberti.
Morio guineensis.
M. anthracinus.
Platynodes westermanni.
Ochyropus savagei.
O. gigas.
O. patroclus.
Scarites perplexus.
Aulacillus liberianus.
Craspedophorus lævifrons.
Epigraphus arcuaticollis.
Stomonaxus longulus.
S. complanatus.
Chlœnius sp. aff. *sellatus*.
Eccoptomenus obscuricollis.
Hypolithus marginicollis.
Anisodactylus abaculus.
Drimostoma westermanni.
Abacetus gagates.
A. amaroides.
Megalonychus subvirens.
M. explanatus.

6. DYTISCIDÆ (Water Beetles)

Copelatus sp.
Cybister modestus.
C. distinctus.
C. irritans.
C. deplanatus.
Æthionectes optatus.

7. PAUSSIDÆ (Ant-frequenting Beetles)

Orthopterus lafertei.
Paussus humboldti.

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8. *GYRINIDÆ* (Whirligig Beetles : Aquatic)

- Orectogyrus specularis.*
- O. buettikoferi.*
- O. dimidiatus.*
- O. stampflii.*
- O. oscari.*

9. *HYDROPHILIDÆ* (aquatic or marsh-haunting in habit)

- Spheridium pictum.*

10. *STAPHYLINIDÆ* ("Cock-tail" Beetles)

- Hesperus cadioides.*

11. *HISTERIDÆ* (Compact Beetles)

- Hololepta semicincta.*
- Placodes senegalensis.*
- Macrosternus lafertei.*
- Apobletes foliaceus.*
- A. migneauxi.*
- Pachycrærus cyanescens.*
- P. histeroides.*
- P. ritsemæ.*
- P. desidiosus.*
- Hister hottentotta.*
- H. tropicus.*
- H. tropicalis.*
- H. lentulus.*
- H. conformis.*
- H. ritsemæ.*
- Saprinus brunniivestis.*
- S. gabonensis.*

12. *NITIDULIDÆ* (Flower Beetles)

- Æthina tumida.*

13. *TROGOSITIDÆ* (Corn Beetles)

- Gymnochila varia.*

14. CUCUJIDÆ (Bark Beetles)

Hectarthrum murrayi.
Chilopoma castaneum.

15. EROTYLIDÆ (Fungus-haunting Beetles)

Megalodacne grandis.
Episcaphula interrupta.
E. piciventris.
Zythoni fulva.
Amblyopus murrayi.
Palæolybas dorsalis.
Tritoma liberiana.
Tripilax vittipennis.
Languria calabarensis.

16. BOSTRICHIDÆ (Timber-boring Beetles)

Apate terebrans.

17. MALACODERMIDÆ (LAMPYRIDÆ) (Fireflies)

Diaphanes leucopyga

18. LYMEXYLONIDÆ (Timber-drilling Beetles)

Atractocerus brevicornis.

19. ELATERIDÆ (Click Beetles)

Tylotarsus reductus.
Alaus excavatus.
A. stellio.
Tetralobus auricomus.
Pantolamprus nitens.
P. dohrni.
P. auratus.
Psephus beniniensis.
P. brevipennis.
P. sp. aff. bucculatus.
P. sp. aff. ovalis.
Telesus ritsemæ.
Melanoxanthus senegalensis.

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20. BUPRESTIDÆ (Metallic Beetles)

Iridotænia chrysochlora.

I. decolor.

Psiloptera punctatissima.

P. piperita.

Belionota unicolor.

B. laticornis.

21. RHIPIPHORIDÆ (Parasitic and flower-frequenting Beetles)

Myodites buettikoferi.

22. MELOIDÆ (Cantharids, Blister Beetles)

Horia macrognatha.

23. CHRYSOMELIDÆ (Leaf-eating Beetles)

Sagra amethystina.

Lema armata.

Pæcilomorpha murrayi.

Miochira filiformis.

Cryptocephalus gladiatorius.

C. lowii.

Colasposoma tarsale.

Syagrus calcaratas.

S. æratus.

Menius tarsalis.

Corynodes simillimus.

Nisotra dilecta.

Myrcine nigra.

Pachytoma gigantea.

Diacantha bidentata.

Ootheca mutabilis.

LEPIDOPTERA (Butterflies and Moths)

[By EMILY MARY SHARPE]

"THE following list is compiled from Dr. Büttikofer's *Reisebilder aus Liberia*, to which I have added the additional species procured by Messrs. Harold Reynolds and F. J. Whicker.

"In addition to Dr. Büttikofer's work I have here referred to Professor Aurivillius' *Rhopalocera Æthiopica*."—E.M.S.

RHOPALOCERA (Butterflies)

DANAIDÆ

1. *Danais chrysippus* (Linn.)
Aurivillius, *Rhopalocera Æthiopica*, p. 32 (1898).
Coll. *F. Whicker*.
2. *D. alcippus* (Cram.)
Büttikofer, *Reisebilder aus Liberia*, vol. ii. p. 482
(1890); Auriv. *t.c.* p. 32.
Coll. *Büttikofer, Reynolds*.
3. *Amauris niavius* (Linn.)
Bütt. *t.c.* p. 482; Auriv. *t.c.* p. 37.
Coll. *Büttikofer, Reynolds*.
4. *A. enceladus*, Brown.
Auriv. *t.c.* p. 37.
Coll. *F. Whicker*.
5. *A. damocles*, Beauv.
Bütt. *t.c.* p. 482; Auriv. *t.c.* p. 38.
Coll. *Büttikofer*.
6. *A. egialea* (Cram.)
Bütt. *t.c.* p. 482; Auriv. *t.c.* p. 39.
Coll. *Büttikofer, Whicker*.
7. *A. hecate*, Butl.
Auriv. *t.c.* p. 39.
Coll. *Reynolds*.

SATYRIDÆ

8. *Elymnias phegea* (Fabr.)
Bütt. *t.c.* p. 482; Auriv. *t.c.* p. 45
Coll. *Büttikofer*.

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9. *Gnophodes parmeno*, Doubl. & Hewits.
Auriv. *t.c.* p. 46.
Coll. Reynolds.
10. *Bicyclus sebetus*, Hewits.
Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 49.
Coll. Büttikofer.
11. *Mycalesis evadne* (Cram.)
Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 51.
Coll. Büttikofer, Reynolds.
12. *M. halyma* (Fabr.)
Auriv. *t.c.* p. 51.
Coll. Reynolds.
13. *M. mesogena*, Karsch.
Auriv. *t.c.* p. 53.
Coll. Reynolds.
14. *M. sandace*, Hewits.
Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 54.
Coll. Büttikofer, Reynolds.
15. *M. technatis*, Hewits.
Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 54.
Coll. Büttikofer.
16. *M. sciathis*, Hewits.
Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 51.
Coll. Büttikofer.
17. *M. tenias*, Hewits.
Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 51.
Coll. Büttikofer.
18. *M. macrones*, Hewits.
Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 51.
Coll. Büttikofer.
19. *M. dorothea* (Cram.)
Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 54.
Coll. Büttikofer.
20. *Ypthima doleta*, Kirby.
Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 77.
Coll. Büttikofer, Reynolds.

ACRÆIDÆ

21. *Acræa quirina* (Fabr.)
 Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 86.
 Coll. Büttikofer.
22. *A. horta* (Linn.)
 Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 89.
 Coll. Büttikofer.
23. *A. zetes* (Linn.)
 Auriv. *t.c.* p. 90.
 Coll. Whicker.
24. *A. medea* (Cram.)
 Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 92.
 Coll. Büttikofer.
25. *A. egina* (Cram.)
 Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 92.
 Coll. Büttikofer, Whicker.
26. *A. natalica*, Boisd.
 Auriv. *t.c.* p. 100.
 Coll. Whicker.
27. *A. pseudEGINA*, Westw.
 Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 100.
 Coll. Büttikofer.
28. *A. serena*, Godt.
 Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 104.
 Coll. Büttikofer.
29. *A. eponina* (Cram.)
 Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 104.
 Coll. Büttikofer.
30. *A. bonasia* (Fabr.)
 Auriv. *t.c.* p. 105.
 Coll. Reynolds.
31. *A. encedon* (Linn.)
 Auriv. *t.c.* p. 110.
 Coll. Reynolds.
32. *Planema gea* (Fabr.)
 Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 119.
 Coll. Büttikofer, Whicker.

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33. *P. euryta*, Linn.
Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 121.
Coll. Büttikofer.
34. *P. umbra* (Drury).
Auriv. *t.c.* p. 121.
Coll. Reynolds.
35. *P. vestalis*, Feld.
Auriv. *t.c.* p. 122.
Coll. Whicker.

NYMPHALIDÆ

36. *Lachnoptera iole* (Fabr.)
Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 125.
Coll. Büttikofer.
37. *Atella columbina* (Cram.)
Auriv. *t.c.* p. 126.
Coll. Reynolds.
38. *Hypanartia delius* (Drury).
Auriv. *t.c.* p. 130.
Coll. Reynolds.
39. *Junonia delia* (Cram.)
Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 135.
Coll. Büttikofer, Whicker.
40. *Precis sophia* (Fabr.)
Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 136.
Coll. Büttikofer, Whicker.
41. *P. terea* (Drury).
Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 141.
Coll. Büttikofer.
42. *Hypolimnas misippus* (Linn.)
Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 147.
Coll. Büttikofer, Reynolds.
43. *H. salamis* (Drury).
Auriv. *t.c.* p. 148.
Coll. Whicker.
44. *H. dubius*, Beauv.
Auriv. *t.c.* p. 149.
Coll. Whicker.

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45. *H. anthedon* (Doubl.)
Auriv. *t.c.* p. 150.
Coll. *Whicker*.
46. *Neptidopsis ophione* (Cram.)
Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 156.
Coll. *Büttikofer, Reynolds, Whicker*.
47. *Ergolis enotrea* (Cram.)
Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 156.
Coll. *Büttikofer*.
48. *Byblia ilithyia*, Drury.
Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 158.
Coll. *Büttikofer*.
49. *Neptis nemetes*, Hewits.
Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 167.
Coll. *Büttikofer*.
50. *N. nebrodes*, Hewits.
Auriv. *t.c.* p. 169.
Coll. *Whicker*.
51. *N. melicerta* (Drury).
Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 169.
Coll. *Büttikofer*.
52. *Pseudacræa eurytus*, Linn.
Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 176.
Coll. *Büttikofer*.
53. *Pseudoneptis cænobita* (Fabr.)
Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 177.
Coll. *Büttikofer, Whicker*.
54. *Catuna crithea* (Drury).
Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 178.
Coll. *Büttikofer*.
55. *C. angustata* (Feld.)
Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 179.
Coll. *Büttikofer*.
56. *C. rectecostata*, Ritsema.
Bütt. *t.c.* p. 482.
Coll. *Büttikofer*.
57. *C. oberthuri*, Ritsema.
Bütt. *t.c.* p. 482.
Coll. *Büttikofer*.

58. *Cynandra opis* (Drury).
 Bütt. *t.c.* p. 482; Auriv. *t.c.* p. 179.
 Coll. Büttikofer, Reynolds.
59. *Aterica cupavia* (Cram.)
 Bütt. *t.c.* p. 482; Auriv. *t.c.* p. 180.
 Coll. Büttikofer.
60. *Hamanumida dædalus* (Fabr.)
 Bütt. *t.c.* p. 482; Auriv. *t.c.* p. 181.
 Coll. Büttikofer, Reynolds, Whicker.
61. *H. meleagris* (Fabr.)
 Bütt. *t.c.* p. 482; Auriv. *t.c.* p. 181.
 Coll. Büttikofer.
62. *Euphædra eleus* (Drury).
 Bütt. *t.c.* p. 482; Auriv. *t.c.* p. 185.
 Coll. Büttikofer, Whicker.
63. *E. perseis* (Drury).
 Bütt. *t.c.* p. 482; Auriv. *t.c.* p. 185.
 Coll. Büttikofer.
64. *E. zampa*, Westw.
 Bütt. *t.c.* p. 482; Auriv. *t.c.* p. 186.
 Coll. Büttikofer.
65. *E. ceres* (Fabr.)
 Auriv. *t.c.* p. 187.
 Coll. Reynolds, Whicker.
66. *E. ravola*, Hewits.
 Bütt. *t.c.* p. 482; Auriv. *t.c.* p. 187.
 Coll. Büttikofer.
67. *E. themis*, Hübn.
 Bütt. *t.c.* p. 482; Auriv. *t.c.* p. 188.
 Coll. Büttikofer, Whicker.
68. *E. gausape*, Butl.
 Bütt. *t.c.* p. 482; Auriv. *t.c.* p. 189.
 Coll. Büttikofer, Reynolds.
69. *E. campaspe* (Feld.)
 Auriv. *t.c.* p. 188.
 Coll. Reynolds.
70. *E. xypete*, Hewits.
 Bütt. *t.c.* p. 482; Auriv. *t.c.* p. 189.
 Coll. Büttikofer.

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71. *E. eupalus* (Fabr.)
 Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 190.
 Coll. *Büttikofer, Whicker.*
72. *E. harpalyce* (Cram.)
 Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 190.
 Coll. *Büttikofer, Reynolds.*
73. *E. losinga*, Hewits.
 Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 191.
 Coll. *Büttikofer.*
74. *Euryphene cutteri*, Hewits.
 Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 198.
 Coll. *Büttikofer.*
75. *E. lesbonax*, Hewits.
 Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 198.
 Coll. *Büttikofer.*
76. *E. cocalia* (Fabr.)
 Auriv. *t.c.* p. 198.
 Coll. *Reynolds.*
77. *E. phantasia*, Hewits.
 Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 199.
 Coll. *Büttikofer.*
78. *Diestogyua milnei* (Hewits.)
 Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 203.
 Coll. *Büttikofer.*
79. *D. veronica* (Cram.)
 Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 203.
 Coll. *Büttikofer.*
80. *Cymothæ althea*, Drury.
 Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 213.
 Coll. *Büttikofer.*
81. *C. jodutta* (Westw.)
 Auriv. *t.c.* p. 215.
 Coll. *Whicker.*
82. *C. ehmckeï*, Dewitz.
 Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 215.
 Coll. *Büttikofer.*
83. *Euxanthe ansellica* (Butl.)
 Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 221.
 Coll. *Büttikofer.*

• Fauna : Invertebrates

84. *Charaxes etheocles* (Cram.)
Auriv. *t.c.* p. 237.
Coll. *Reynolds.*
85. *C. tiridates* (Cram.)
Auriv. *t.c.* p. 239.
Coll. *Reynolds.*
86. *C. ameliæ*, Doumet.
Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 240.
Coll. *Büttikofer.*
87. *C. decius* (Cram.)
Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 242.
Coll. *Büttikofer, Whicker.*

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88. *Abisara gerontes* (Fabr.)
Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 20.
Coll. *Büttikofer.*
89. *Larinopoda lircaea* (Hewits.)
Auriv. *t.c.* p. 272.
Coll. *Whicker.*
90. *Megalopalpus zymna* (Doubl. & Hewits.)
Bütt. *t.c.* p. 482 ; Auriv. *t.c.* p. 300.
Coll. *Büttikofer.*
91. *Lachnocnema bibulus* (Fabr.)
Bütt. *t.c.* p. 483 ; Auriv. *t.c.* p. 301.
Coll. *Büttikofer.*
92. *Oxylides faunus* (Drury).
Bütt. *t.c.* p. 483 ; Auriv. *t.c.* p. 312.
Coll. *Büttikofer.*
93. *Castalius isis* (Drury).
Bütt. *t.c.* p. 483 ; Auriv. *t.c.* p. 364.
Coll. *Büttikofer, Reynolds.*
94. *Euchrysops hippocrates* (Fabr.)
Bütt. *t.c.* p. 483 ; Auriv. *t.c.* p. 376
Coll. *Büttikofer.*
95. *Cupido micylus* (Cram).
Bütt. *t.c.* p. 483 ; Auriv. *t.c.* p. 377.
Coll. *Büttikofer.*

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96. *Azamus occidentalis*, Butl.
Auriv. *t.c.* p. 366.
Coll. *Reynolds*.

PIERIDÆ

97. *Pseudopontia paradoxa* (Feld.)
Bütt. *t.c.* p. 483 ; Auriv. *t.c.* p. 386.
Coll. *Büttikofer, Whicker*.
98. *Leptosia alcesta* (Cram.)
Bütt. *t.c.* p. 483 ; Auriv. *t.c.* p. 387.
Coll. *Büttikofer*.
99. *Mylothris poppea* (Cram.)
Bütt. *t.c.* p. 483 ; Auriv. *t.c.* p. 393.
Coll. *Büttikofer, Reynolds*.
100. *Appias sylvia* (Fabr.)
Bütt. *t.c.* p. 483 ; Auriv. *t.c.* p. 398.
Coll. *Büttikofer, Reynolds*.
101. *A. phileris* (Boisd.)
Bütt. *t.c.* p. 483 ; Auriv. *t.c.* p. 398.
Coll. *Büttikofer*.
102. *A. phaola* (Doubl.)
Auriv. *t.c.* p. 398.
Coll. *Reynolds*.
103. *A. eudoxia* (Cram.)
Bütt. *t.c.* p. 483 ; Auriv. *t.c.* p. 398.
Coll. *Büttikofer*.
104. *Pieris calypso* (Drury).
Bütt. *t.c.* p. 483 ; Auriv. *t.c.* p. 409.
Coll. *Büttikofer, Reynolds, Whicker*.
105. *Teracolus evippe* (Linn.)
Bütt. *t.c.* p. 483 ; Auriv. *t.c.* p. 432.
Coll. *Büttikofer, Reynolds, Whicker*.
106. *Eronia poppea*, *Donov*.
Bütt. *t.c.* p. 483 ; Auriv. *t.c.* p. 446.
Coll. *Büttikofer*.
107. *Catopsilia florella* (Fabr.)
Auriv. *t.c.* p. 449.
Coll. *Reynolds, Whicker*.

Fauna: Invertebrates

108. *Terias brenda*, Doubl. & Hewits.
Bütt. *t.c.* p. 483 ; Auriv. *t.c.* p. 451.
Coll. Büttikofer, Whicker.
109. *T. floricola*, Boisd.
Bütt. *t.c.* p. 483 ; Auriv. *t.c.* p. 452.
Coll. Büttikofer.
110. *T. leonis*, Butl.
Ann. & Mag. Nat. Hist. (5), xvii. p. 222, pl. v.
fig. 6 (1886).
Coll. Reynolds.

PAPILIONIDÆ

111. *Papilio zalmoxis*, Hewits.
Auriv. *t.c.* p. 462.
Coll. Reynolds.
112. *P. dardanus*, Brown.
Auriv. *t.c.* p. 464.
Coll. Whicker.
113. *Papilio merope*, Cram.
Bütt. *t.c.* p. 483 ; Auriv. *t.c.* p. 464.
Coll. Büttikofer.
114. *P. zenobia*, Fabr.
Bütt. *t.c.* p. 483 ; Auriv. *t.c.* p. 469.
Coll. Büttikofer.
115. *P. nireus*, Linn.
Auriv. *t.c.* p. 475.
Coll. Whicker.
116. *P. bromius*, Doubl.
Bütt. *t.c.* p. 483 ; Auriv. *t.c.* p. 476.
Coll. Büttikofer.
117. *P. demodocus*, Esper.
Auriv. *t.c.* p. 477.
Coll. Reynolds, Whicker.
118. *P. menestheus*, Drury.
Auriv. *t.c.* p. 478.
Coll. Reynolds.
119. *P. tyndæus*, Fabr.
Bütt. *t.c.* p. 483 ; Auriv. *t.c.* p. 482.
Coll. Büttikofer.

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120. *P. leonidas*, Fabr.
Bütt. *t.c.* p. 483 ; Auriv. *t.c.* p. 487.
Coll. Büttikofer, Reynolds.
121. *P. policensis*, Cram.
Bütt. *t.c.* p. 483 ; Auriv. *t.c.* p. 490.
Coll. Büttikofer, Reynolds, Whicker.

HESPERIDÆ

122. *Tagiades fesus* (Fabr.)
Bütt. *t.c.* p. 483 ; Holland, *P. Z. S.* 1896, p. 16.
Coll. Büttikofer.
123. *Hidari canira* (Hewits.)
Bütt. *t.c.* p. 483 ; Holland, *P. Z. S.* 1896, p. 82.
Coll. Büttikofer.
124. *Plesioneura vulpinus*, Hewits.
Coll. Büttikofer.

HETEROCERA (Moths)

SPHINGIDÆ

125. *Daphnis nerii*, Linn.
Coll. Büttikofer.
126. *Nephele accentifera*, Pal. de B.
Coll. Reynolds.

SATURNIADÆ

127. *Antheræa cafraria*, Stoll.
Coll. Büttikofer.
128. *Copaxa arnobia*, Westw.
Coll. Whicker.

AGARISTIDÆ

129. *Xanthospilopteryx geryon*, Fabr.
Coll. Whicker.
130. *X. euphemia*, Cram.
Coll. Büttikofer.
131. *Metagarista triphanoides*, Walk.
Coll. Whicker.
132. *Massaga maritona*, Butl.
Coll. Whicker.

Fauna : Invertebrates

133. *Massagida hesperia*, Cram.
Coll. *Whicker*.

EUCHROMIIDÆ

134. *Glaucopis lethe*, Fabr.
Coll. *Büttikofer*.

LYMANTRIADÆ

135. *Aroa xanthuspila*, Blötz.
Coll. *Büttikofer*.

NOCTUIDÆ

136. *Nyctipao macrops*, Linn.
Coll. *Whicker*.
137. *Cyligramma limacina*, Guér.
Coll. *Büttikofer*.
138. *Ophisma praestans*, Guér.
Coll. *Büttikofer*.
139. *Sarothripa indica*, Feld.
Coll. *Büttikofer*.
140. *Dichromia banaka*, Plötz.
Coll. *Büttikofer*.
141. *Prodenia litteralis*, Boisd.
Coll. *Büttikofer*.

GEOMETRIDÆ

142. *Aletis helcita*, Clerck.
Coll. *Büttikofer*, *Whicker*.
143. *Eumelea fulvata*, Drury.
Coll. *Büttikofer*.
144. *Thalassodea quadraria*, Guér.
Coll. *Büttikofer*.

PYRALIDÆ

145. *Spilomela podalirialis*, Guér.
Coll. *Büttikofer*.
146. *Phakellura capensis*, Zell.
Coll. *Büttikofer*.

FORTRICIDÆ

147. *Conchylodes diaphana*, Stoll.
Coll. *Büttikofer*.

CHAPTER XXVII

ANTHROPOLOGY: ORIGIN AND HISTORY OF THE NATIVE RACES OF LIBERIA

THE greater part of the first volume of this book has been taken up by the history and description of the present condition of some 12,000 to 15,000 Negroes and half-castes of American origin. It is these people, after all, who have given Liberia its name and the special interest that it bears amongst the nations of the world, in that it is an attempt to educate the Negro on reasonable lines to more complete self-government—self-government of the white man's and not of the black man's type. But although these 12,000 Negroes from America or of American origin may permeate this country and serve as interpreters of its aspirations and desires in the councils of the world, in the long run the prosperity of Liberia will rest chiefly on the shoulders of its indigenous population. If an estimate may be hazarded that the number of Americo-Liberians at present living in this country is 12,000, then by similar methods of computation the population of indigenous Negroes may be placed at something like *two millions*. The calculations of this rough census are based on such information as has been collected from native chiefs, Americo-Liberian officials and traders, the British employés of the Chartered and Rubber Companies, and the reports of French and British explorers. It was compiled by the author of this



316. A MANDINGO FROM THE UPPER ST. PAUL'S RIVER

Liberia

book in 1904, and has since been revised by him in relation to the latest information received from French sources :

LOCALITY	NAME OF TRIBE	APPROXIMATE NUMBERS
Coast region of Western Liberia, between the Mano district and the St. Paul's River	Vai	100,000
North of the Vai and south of Boporo ...	Gbandi	150,000
Round about Boporo	A mixture of peoples : Kondo, Mandingo, Kisi, etc. in Boporo	20,000
North-west of Boporo	Kisi	50,000
North of the Kisi district, and as far east as the Upper St. Paul's River	Buzi ¹ or Beila	100,000
Beyond the Buzi, up to the northernmost limits of Liberia, and stretching thence outside the forest region to the northwards	Mandingo	150,000
West of the lower and middle St. Paul's River, and in the vicinity of Monrovia, generally in scattered colonies	Dē ²	20,000
On both sides of the St. Paul's River, but chiefly on the east bank	Gora ³	150,000
North of Monrovia, on the east side of the St. Paul's River, and thence stretching along the coast and nearer hinterland, eastwards as far as the Sangwin River ...	Basā-Gibi	250,000
East of St. Paul's River, and north of the Basā-Gibi district, east of the Gora people, but passing on the north-west imperceptibly into the Buzi tribe, and on the north-east reaching to the vicinity of the Cavalla River	Kpwesi ⁴	300,000
In the coast region east of the Basā tribes, from the River Sangwin eastwards to Grand Sesters River	Kru	200,000
East of the Kru people, to the mouth of the Cavalla River	Grebo	60,000
Behind the Kru coast, and throughout the interior of Eastern Liberia, as far north as the western bend of the Cavalla	Sikoñ, Putu, Sapo, and all other peoples whose tribal names end in <i>-po, -bo, -bwe</i>	300,000
To the west of the Upper Cavalla, and about the Nimba Mountains	Vaya, Mboro, Goñ, Ngere ⁵	150,000
Total indigenous population		2,000,000

¹ The Buzi people in language are almost identical with the Beila and Kpwesi, and are no doubt nothing but a branch of that tribe which occupies so much of Central Liberia. Their northern representatives are called Toma by the French.

² The Dē people in speech are closely allied to the Krus, representing the westernmost extension of the Kru tribes.

³ For some reason, though the name of this tribe is distinctly pronounced *Gora*

• Anthropology: Historical

The languages used by the various peoples of Liberia will be described in due course. I propose now to treat of the anthropology and ethnology of the Liberian Negroes. So far as these peoples have come under the observation of the author of this book or of the very few travellers, such as Captain d'Ollone, who have recorded their impressions either in words or with the camera, they may be divided roughly into three main stocks: MANDINGO, KPWESI, and KRU, with various interminglings of the different racial types where one impinges on the other.

So very little is as yet known about the central parts of Liberia that it is too soon to say that we have found no trace of any older Pygmy stock in the dense forests. A Pygmy race, indeed, is reported to exist in the Central Liberian Forest, north of the Farmington River. Hitherto, however, no traveller has seen any example of these dwarfs or any type that recalls the Pygmy peoples found here and there in the basin of the Congo, in the far interior of the Cameroons, in Southern or Eastern Africa.

In fact, it may be stated generally that no trace of the Congo Pygmy⁶ or of the Bushman type has ever yet been

by itself and the surrounding tribes, it has generally been rendered "Golah" by the Americo-Liberians. The first person to record the existence of these people was Koelle, and he writes the word Gura. The name is pronounced as though it was written in English Gohra.

⁴ In the northern regions this tribe is generally known as Beila, Gbele, or Bere, and in the north-west as Gbalin, a name incorrectly rendered in early maps of Liberia as "Barline." This congeries of peoples generally knows itself as Gbele, but for some reason is called by most of the surrounding tribes Kpwesi. Other sections of this tribe north of the Beila or Gbele are known as Gizima or Buni.

⁵ These peoples are inserted on the authority of Captain d'Ollone's *De la Côte d'Ivoire*, etc. Very little is known about these peoples, who may be affiliated to the great Kpwesi race or to the Kru stock, more probably to the former.

⁶ British anthropologists seem to be arriving at the conclusion that the Congo Pygmies do not constitute a homogeneous type of Negro clearly marked

Liberia

found living or dead or represented by its special stone implements in any part of West Africa west of the Niger Delta. Stone implements have been found in abundance in the soil



317. AN AMERICO-LIBERIAN

of the Gold Coast regions, and no doubt will be found yet in Liberia and many other parts of Guinea ; but I believe that

off from the main stock in the same way as the South African Bushman. They are rather arrested, infantile, or degenerate groups of the Nilotic or Bantu Negroes produced by the depressing conditions of the dense forest. The author of this book believes them in the main to be the dwindled descendants of the earliest pioneers of the true Negro stock (as compared with the divergent Bushmen). Their most typical physical feature is the large, broad, flattened nose, with prominent *alæ*.

• Anthropology: Historical

such a distinctive Bushman implement as the perforated stone used as a weight for the digging-stick, or any other stone implement or weapon connected with the Bushman races of South or East Africa has not yet been found in the west. At any day, however, a discovery may be made which will nullify this statement. Our knowledge of tropical Africa is so scanty that



318. A KWESI MAN FROM CENTRAL LIBERIA

no wise man would make rash declarations at the present time in denying the past or present existence of this or that type in such and such a country.

In parts of Nyasaland I have seen cropping out amongst the Bantu tribes many a type of face strikingly like the Hottentot or the Bushman, and the same thing has occurred

to me on the plateaux of Eastern Africa amongst the Andorobo. Likewise, two or three hundred miles east of the Congo Forest I have seen the Congo Pygmy type with the squashed nose appearing in tribes of mixed origin. This also occurs in the eastern parts of the Bahr-al-Ghazal region of the Egyptian Sudan and perhaps as well to the north and south of the River Benue. But I have never seen the physical characteristics of the Bushman, nor, as yet, those of the Congo Pygmy, in any of the West African peoples; though when visiting Portuguese Guinea in 1883 I realised that there were West African savages with prognathous profiles and savage appearance.

Specimens of the Kpvesi peoples of Central Liberia seem to be of somewhat more primitive physical type than the rest of the Liberian peoples. They have disproportionately long arms and short legs, like some of the races on the north-eastern flanks of the Congo Forest. The nose has a depressed bridge, but though it is broad and rather flat at the tip, the cartilage of the nostrils is thin, and does not exhibit the flattened snout of the Pygmy with the *alæ* of the nose on a level with the apex. Occasionally rather a prognathous type shows itself amongst the Kruboyes or their interior relations, the Putu. But as a rule the indigenous Negroes of Liberia are by no means of low or primitive stock. Many of them exhibit yellow-brown skins and considerable physical beauty in the proportions and contours of the body and limbs and even of the face. Wherever this handsome appearance occurs in the features it is due of course to an infusion, more or less ancient, of Caucasian blood.

This ancient infiltration of the Caucasian in Liberia is due in the main to the Negroid styled generically Mandingo, and the history of the Mandingo race is probably this :



319. A TYPICAL "KRUBOY" (FROM NANA KRU)

Liberia ☞

At some unknown period in the history of human movements in Africa, at a time when the pure Negro had occupied in force the whole of West Africa south of the Niger and the Senegal (no doubt licking up and absorbing foregoing Pygmy or Bushman races) there must have wandered across the Sahara Desert, along the Atlantic coast or across the Sudan from Egypt, *viâ* Lake Chad, to the Upper Niger, the pioneers of the Caucasian in some such form as the Libyan, that remarkable race which at the present day in spite of numerous Arab conquests still dominates the Sahara Desert and a good deal of North Africa from the shores of the Mediterranean to the Senegal, the Niger, and Lake Chad. The Libyan, who fuses by imperceptible gradings into the Berber, the Iberian, and the dark-haired white man of the Mediterranean, is a direct descendant from the original Dravidian stock which developed into the Caucasian race. He is fundamentally the basic race of North Africa, Ancient Egypt, Syria, and Southern and Western Arabia. These Libyans, with the closely allied Hamites (who speak cognate languages, and who possibly only differ from the Libyans by greater admixture of Dravidian and early Negro blood) dominate the whole third of Africa north of the Senegal, Lake Chad, the Bahr-al-Ghazal, and the Blue Nile. It is they who throughout this long line of attack have pertinaciously interfered with the Negro for thousands of years, before the European Renaissance and the development of sea navigation sent the races of Northern and Western Europe to attack Negroland from its ocean coasts. This early Caucasian Libyan type did its best to save the Negro from relapsing into the condition of an anthropoid ape.

When the first Negroes reached Africa they were in the earliest Stone Age. They might not even have known the use of fire, or rather, the way to make fire (as is the case with



320. A GOOD-LOOKING TYPE OF VAI WOMAN (FROM VANSWA, NEAR MONROVIA)

Liberia ☛

some Pygmy tribes at the present day). They may have only known the effects of fire through the lightning constantly setting the bush aflame in the Tornado season. After the bush fires thus caused they would have revelled in the taste of roasted meat by devouring the flesh of rats, snakes, lizards, birds, and big beasts scorched or grilled by the flames that had come down from heaven. The present writer has so frequently witnessed the ignition of the African bush by flashes of lightning that he can well realise how the Negro may have even been led into the use of fire by keeping alive and feeding the remains of a conflagration caused by the electric fluid. It is very possible that he knew nothing about an artificial means of making fire until he first came into contact with the pioneers of the white race. They taught him later the use of metals and how to obtain metallic ore by mining or smelting.

They brought him all his domestic animals and birds not of recent American or Indian origin ; and they likewise introduced all the cultivated plants he knew before the discovery of America further enriched his agriculture. It is a remarkable fact that putting aside everything which has been introduced into Africa since the discovery of America, all the previously existing domestic beasts, birds and cultivated plants found in the Dark Continent were of Asiatic or North-East African origin. The Egyptians were, of course, the main benefactors of Negro Africa. A pale reflex of their wonderful civilisation had reached their Libyan brethren along the Mediterranean littoral, and these did little more in the extreme west than spread a faint imitation of Egyptian culture.

It is to be supposed therefore that an unknown number of thousands of years ago—at least three or four thousand—there was a decided influx of Libyans along the northern banks of the Niger and Senegal. Here they first traded and then

• Anthropology: Historical

interbred with the border tribes of Negroes. Pushed southwards by other arrivals from the north and east, they crossed the Senegal, no doubt in small numbers, and for their long hair and light skins were received possibly as reverentially by the savage Negroes as were the Galas of a similar past in Unyoro and Uganda. From out of one of these early mixtures between the Libyan and the Negro arose that remarkable people, the Fula.¹ Some of the Fula traditions or the stories told by Arab or Berber historians about the Fula make out that they were dwelling in the steppe country north of the Senegal at one time, that they were formed there, in fact, by some hybrid between the Libyan and the Negro, and that it was only by the further impact of Libyan immigration that they were forced to cross the Senegal to their first great centre of development, the country of Futatoro.² These legends may be only the invention of Arab historians. On the whole, it is most probable that the Fula race was formed by the infiltration of Libyans into the Negro countries south of the Senegal.

The Fula race being once strongly established as a fairly uniform Negroid type, almost half and half in its equal proportions of Caucasian and Negro blood, proceeded by further intermixture with the surrounding Negro races to carry on the infiltration of the Caucasian. This process no doubt continued

¹ After some hesitation I decided that it would be most convenient to my readers if throughout this book the form "Fula" was adopted as an unchanging name for this race and its language. The actual forms which this root assumes are as follows: *Pulo* (sing.) is a Fula individual; *Fulbe*, the same word in the plural, means the Fula race; *Fulfulde* is the language; and so on: but the root for all these being *Ful* or *Pul*, and this root being frequently turned into *Fula* by the surrounding tribes, this last forms on the whole the most convenient general designation in a European language.

² This district along the Lower Senegal is still the largest agglomeration of the Fulbe. Futa Jalo or Jalon is the next largest: the geographical term "Futa" seems to be much connected with the distribution of the Fula people.

for centuries and centuries before the religion of Islam sent Arabs and Berbers plunging into the regions of the Niger to bring great reinforcements to the white race. Quite probably in the early days, before the time of Christ—at such a period, for example, as that in which Hanno sailed down the West Coast of Africa—the Fulas, and that earlier Negroid, the Wolof, may have been the intermediaries who carried on the limited commerce between the Libyans on the north (with whom the Carthaginians had much in common) and the Negroes to the south of the Senegal. When dealing with the history of the discovery of West Africa in earlier chapters, I have indicated that some of the interpreters alluded to by Hanno may have been of Fula or Wolof origin, and that the very word *gorilla* (applied to the “wild men” or apes captured by the Carthaginian expedition on the island of Sherbro) was possibly from the Fula or Wolof languages, very likely a combination simply meaning “wild man,” derived from the Fula and Wolof root *gor*, which means “man.”

The Mandingo race may have originated from one of these minglings of the Fula with the Negro. No doubt the physical type, which is three-quarters or seven-eighths Negro in its average aspect, was further modified by those invasions of Arabs and Tawareq which so profoundly affected the history of the whole Niger basin after the ninth century of the present era. Pilgrimages to and from Mecca, which took thousands and thousands of Muhammadanised Negroes from the Mandingo countries to Arabia and the Egyptian Sudan, reinforced this—one might almost say Semitic—element in the Mandingo; because many of the pilgrims brought back with them from the countries round the Red Sea slave-wives of Negroid type resulting from Arab and Egyptian intermixture with the Nile Negroes. The Melli (?Mandingo) empire—the first great Muhammadan



321. A MANDINGO FROM NORTHERN LIBERIA

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state in Nigeria—which arose and flourished in Nigeria before the foundation of Timbuktu in the twelfth century, also reinforced West Africa with a foreign element, bringing more of the blood, customs, and civilisation of Morocco and the East into savage West Africa.

A little of this northern strain, this faint trace of Caucasian intermixture, trickled through the forests of Liberia till it affected even some of the coast populations. As tribe upon tribe pressed down from the open country on the north through the forests to the sea-coast while that great hive of nations on the Mandingo plateaux sent forth swarm after swarm of emigrant peoples, the more bestial and degraded types of Liberian Negroes were consumed (perhaps in more senses than one), destroyed, driven into the sea, enslaved by the oncomers from the north. (What tiny element of the Caucasian there is in the bodies of the modern Krumen, in the Vai, the Basā, or the Gora may have been acquired before their forefathers left the open country on the north to force their way through the forests to the sea-coast, to the region where salt could be obtained.

The craving for salt was at the bottom of many of these race migrations in Africa, the trend of which has been with rare exceptions from north to south and east to west.¹ The Negroes and Negroids who dwelt on the Mandingo plateaux, about the sources of the Niger and the upper waters of the Senegal, could obtain salt by traffic with the Negroids and Caucasians south of the Sahara Desert, who worked the salt-

¹ Very rarely, and recently, from west to east, and from the south northwards. Race movements thus "against the grain" of Africa have been the Libyan invasions of Morocco in the twelfth century, the Fula irruption into Central Africa in the eighteenth century, the Zulu marches into Eastern Africa in the early nineteenth century, and the European invasions of Western and Southern Africa during the last hundred years.

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mines of those regions from an early period. When overpopulation, civil wars, the necessity for emigration forced sections of people to leave the plateaux and wander in search of a new home, they were attracted by stories which reached them, through predecessors, of the great salt water that lay beyond the forest, the water which on drying or evaporating left behind it that precious condiment, salt, which had become of supreme necessity to man. Some of the tribes had learnt (as in East Africa) how to make salt from potash, by burning reeds and extracting salt from the lye. But this was a procedure not easily effected out of the open country, in the dense forest. Those people who stayed in the forest from choice or necessity were forced to keep up some kind of commerce with the people on the sea-coast, or the people to the north on the open plateau, in order to get supplies of salt. Whether or not cannibalism arose from this longing for salt and the satisfaction which was derived from the salt-tasting blood of man, is an undecided point. Cannibalism must have arisen as a purely human practice, because amongst the apes and monkeys that are known to us there is not a trace of such a practice, rather a horror of it, even though some apes, baboons, and monkeys are slightly carnivorous.

Islam must have penetrated through Liberia to the coast in what is now called the Vai country before, or at least simultaneously with, the arrival of the first Europeans. A certain degree of Muhammadan civilisation, and the use of clothing specially connected with that civilisation, is noted amongst the Vai people, at any rate as far back as the sixteenth century.

Long prior to this, however, the civilisation of the north had brought to the Negroes of Liberia modifications of their purely savage life. No doubt two thousand years ago they

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had begun to learn the use of metals and were leaving the Stone Age. They had already received from the north a domestic ox, and earlier still the goat and the sheep. The dog no doubt had accompanied them to Liberia at a most remote period, thousands and thousands of years ago, though it, like most of the Negro's domestic animals, came from the east and north. The domestic fowl began to enter this region, one might say at a guess, about fifteen hundred years ago.¹

Perhaps about the same time the Guinea corn (sorghum) and eleusine were introduced, having found their way overland from Egypt *viâ* Lake Chad to the Niger and thence to the Mandingo Plateau. Rice may have been cultivated about eight or nine hundred years ago, having first been brought by the earliest Arab traders and settlers to the Niger regions. Whether the sugar-cane was introduced in the same way, or much later by the Portuguese direct from America, is not certain. It would almost seem as though the sugar-cane (from the Oriental region) had been brought across Africa from Egypt to the Niger and up the Niger to the Senegal and so on to the Wolof country at the mouth of that river, by Arabs or Islamised Berbers. From the mouth of the Senegal it may have crept down the West African coast from river to river till it reached Liberia and passed on beyond. It is equally probable, however, that the sugar-cane (which reached the Mediterranean by means of the Arabs [Saracens]) was carried from the Mediterranean to the Atlantic islands by the Portuguese and Spanish, and thence found a fresh home in Tropical America, from which it was introduced into the coast-lands of Sierra Leone and Liberia by the Portuguese navigators in the sixteenth century.

¹ My reasons for asserting this recent introduction of the domestic fowl have been given in previous writings on East Africa. The fowl did not reach Egypt till after the Persian invasion, in B.C. 400 (about).

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These people, who were the great benefactors of East and West Africa as regards the introduction of new food products, also brought to Liberia the pineapple, guava, tomato, capsicum (red pepper), sweet potato, maize, cassava (*Manihot*), papaw, the orange and lime, and the short form of banana.¹ The coffee tree is an indigenous form ; cacao was only introduced towards the close of the nineteenth century ; castor-oil is also indigenous, though it may possibly have come from the more northern regions ; the bread-fruit and mango have also been introduced during the nineteenth century. The origin of the coconut palm is uncertain, and has been already commented on. The cocco yam or edible arum (*Colocasia*) is of African origin, and may have found its way hence from the more eastern regions. The cotton plant is partly indigenous and partly derived from cultivated forms introduced from Egypt or America. Onions were originally brought by the Arabs to the Niger regions, and were introduced by the Mandingo into Liberia.² There remains only to be considered the origin of the ground-nut (*Arachis* and *Voandzeia*), which is still very uncertain. Some authorities think that ground-nuts are indigenous to Africa, others that the genus *Arachis* had its home in South America. On the whole the balance of origin seems in favour of an African or Oriental origin, and that these forms were early introduced from West Africa—Senegambia—into Tropical America. *Voandzeia* is a native of Madagascar.

As regards domestic animals, the dog was the earliest in Negroland, and then after a very long interval—an interval during which Liberia's Miocene forests may still have been

¹ The long banana or plantain seems to have existed in Tropical Africa from a very distant period. It must have been introduced from India unless (which does not seem likely) it was developed from the indigenous wild *Musa*.

² But also into Vai-land by the Portuguese. One of the Vai names for onion is *sipara*—a corruption of the Portuguese *cebola*.

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unpenetrated by man—came the goat from Egypt, and the sheep from the same direction. Then the ox in its two African types, one of which is represented in Liberia. In all probability there existed once in North-eastern Africa a type of wild ox which was a connecting link between the wild Indian cattle (*Bos indicus*, long since extinct, the parent of the humped zebu breed), and *Bos taurus*, the ancestral type of our own domestic cattle. This intermediate ox is generally known in its domesticated descendant as *Bos ægyptiacus*. It is almost, if not quite, without a hump on the shoulder, though the spines of the vertebræ have a tendency to be rather longer, to rise more in a ridge at the shoulder than is the case with *Bos taurus*. There is a considerable dewlap, the size of the animal is large, and the colour of its coat (in the unmixed type) is uniform,¹ generally a light brown with whitish marks round the muzzle and hoofs.

The horns are the most remarkable feature in this species of ox. They are cylindrical, of very great length, generally longest in the cows, and compared with those of *Bos taurus* they take a different direction in growth.² Instead of rising to little above the height of the forehead and making their circular curve horizontally, they are turned upwards and backwards in the form indicated by the accompanying drawing. Sometimes there is a slight approximation between the points which produces an outline like a squat lyre. In the direction of the horn growth there is no great difference between this type and the Indian ox (*Bos indicus*), but in size and length the advantage in favour of these Egyptian cattle is

¹ By intermixture with the Indian ox or from inherent tendency to vary, the long-horned Egyptian cattle may be all-white or pied, and mottled with white. They may also be all-black. Their normal colour is light brown.

² The females of *Bos taurus* approximate much to *Bos ægyptiacus* in the direction of their horns.

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remarkable ; there is no known wild ox, except two or three kinds of extinct buffalo, which develops horns of such enormous length. In the size (but not in the direction) of their horns



322. HORNS AND HEADS OF DOMESTIC OXEN OF AFRICAN AND EUROPEAN TYPES

1. *Bos aegyptiacus* from Uganda and Northern Nigeria. 2. *Bos taurus* (white park cattle and Kerry cow).
3. Mandingo cow (probably hybrid between 1 and 2).

they differ from the Indian cattle, as also in the relatively straight back without a hump, the plain uniform coloration, and some other points less easily discernible. From the male of the *Bos taurus* type they are distinguished by the different

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direction of horn growth, the longer and narrower head, and the absence of all mane or growth of curly hair about the neck, forehead, and back.

This long-horned Egyptian ox was first domesticated in Egypt, and thence spread northwards through Syria into Eastern Europe and the Mediterranean regions, permeating by its influ-



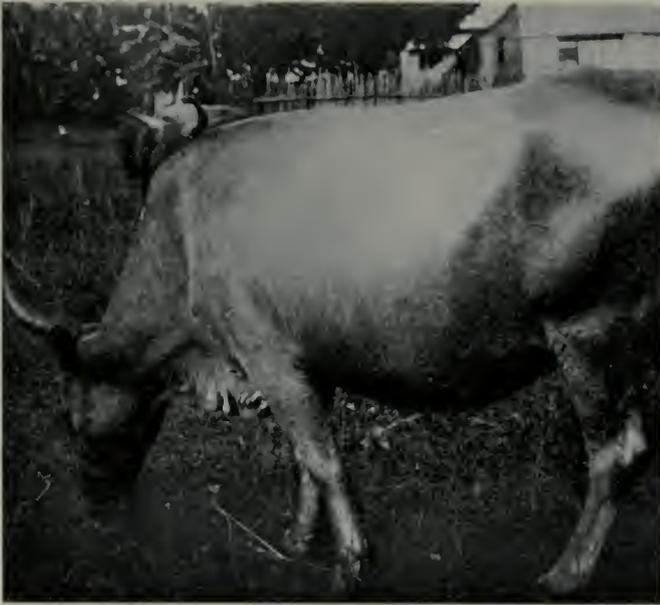
323. MANDINGO COW

ence many of the breeds of cattle in Eastern, Southern, and Western Europe. Perhaps the farthest extension northwards and westwards of the influence of this breed was to Normandy and the Channel Islands. In the Jersey cattle we can see just a faint trace of the influence of this Egyptian breed. In Africa the long-horned cattle found their way southwards into

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the Egyptian Sudan and westwards to Lake Chad and the Niger. In Galaland and parts of Abyssinia they became the dominant breed, and from these regions they were brought by Gala immigrants into the regions about the Great Lakes, perhaps even mingling their strain with the Indian breed, as far south as German East Africa.

The humped or Indian type of ox, derived no doubt



324. THE STRAIGHT-BACKED MANDINGO OX

separately from a wild form, *Bos indicus*, at a relatively early period reached Egypt and East Africa *viâ* Arabia. The Hottentots when they migrated southwards from East Africa seem to have brought with them some of the long-horned breed, though it is possible that the long-horned, big-framed cattle of South Africa and Madagascar arose almost entirely from the cattle introduced from Spain, in which, however, there was a marked

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strain (in some districts) of the Egyptian breed. But most of the cattle in the possession of the Bantu races, if not of the Hottentots, at the time when Europeans first came into contact with South Africa, belonged to the smaller, humped Indian type. This same Indian breed also found its way into Eastern Africa, where it became the dominant race, and is such at the present day (the Masai cattle belong to this stock). Thence, by way of the Great Lakes, it reached the southern and western portions



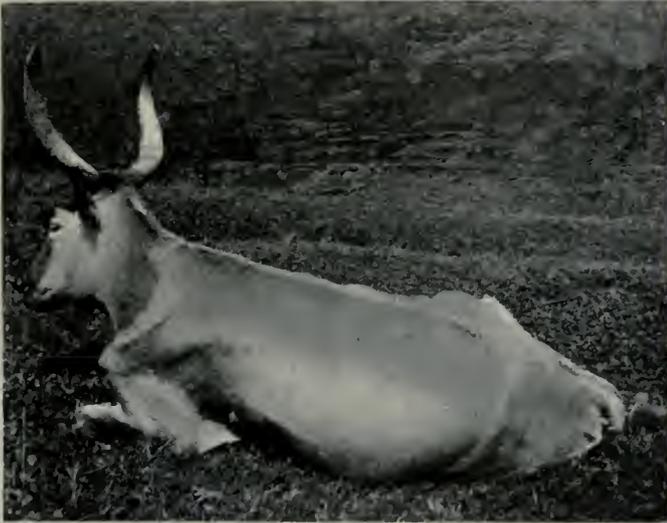
325. MANDINGO CATTLE, SIERRA LEONE

of the Congo Basin. Skirting the forest region on the north, into which cattle have very rarely penetrated, it was carried across Africa in ancient times *viâ* Lake Chad and the Niger, and from the regions of the Niger found its way along many paths to the coast of Guinea. The indigenous domestic cattle of the Lower Niger regions are all of this humped, spotted type. But I do not think that the humped type of ox has wandered farther west in Africa than the Gold Coast and the regions behind, in the bend of the Niger. I have seen no trace of the Indian type of ox, for example, in Liberia or in Sierra Leone,

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though it is possible some forms of it have reached the Gambia.

The black and white or brown and white dwarf small-horned cattle which are the dominant breed in the coast regions of Liberia seem to be entirely of European origin and to have come from Holland. The other type of Liberian cattle, generally called the Mandingo ox, is an interesting form, which



326. MANDINGO COW, LIBERIA

in some respects suggests a dwarf variety of the Egyptian long-horned, straight-backed, uniform-coloured cattle. But I am inclined to think that this Mandingo ox, which is the dominant type of the Mandingo Plateau and the regions of the Upper Niger, Senegal, Sierra Leone, and the western Fula countries, is a hybrid between *Bos taurus* and *Bos aegyptiacus*. As will be seen from my photographs and drawings, done from specimens of these cattle in Liberia and Sierra Leone, the horns do not take

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the direction characteristic either of the Egyptian or the Indian breed, but rather that of *Bos taurus*. On the other hand, in the plain colour, the want of curly hair on head and neck, and the long spines of the neck vertebræ they resemble the Egyptian species. The history of this breed is possibly something of this kind : Fundamentally it belongs to the Egyptian stock, which



327. MANDINGO HEIFER

in early days travelled from east to west across Africa by way of Lake Chad and the Niger to the Mandingo Plateau. But the Tawareq or Berbers coming from the north, along the sea-coast or from oasis to oasis¹ in the Sahara, brought with them

¹ We know by the rock engravings in the Sahara Desert that, before the camel became abundant as a domestic animal, the only means the Berbers had of travelling from oasis to oasis in the desert was by means of oxen.

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the Mauritanian domestic cattle, which were largely of the *Bos taurus* breed, with a slight intermixture of the Egyptian type. In the regions of Senegambia and the Mandingo Plateau this much smaller type of ox was developed from a mixture between the Egyptian and Mauritanian breeds.

The Mandingo cattle seem to stand the moist forest climate of Liberia pretty well, but have not become so completely acclimatised as is the case with the still smaller parti-coloured short-horned cattle, which, though they may have been brought



328. MANDINGO CATTLE, LIBERIA

direct from Northern Europe, have in the course of three centuries become a well-established local breed.

The Goat is not such a common domestic animal in Liberia as it is (for example) in the Niger Coast Protectorate or through the southern third of Africa. It is more abundant perhaps in the interior than on the coast. It belongs of course to the well-marked breed of Central Africa, which ranges in its distribution throughout the tropical parts of the continent from the mouth of the Senegal to Somaliland and from the southern

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limits of the Sahara to the Cape of Good Hope. This goat is distinguishable from other domestic breeds of the same family by its small size and plumpness. Unless half starved, it never shows the angular outlines of other domestic breeds. The original colour was probably a pale yellow-brown, deepening



329. MANDINGO BULL, SIERRA LEONE

to black or lightening to white in the markings on the belly and limbs—in short, the coloration and markings of the wild *Capra hircus*, which in that respect it much resembles. But it frequently appears with a black, a white, or a grey pelage, or may be mottled and blotched with black and white, or brown and white. Still, the coloration to which it reverts over and

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over again is strikingly like that of the wild Persian goat—yellowish brown deepening here and there to a bright bay on the upper parts, with a black tail, a black ridge of hair along the back, a blackish beard, a dark brown stripe down each shoulder, and black or brown stripes down the front edge of



330. MANDINGO BULL

each limb (contrasting with white outer edges and inner side of the limbs and of the belly).

But although resembling the ancestral goat in its typical coloration, this domestic goat of the Sudan and Southern Africa has very short horns, far shorter than those of the domestic goat of Europe. On the other hand, it is seldom found hornless, as is the case with some of the Oriental breeds. From these it is sharply distinguished by its small erect ears, which are never long and pendent as in the domestic goats of North Africa, Egypt, Syria, and Western Asia. Although it has

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become such a dwarfed breed, there is no doubt that the domestic goat of Negro Africa is a descendant of the Persian wild stock which first reached Egypt from Syria at a period of great antiquity. The Egyptians on their own account appear to have domesticated the Nubian ibex (*Capra nubiana*)



331. MANDINGO COW FROM CENTRAL LIBERIA

as well as the audad sheep. But these forms, like the ibex (*Capra waalii*) of the high mountains of Abyssinia, have left no domesticated descendants. The ancestor therefore of the Negro's goat, as in the case of all his domestic beasts and birds, is an Asiatic animal. No doubt it was the first breed of true goat received by the Ancient Egyptians, who passed it on to

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the land of the Negroes up the Nile valley and across to Lake Chad before they received the much-modified and specialised domestic breeds of goat associated at the present day with Egypt and the Eastern Mediterranean region. I think it will be found



332. A LIBERIAN GOAT (FEMALE)

that the goat of the Central African type was the first domesticated animal of the black man, after the dog ; if, indeed, the dog preceded it.

The domestic Sheep of Liberia is of the maned type, with

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rather long legs and a simple tail, a tail which develops no deposit of fat. The domestic breeds of sheep in Negroland, outside the direct influence of the Caucasian races on the north and east, belong chiefly to two types, which are hypothetically derived from two species of sheep no longer existing in a wild condition. One of these is styled *Ovis jubata* or the maned sheep, and the other *Ovis longipes* or the long-legged



333. DWARF MALE GOAT, LIBERIA

sheep, the last being really more remarkable for its development of a fat tail than for the proportionate length of its legs.

There is an interesting variety of the Maned sheep styled provisionally *Ovis jubata pygmaea*, which has been recently discovered in the Cameroons district. It is perhaps the smallest breed of the domestic sheep, nearly if not quite hornless, and remarkable for its coloration, which is light brown above, with

334 THE MANELD SHEEP OF LIBERIA (AND OF WEST AFRICA GENERALLY)



a black belly and black markings on the limbs and face. But for the black belly, this little Cameroons sheep is rather like a female mouflon in appearance and coloration. As regards the colour, the resemblance would be striking but for the black under-parts. These may have changed abruptly from white to black in the way that markings of this description can do in closely allied varieties and sub-species, as for example the stripe along the back in the Tragelaphs, which in females may be black and in the males on maturity may become white ; or in certain foxes, where the belly becomes black instead of white.

Other forms of the maned sheep (which is limited in its range to the forest regions of West and West Central Africa) are occasionally found of this brown colour with darker and lighter markings ; but they are *generally black and white* like the fat-tailed sheep of Somaliland and Abyssinia. The accompanying drawing, which was done from a photograph I took of one of these sheep at Monrovia, gives a good general idea of the coloration, the average size of the horns and length of throat mane. The mane in this breed of sheep seems to take the place of the dewlap, which frequently appears in the fat-tailed variety. The throat mane, however, is almost a characteristic of the European mouflon and of several Asiatic breeds of sheep.¹ But I have seen not a few examples of the

¹ It is of course met with to an exaggerated degree in the wild sheep of North and North-east Africa, the audad (*Ovis lesvia*), which like the original ancestor of the domestic breeds of sheep has a long tail. But beyond all question, though the audad was domesticated by the Ancient Egyptians before they received from Asia their first breeds of true domestic sheep, it is in no way whatever an ancestor of the domestic sheep now in existence. It is so far divergent from the true sheep as to be almost worthy of generic distinction. In some respects it is as much related to the tahrs (*Hemitragus*) as it is to the genus *Ovis*. The sheep were not derived from the goats, or *vice versa* ; but both sprang independently from the more primitive capricorn stock, represented by the tahr-goats, the gorals, chamois, serows, etc.

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fat-tailed breed of sheep with a throat mane. I do not think, therefore, much stress for purposes of classification should be laid on the feature of the mane.

The maned sheep of the Central Niger regions grow to a very large size, and the rams develop horns of considerable size, which are often twisted or produced at right angles to the head, like those of the four-horned Indian sheep.

The fat-tailed sheep have a much greater tendency towards hornlessness than is the case with the maned variety. More-



335. EWE OF MANED SHEEP, LIBERIA

over, their coloration is usually a uniform reddish brown, without any markings on the limbs suggestive of resemblance to the European mouflon, though of course these fat-tailed sheep can also be pied black and white and brown and white. It is needless to remark, perhaps, that both these forms in all their variations are hairy sheep that never develop wool.¹ The woolly breeds are entirely absent from Negroland outside the domain of the Arab and the Berber. It is doubtful whether woolly

¹ I am informed that the indigenous fat-tailed sheep of Mossamedes (South-west Africa) sometimes develop wool in the cold season.

sheep cross the Sahara Desert in their distribution, unless it be up the course of the Nile.¹ I do not myself see any reason for deriving these two breeds of maned and fat-tailed sheep from separate wild ancestors. The development of fat at the base of and along the tail is no doubt partly a specialisation which arose in arid, semi-desert countries in the north-east of Africa, and the earliest domestic breed of sheep to enter the Dark Continent was probably of the maned type, with a simple tail. Likewise the mane along the throat may give place to a dewlap, or the dewlap may revert to a mane. Some of the fat-tailed sheep have a tendency to drooping ears which is never seen in the maned breed.

On the whole I can see no reason to suppose that these African breeds of sheep may not have been derived from the same ancestor as gave rise to the woolly sheep of Europe and Asia; and the existing wild species which comes closest in coloration, shape of horns and other characteristics to all the existing breeds of domestic sheep is the wild mouflon of Corsica and Sardinia. There are probably only two difficulties which stand in the way of our considering this animal to be the ancestor of *Ovis aries* in all its known forms, and that is the tail and the absence of horns in the female. The tail of all breeds of domestic sheep (*Ovis aries*) in their natural condition is long, descending almost to the level of the hocks. Now the only existing wild sheep at the present day which has a long tail is the already mentioned audad of North and North-east Africa, which for reasons not necessary to set forth in detail cannot possibly be regarded as the ancestor of *Ovis aries*. But of all the true wild sheep² of the present day the one that has

¹ They have been introduced by the Libyans to Timbuktu and the northern bend of the Niger.

² Excluding the barhel sheep (*Pseudois*) of Central Asia, in which the tail is sometimes six inches in length.

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the least shortened tail is the mouflon of Corsica and Sardinia. In most examples of this animal, especially in the males, the tail scarcely exceeds three inches in length from root to tip, but I have seen examples in which the tail was decidedly longer. In one, still present in the Gardens of the Zoological Society, London, the tail measures nearly six inches from root to tip, and looks a little longer, because it ends in a slight tuft.



336. RAM OF MANED SHEEP, LIBERIA

The European mouflon has long been extinct except in Corsica and Sardinia, though there is a tradition that it was once found in Greece and in the Balearic Islands. May it not have been that in the Continental form of the true mouflon, which no doubt once ranged through Southern Europe, from Spain to France, Switzerland, Germany, Italy, the Balkans and Greece, the tail retained its primitive length, and that it was only in

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those forms isolated on Mediterranean islands that it gradually dwindled to its present degree of shortness? The North Chinese goral, a capricorn allied to the chamois, tahr, serow, etc., has such a long tail that it is called *Urotragus longicaudatus*. It is possible that these capricorns, which are certainly the ancestors of the goats and sheep, still retained the primitive long tail of the earlier ruminants before they gave rise to so many different forms such as the musk ox, the Rocky Mountain goat, the takin, the tahrs, the goats, and the sheep, in all of which, with four exceptions, the tail has subsequently dwindled to a length of two or three inches or to a mere stump.

Sheep of this black and white maned type are very common throughout Liberia, and give excellent mutton. The fat-tailed form only makes its appearance on the extreme north, within the limits of the Mandingo country; but from what I can learn it is rather a transitional type, such as is met with in the western parts of Uganda.

The only other domestic animal of the Liberian natives which needs any allusion is the Muscovy duck, an introduction, of course, from Brazil, brought to the West Coast of Africa originally by the Portuguese. It has become, however, as well established in the coast-lands of Liberia as elsewhere in West Africa, and indeed is met with in some of the native villages at a hundred miles from the coast. A pair of these birds may be seen in the illustration on p. 481 of the Bwe stream, which is about that distance from the sea, in the county of Maryland.

The foregoing sketch of the origin of the Negro's domestic beasts, birds, and cultivated plants is part of the unwritten history of West Africa prior to the fifteenth century A.D. The

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elements of native stock-keeping and agriculture are a testimony to that constant indirect influence of the Caucasian on Tropical Africa, an influence which has been going on for thousands of years, and which has possibly saved the Negro from relapsing into a life more bestial than human.

When the Portuguese first reached the coast of Liberia in



337. EWES OF MANED SHEEP BROWSING IN THE
STREETS OF MONROVIA

the fifteenth century, they seem to have found the Vai people, a branch of the Mandingo stock, already established round about Cape Mount. It is not, however, certain that the coast people east of the St. Paul's River belonged to the Kru tribes which now occupy that region : they may have been of the older Kpwesi race. A short vocabulary recorded by an English traveller in the middle of the sixteenth century in the vicinity

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of the Cestos River seems to refer to a Kpwesi dialect rather than the Kru language which would be spoken there now.

The Kru people appear to have come from the north-east and east, to have reached the coast regions in the vicinity of the Cavalla River, and then to have pushed westwards along the coast, till their *avant-garde*, the Dē, found themselves stopped by the Vai, Kisi, and Gora in the vicinity of Boporo and the Lofa River.

The Rev. J. Payne gives the following history of the Grebo people of Eastern Liberia, who speak a dialect nearly related to that of the Krumen, and who are the present inhabitants of Southern Maryland. (Closely related to the Kru, they belong to that considerable congeries of tribes speaking languages related to Kru, and offering the common feature of terminating their tribal names with the suffix -o, -bo, -po, -pio, or -bwe and -pwe. Glancing at the map of Eastern Liberia, it will be seen that this "Bo" group of peoples extends into the western regions of the Ivory Coast territory and far up the Cavalla River.)

"The Grebo [in the 'forties of the nineteenth century] extend along the Maryland coast for about thirty miles from the mouth of the Cavalla River to Fishtown River [to the west of Garawé]. They emigrated from the eastward probably about one hundred and fifty years ago, to the territory now occupied by them. They lived a short distance from the coast, and constituted part of a tribe still living in that region known as the Worebo. A crowded population appears to have led to the emigration.

"The name *Grebo* is composed of *Gre*¹ and *bo*. The latter

¹ Some authorities assert that this vocable should be written *Gle* or *Gde*. Payne's etymology may be at fault and the vocable *Gle* or *Gre* may be cognate with the *Kla* or *Kra* of *Klawo*, *Krao*, the original name of the Kru people.—H. H. J.

• Anthropology: Historical

designates a class (e.g. *degu*, a doctor; *degu-bo*, doctors). The former, *Gre*, is the name of a species of monkey which leaps with remarkable agility. In getting off from the shore at the time of emigration, it appears that many canoes were capsized. The



338. GREBO CHIEFS FROM THE MARYLAND COAST

Grebo word for 'capsize' is *wore*, and hence those who capsized and remained were called *worebo*. Those who were successful in embarking—leaping over the waves like the *Gre*—were styled *Grebo*. The Grebo, proceeding up the coast in their

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canoes, landed at different points, and where they found water formed small settlements. The coast at that time appears to have been uninhabited ; only at Cape Palmas, tradition relates, a small settlement of whites was found. These were probably Portuguese and slave traders. The first settlements of the Grebos in this region were not permanent. They proceeded at different times up the coast till they reached Grand Sesters, where contact with other tribes and a partial fusion produced



339. "PAPA, MAMAN, ET BÉBÉ" : A GREBO MAN, WIFE, AND CHILD (CAPE PALMAS)

a modification of the language and the tribe. At length, directed by an oracle, the scattered settlements of the Grebo retraced their steps to the eastward. The great body proceeded at once to settle at Cape Palmas ; subsequently considerable numbers followed, and became admitted into the tribe.

"From Cape Palmas (Berina Se), Rocktown (Tashe) was colonised ; and, after considerable intervals, Garawé (Blege) and the River Cavalla towns (Wata and Kobla). Again, from Rocktown were colonised Middleton (Lede), Fishtown (Wa),

• Anthropology: Historical

and Half Cavalla (Bwede). The names here given are those of the principal Grebo towns, having an aggregate population of about twenty-five thousand.”

The Kru people apparently descended from the north, through the countries of Putu and Sikoñ, and settled on the



340. A KRUMAN FROM SAS TOWN

coast at least as early as the sixteenth century. The name “Crou” or “Krouw”¹ appears on the Dutch maps of the Grain Coast in the seventeenth century, exactly where the Krumen are established at the present day.

In the middle of the seventeenth century a great change

¹ Pronounced Krau.

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took place in the tribal arrangements of Western Liberia (according to Dapper), due to the invasion from the north or north-west of a people whom he calls "Karou." This race seemingly had no connection with the Kru stock—at least Dapper gives no encouragement to such an idea, though with a little twisting of geographical indications the invasion he describes might represent the westward march of the Dē tribe. Büttikofer inclines to the idea that the Karou under the war chief "Flonikerry" were a section of the Kpvesi people which attacked and subdued the pre-existing "Gala" and the Vai and Kwia, and then established themselves in the Kpvesi country to the east of the St. Paul's River. They might of course have been a section of the warlike Buzi tribe, a people which plays a prominent part at the present time in North-western Liberia. But the Kpvesi to the east of the St. Paul's River seem much more to represent a race long settled on the Liberian soil, and more aboriginal in its features than the Gora. It is more likely that the "Kwoya" were a section of the Kpvesi people, perhaps identical with the Kwia tribe (on the Dukwia River), and that Dapper's invading Karous may have been the Gora people. It is true that Dapper writes of the "Galas" as being one of the races conquered by the Karous, and Büttikofer assumes that "Gala" is equivalent to Gora. This may be so; but it might then follow that the Karou adopted the name of the race they conquered, with whom undoubtedly they mingled. Ever since the seventeenth century the people dwelling in the Gora country seem to have been a turbulent, aggressive, advancing race, which furnished very sturdy opponents to Liberian rule during the first twenty years of the State's existence.¹

The last of the race movements in Liberia consists in the

¹ President Barclay considers the invading "Karous" of Dapper to have been a Kru people, probably the ancestors of the Dē and Mamba tribes.

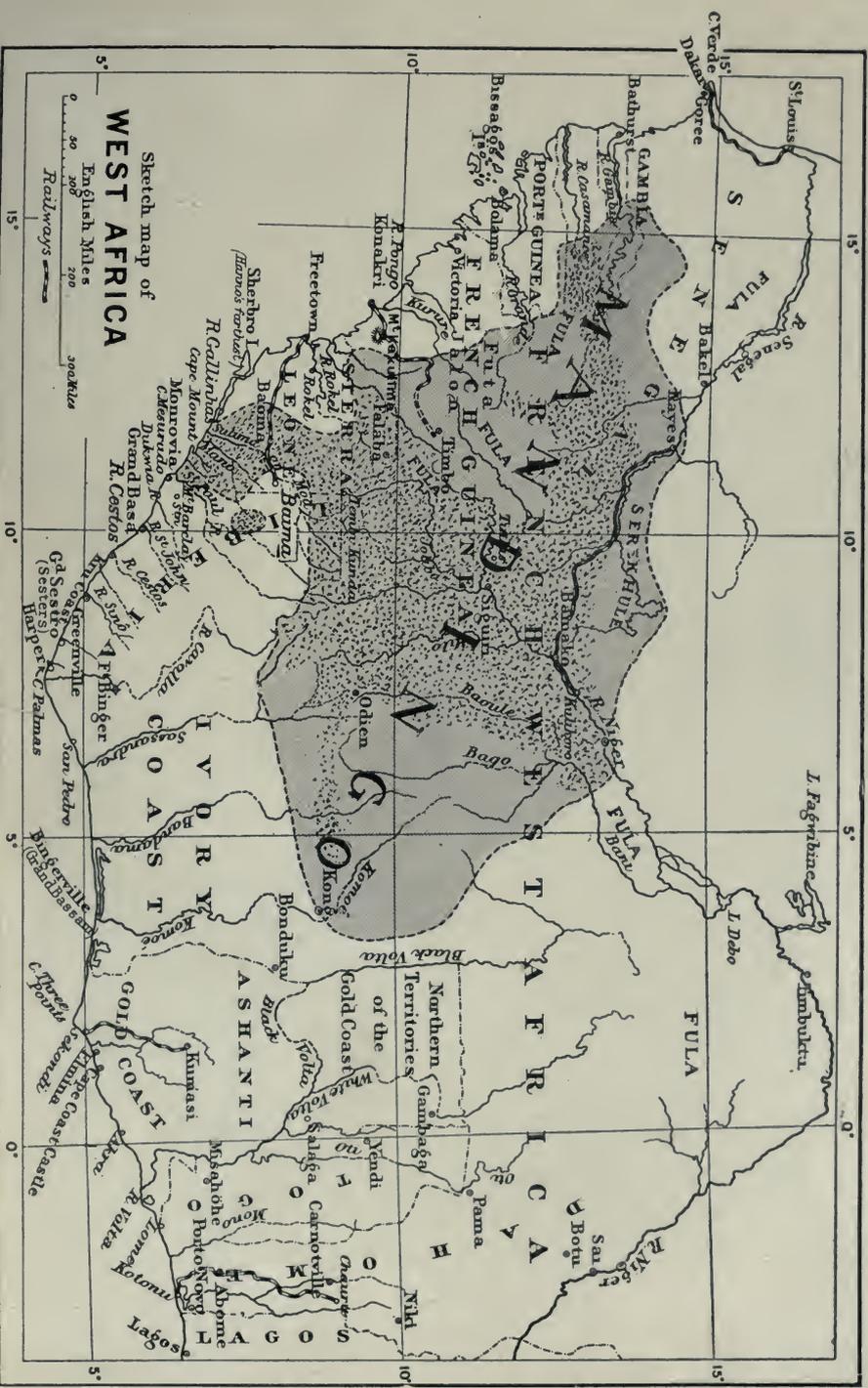


341. A MANDINGO FROM THE KWAÑA COUNTRY, NORTHERN LIBERIA

Liberia

steady infiltration of the country by Muhammadan Mandingos from the north. The tribes of fine physique which dwell to the west of the Upper Cavalla River, known generically as Goñ, are still holding the forest against the advancing Muhammadans. But these latter firstly penetrate as merchants amongst these cannibals, then as religious teachers, and, if they are not checked by the power of Liberia or restrained by France, they will eventually create a series of small Muhammadan states in the north of Liberia, and at the same time will apply themselves steadily (as they have done for centuries and centuries) to the cutting down of the forest. Already the Mandingo have introduced the Muhammadan religion into much of Western Liberia, especially in the Gora and Vai countries; they have almost become the dominant factor in the regions between the St. Paul's River and the Sierra Leone frontier. Fortunately they have become well disposed towards the Government of the republic, and they come in increasing numbers to the Liberian settlements. It is quite possible that with the enlargement of Americo-Liberian views this sturdy, industrious race of mixed affinities may play a considerable part in the political future of Liberia.

MAP 17



Sketch map of WEST AFRICA

English Miles

Kilometers

Railways

CHAPTER XXVIII

ANTHROPOLOGY: PHYSICAL APPEARANCE OF NATIVES; CLOTHING; DISEASES; INDUSTRIES

THE pictures of the various men and women in this book belonging to the indigenous races of Liberia will serve to give a general impression of the *physical appearance* of these people, and the relationship which their bodily proportions bear to other Negro types. The best-looking men and women belong to the Mandingo stock, which, however, as will be seen from the sketch given of the history of this race, is a somewhat mixed type, displaying varying proportions of intermixture with the Caucasian species from across the Niger. The average man or woman of Liberia, however, might very well pass current as a native of Uganda, of the Swahili coast, of Nyasaland, Ashanti, or Old Calabar. The Mandingos present a striking resemblance (for example) to the Zanzibaris of the East Coast of Africa, who are formed of a very similar amalgam of Negro and Semitic or Hamitic blood. The nearest approach to a distinct indigenous race in Liberia is presented by the Kru and Kpvesi peoples, though even these occasionally exhibit types that must be due to some ancient or modern intermixture. Where they are purest in blood, the Krumen and Kpvesis belong to the short-legged section of the Negro race.

The present writer is gradually coming to the conclusion that after the Bushmen and Hottentot groups are accounted



342. KRUMEN (TO SHOW THEIR SHORT, STURDY LEGS)

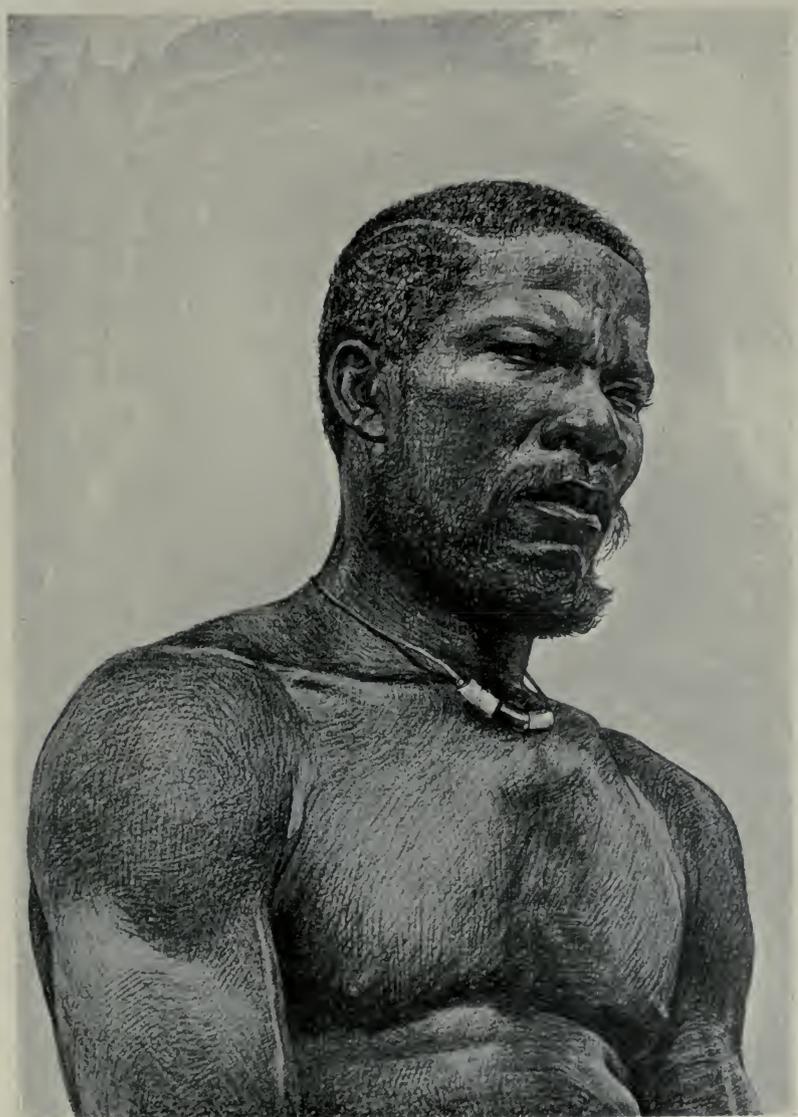
Liberia

for and put on one side as somewhat specialised sections of the Negro race, the remaining mass of black Negroes must be divided into two principal physical types, the *short-legged* and the *long-legged*. The most striking exemplars of the long-legged Negro are the Nilotic tribes of the White Nile and the north-east coast of the Victoria Nyanza. Amongst these people it will be noticed that the legs both in men and women are almost disproportionately long in comparison with the bust.

Typical examples of the short-legged type may be seen in the Lendu, Baamba, and Ba-nande Negroes of the north-eastern fringe of the Congo Forest. The Red Jūr of the Bahr-el-Ghazal and the Congo Pygmies are other examples of this short-legged type, which perhaps, on the whole, is more characteristic of Western Africa and the forest region than of the eastern and southern parts of the continent. The long-legged type crops out all down the eastern half of Africa, as far south as Zululand. It is often noticeable at the north end of Lake Nyasa or to the east of the Upper Zambezi.

The *Krus*, generally speaking, belong to this short-legged type. They have magnificent busts, but as a rule their legs are short though sturdy, and this detracts from the sculptural beauty of the upper part of the body, even making them look clumsy and badly proportioned.¹ The arms, on the other hand, are disproportionately long (from the point of view of the European ideal), and when dropped flat against the sides of the thighs the tip of the second finger is nearly level with the beginning of the knee. The relative shortness of the lower limbs is not so apparent in the women as in the men.

¹ But there are exceptions, striking exceptions, to this general rule, notably in the Kru peoples of the Ivory Coast east of the Cavalla River. Among these, and occasionally among the Liberian *Krus*, may be seen noble specimens of humanity. This well-proportioned type is illustrated on p. 311 in Binger's book, *Du Niger*, etc.



343. A NATIVE OF THE COAST (BEREHI) TO THE EAST OF THE CAVALLA RIVER



344. "KRU WOMEN ARE HIDEOUS, SHORT, AND SQUAT"

The Kru women when young occasionally offer examples of comely figures,¹ but as a rule they are unsightly and misshapen. They exhibit a slight tendency towards steatopygy (protuberant buttocks), but this, as in some cases in the Egyptian Sudan, does not so much take the form of a great posterior projection of the buttocks, but is shown in the apparent enlargement of the pelvis and in the great breadth across the back of the thighs.

The *Dē*, a small and dwindling tribe near Monrovia, who speak a Kru

¹ Mr. I. F. Braham writes: "The Kru women are hideous, gross, and coarse, short-legged and squat, their costume is unrefined, and their manners are wanting; they have loud raucous voices and are always wrangling."



345. GORA WOMEN

Liberia ♪

language, depart very much from the average Kru type of physiognomy. They do not produce such fine muscular men,



346. A KWESI MAN, FROM THE DUKWIA COUNTRY

but the proportions of their bodies come nearer to the European ideal. They are not so prognathous as the

• Anthropology: Physical

Kru, and frequently have well-shaped, well-furnished brows. The Dē women often possess quite refined features. The Gora also have good figures amongst the men, but the women are inclined to be ugly, with rather a Sudanese type of countenance, produced by very prominent cheek-bones and



347. A PROGNA THOUS TYPE OF KRUMAN

somewhat marked prognathism. As will be pointed out in the chapter on languages, the Gora speech is somewhat isolated, and possesses but slight affinities with the surrounding languages. Yet in the recent history of Liberia the Gora seem to have figured as an invading race. It is possible that they may be

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a people of the High Sudan, driven south into and through the Liberian forests by some race movement at the back due to Mandingo or Fula conquests.

The *Kpweſi* tribes sometimes exhibit men and women with disproportionately short legs ; but the sections of this people on the north and north-west (the Buzi, for example) have evidently mingled with superior races. They speak a *Kpweſi* dialect, but they are people of well-proportioned, even graceful bodies, the skin colour is yellow-brown, the head hair is rather long, and the facial features are refined. The races in the east of Liberia, south of the Mandingo and northwards of the Kru tribes, are, according to the French explorers, a better-looking race than the Kru people, with legs that are neither disproportionately long nor short. Mr. Sim states that in the Nidi or Niete section of the Sapo people, north of the Niete Mountains near the Duobe River, the women are taller than the men—"an average 5 feet 8 inches ; a good number over 6 feet in height ; all of them well-proportioned. . . . The men of this tribe, though not so tall as their women, are well-built with handsome figures."

Krumen offer considerable variation in *prognathism* ; some have retreating foreheads, wide cheek-bones and the muzzles of apes ; others again will exhibit a cast of feature that is almost comely, even from the European point of view. In some the nose is depressed and very broad at the tip, with raised and fleshy *alæ*. Others again exhibit the pug nose of a monkey, with scarcely any bridge, but a nose which nevertheless is somewhat small at the tip, with no very marked fleshy development of the nostrils.

The *colour of the skin* ranges from a golden-yellow in some Mandingo, Vai, and *Kpweſi* to a deep black in certain Kru types. The Mandingo offer very varying types in this respect,



348. A PUG-NOSED TYPE OF KRUMAN

Liberia ☞

as also in facial features. Some may be quite a light brown, others (though the features are slightly Caucasian) are a decidedly deep black. The Basā, Dē, Gora, Kisi, and Grebo tend towards a deep brown or blackish tint of skin



349. A KRUMAN WITH BEARD

(with individuals here and there of lighter shades). The Gibi and many of the interior Kpvesi and Kru tribes are more often golden-brown in tint than black. The shade of skin in certain Vai and Mandingo women is such a rich golden-



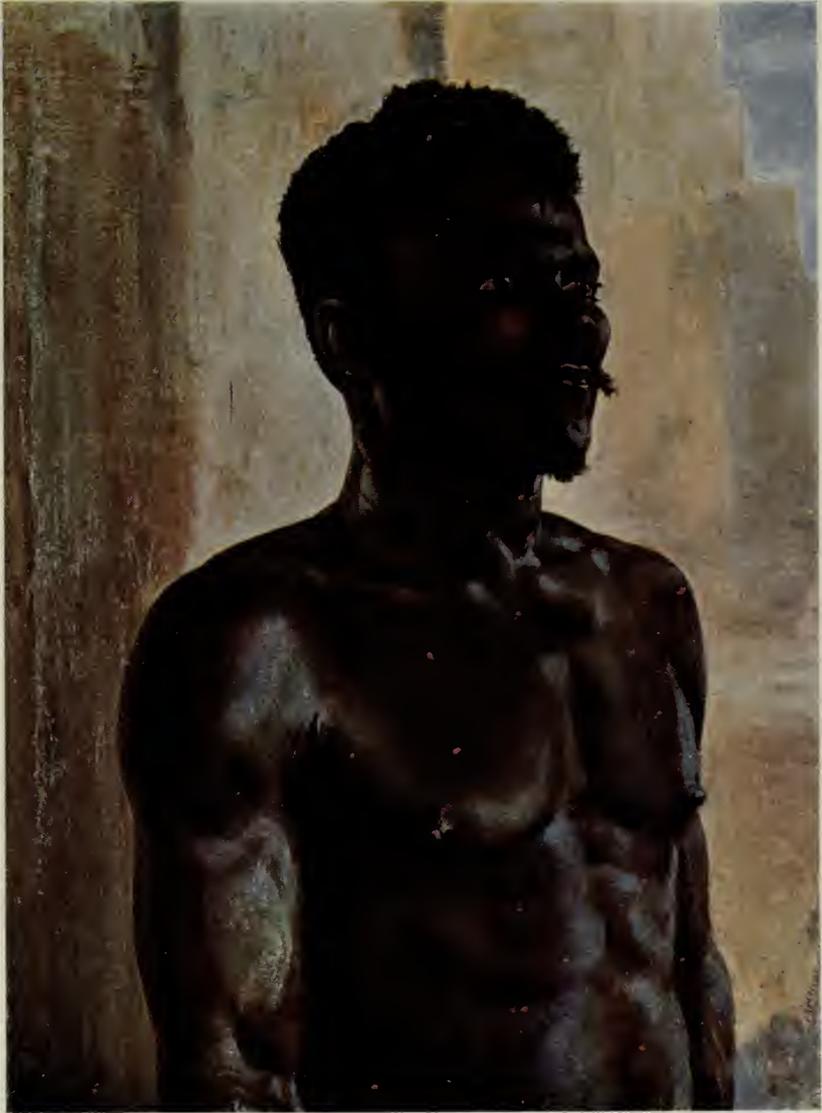
350. A WOMAN OF THE SUSU TRIBE (EASTERN SIERRA LEONE), MANDINGO STOCK,
SHOWING NATURAL GROWTH OF HEAD HAIR

Liberia

brown tint (especially after recent lubrication with oil) that they delight a painter's eye.

In their natural condition the men of the *Kru* race are inclined to considerable growth of *pile* or *body-hair*. I have seen some examples the legs of which were covered with tightly curled black hair, and the same growth over the chest and stomach, but in no case have I ever noticed hair on the back, such as not infrequently makes its appearance in the Caucasian species. As a rule there is the same tendency amongst these Liberian Negroes as elsewhere in Africa to dislike any growth of hair on the body, and a good many young men pluck out with tweezers the body pile when it begins to grow. Smooth-skinned specimens of Krumen are generally those persons who have artificially removed the body-hair.

As regards the hair on the head, it grows abundantly: but underlying the abundance is the true Negro tendency for the head-hair in its growth to be sprinkled in those separate peppercorn clusters which are such a marked characteristic of the Bushmen-Hottentots and some other Negro races. This may be seen, for example, on the sides of the head in those Liberians where the growth of the hair is not so long. The beard, whiskers, and moustache are often abundant among the Krumen after the age of about twenty-five years: face hair among Negroes is generally late in making its appearance. This hairiness of visage is also noticeable in the Grebo and Basā, perhaps also in the Vai. The Gora and Mandingo do not usually produce much whiskers or moustache, but can grow a beard which in the Mandingo is usually a tufted "goatee." It is noteworthy that among the civilised Americo-Liberians there is the same abundant development of face-hair that is characteristic of the Negro after transplantation to America.



A Basa Man (Kru Race)

• Anthropology: Physical

As regards *mental characteristics*, there is much diversity. The *Mandingo* are a proud but courteous people, reminding one of the East in their manners. They are passionately fond of music, of brightly coloured, strikingly patterned, or stately clothing. They are almost all Muhammadans, but not so



35f. MANDINGO WEARING AMULET

fanatical as the Fula. On the other hand they are much stricter about the avoidance of alcohol. It is this trait amongst others which marks them out as a “coming race” in West Africa. The drunken peoples—whether it be with palm wine, whiskey, gin, or champagne—will go down before the sober, wholesome folk, to the ultimate benefit of humanity.

Liberia

Though Muhammadans, the Mandingos are full of superstition. The amulets which they wear so profusely are almost invariably verses of the Koran sewn up in neat leather packets and hung about the neck.

The *Vai* and the closely allied Gbandi are like the Mandingo in many aspects of their character. They are usually the best liked (by Europeans) of all Liberian races. As to their women, every writer on Liberia, since Canot and Koelle, has described their charms of manner and person. Mr. Braham writes: "The Vai or Mandingo lady of high degree in full costume is a picturesque and pleasing object. These women are good-natured, smiling, fascinating, and by far the most interesting aboriginal people in Liberia. They are soft-spoken, and their language is the Spanish of West Africa." Vai men are said by some writers to be cowardly, but I do not think this accusation is well founded. They are peaceable, fond of agriculture and commerce; but the fact that they are the only race which at present furnishes reliable porters, guides, interpreters and servants to European expeditions exploring the interior of Liberia or establishing rubber-collecting stations amongst turbulent cannibal people relieves them, I think, from the charge of cowardice. According to Canot, they could be very bloodthirsty on occasion (see p. 168), though whether his account of their bloody orgies is not to a great extent invention is an undecided question. The Vai certainly evinced no repugnance at assisting Europeans in the slave trade for centuries, but on that point none of the African coast tribes have an easy conscience. No single separate African race or tribe yet has felt anything like solidarity with the black race in general; otherwise Europe and Asia would not continue to dominate Africa.

Koelle describes the Vai, especially the men, as very



352. A VAI YOUTH AND MAIDEN

Liberia

lascivious and given up to a libidinous life to an even greater degree than most West African races. Perhaps they have changed since his day, as that is not the impression one derives from an acquaintance with them now. But even Koelle, though he ascribes this characteristic to the race as a whole, cites numerous exceptions, who were according to his descrip-



353. VAI SERVANTS

tion really noble-minded men, with a high ideal of sobriety in living.

So far as pushfulness is concerned, combined with other good qualities, the Mandingo may be considered the future dominating native race in Liberia; but the Vai (who after all are nearly related to them in language and religion) will perhaps join hands with the Grebo in furnishing the civilised and civilising element. Just as the Mandingo remind one of

• Anthropology: Physical

the Zanzibar Swahilis, so the Vai recall irresistibly in their manners the Baganda. In writing thus I am intending to apply to them a high compliment. May they increase and multiply!

The *Gora* are a more truculent people, one of the



354. GORA MEN ON BANKS OF ST. PAUL'S RIVER

races perhaps that will yet give trouble to the civilised government of Liberia. They are noisy and quarrelsome, and for the most part ugly. Their faces have not that ingratiating pleasantness of demeanour which is markedly characteristic of the Vai and to a certain extent of the Mandingo. The

Liberia ♣

Buzi section of the *Kpwesi* peoples are industrious, hard-working and good-looking, but are also turbulent and inclined to indulge in strife with their neighbours or amongst themselves. The *Kpwesi* to the east of the St. Paul's River are less quarrelsome, but at present they represent the "great unknown" of Liberia.

The *Dē* are now so few in numbers that their mental characteristics are obscured, a good many of them having been absorbed by the Americo-Liberian community. The *Basā* and *Gibi* people are fairly placable, and on the coast have settled down to a great degree of orderly self-government under Liberian supervision.

The *Kru* tribes are, on the other hand, still a noisy, self-assertive race of bullies, who are cowards when boldly faced or when placed in positions of danger. Away from his own land, in the *Kru* settlements of Monrovia, Sierra Leone, and other places on the West African coast, still more in the service of European ships or at trading-stations on the Niger Coast, the *Kruman* is docile and hard-working and as a rule a faithful and even honest servant to his employer. Those of them who still reside in the aboriginal *Kru* country are passionately attached to their own land, and resolutely return there after their term of foreign service. The *Krumen* are a great deal given to *drunkenness* in their own country and (if they can obtain the liquor) when abroad. On board British men-of-war they take as readily to discipline as white men—perhaps more so; but in their own country they are cheeky, almost hostile to Europeans, and still endeavour to set at defiance the Americo-Liberian Administration. Not a few of them have recently penetrated to the courts of the chiefs in the far interior, where they become advisers in "foreign affairs." In this capacity they are great nuisances sometimes



355. A DĒ MAN

Liberia ☛

to European expeditions, as they are insolent braggarts, perpetually begging for presents, and trying to make mischief between the European and the native in order to assert their importance. Yet, as the present writer knows from personal experience, they can sometimes develop very kindly



356. KRUMAN FROM SETRA KRU

qualities. In his consular work on the West Coast of Africa he had much cause to remember the faithful service and devotion of his Krumen. No doubt their demeanour towards the European depends a good deal upon the European's treatment of themselves.

The *Grebo* have long fought against the Americo-Liberian

• Anthropology: Physical

Administration, but they have now accepted it more or less implicitly. They are the only race that has given much encouragement to missionary work. A considerable number of the Grebos are now Christians and have received a good education at the mission schools. Civilisation, in fact, may



357. A KRUMAN FROM SINO

be said to be making considerable strides amongst the Grebos, and if this progress continues it is a race which has a distinct future before it in the development of Liberia. Both these people and the Kru were in all probability cannibals not more than one or two hundred years ago. Their near relations—closely allied in language and race—of the interior districts

Liberia

are cannibals at the present day. They are also turbulent, and much given to local warfare, though not ill-disposed towards the European.

Cannibalism is widespread in interior Liberia between the Cavalla River and the St. Paul's. Mr. Reynolds states that human hands are considered a *bonne bouche* by the Kpwesi.

Mr. Gow states (1904) that the people to the north of Sikoñ or Sikombe station killed a woman whom they caught in a plantation. She had her child with her at the time. The captors secured the child in the village stocks near the plantation. They then removed the body of the woman to the centre of the village near the stocks, cooked her flesh in the hot embers of a big fire, and feasted on it, staying the child's crying by giving it freshly grilled morsels of its mother's flesh, which the poor baby ate quite unknowingly. Women who intentionally or accidentally surprise men and boys when organising their initiation ceremonies and who are incontinently killed, are usually eaten as well.

The *Gbalin* tribe of the Kpwesi people are reported to be inveterate cannibals, fattening and devouring their war prisoners and slaves. But all these people—all the indigenous Liberian Negroes—are *cleanly in person* and much given to washing the body. The Kru tribes in the interior as well as on the coast frequently take two baths a day.¹ The natives of the interior Cavalla Basin (according to d'Ollone) take a hot bath in their houses when returning from work. This is done by the simple process of pouring hot water out of kettles or calabashes over their shoulders and limbs. Soap is used in Western Liberia made from the lye of the leaves or bark of a sapindaceous tree or also from the spongy leaves of a

¹ Mr. D. Sim, however, states that the Putu people behind the coast Kru are a dirty race in their persons and dwellings.



358. A KRUMAN FROM THE DEWA RIVER

Liberia ♀

dracæna. The skin is lubricated with oil. On the other hand they are disgusting in dealing with head parasites (lice). These accumulate in the head-hair of the women, shielded by their elaborate coiffures. Every few weeks a woman friend examines the heads of her friends and removes and eats the lice, which are esteemed a delicacy.

The Negroes of Liberia range in their ideas of *clothing* from the European vestments of British civilisation and the ample garments of the Mandingo, Vai, and Gora to the almost complete nudity of some of the interior tribes of Kru stock in the eastern portion of the country (Cavalla Basin). Whether there are any tribes within the limits of Liberia that are absolutely nude in one or other sex after maturity is an unsettled point. Captain d'Ollone in his book refers to *complete nudity* on the part of the women—perhaps the unmarried women is meant—in some of the interior Kru tribes. Nudity in women is a somewhat common feature in the life of Western Africa from Eastern Liberia to the Cameroons. The present writer can remember even as late as 1888 that adult but unmarried women and girls at such comparatively civilised places as Bonny (Niger Delta) and Bell Town (Duala, Cameroons), besides the interior regions of the Cross River, affected absolute nudity without any feeling of shame, and this custom continued to prevail even when they were converts to Christianity. Married women in the same regions usually wore some slight fragment of clothing.

In the Efik country behind Old Calabar complete nudity amongst the men was not infrequently to be noticed in the days before the British Protectorate had introduced European ideas of decency; but elsewhere in Western Africa the author has never encountered within his own experience this entire indifference to decency amongst male Negroes, though it is a



359. A MAN OF THE GBALIN TRIBE (CANNIBALS OF WESTERN LIBERIA)

Liberia

common trait still in some parts of the Zambezi Basin and in Eastern Equatorial Africa. The great explorer, L. G. Binger, however, in his remarkable journey which revealed for the first time the absolutely unknown countries separating the basin of the Upper Niger from the Ivory Coast, described a tribe which seemingly offers affinities to the Mandingo stock, known as the Bobo-fing. In this tribe he noted that the men were absolutely nude—possibly the women also. They were the inhabitants of one of the most remote parts of the Niger Basin, three or four hundred miles to the north-east of Liberia. It is probable that at the present day even the most secluded and primitive of the Liberian tribes have conceived the idea of decency as regards the male¹ if not the female sex, and that some slight covering is worn, even if it only be a piece of bark-cloth. All travellers who have as yet penetrated into the far interior of Liberia, however, either report the widespread use of cotton-cloth or give evidence of the same in their photographs.

Dressed skins, though reported to be in use amongst some of the coast tribes of this country by early Portuguese and Dutch explorers, seem to have gone out of fashion as clothing or covering at the present day anywhere within seventy miles of the littoral. But in the eastern hinterland of Liberia (Cavalla Basin) the skins of monkeys, cats, antelopes, and goats are used by the men as short aprons.

Of course the children of both sexes in all parts of the country go perfectly nude till the age of eight or nine years,² though they may wear amulets round their necks, or necklaces

¹ In the part of this book dealing with the history it will be found mentioned that absolute nudity amongst the men—possibly of the Kru stock—was observed on the Liberian coast by Europeans who visited it during the sixteenth century.

² Among the Vai, girl children at this age assume the *bére*, which is a narrow strip of cloth passed between the legs and brought up between the waist girdle behind and before.

• Anthropology : Physical

of beads or other adornments. Amongst the people of Kru stock (Dē, Basā, Gibi, Kru, Grebo, and their inland relations) and amongst the Kpvesi, the men's clothing in its simplest form will be a piece of cloth passed between the legs and brought up in front and behind through and over the waist-girdle, which is a ring of metal or of twisted fibre. Amongst the coast tribes



360. A CHIEF OF THE GREBO COUNTRY, MARYLAND

this is arranged with some neatness, and it may even be cut and sewn till it assumes more the form of a pair of short bathing drawers ; or it may be reduced to a mere bag concealing the *genitalia*. In the coast regions the men of these tribes sometimes add a long shirt without sleeves, in addition to which they are now beginning to wear (especially if they are married men of



361. AN UNMARRIED KRU MAIDEN

some standing and are not engaged in rough work) ample loin-cloths wound round the waist, sailors' jumpers, or European coats, waistcoats, and trousers. On the coast they are very

• Anthropology: Physical

partial to head-covering, for preference any form of European hat. The chiefs of the Kru and Grebo tribes, perhaps also still in the Basā country, consider top hats *de rigueur*. These are sometimes black silk or beaver, or they may be white, grey, even scarlet; but they must be *chapeaux de haute-forme*, and



362. A BUZI CHIEF VISITING MONROVIA

very hideous they and their wearers look. Inland, beyond the resources of civilisation, the head-covering, if there be any, is generally made of closely plaited string or fibre ornamented with beads or kauris, tufts of hair or feathers. Sometimes large, widespreading rain-hats are worn, made of wickerwork, into which smooth leaves are plaited. Some of the Kpvesi people

Liberia ↙

make quite elaborate hats of plaited palm-leaves, with high crowns, decorated with dried pineapple leaves and plumes of feathers.

All these people of the Kru and Kpvesi stock usually go bare-foot, without any form of *sandals*. In war-time the men wear elaborate head and breast ornaments made from the skins of colobus monkeys, leopards, serval cats, or civets. They (the men) do not appear to attach so much importance to amulets or *grigris*, nor do they deck their bodies with beads or with metal necklaces. They nearly always wear *rings*—one or more—on the fingers, and these are made out of the hard rind of palm-nuts, out of horn, iron, brass, or silver.

The clothing of the *Kru women* when they are young and unmarried is still limited to little else than a string of beads or a wire circle or bundle of string round the loins from which may depend a tiny bead-work square of leather or cloth, something like a sampler in shape. But it is becoming far more customary amongst the coast peoples for the women in addition to wind a length of European calico round the waist, extending to the knees. Bead necklaces—sometimes to an extravagant extent—are worn round the neck, metal bracelets round the wrists or on the ankles. In default of brass, copper, or silver out of which to make wrist and ankle ornaments, plaited grass rings will be used. Mothers often wind broad pieces of cloth round their bodies from above the breasts to below the knees, arranged in such a way as to bind closely to them the child they bear on the back.

Amongst the *Mandingo*, *Vai*, *Gora*, and other Muhamadanised people in the north and west of Liberia, *clothing* is much more elaborate in both sexes, at any rate amongst the men; here come into play native manufactures to a much greater extent than imported cotton goods or other stuffs.



363. A KRUMAN AND HIS WIVES (CAPE PALMAS)

Liberia •

As far back as the first coming of the Portuguese and Dutch it was observed in the western parts of the Grain Coast (presumably amongst the Vai people) that the men had taken to wearing ample large-sleeved garments that hung from the neck to below the knee. A good many of the Vai, Gora, and Buzi do not wear these voluminous garments when they are at work in the bush, out hunting, or in the privacy of their homes. They may then reduce their clothing to a waist-cloth. But Mandingo men generally put on first a loin-cloth, then a pair of baggy breeches which are tight over the calves and very loose in the seat. These are more or less of Moorish origin. Over these breeches a sleeved shirt or smock is worn, and over this again the voluminous *duma*, *bubu*, *taub*, or *toke* of the Western Sudan, an amplification no doubt of the Moorish and Egyptian *jubbah* or *gandura*. This is generally a huge garment, with a large hole in the middle (through which the head is passed), and sleeves which are as broad as they are long. It hangs very loosely about the body. The opening in front is cut sometimes rather low, so that it shows a piece of the white shirt underneath. The borders of this opening round the neck and sides of the *bubu* over the chest are sometimes pleated and gathered and ornamented with a patchwork embroidery. On the other hand, often this loose garment is made like a dalmatic in shape, and its material is black velvet (amongst the Mandingos who are in touch with the coast trading stations) or even silk, or very dark indigo-dyed cotton. The indigo dye of this stuff often fades through washing into a pale "butcher" blue. A favourite material for the *bubu* is the stout, thick cotton cloth woven in the native looms anywhere in Mandingoland or in the western part of Liberia. This is usually striped dark blue and white. There is a good deal of variation in the cut of this garment and



364. MANDINGOS FROM NORTHERN LIBERIA

Liberia ●

the relative length or breadth of the sleeves, and these variations are best illustrated by the different drawings or photographs given in this book.

These voluminous garments for men have not only become the fashion throughout Muhammadan Liberia from the Mandingo Plateau to Cape Mount on the coast, but also among some of the interior tribes supposed to be related to the Krus who have not as yet adopted the Muhammadan religion. It seems to the author the most becoming and suitable garment for the Negro, and he could wish that it was worn by all the natives of Liberia whilst they lived in that country. They could adopt European costume when travelling to colder lands.

The peoples who wear the *bubu* are pretty sure to make use of *sandals* when fully dressed or on the march. The Mandingo sandals are generally made of wood, almost like pattens, with broad thongs of dyed leather or woven grass or fibre, to be passed over the instep and inside the great toe. These patten-like sandals are most artistic in design, inlay, and colouring. They are generally only worn when in full dress. On the line of march the Muhammadan Negroes either go bare-foot or wear very light sandals of dressed leather.

The favourite *head-covering* is a round cap, fitting more or less tightly to the top of the head, and very similar in appearance to the cap or fez worn by so many Muhammadan peoples in North Africa and Nearer Asia, round which a turban may be wound. But turbans, so far as I am aware, are never seen amongst the Muhammadans of Liberia or even of Senegambia. They may have been introduced amongst the Fula, but ordinarily they do not make their appearance westwards of the latitude of Timbuktu and Hausaland. Of late the fez or tarboush has been introduced by European merchants,



365. A MANDINGO WITH SKULL CAP

Liberia ♣

and this head-covering has become very popular, displacing to a great extent the really artistic embroidered and padded skull-caps of native manufacture.

The men of these Muhammadan tribes sometimes wear anklets, and they always wear one or more finger-rings. An



366. KRU WOMEN IN GALA ATTIRE, WITH ENORMOUS FINGER RINGS, RAM'S HORNS, AND BEAD NECKLACES

amulet of some kind (usually a verse of the Koran sewn up in leather) is hung round the neck. Individuals may wear five or six or even more of these oblong or oval-shaped amulets. In some cases they are much larger and nearly square, and are worn outside the clothing, depending from a plaited leather necklace. A three-cornered amulet is sometimes attached

Anthropology: Physical

to the same necklace and worn down the back between the shoulders.

Many Mandingo men carry a *whip* with several long thongs. This in origin was an implement for coercing slaves,



367. KRU WOMAN WITH "SHIELD" FINGER-RINGS
AND HAIR ORNAMENTS

but it has come to be a mere symbol of gentility. The foundation of the stick is usually some supple twig, round which thin strips of leather are artistically and tightly plaited. In the middle of the whip there is often a boss or swelling decorated with bright-coloured fur or scarlet leather. The whip at each

Liberia ♀

end has an ornamental loop by which it may hang from a



368. KRU WOMAN

finger. The thongs are either double or quadruple, and are of finely plaited strings of leather.

The Mandingo *women*, and those of the Gora and Vai



369. GORA WOMEN

Liberia

tribes, are generally nude from the shoulders to the waist. From this point cloths of great breadth and length are wound several times round the body, perhaps tightly girdled round a high waist by a string, and then pulled up and over the girdle in additional folds or loops. A loose cloth—very often a piece of rich-coloured velvet—is thrown over the shoulders at times. Round the head is bound bright-coloured cloth something like a turban. The Vai women wear most artistic *silver ornaments* in this coiffure. It is very seldom, however, amongst these Muhammadan women, that anything is worn on the feet. They have bracelets, anklets, and rings, and necklaces of beads as amongst the naked Kru women.

With regard to *artificial adornments* or *mutilations* of the body, the Mandingo—at least the men of that nation—seldom practise tattooing¹ or the much more hideous *cicatrization*.² Some of the Mandingo women, however, practise tattooing, either because they are conservative or because they like to imitate tribes amongst whom they dwell.

The Vai men do not usually tattoo or cicatrize nowadays,³

¹ Binger, however, reports that the Mandé of Kong and the Niger Basin north of Liberia incise their cheeks from temple to corners of mouth on either side with three deep lines: adding sometimes a cross or a † to the middle of the forehead.

² Cicatrization, which means the cutting of deep incisions or the raising of blobs or scars on the skin, prevails through a great deal of Negro Africa, from the Guinea Coast to the Benue River, the Egyptian Sudan, the interior regions of the Congo Basin, the shores of the Great Lakes, the Portuguese province of Moçambique, and some countries to the north of the Zambezi. It was probably a much earlier practice than tattooing. This last in all likelihood has been introduced by the Caucasian from the north, whereas cicatrization may have originated amongst the Negroes. The process begins by slashing the skin with a knife, spear-head, or razor; and where a raised scar or "blob" is wanted the acid juice of some fruit or herb is dropped into the wound and raises a prominent cicatrice.

³ Büttikofer asserts that they did—as late as twenty years ago—and that the body marks made on the Vai men were a double row of small cicatrices down the back, extending from the nape of the neck to the end of the spine.



370. A BASĀ WOMAN OF THE CIVILISED TYPE (BECOMINGLY AND APPROPRIATELY CLOTHED)

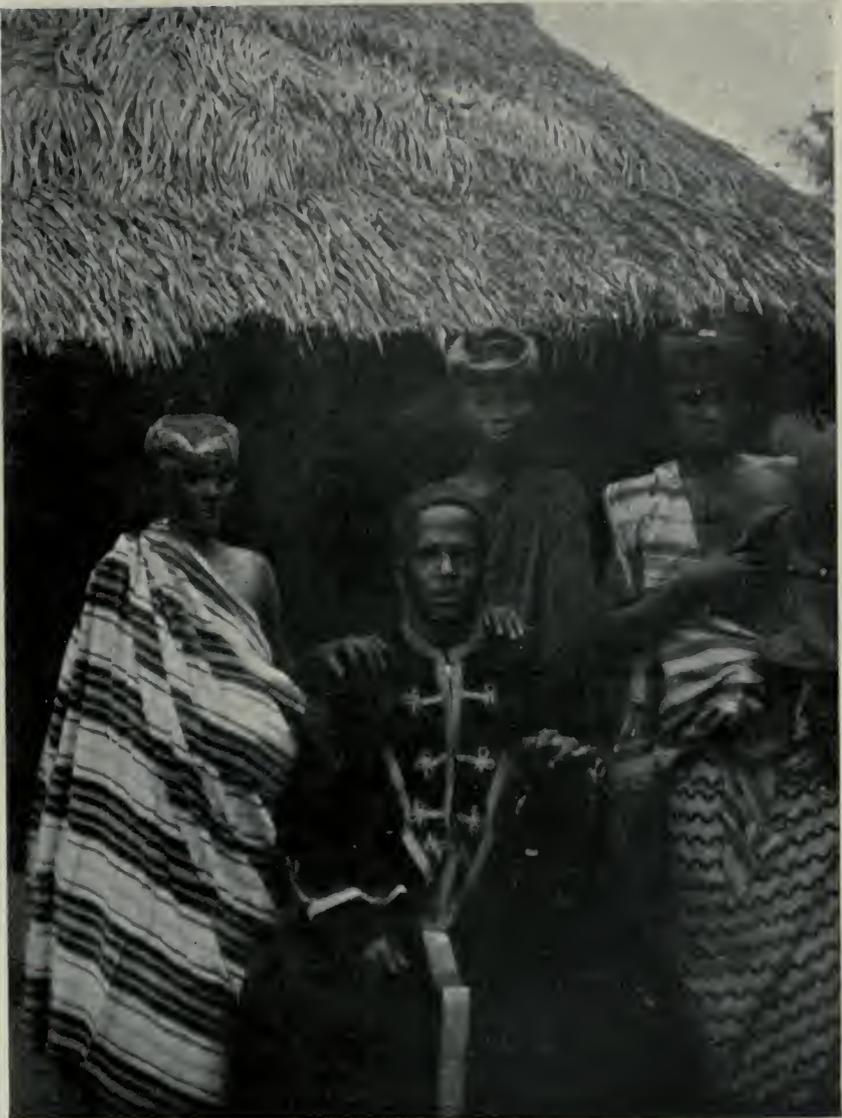
Liberia

but on the other hand their women almost invariably practise cicatrisation. This is done, generally when they pass through the Sande or bush school of initiation just before puberty, on the back, chiefly over the loins. The pattern which is thus marked in raised scars is either diamond-shaped and divided into a sort of chessboard arrangement (as indicated in my drawing), or else takes a shape resembling two triangles partially fused, overlapping at the apex. This pattern is best explained by the accompanying drawing.

The Gora women have their backs marked in much the same manner as the Vais.

The Kpvesi people also practise cicatrisation, confining this adornment as much as possible to the back, which is often marked in the manner illustrated in my drawing. They do not practise tattooing. The Kpvesi women, however, do not cicatrise their bodies to anything like the same extent as the men: they generally confine themselves to the Vai patterns on the loins.

This *insertion of colouring matter into the skin* occurs a good deal amongst the Kwia, Gibi, Basā, and Kru people. The Kwia men are tattooed with slanting lines on the sides of the neck, the shoulders and arms. So are the Gibi men and women. The Basā men have the broad blue stripe down the forehead and all the bridge of the nose which is so characteristic of the Kru people. This generally consists of a number of horizontal cuts made with a sharp knife, into which charcoal, soot, gunpowder, or indigo is introduced. When it has healed it presents an inch-broad striated band of slightly raised skin of an indigo-blue colour. The Gibi and Basā men frequently tattoo their chests with two blue stars and a broad horizontal line as represented in my drawing. These marks are sometimes repeated on the forearms. The



371. A VAI CHIEF (SINKO) AND HIS WIVES

Liberia ♀

Kru men and women tattoo their foreheads with the same broad band as the Basā ; but in addition they sometimes make two blue



372. A VAI WOMAN, WESTERN LIBERIA

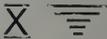
triangular marks, starting from the outer corner of each eye and extending to the edge of the cheek-bone. These are the



373. A VAI WOMAN WITH SILVER HEAD ORNAMENTS

Liberia

distinguishing Kru marks in addition to the blue forehead and nose. The Kru men tattoo their arms a good deal, but this is a practice probably learnt from European seamen, and the patterns they adopt are usually of the same origin. They are, however, fond of having either their English or their native names tattooed in Roman capitals along the forearm. Their women imitate them in this.

The tribes to the north of the Kru and Grebo people (the last-named do not practise much tattooing or cicatrization) confine their body ornamentations to raised scars, and apparently do not tattoo with colour. Mr. John Gow informs me that the Sikoñ people have in most cases (but not always) the forehead and nose mark of the Kru and Basā. When this mark is absent, it is because the person to be operated on feared the pain so much that he somehow evaded the rite. The Sikoñ people—the women more than the men—are cicatrized on the back and on the chest. The marks are generally these: 

The Vai, Gora, Kpwesi, and Kru peoples are a good deal given—especially amongst the women—to *decorating the skin* with brown, grey, or *white earth* (these substances are generally derived from some form of kaolin) or stripes of indigo. Amongst the Vai, Gora, and Kpwesi women this is often done at the time that the girls go through their *period of initiation* in the bush school. At such times they cover all their bodies with whitish clay, which gives them a peculiarly hideous appearance. A Kru woman when getting herself up in gala costume smears her face with brown clay, and then draws round each eye a large circle of white kaolin. The Basā women have much the same custom.

Behind the Kru peoples of the coast it occurs sometimes that the warriors of the cannibal tribes paint their bodies with white, yellow, red, and black earths when getting ready for war



374. VAI WOMEN

Liberia

or if preparing for certain dances or ceremonies ; but as a rule the fighting men of those tribes prefer head-dresses and plumes to skin decoration.

As regards *mutilations*, the Kru men generally file a gap between the two middle incisors. The Dē men extract one or two of the middle incisors in the upper jaw. These mutilations of the teeth are illustrated in some of my photographs. I have not heard of any cases of the filing



375. RAM'S HORN SET IN SILVER.

A common ornament worn under the arm by Mende and Vai women, and adopted also by the Kru women

of the incisors to sharp points such as is so characteristic of the cannibals and some of the Pygmies of the Congo Forest.

As regards *circumcision*, it is practised of course by all the Muhammadanised peoples (Mandingo, Vai, Gbandi, and Gora) and perhaps by the Buzi and some of the Goñ peoples in the north-east of Liberia ; but as a rule all the races of *Kru* stock *do not circumcise*, the Kru tribe especially holding that practice

• Anthropology: Physical

in abhorrence.¹ The ears of the women and sometimes of the men are pierced for the insertion of earrings. This, in Liberia, is rather a Muhammadan or European custom. Nowhere in this land does the practice exist—so common in Eastern and



376. A GBANDI WOMAN FROM WESTERN LIBERIA,
SHOWING STYLE OF HAIR-DRESSING

Central Africa—of introducing into the lobe of the ear discs of wood or stone; neither in any of these tribes do the women perforate and enlarge the upper lip.

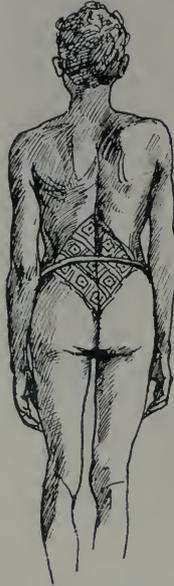
¹ Yet, as has been pointed out in several medical reports from West Africa, the Kru men stand greatly in need of this prophylactic custom, for reasons which may be gleaned from those reports.

Liberia

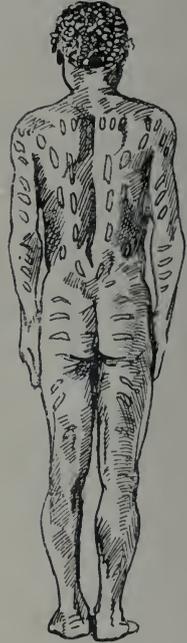
The indigenous Negroes of Liberia compared with those of other parts of Africa are distinctly a healthy and wholesome-looking people, nearly always of fine physique. Amongst the diseases recorded in the medical treatment of natives on the coast or at no great distance in the interior are : (1) Gastric and



377. PATTERN INSCRIBED
ON BACK OF VAI
WOMAN



378. PATTERN INSCRIBED
ON BACK OF VAI
WOMAN



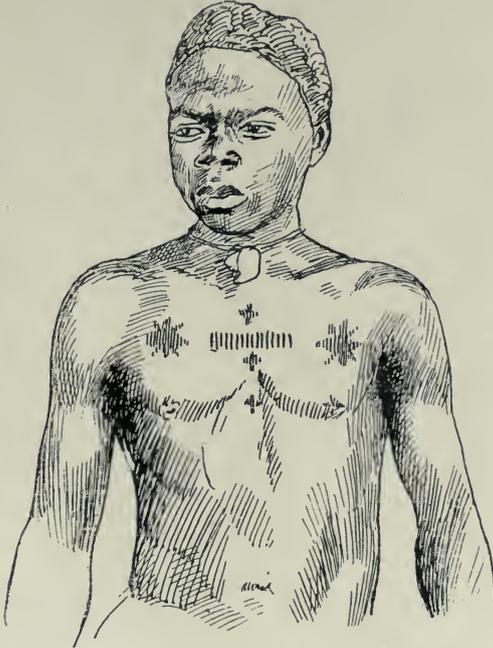
379. CICATRISATION ON
BACK OF KPWESI
MAN

intestinal diseases (chiefly diarrhœa and dysentery); (2) respiratory diseases (pneumonia and pleurisy); (3) muscular rheumatism; (4) diseases of the genital organs; ¹ (5) skin

¹ I should say compared with other parts of Africa that the Liberian peoples were as yet singularly free from what has been a curse and a cause of depopulation in many other parts of Africa—I mean syphilis, a disease certainly introduced into Africa by the Caucasian in the first place, the principal agencies being the European sailor or soldier from the coast and the Arab or Muhammadanised Negro merchant

• Anthropology: Physical

diseases (boils, nettle-rash, yaws, craw-craw, and the results of jiggers—burrowing fleas—eating into the hands or feet); (6) inflammatory swelling (such as buboes); (7) diseases of the joints; (8) diseases of the eye; (9) diseases of the throat;



380. TATTOOING ON CHEST OF A GIBI NEGRO

(10) malarial fever; (11) sleeping sickness; (12) ainhum or amputation of the toes; (13) leprosy; (14) Guinea worm.

Guinea worm is very common amongst the Mandingo peoples in the more open country beyond the forest, and of

coming from the north and east. In Liberia this disease is manifested worse perhaps at those places on the coast where there is most intercourse with ships. As a rule, however, the Kru country is singularly free from it.

Neither does *Gonorrhæa* (Vai name, "kania") appear to be very common amongst the Kru people; but *Balanitis* and *Phimosis* occur somewhat frequently.

Liberia •

course their sufferings from this parasite are observable when any one who is infected with it reaches the Liberian coast towns. The Guinea worm (*Filaria medinensis*) in one of its stages of microscopic smallness enters the body of a minute water crustacean—*Cyclops quadricornis*—which acts as an intermediary host for the worm embryos. From the human stomach the



381. MARKS ON KRUMAN'S FACE, FOREHEAD, AND TEMPLES

embryo of the Guinea worm penetrates in some way to the blood, and then passes into the subcutaneous tissues. Here, under the surface of the skin, it develops till it reaches maturity.

This parasitic worm found in the human body is only of the female sex. "It is supposed" (writes Dr. J. Graham Forbes)¹ "that the minute female embryo of this worm is

¹ In a report published by the African Society, March, 1905.

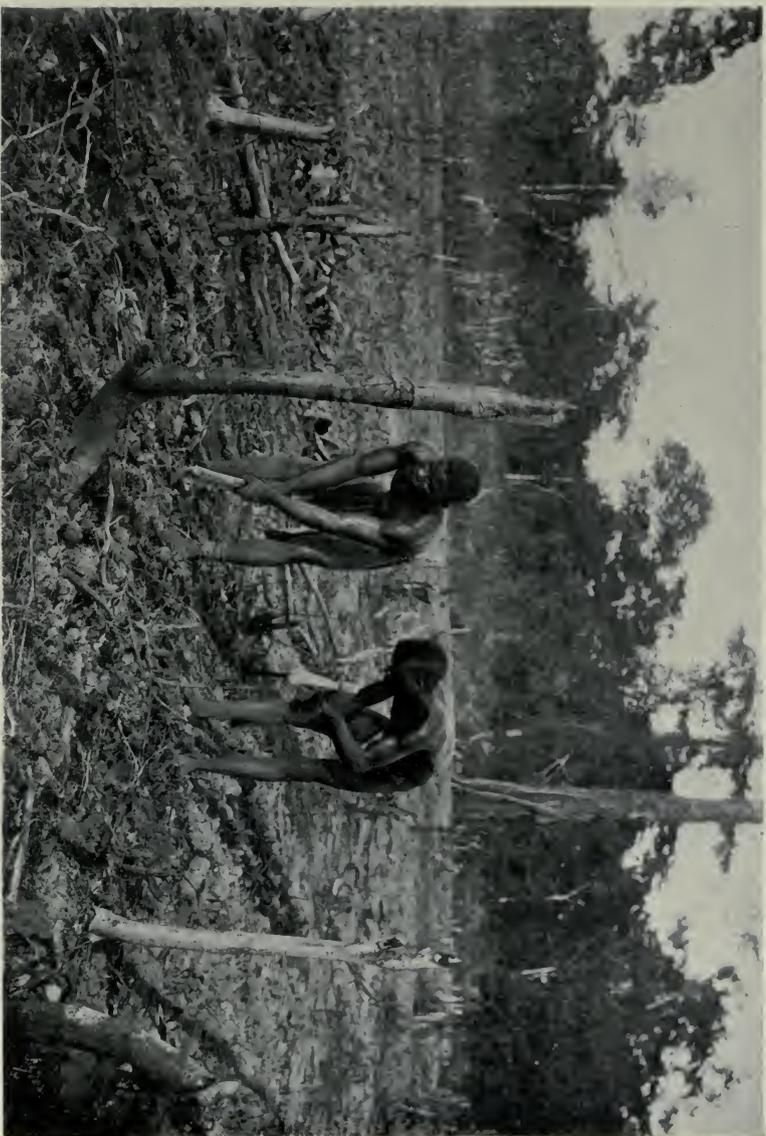


382. TWO DĒ MEN : THE ONE ON THE RIGHT SHOWS MISSING INCISOR TOOTH
IN UPPER JAW

Liberia

impregnated by the male before it enters the human body. Once this female worm has entered the human tissues, it grows to a remarkable length, and develops an enormous uterus, which is crowded with actively mobile embryos. The fully developed worm measures as a rule between two and three feet, but its diameter is only one-sixth of an inch. It has a blunt head at one end, but the tail at the other extremity develops into a hook by which the worm is able to retain its hold. When the female has brought her embryos to a sufficiently advanced stage for setting them free in the world, she begins to move through the tissues under the skin towards some point of escape from the human body. Usually—that is to say, in by far the greater number of cases—the worm pierces the skin and begins to protrude in the legs or in the feet. Much more rarely the worm appears in the skin of the arms or of the abdomen, of the sexual parts or the back. One or two instances have been recorded, however, wherein this long *Filaria* worm has worked its way up into the face. When it is getting ready to leave the body, it is often distinctly visible as a slender, twisted cord under the skin. Gradually its head reaches the surface of the skin, causing a large pimple to form, through the top of which at length the head is visible.”

When this occurs the West Coast natives treat it in a manner which throws an interesting light on the course that Nature might take if she were left to herself: they souse the open boil with cold water. Instinctively the worm ejects or protrudes its uterine sac from the oral aperture. This is a thin membranous bag containing a slightly opalescent fluid swarming with minute embryos. The protruding bag then ruptures and sets free the tiny worms. No doubt this is what would occur if by chance the *Filaria* found itself near water. The embryos would then escape into the water, take refuge



383. PREPARING A RICE PLANTATION

Liberia ☛

in the body of the water insect above mentioned, and so continue their strange cycle of existence. No doubt this spread of the worm often occurs through the Negroes standing in water in order to wash the affected part. By continued douching the worm protrudes an inch or so of its length. It is then cautiously but firmly seized, and the protruded portion is attached to a small stick. This is given two or three turns a day until at last the whole worm is wound up and removed from the body. The winding has to be most cautiously undertaken, or the worm will break, and serious results might follow caused by the portion of the creature that remains in the body.

A West Coast Negro may sometimes have as many as twenty-five of these Guinea worms in his system. Cases of five or six at once are not uncommon. It is thought that the germ enters the body not only through the stomach but also through any wound or abrasion.

Sleeping sickness occurs in this country sporadically, mostly in the western districts. It seems to be traceable, on the Mandingo highlands, back to the thirteenth century, so far as recorded history is concerned. In Liberia it became noticeable early in the nineteenth century: Doalu Bukere, the inventor of the Vai alphabet, died from this disease. The Mandingo from the St. Paul's River illustrated in the frontispiece to Vol. I died of sleeping sickness in 1905. The symptoms seem to be the same as those characterising the disease in Congoland and Uganda.

As regards *remedies* for the simpler maladies, the native pharmacopœia is well supplied with drugs derived from vegetable substances and a few minerals. As on the Gold Coast and in the Niger Delta, trade gin enters largely into the composition of some of the medicines. So far as I can ascertain, the vegetable drugs in use amongst the natives of Liberia are

384. WOMEN CUTTING RICE WITH SMALL KNIVES



Liberia

derived from the following sources: The seeds of *Strophanthus gratus* (which is a deadly poison, and is probably the basis of the arrow-poison), the leaves of the *Funtumia* tree (? *F. africana*), Guinea grains (Malagueta pepper), kola nut, one or two kinds of *Cassia*, the leaves of a verbenaceous plant with a blue flower and long flower-stalk (*Stachytarpheta*), the seeds and bark of several kinds of acacia, a shrub which on the Gold Coast is called *Ahame*, the leaves of the *Colocasia* arum, the fibre of pineapple leaf, the leaves and juice of the lime (*Citrus*), the bark of the silk-cotton tree (*Bombax*) reduced to ashes, the skin of bananas treated in the same way, ginger, palm oil (an ingredient used in a hundred different ways, internally and externally), and the seeds, leaves, bark, or roots of a great many trees and shrubs not yet identified by their scientific names.

In addition to these vegetable substances, gunpowder, clay, kaolin, iron ore, iron rust, and mutton fat are used.

Palm wine, fermented or unfermented, is used with some mixtures, and trade gin, as already stated, percolates through a good many of the remedies. Indeed the use of this much-decried form of alcohol in the interior of Liberia, as in other parts of West Africa, seems to be much more medicinal than anything else.

The *food* of the aboriginal Liberians is mainly of a vegetable character. I have already alluded to the period in their history at which cultivated *rice* was introduced (probably from the north). *Maize* or Indian corn has been introduced here and there during the last hundred years by the Americo-Liberians; or by the Mandingo from the north, who of course received it from the Senegambian coast, whither it was brought by the Portuguese from America. The principal sources of vegetable food possessed by the aboriginal Liberians at the present day are nearly all of foreign introduction, and as most of them come



385. OUTSKIRTS OF GORA VILLAGE, SHOWING SMALL CLAY RECEPTACLE FOR GRAIN
(POSSIBLY FETISH HUT)

Liberia ♣

from America and have only been in vogue during the last two or three hundred years, it is difficult to understand what the Liberian savages lived on (unless they were more cannibalistic and carnivorous) in the days before the Portuguese, French, and English introduced into the coast-lands of their country the food staples of Tropical America or the Mandingo brought from the north-west the cultivated plants of the Sudan.

For example there is the manioc or cassava (*Manihot*, a species of *Euphorbia*).¹ A favourite way of preparing this for food is as follows: The manioc roots are pared of their outer rind and then boiled till quite soft, after which they are mashed in a wooden mortar until they form a thick, stodgy paste. This paste is rolled into gluey balls, which are then cooked again in a liquor of meat, fish, or palm oil, something as dumplings would be in broth. The soup is much seasoned with pepper, and a good deal of red pepper is mixed up with the manioc balls. This form of food is generally eaten by means of spoons. Small pieces of the manioc paste are cut off with the spoon and swallowed whole with mouthfuls of soup. It is impossible to chew this form of manioc, as it would stick the jaws together.

The manioc planted in Liberia is of two kinds—bitter (*Manihot utilissima*) and sweet (*M. palmata*). The former has a minute proportion of prussic acid in the tuberous roots which must first be got rid of by scraping and soaking. The latter is without this disadvantage, and the roots can be eaten raw. The cultivated grains of Liberia are *Guinea corn* (sorghum), *rice*, and *maize*.

Amongst other cultivated vegetables and fruits, there are the sweet potato, arrowroot (*Maranta*), guava, tomato, okro²

¹ Known to the Americo-Liberians as "dumboy"; Vai "dumbai."

² The okro or edible *Hibiscus* (*H. esculentus*) is known as "gboñboñ" among the Vais. The young seed pods are eaten, and they make a most delicious vegetable.



386. ROOF FRAMEWORK OF VAI HOUSE (OBLONG SHAPE)

Liberia •

(mallow-fruits), papaw (*Carica*), pineapple, alligator pear (*Persea gratissima*), sugar-cane, and coconut. More or less indigenous to Africa are the yams (*Dioscorea*),¹ pumpkins, banana and plantain,² oil palm, *Colocasia arum* ("coco" yam), ground-nut, wild coffee, *Portulaca* (a kind of sour spinach), the yellow plums of *Spondias lutea*, the sweet farinaceous fruits of *Parinarium macrophyllum*, the sweet sop and sour sop, the alligator apple derived from different species of *Anona* of American origin, and the indigenous *Anona senegalensis*—the "wild peach." The nuts of *Coula edulis* (known to the Vai as "dôña") are excellent eating and very nutritious; they are nearly the size of a walnut and taste like hazel-nuts. Wild coffee apparently passed unnoticed amongst the natives: at any rate they took no account of it in the same way as was done so markedly by the Gala aristocracy that invaded Eastern Equatorial Africa.

Onions reached the western parts of Liberia from two directions: first of all brought through the Mandingo and their trade with the Arabs; secondly, and much later, they came in European trading ships. Onions³ perhaps are cultivated nowhere in Liberia amongst people not Muhammadan, and are therefore confined to the northern and western parts of the country. The Americo-Liberians during the last eighty years have introduced the bread-fruit (*Artocarpa*) the orange, lime, lemon, mango, and on the coast numerous European vegetables. Beans⁴ and peas of most cultivated African kinds (no doubt of Oriental origin) are confined as a rule to the natives of Eastern and Northern Liberia. Mr. Sim states that they are one of the

¹ Though these may have come originally from Asia. There are, however, wild yams, known as "jambi" by the Vai.

² The plantain came from Asia; the short banana from the West Indies.

³ See p. 901.

⁴ "Sô" or "Kamma-sô" in Vai.

● Anthropology : Physical

principal articles of food in the Nidi country, along the Duobe River.

As regards spices, there are possibly two or three kinds of indigenous pepper already described, and the spice derived from Malagueta (*Aframomum*). Cayenne pepper (*Capsicum*) has been introduced from America.

Tobacco can hardly be included in a category of food-stuffs, but as an article of consumption it might be mentioned here.



387. VAI HOUSES IN PROCESS OF CONSTRUCTION

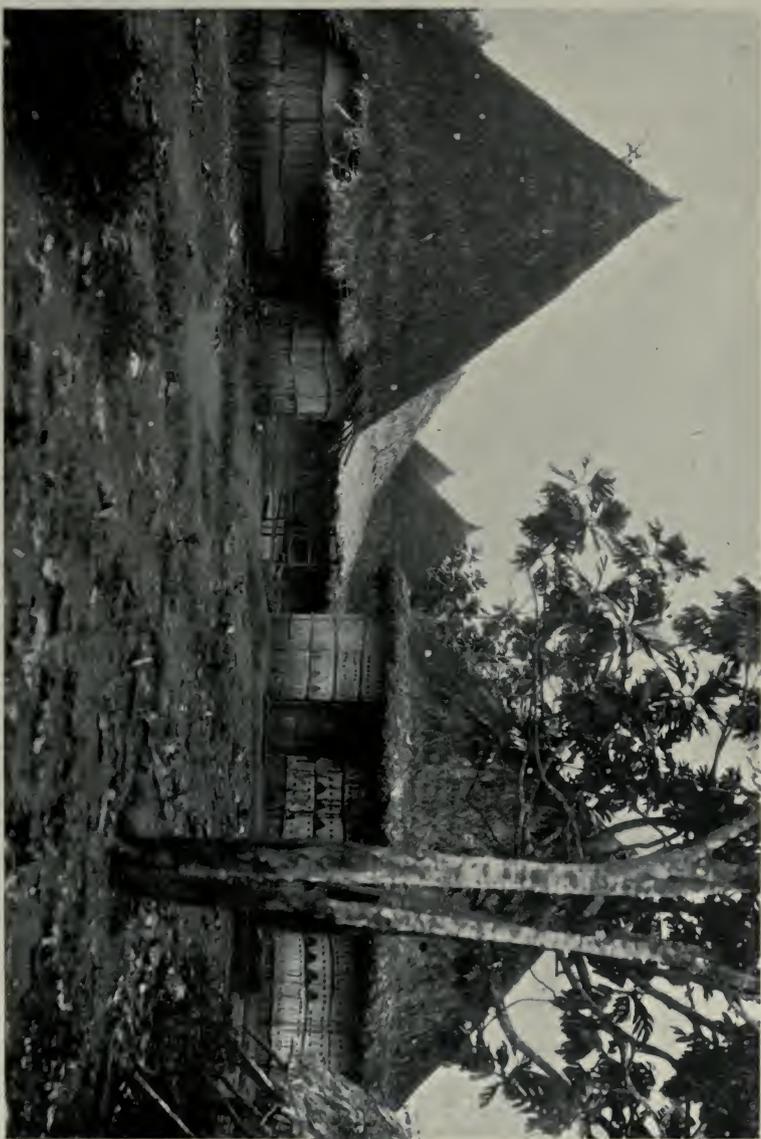
There can be no question that this plant originally came from America, and it is wonderful how throughout Africa it has (with occasional lapses) preserved its name (*taba*, *tambaku*). Binger questions, indeed, whether some form of tobacco was not indigenous to Africa, as he finds it difficult to conceive how it can

Liberia •

have penetrated so early to the remotest parts of the Niger Basin. It is perhaps at the present day the most widespread cultivated plant throughout Tropical Africa, and the one which has entered most closely into the category of native wants. Yet a careful inquiry always results in its origin being traced back to the intercourse with America which began in the sixteenth century. There is distinct evidence of smoking having occurred long before the introduction of tobacco, but it was *hemp* that was smoked, and not tobacco. Hemp is almost universal as a cultivated plant throughout Africa, but probably had an Oriental origin, and the vice of hemp-smoking reached Tropical Africa perhaps as much as a thousand years before tobacco-smoking was established. I have not noticed hemp-growing or smoking anywhere in Liberia except by Americo-Liberian Negroes of Congo origin, nor have I ever heard hemp-smoking amongst the indigenes alluded to by other travellers in that country. Tobacco is used as snuff by some of the interior tribes, but the smoking of it and the use of pipes are much more prevalent than snuff-taking. The use of tobacco as snuff possibly preceded in Africa the custom of tobacco-smoking, but it does not seem a common practice in Liberia.

The staple of the Negro's food in Liberia is either rice,¹ manioc, or yam. These substances are usually cooked by steaming or boiling, and are then served in large wooden bowls. The natives sit round these bowls, and generally have in addition some appetiser, such as palm oil, which is often poured over the rice or yam, or a palm-oil stew, in which any meat procurable is cooked. Rice is sometimes parched and then

¹ There are two or even three kinds of rice in Liberia: a good kind, fairly white, which has been no doubt introduced by Europeans and Americans; a red rice, possibly of Eastern origin; and a small semi-wild grain known as "manikoro," with a blackish husk. This kind, which ripens very quickly, is said to have been brought by the Mandingos.



388. HOUSES IN A GREBO VILLAGE (INTERIOR OF MARYLAND)

Liberia

ground into fine flour, or it is soaked, dried, and pounded in a mortar. This flour is used to thicken stews or palm-oil soup. A very favourite vegetable dish is the truly delicious "palm cabbage" (Vai, *boro*). This is the heart of the oil palm, and its extraction kills the tree. A sort of spinach is made from



389. IN A PADEBU VILLAGE NEAR THE CENTRAL CAVALLA
Showing circular clay houses, platform for drying grain, and lofty (?) fetish poles

various leaves, especially those of the shrub *Portulaca*. Away from the coast, the small sweet banana, which was probably introduced from America, is not met with: the plantain or long banana is the only kind, and as a matter of fact no traveller seems to note any abundance of banana groves. Although the

• Anthropology: Physical

climate ought to be well suited to its growth, the banana does not take any important place as a staple of food in Liberia. In all probability, as no form of the edible banana is really indigenous to Africa, it has scarcely penetrated as a cultivated plant into all the recesses of the Liberian forests.



390 NYENEWODOKE, A VILLAGE ON THE LIBERIAN BANK OF THE CAVALLA RIVER
(KETIEBO COUNTRY)

Fish, of course, makes a very good second to vegetable food in the diet of the coast tribes, and dried and smoked fish make their way a certain distance inland as an article of trade. Fish are also procured from the rivers, and are a favourite article of diet throughout the country, except in such rare instances as

Liberia ♀

when some religious or totemistic custom interferes with their consumption.

Except where prevented by superstition (as will be seen in the paragraphs dealing with totemism) from eating any beast, bird, reptile, or fish, the Liberian Negroes are singularly catholic in their tastes. Almost every vertebrate and not a few insects are in their eyes edible. I have already alluded to the cannibalism which prevails amongst the Kpwesi and Kru races. They will also eat the flesh of the leopard (except when superstition forbids), all forms of monkeys, the hippopotamus, all antelopes,¹ in fact, any mammal they can get hold of, from a mouse to an elephant. They will even eat the hides of creatures after removing the hair. This is one of the reasons why it is so difficult to obtain skins from the natives for natural history collections. Every bird is good for food, as are also the Monitor lizard and several snakes, but most other lizards seem to be disliked. I have not heard that they eat crocodile, but I should think it probable. The flying males of termites (white ants) are of course a delicacy, as everywhere in Africa. Not a few beetle-grubs are eaten, especially those very large ones which burrow into the heart of the oil palm. They do not seem to like the eggs of domestic poultry, but of course they eat the flesh of fowls.

As to drink, the country is ordinarily well supplied with water. The sap of the oil palm, of the *Raphia* (*R. vinifera*), the wild date, and perhaps the *Borassus* is the national beverage, either fresh or fermented. European alcohol (usually gin) is employed more as a medicine than a stimulant. But the coast Kruboyes are a very drunken lot, and some of the pagan chiefs

¹ Except perhaps the black duiker (*Cephalophus niger*). There is a strong prejudice against this animal, which may be partly totemistic. Its flesh is said to produce some kind of blood poisoning, manifested by an itchy skin disease.

• Anthropology: Physical

inland have a craving for rum and brandy. Muhammadanism fortunately induces abstinence where it obtains a hold.

Whilst dealing with the food question it may be as well here to enumerate once more their domestic animals, kept of



391. A "CLUB," OR STRANGERS' HOUSE, IN A VAI VILLAGE

course in the main for purposes of food. The ox of the types already described is much commoner throughout Liberia than is the case in other forest lands of Africa, and the natives are very fond of beef, though from thrift they rarely kill an ox for food, but prefer waiting till the animal dies from disease or accident.

Liberia •

Sheep and goats are kept for their flesh. Nowhere in Liberia do they seem to milk their goats or cows or to care about milk. Dogs are kept throughout the country, and the Vai people also have tame cats. In many parts of the interior of Liberia the smaller breeds of dogs are eaten. Mr. Sim notes the very large breed of dog which is kept by the Nidi people on the Duobe River.

Native *agriculture* in the coast regions is simple and perhaps somewhat degenerate. Most of the field work is done by women among the Kru peoples on or near the coast, because so many of the men go to sea for their livelihood as sailors or fishermen. Farther inland the people of all tribes are decidedly agricultural in their tastes, though they do not rise above the simple Negro methods, and have no idea of manuring (except by wood ashes) or of the rotation of crops.

When a new plantation is required, the men often aid one another in turn, voluntarily. The month of January or February is chosen for the purpose on account of the relative drought, the bush and trees are cut down, left for a short time to dry, and then burnt. The unconsumed logs are dragged aside as much as possible, and the women (or youths) set to work to hoe up the soil and mix with the clods the ashes of the burnt vegetation. The ground is then ready for sowing when the new rains fall in March or April.

Manioc (cassava or cassada) is often planted simultaneously with rice in alternate rows. The rice ripens before the cassada, and the tuberous roots of the latter then occupy all the round. But after one crop of any product the land is seldom tilled a second time. It is given up to weeds and bush for a long period, until this subsidiary growth is sufficiently developed to yield a supply of manure in the form of ashes or leaf-mould.



392. A NATIVE KITCHEN IN A GORA VILLAGE

Liberia

Rice is reaped by being cut in bundles by a small knife—such bundles of grain-heads as can be grasped by the hand : a very slow method of gathering. There is no such thing in native husbandry as a scythe or sickle : the nearest approach to this is the billhook (*siañ*) of the Vai. Maize (Vai, *nyoro*) grows exceedingly well in Liberia, but is surprisingly little cultivated by the natives or even by the Americo-Liberians, though green corn would be such a luxury for the table and the ripe maize would certainly be worth exportation. It is grown most of all in the Vai country.

Guinea corn or *sorghum* (*Holcus*) (a grain, no doubt, of Indian origin introduced very early into Egypt and the rest of Africa) is but little cultivated in Liberia. No doubt the climate of the forest region is too wet. The Vais call this grain *kendé* and cultivate it in the interior. It is also met with among the Mandingo, the Buzi, and the Kisi peoples. Pumpkins are much cultivated and gourds are grown everywhere, to provide utensils, drinking-cups, sounding-boards of musical instruments, dishes and bowls.

The native *agricultural implements* are few and simple. They are the ordinary African *hoe* (wood or iron), a matchet or long swordlike knife with a broad blade (nowadays imported from Europe), a small narrow axe, a billhook for lopping branches, a pointed stick for digging, and a few knives. All attempts to introduce the plow (or even the spade) have failed. The soil is too hard, there are too many tree stumps or roots for either implement to be conveniently applied to Liberian agriculture. The natives take readily to the use of the saw and adze, to the sickle and even to the scythe ; but the plow and spade—those most inappropriate emblems on the shield of Liberia—will long remain strangers to its agriculture.

The principal *utensils* used for cooking and eating are gourds,

• Anthropology : Physical

earthenware pots, and brass kettles (bought from European and Liberian traders) ; knives (either of native or European manufacture), wooden spoons, wooden bowls of all sizes, and wooden platters. The pots are made of red or black clay, and are sometimes quite artistic in design, studded with round knobs or engraved with variegated patterns. The spoons, which are cut out of solid pieces of wood, exhibit a surprising fancy and skill in their intricate carving and ornament. Grain and other comestibles are pounded in the large wooden mortars¹ with



393. A VILLAGE IN THE SABO OR SAFO COUNTRY, EASTERN LIBERIA

wooden pestles, so familiar to the traveller throughout Negro Africa. They, too, are cut from solid blocks of wood (the African is quite ignorant of joinery). Sun-dried bricks (in lieu of stones) are used to build up the hearth.

There are few of those cylindrical, clay-plastered granaries so universal throughout Moslem, Nilotic, and Bantu Africa. Occasionally one is met with in a Vai village. Grain is stored in the rafters of houses, between the thatch and the ceiling of palm

¹ Vai name, *wunu*.

Liberia

midribs. It is also spread for drying on lofty platforms in the open air.

The *houses* of the Liberian natives may perhaps be divided into two types, which, like the two breeds of cattle, are found widely distributed throughout Negro Africa, often side by side, and sometimes mingling their characteristics. They are the round and the rectangular or oblong. The round house in its most characteristic form is generally associated with the use of clay or mud as a building material. Though the framework is of wattle (usually) the clay is worked into this and plastered over inside and out with mud that has been well mixed. On this relatively smooth surface grotesque designs are often drawn. The roof, of course, is a framework of sticks or poles (very often the midribs of raphia palms) thatched with palm fronds, banana or other leaves, grass or reeds according to the district. In the forest region, of course, the thatch is nearly invariably of palm fronds or big leaves.

The oblong house, which is perhaps more characteristic of the forest than is the round hut (the last-named being more usually adopted by the Mandingo or Muhammadan tribes living in the open country), is the form generally met with on the Kru coast. The sides of these rectangular houses are often made of slabs of palm midribs.¹ They may be made of palm fronds or mats worked into a wattle frame. But sometimes the oblong house borrows from the round hut the principle of clay architecture. The tendency, in fact, is increasingly towards clay walls, on account of their greater security.

Far inland, on the Mandingo Plateau, the architecture is like that of the Niger Basin—buildings of considerable height with clay walls, and mosques of a wattle framework supporting clay, with minarets shaped like extinguishers. This, however,

¹ Usually mis-called bamboos,

• Anthropology: Physical

is quite a foreign style of architecture, due to Moslem influence, a faint reflex of the Saracenic, or even Egyptian.

The *Kru* house is of oblong shape. There is first of all a framework of sticks, into which may be interlaced the split midribs of the raphia palm. The roof is generally thatched with raphia fronds. The house is built on a low, hollow platform, raised above the ground on piles. The floor of the



394. A WOMAN MAKING CLAY POTS, LIBERIAN WESTERN BORDERLAND

house is generally made of the raphia midribs (“bamboos”). The interior is usually divided into three rooms separated by partitions, also of raphia planks. The partitions rise as high as a ceiling of the same material, which forms the ground of a loft under the roof. This loft, of course, is used as a store-room for many articles. The hearth is formed of clay in one corner of the house, and close to it is a window, sometimes

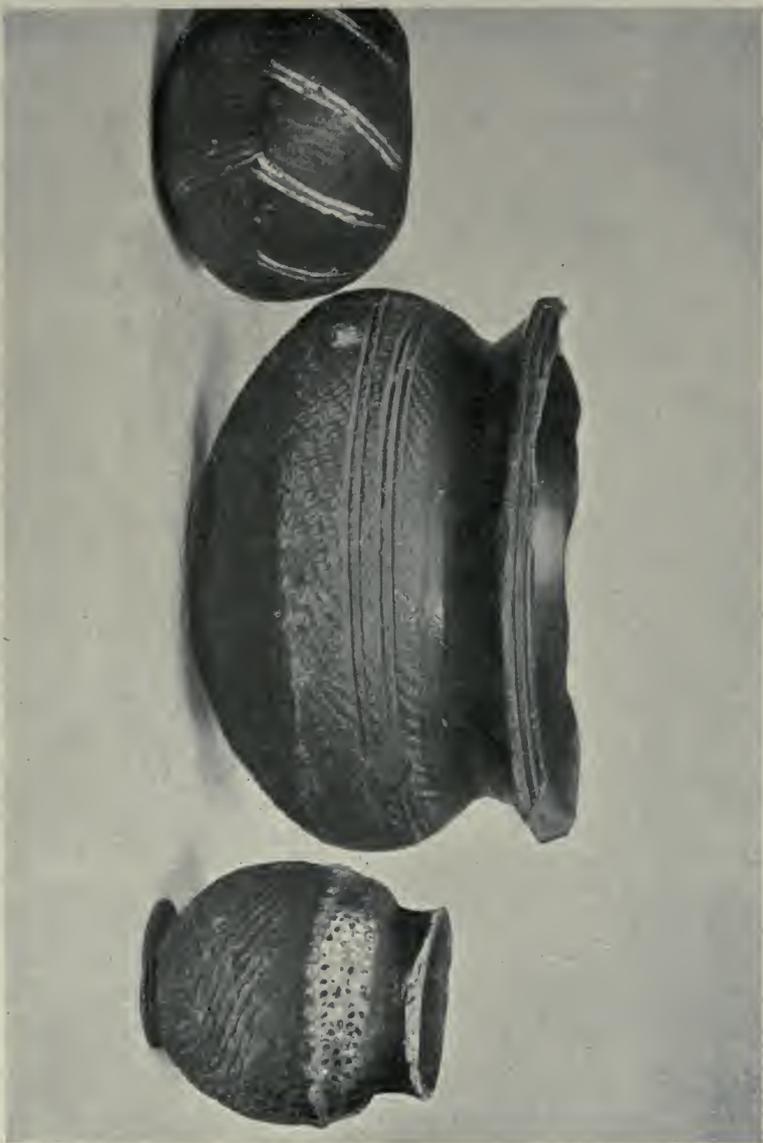
Liberia ♪

closed by a shutter. The window serves as a passage for the smoke, and also admits a little light to the cooking apartment, the rest of the dwelling being lit by the open doorway.

In the houses of the wilder Kru people of the bush there is very little in the way of furniture. Perhaps one or two rude seats or chairs made of tree branches or raphia midribs serve the purpose. As a rule the plank flooring is sufficient for a bed, with perhaps a skin to sleep on and a round block of wood for a pillow. But the houses of the well-to-do Krumen on the coast, and especially in the Liberian towns, have already attained a certain degree of comfort. The floor, as also in the case of the *Grebo* houses, is not infrequently of hard clay, raised slightly above the level of the ground, and there are beds, tables, benches, chairs, and even pictures (coloured supplements of *The Graphic*, for example) fastened to the walls.

The *Vai* houses are usually round and plastered with clay, as are also those of the Mandingo. The *Vai* and Mandingo always use beds, generally made of the indispensable palm midribs fastened longitudinally and side by side on a wooden frame with short legs.

The *Grebo* houses are frequently plastered with clay on the outside, and decorated with striking patterns in black and white. The floor is raised above the level of the ground outside, but is of solid clay; not of planks. The interior of the house is often much more spacious than it will appear from the outside. It is generally clean. These *Grebo* houses are often circular in shape. There may be a few screens or partitions erected to ensure privacy for the sleeping apartments. The interior may be open to the apex of the roof, but in all probability there are rafters from which things hang by string, or on top of which are put away *impedimenta*. The doors of these houses are usually made of raphia midribs fastened closely together by



395. POTTERY FROM WESTERN LIBERIA

Liberia

cross-pieces. The door may be secured from within by a long bar of wood. In nearly all the villages or towns of the interior there is a half-open guest-house or palaver-place with a lofty roof of palm thatch and a raised clay floor. This sometimes becomes the fetish temple of the village.

As regards ideas of *sanitation*, many of the Negro races of inland Liberia are distinctly in advance of the coast peoples, who have probably retrograded under European influence. The surroundings of the *Kru* and *Grebo* and some of the *Vai* villages on the coast are often filthy,¹ and probably insanitary from the accumulation of ordure; but away from the coast influence, most of the tribes, especially in Eastern Liberia, have latrines arranged in their villages, very similar to those which can be seen in Uganda. There may be as many as four latrines to a village. Sometimes the retiring-place is masked with high fences of sticks and thatch; in other cases it is open to view, and consists of a long pole laid horizontally on low supports of forked sticks, with a deep trench behind. From time to time these trenches or pits are filled up, and fresh ones are dug. There seems to be generally a discrimination between the retiring-places of the men and of the women.

The *manufactures* of the native races of Liberia are simple, except perhaps for the leather-work which has been introduced by the Mandingo, and the silversmiths' work amongst the *Vai*.

Pottery is made by all the tribes, even by the uncultured *Kru*; but in the coast countries, especially between Monrovia and Cape Palmas, the making of pots on the part of the natives has to a great extent become a lost art, through the introduction from Europe (dating from the fifteenth century) of iron pots and coarse earthenware vessels. It is probably in the *Vai*

¹ This is particularly so in the native quarter of Monrovia.

countries and in the lands more adjoining the Sierra Leone boundary and the French Sudan that indigenous Liberian pottery work is carried on at the present day, though French travellers report that the Kru races in the far interior about the Upper Cavalla make a good deal of pottery still, not being sufficiently in touch with the coast to have acted like the Krumen in replacing the native article by imported goods. The potters in almost all cases are women. The illustration of a female potter given on p. 1005 is from a photograph taken near the Sierra Leone-Liberian boundary by Mr. Firmin. The woman is of *Mende* race, but the women potters of the closely allied *Vai* tribe make exactly similar vessels of clay, dry them in the sunshine and the wind, and then bake them in the red-hot ashes of wood fires. In some parts of Western Liberia the jars for holding water or palm wine are very large, containing two or three gallons. In the *Kpwezi* country these large jars are often quite ornamental, with incised patterns in bands, and rows of knobs.



396. WOMEN POUNDING FOOD IN WOODEN MORTARS

Liberia

a stage that may even have preceded the Age of Stone, is the utilisation of *gourds* as receptacles for liquids and solids, and the shaping of blocks of wood into implements. I believe occasionally wooden hoes may be met with in the far interior of Liberia, just as they are found amongst savage races in East Africa. Wood-carving, however, is carried by most of the indigenous Liberians to rather an advanced art. Beautiful and fantastic spoons are carved out of solid blocks of wood. The spoon is an implement of widespread use throughout Negro Africa, and must have come into existence at a very early stage of Negro culture, soon after the stone knife, and long before any metal instrument. It is curious how very little any of these backward races think of the fork. There were no forks in use in England till the time of Queen Elizabeth.

Hewn out of a big block of wood by an adze (and anciently by the use of fire only) is the almost universal *wooden mortar* and *wooden pestle* used throughout Negro Africa for pounding. The shape of this wooden mortar scarcely varies between Senegambia and Zanzibar and between Somaliland and Natal. Büttikofer states that the wooden mortars made in Liberia are not at first hollowed out to their full depth, as a good deal of the wood is worn and triturated with the constant pounding, so that as the mortar is used its depth gradually increases—which means, of course, that with the food is continually mixed small fragments of wood. This perhaps is why the flour and other native food-stuffs prepared in these African mortars is so indigestible to Europeans; just as the flour that is ground between stones in Eastern Africa often produces disorders of the bowels if eaten by Europeans, being so full of minute stone grit as to be very indigestible. This experience has been the sad result of many honest attempts of missionaries to “live the life of the people,” an experiment which has nearly always resulted in prolonged ill-health.

• Anthropology: Physical

Besides mortars of various sizes (tiny ones are made of wood or of ivory for grinding snuff), the native Liberians make wooden scabbards (sometimes covered with leather) for swords, small wooden stools to sit on, and large benches; the framework of beds (amongst the Vai), and a variety of pots and dishes, some of these being obviously modelled on European patterns in earthenware. The *Vai*, *Mandingo*, and *Kpɛsi* people can



397. NATIVE HARP, SWORD, AND SCABBARD, AND MANDINGO WOODEN PLATES,
FROM NORTH-WESTERN LIBERIA

fashion, carve, ornament, and beautify the long boards with short legs, on which they play the game of *pô*. These boards are scooped out into a number of parallel holes wherein beans or other counters can be placed. This game, which is called *pô* in many parts of Liberia, is the familiar *baò* of Eastern (Bantu) Africa. It is apparently akin in meaning and origin to backgammon, and was originally introduced (it is thought) from

Liberia

Egypt, whence it has now spread all over Negro Africa. The boards which are made by the Vai are often quite beautiful as works of art. The upper part, with the small pools for the reception of the counters, is carved as a detached plank from the body of the shaped stand into which it fits. The substance is some rather hard white wood which is coloured with a deep



398. WOMAN CARDING COTTON

black dye, and this dye is removed in patterns, leaving a very decorative chequer of black and white.

The bodies of drums are also carved out of solid blocks of wood. There are long wooden trumpets fashioned in imitation (so far as shape is concerned) of the elephant tusks from which the older trumpets were made.

For such purposes, long and fairly straight elephant tusks are still employed. The Mandingo of the interior prob-

• Anthropology: Physical

ably have the well-known musical instrument which is widely spread throughout Negro Africa—a xylophone—made of long slabs of resonant wood. The *Vai* people have wooden calendars made of small wooden squares that are hung on strings. Besides what have been enumerated, the natives carve little fetishes or idols, more or less clumsily, out of wooden blocks.



399. WOMAN MAKING COTTON THREAD

They also make masks of wood (stained black), which are used in their initiation ceremonies or devil dances. The wooden masks that come from the eastern part of Liberia generally display a more serious attempt to resemble a human face than is the case with those used by the *Vai* people of Western Liberia, in which the face is reduced to a conventionalised design, though a great deal of attention is given to delineating an

Liberia

elaborate coiffure of hair worn in knobs. On the whole it may be said that the skill that all these people display in their wooden carving shows them to be capable of strong artistic development if led along the right paths.

The *gourds* which are cut in half by them make useful calabashes, or ladles or cups. Cleaned out and preserved intact they can be used as bottles or clysters. Some gourds are hand-



400. COTTON-WEAVING IN WESTERN LIBERIA

somely ornamented with engraved designs in black and white—conventional figures of men, crocodiles, elephants, combs, and dogs. Combs, perhaps, should have been mentioned amongst the wooden manufactures, as they are generally cut from that substance, though occasionally they are made from bone or ivory. *Mats* are woven or plaited by most of the tribes, usually from the useful filaments of palm fronds, sometimes also of grass. A

Anthropology: Physical

stiffer kind of mat is made from the outer rind of the palm stems or frond midribs of the much-used *Raphia vinifera*. The same material is used for the plaiting of fish-baskets and fish-traps. *Baskets* of all descriptions are manufactured from palm filament and fibre or from grass, some of them made with great neatness. Other fibres go to the making of string and coarse rope, and of thick string are made the slings which



401. A MENDE LOOM, ON WESTERN FRONTIER OF LIBERIA

are still used for hurling pebbles in some parts of the Kru country.

In the interior of Central Liberia (the Kpvesi countries), and also still more amongst the Negroes speaking Kru dialects near to the Cavalla region, *bark-cloth* is still in use. This bark-cloth is a kind of felt made from the bast, or fibre under the bark, of a fig tree, possibly of diverse species; bark-cloth, in

Liberia •

fact, of this description is widely spread throughout Negro Africa from Senegambia to Uganda and Nyasaland. It is a form of covering which preceded woven cloth, and succeeded the use of skins as a body-covering amongst the Negroes.

The Negro's *earliest covering*, as indeed that of primitive man all over the world, was the *skin of a beast*. The first modification that man adopted to improve this form of covering was to rub and tear the under-surface of the skin so as to render it supple. In rubbing these skins bark and twigs were employed, together with sand and fat. By the use of bark (no doubt moistened with water), the first idea of *tanning* skins arose. Then followed the idea of vegetable covering, or adornments for the person, when an idea of decency arose. The filaments of palm fronds and dried grass were tied together to make aprons or cloaks or head-dress. Then occurred the idea of stripping off the bast or the inner bark of thick trees; and it was found that by soaking this in water and beating it out with wooden mallets, it could be fused or felted out and rolled out in long, narrow strips. These strips were sufficient for the simple *tegi-pudenda* used by the Negroes (who also before and since that period have, like the legendary Adam and Eve, resorted frequently to bunches of leaves for this purpose); while increasing civilisation taught the Negroes to sew strips of bark-cloth together, so that some races, like the Baganda, acquired the fashion for this voluminous clothing before they learnt the art of weaving.

The plaiting of vegetable fibre is no doubt an ancient art in Africa, but *weaving* can only have been recently introduced into the land of the black man. It came unquestionably from the regions of the Nile, or Egypt, and was carried westwards across the Sudan to the valley of the Niger, and southwards through East Africa into parts of the Congo, Abyssinia, and

• Anthropology: Physical

Arabia. When Negro Africa was first visited by civilised white men, say in the fifteenth century, there can have been but few looms at work amongst the Negroes, except in the valley of the Niger, and in Muhammadanised Senegambia, in Hausaland, and Abyssinia (besides of course North Africa and Egypt). Four



402. LARGE PIECE OF COTTON-STUFF WOVEN AND DYED
IN WESTERN LIBERIA, ALSO DRUM FROM WESTERN
LIBERIA

hundred years ago (except in the regions just mentioned), the Negro either went nude or covered or adorned himself with dressed skins, with bark-cloth, with dried grass, leaves and palm filaments. There may, of course, in the Hausa Sudan and the valley of the Central Niger have been looms in existence before

Liberia

the Muhammadan period, brought thither by the spreading civilisation of Egypt. It is doubtful, however, whether weaving



403. A GIRL FROM THE CENTRAL ST. PAUL'S RIVER,
WITH HAND FISHING-NET

had penetrated into any part of Negroland before the uprising of Islam forced so much of Eastern culture into Africa, for in those days, before the eighth or ninth century, what was there

• Anthropology: Physical

for the Negro to weave? Though cotton in some species is indigenous to the Dark Continent, the idea of cultivating, spinning, and weaving cotton was introduced by the Arabians from India. The ancient Egyptians did not spin or weave cotton, but flax, of which they made linen, and no linen has ever



404. A GORA MAN FIRING GUN FROM ARMPIT

been known or cultivated in Tropical Africa south of the latitude of Khartum.

The whole of Nigeria and Senegambia being extremely well adapted, so far as climate or soil were concerned, to the cultivation of cotton, spinning and weaving rapidly spread as almost national industries for Western Africa to the north of the Forest Zone. If, as is probable, there was no such art in existence in these kingdoms of the Mandingo, Wolof, Songhai, and Hausa

Liberia •

before the tenth century, by the fifteenth cotton manufactures had become the most striking feature of West Africa (except in the savage portions still covered with dense forest). As already mentioned in an earlier chapter, during the first intercourse between the Portuguese and French on the one hand, and the Negroes, or Negroids, of West Africa on the other, cotton cloths were actually exported to Western and Northern Europe !



405. A WEST AFRICAN FORGE

At the present day *cotton-spinning and weaving* are probably restricted to the western part of Liberia, to the Vai, Gbalin, and Mandingo peoples, and to the Gora, Toma, and one or two other Kpwesi tribes under the influence of Mandingo culture. But the races belonging to the Kru family (except perhaps in the far north, as in the Nimba countries where they have been influenced by the Mandingo) seem to know nothing of spinning or weaving (except what has been taught them quite recently by industrial missions). The Kru races when first seen by the



406. A MANDINGO WITH SWORD

Liberia

white man were practically naked, or decked themselves with bark-cloth, dried grass, or palm filaments. The white man soon began to bring to this coast the products of the looms of Europe—first woollen cloth and linen, then cotton goods—so that the Kru races were not impelled by a desire for clothes to learn to weave and spin in their land, since, with the desire to be clothed came the white man with his cheap stuffs.

At the present time native cotton manufactures still hold their own in Western and Northern Liberia. This is due to some inherent good taste in the minds of the Muhammadanised people, and to the great durability and stoutness of the native cotton cloth.

Amongst the western Liberians cotton-spinning is done entirely by the women. The seeds are laboriously picked out of the wool by hand, and the cotton-wool is then dried in the sun, after which it is "carded" with a tense bow-string. The women wind loosely on to a rounded stick of wood swathes of carded cotton-wool. This spool is held high in the left hand. The thread is drawn away by the right hand with a twisting, turning motion, and is wound off on to another spool. The right-hand spool is weighted at one end with baked clay in the shape of a wheel. The spindle is worked with the right hand. The thread which it is desired to use coloured is dyed blue with indigo, red with camwood, and yellow with the introduced annatto, and also with the bark of certain indigenous trees. The commonest colour is blue; but white clothes are also much affected, especially by the Muhammadans.

A very good idea of the average hand-loom in Western Liberia is given by the photograph on p. 1015, taken near the Liberian frontier by Mr. Firmin. Unlike the carding and spinning, which are the work of the women, the weaving is done entirely by men. The widths of the cloth woven are very



407. A GRANDI HORN-BLOWER BLOWING IVORY TRUMPET (AT GENE, MANO RIVER, WESTERN LIBERIA)

Liberia ◀

narrow, seldom more than a foot in breadth. These lengths are neatly sewn together, so neatly that "country cloths" of great breadth seem at a little distance to have been woven in one piece.

As regards the *chase*, it has already been mentioned once or twice in this book that the indigenous Liberians are omnivorous, with as wide a range of appetites possibly as any people in Africa, from the cannibalism of the centre, north-east, and north-west to the eating of bodily parasites; taking into their dietary almost every beast, bird, reptile, fish, snail, and grub that they can get hold of. There does not seem to be any fishing with rod and hook, except on the coast, where the practice has been introduced by the Americo-Liberians; but in all the rivers and streams fish are captured by other methods: by attracting them to the surface at night-time with the glare of torches made of bundles of reeds or palm fibre, and then spearing the fish; by the use of hand-nets with long handles; by baskets and weirs placed across streams or in backwaters to catch the fish descending with the current; by the attraction of bait, or by poisoning the water with the bark of an acacia, which is said to stupefy the fish. Small animals are caught by means of traps, snares, and springes; the larger animals are sometimes killed by the poisoning of a heavily weighted harpoon above the animal's path to the water, or by the digging of pitfalls along such customary routes. Guns are used chiefly for the killing of elephants, leopards, and buffaloes. Formerly, poisoned arrows were much in vogue. Most of the natives in discharging a gun fire it from the right side, under the armpit, in the attitude shown in the illustration on p. 1019. In the western part of Liberia, the Gora, Gbandi, and Kisi people hunt the elephant assiduously, employing carefully dug pitfalls as well as the use of guns.

As regards weapons in warfare the Kru tribes use slings and pebbles in addition to guns and spears. *Shields* are almost



408. NATIVE METHODS OF CARRYING LOADS THROUGHOUT WESTERN AND CENTRAL LIBERIA.
("KIŃJA" IS THE VAI NAME FOR THIS LONG FRAMEWORK)

Liberia

extinct in Liberia, though they were in use to some extent four hundred years ago. A forest life renders the shield nearly useless.

Iron is smelted almost universally throughout Liberia, but less perhaps amongst the coast Kru people, who for their iron implements prefer to make use of imported iron from the European steamers. Farther away in the interior iron is smelted from the abundant ironstone; and the huge ant-hills of *Termes bellicosus* are generally made use of as furnaces.¹ The drawing on p. 1020 illustrates a typical forge, with bellows composed of wood, stone, two parallel gun-barrels, and blowers of banana leaves (the place of which is often taken by goatskins).

From out of this native iron they fashion long swords, knives, arrow-heads, spears, and such simple utensils as are required in the fashioning of these tools; also iron blades for the hoes, iron bells for music, fine chains, bracelets, and rings.

The *musical instruments* of the country scarcely differ from those of Negro Africa in general. There is a very elementary *harp* (see illustration, p. 1011), with a sounding-board below made of a calabash. The Mandingo, as already mentioned, use the *xylophone* or "piano" made of slabs of resonant wood. *Flutes* are also used by the Mandingo, the Buzi, and some of the tribes of the north-west. *Trumpets* are made from the horns of the bongo tragelaph (*Bocercus*) or from elephant tusks (see p. 1023). There are also wooden trumpets made to imitate the ivory ones in shape and size. Some really pretty music is derived from tapping *iron bells* or gongs. *Rattles* filled with seeds are shaken during the songs and dances (see illustration, p. 1053), and the *drum* (see p. 1017) of course is the basis of all popular music. It is made in varying shapes and sizes,

¹ For a description of a Liberian iron-smelting furnace, see p. 289 of vol. ii. of Büttikofer's *Reisebilder aus Liberia*.

• Anthropology: Physical

sometimes standing by itself, at other times carried slung round the body. Tiny little hand-drums with an exterior string lashing and painted red and blue are made in the Kru country.

The *means of transport and locomotion* resorted to, in addition to portage and walking, is the use of dug-out canoes on any sheet of water that is navigable.¹ Only the Mandingo coming from the north possess any idea of a beast of burden. They have horses of two or more breeds. Some of these—of a



409. A MANDINGO HORSE

pony-like type—find their way from the north through the forest to the coast. More often the Mandingo horses which one meets with (very rarely) in Liberian towns have come by sea from French Guinea. They do not thrive in the coast region at all. Where canoes cannot be employed for the transport of men and burdens, the traffic and commerce of the country are carried on by means of human portage. All burdens are

¹ No type of canoe but the "dug-out" is indigenous to the country. The canoe is simply a tree trunk hollowed to the requisite thinness by fire and by adzing.

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transported on the backs of men and women by means of the characteristic "kiñja," which is a kind of long pottle or hamper attached to a stout frame of sticks. This method of carrying loads is well illustrated on p. 1025, and characterises not only the interior of Liberia but much of Sierra Leone. A considerable native industry on the coast consists of boiling sea-water and making salt. This salt, fashioned into sticks, is almost a trade currency and circulates throughout the interior.

CHAPTER XXIX

SOCIAL LIFE

IT may be convenient to commence an account of the social life of the Liberian Negroes by describing the *initiation ceremonies* for boys and girls which prevail amongst nearly all the tribes except the very few individuals who have adopted Christianity. Even Muhammadanism has not led to their abolition. The men's school of initiation is known among the Vai as *Beri* and among the Kru and Grebo as *Kedib*. The women's school is called by the Vai *Sande*. The institution, however, seems to have fallen out of use to some extent amongst the Kru peoples in the coast region.

It is scarcely necessary to point out to students of Africa that this institution of *initiation schools* for boys and girls is not only widely spread throughout Negroland but is characteristic of most savage nations, reappearing in much the same form amongst the blacks of Australia. The "Grigri Bush" (as it is called in the pidgin English of the coast) appears in almost exactly the same form not only in Western Liberia, but in the interior of Sierra Leone, in the Congo Basin, and right away down to the Zulus and Basuto of South Africa. It has died out to some extent amongst the eastern Nilotic Negroes, and when Muhammadanism (still more Christianity) gets hold thoroughly of an African country, this institution disappears more or less completely; though of course it is so fundamental an institution in the growth of human civilisation

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that it even lingers or revives in Christian Europe or America at the present day in the form of confirmation services in branches of the Christian Church, in the Catholic sodalities, in boys' and girls' clubs, and so on.

In Liberia, as in other parts of Africa, initiation ceremonies generally commence with boys and girls on their approach to puberty. The two institutions for the different sexes are kept absolutely distinct. A man interfering with the women's school runs the risk of at any rate severe bodily harm, whilst any unfortunate woman who by blundering or of set purpose pries into the mysteries of the boys' school is more probably killed—and in some districts eaten.

To enforce regard for the teaching given in these assemblies, and respect for tribal custom, lore, and the wisdom of the elders, recourse must be had of necessity to a *bogey*, to what is commonly termed a *devil*.¹ The institution of this mysterious, somewhat supernatural personage may no doubt be traced very far back in human history, to the times which immediately followed on the birth of human consciousness and the dawn of religion. But it has sometimes occurred to the present writer to trace the origin back, the form devised for this disciplinary devil in West Africa, to the superstitious dread which the Negro of forested Africa feels for the gorilla or even the chimpanzee. Some of the masks and mantles of long imitation hair which are worn in the countries at the back of Old Calabar or even here and there in Liberia decidedly suggest the appearance of a man-ape. In Liberia the devil's mask is carved out of ebony or of other wood stained black. The voluminous dress is usually composed of palm filaments dyed black.

The men's devil in these Negro societies has to attend

¹ In Vai, the *Femba* (literally, *Fen ba*=big thing.)



410. THE BERI-NYĀNA, OR MEN'S DEVIL OF WESTERN LIBERIA
(THE BUNDU OF SIERRA LEONE)

Liberia ♪

to many matters, and is made use of for social discipline not only in connection with the initiation school of the boys, but also for enforcing obedience on womankind. It is therefore generally arranged that boys shall be initiated into the knowledge of what the devil really is upon their approach to manhood, and shall be bound to keep the secret on pain of death, or at any rate outlawry, while a woman attempting to find out the mystery of the men's devil is almost invariably killed. Thus (though no doubt they have cracks of scepticism) women and children in this part of Negro Africa continue to believe that the men's devil is a supernatural being. The men, of course, not being under quite the same degree of delusion, are probably not overawed by the women's devil, though public opinion allows considerable licence to the women at this time and in connection with this institution (just as happens in Australia), so that open scoffing, incredulity, or impertinent inquiry on the part of men would be punished to a considerable extent by a strike on the part of the women or a respectable degree of violence in their actions.

The devil which looks after the men's school amongst the Vai is generally known as *Beri-nyāna*. The women's devil is called *Femba* or *Sande-nyāna*.

In the case of most parts of Liberia except the Kru country the men's bush school seems to be in full force. Ordinarily, except where the tribe is Muhammadanised, the boys are circumcised at these schools in the bush, and at the same time are taught more or less the mysteries of sex and their duties and responsibilities as future husbands. Possibly here, as in South-east Africa, these initiation ceremonies are accompanied by indecent dances of a pantomimic kind, but from all the information I can gather there does not appear to be much, if any, deliberately intended indecency on these occasions

The boys may or may not pass from this simple rite of initiation (into sexual matters and tribal affairs) into more elaborate secret or Masonic societies of different kinds, and possibly of different grades, connected with the ages of the initiated.¹ Usually during these ceremonies they wear a special cap of plaited palm leaves and rub their bodies over with grey wood ash or white kaolin, or they may wear fantastic petticoats of fibre or leaves. The name possibly is changed at this time, the boy leaving the name of his childhood and adopting a new name conferred on him by the medicine-man or priest who conducts these ceremonies, either *in propria persona* or masking as a devil. The site of the school will be a place in the forest not too far from the village, where temporary huts are constructed and sentries are posted with rattles or flutes or horn trumpets to scare away women from coming too near their precincts. Amongst the Vai, a boy undergoing initiation is called *Duamba*, and a girl *Boni*.



411. A DEVIL-MASK OF WESTERN LIBERIA

The Kru and Grebo with their abandonment of *circumcision*, and possibly owing to their life on or near the coast in contact for several centuries with foreign ships and traders, seem to

¹ Amongst the Vai (who are mostly Muhammadan) a youth may stay for a few months in the *Beri* (for sexual initiation) or may spend years in that institution to become initiated into all the tribal Freemasonry. But civilisation and the demands of commerce for labour are sapping these silly practices.

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have given up the initiation schools for boys in favour of a number of leagues and societies, secret or otherwise. An interesting description of those which were in force amongst the Grebo people about sixty years ago is given by the late Rev. J. S. Payne (see p. 1078). Though these institutions have weakened very much in the vicinity of Cape Palmas and the Christian missions established in that part of Maryland County, they remain in other parts of Eastern Liberia practically unaltered at the present day.

Beyond the coast belt, the boy and girl initiation schools appear to be pretty much the same amongst the people of Kru stock, the Ngere or Goñ, and all the Kpvesi and Gora tribes, except that the Kru peoples do not circumcise. The Basā-Gibi people follow much the same customs as the Kpvesi, the Vai, the Kisi, and the other tribes of Western Liberia. The Vai only differ from the others in that, being Muhammadan (as are also most of the Goras), *circumcision* is performed on the boys soon after birth. They do not wait to perform this rite on the approach of puberty. It is in this particular that one may discriminate in Africa between the aboriginal rite of circumcision, which was mainly prophylactic, and the introduction of that practice as a solemn religious rite derived from the teaching of the Semitic races of Palestine and Arabia. In these, as in the Ancient Egyptians, the practice of circumcision no doubt arose, as it did amongst the Negroes, for reasons of purely physical necessity. But to enforce compliance with this rite superstition gradually wove round it a religious significance,¹ so that when it was reintroduced into Africa after the uprising

¹ I do not think that sufficient evidence has been quoted anywhere to show that the rite of circumcision had anything to do with Phallic worship. The Phallic cult has sometimes been practised by races that ignored the idea of circumcision.

• Anthropology: Social

of the Semitic faiths, it reached these Negro countries as a practice specially connected with Muhammadanism.

At the women's bush school in Liberia, as in so many other parts of Negro Africa, a practice somewhat analogous to circumcision is in force—the *excision of the clitoris*. This



412. A DEVIL-MASK OF EASTERN LIBERIA

operation (and perhaps the elongation of the *labia minora*) is probably universal throughout Liberia, except, of course, amongst the thirty thousand Christians. A discussion on the usefulness or uselessness of this practice would be out of place in the present work : it is sufficient to note that it is firmly established

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throughout Negro Africa,¹ and nowhere more so than among the uncivilised peoples of Liberia. It may be that there is less need for this than there is for circumcision. And both practices (together with similar ones amongst the savages of Australia) may arise neither from religious sentiment nor wise medical foresight on the part of early man, but simply from that morbid interest taken by him in the sexual organs, a concentration of thought which may have arisen before he ceased to be an ape, and which increased greatly after he had attained to human consciousness.

It is necessary to pass these bush schools in review before dealing with *marriage* and *marriage ceremonies*, because outside the absolutely Muhammadan Negroes and Christian Americo-Liberians it would be very difficult for any girl who had not passed through the initiation school² to obtain a husband on equal terms. It is not so clear, however, that native girls would refuse a husband who had not passed through the initiation school, except, of course, where the tribe had been Muhammadanised.

It is said, of course, that these bush schools are excellent for the discipline of the sexes, and that at these gatherings the women are taught a great deal of housewifery, cooking, etc., whilst the boys are instructed in the secrets of the chase, of warfare, tribal politics, etc. I have no hesitation myself (after long experience of these institutions in many parts of Africa) in saying that they are merely instrumental in keeping the Negroes who still practise them in a state of savagery. The minds of the young girls are completely debauched. They may be taught the crude methods of native cooking,

¹ The only excuse given for this practice is that it diminishes feminine salacity.

² In Vai a girl who has not been initiated is called "gbóroa," which is equivalent to "silly lout," "idiot."

but they are certainly not instructed in the rearing or care of their children, or in ways to lessen the terrible infant mortality. The boys merely learn how to be good . . . savages, to maintain fidelity to the narrow clan or even the tribe, but to regard all human beings outside that tribe or clan as being beyond the pale of common humanity. I admit that a heavily



413. "SANDE" OR "BONI" GIRLS (OF THE INITIATION SCHOOL), WESTERN LIBERIA

clothed Negro with a great deal of cheap scripture quotation on his lips is rather a repulsive person, or that a Negress dressed in a caricature of last year's style in London or Paris is not so comely an object as the same Negress retaining the modest, downcast airs of savage Africa, merely decked in slight drapery. But the modest, downcast looks conceal no greater purity of

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heart than is met with in the worst of the Europeanised black women, while of course there is a chance for both black and white women that by absorbing something of abstract Christian morality they may become better citizens of the world, even if for the time they lose in our eyes their picturesque attributes.

When the old woman who directs the girls' school considers that any of her pupils have arrived at marriageable age, she informs the parents, who pass on the news to the young, middle-aged, or old man who may have bespoken their daughter; for very often a man will take a fancy to a little girl-child and bespeak her when she becomes marriageable in after years.

On being thus advised, the prospective husband brings the girl's parents presents, partly for the schoolmistress, and partly for the girl. When her marriage is definitely arranged, the girl is probably rubbed all over her body with a pomade made of animal fat and palm oil mixed, so that her skin is glistening. The old governess of the bush school decks her with many weird ornaments which are supposed to have some spiritual or medicinal charm, and in this guise leads her to the husband's village.

Here great preparations for a feast have been made, and "lashings" of palm-wine are distributed to the assembled guests; while if the bridegroom is of any respectable condition he supplies some form of European alcohol in addition—rum, brandy, or syrupy liqueurs with a German or Italian name. Music of some form will be called in to contribute to the occasion. If the village is anywhere near a Mandingo settlement, the professional singers will go with their little harps, or other instruments, and the songs may have some approach to the white man's idea of melody. But in pure savagery



414. THE ENTRANCE INTO A VAI TOWN OF THE "FEMBA," OR WOMEN'S DEVIL

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the music will consist chiefly of drum-beating, flute or trumpet playing, and loud singing.

Among the peoples of Western Liberia, the custom prevails of the bride's mother leading the bride to her husband's hut whilst the revelry is at its height. She then retires outside. The hut is surrounded by other women, friends of the bride, who keep up a loud singing, which is supposed to drown any whimper of the newly wedded girl at the introduction into matrimony. After an interval the mother-in-law asks through the doorway or some crevice in the walls if all is well, and the bridegroom replies that everything is satisfactory, unless he should have reason to doubt the virginity of his spouse: in which case (it is stated by Büttikofer) he replies in emphatic terms that all is *not* well, and the marriage feast would in such circumstances be broken up, to be followed by a violent wrangle as to the rejection of the bride by her husband, and the return of the purchase-money.

It is very improbable—at any rate at the present day—that when matters have proceeded as far as this any reclamation is made or any other answer given than the stereotyped “It is well,” because the practice of unmarried girls, after puberty, receiving the attentions of lovers who do not necessarily become their husbands is increasing, and for many years it has been recorded amongst the customs of the Vai, Mandingo, and Kpvesi.¹ It was formerly an article in the moral code of Western Liberia (at any rate), as in Eastern Africa or Zululand that any amount of immorality might be practised with the unmarried women by their lovers provided that virginity

¹ As regards sexual intercourse, this sometimes begins before the girl is mature. In many parts of the country the custom of ignoring chastity on the part of girl-children or unmarried women obtains. In some districts it is thought a shameful thing for an unmarried woman to have a child, though she may openly receive attentions from an acknowledged lover without loss of respect.

remained intact, or above all that pregnancy did not take place. In almost all parts of Africa the women, especially the old women, are adepts in the art of procuring abortion, either by the administration of drugs or by the insertion of rude instruments. Many cases of possible disgrace are no doubt disposed of by this means. Nevertheless it has occurred



415. THE WOMEN'S DEVIL PARADING A VAI TOWN

occasionally under the observation of European travellers that men have been charged with the results of their immoral dealings with unmarried girls and that both parties to this offence have been severely punished, even occasionally by death. It must be admitted that the stories of the few European writers who have dealt with the native customs in Liberia are rather conflicting on this head.

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Mr. McConnell, writing of the Kru people about fifty years ago, states that as a rule young men (or the parents of young men on their behalf) purchase their future wives when they are little children: in fact, carry out the idea of infant marriage; but the girl does not come to live with her husband till she has reached the age of puberty, which may be somewhere about twelve years.

Amongst the Kru people *circumcision* is rarely practised in the men, and apparently *clitoridectomy* is not in favour, so that there is less reason for holding these initiation schools for boys and girls. In the Sikombe country, however, behind the Kru coast, and also in the adjoining country of Putu, and indeed wherever one can gather information of the customs of all the races belonging to the Kru stock in the basin of the Cavalla River, the licence permitted to unmarried women takes the following strange form. A girl having been pledged from early childhood to her future husband is nevertheless allowed to take an official lover when she wishes between twelve and fourteen. This lover cohabits with the girl until she proves to be pregnant, and then she is taken over by her lawful husband, who has no commerce with her, however, until she has not only borne a child to her lover but duly weaned it; so that the husband and wife do not come together until the latter is, for Negroland, quite a mature young woman, say sixteen or seventeen years of age—equivalent to our twenty-seven. As the husband no doubt in his time has been a lover, the system works out equitably all round.

Amongst the Mandingo, boys and girls are allowed to cohabit before marriage, but the female companion provided for a boy by his parents is no doubt very often a young slave. When a Mandingo youth or man desires to become definitely married he gives the girl that he fancies a present

• Anthropology: Social

in goods or even silver money. The girl is free to reject these presents if she does not like the man, and this is supposed to settle the question finally; but if she accepts the preliminary present she hands it on to her mother, who gives it to the



416. THE "FEMBA" PARADING THE TOWN

father, the girl at the same time explaining that this present has been given to her "with a view to matrimony."

The father and mother then proceed to discuss with the girl's relations the desirability of the prospective bridegroom. If they are willing that the courtship should proceed, the man who has proposed marriage must conciliate the immediate

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relatives (brothers, sisters, etc., of the girl) by presents, such as a gun for a brother, a piece of cloth for a sister, a brass kettle and a piece of cloth for the mother, besides two more pieces of cloth for the girl herself. After these presents have been given the marriage negotiations have advanced another stage, and the next point is to fix the actual price of the girl, of which an average estimate may be given as one cow, two slaves (or the current value of two slaves in goods), and twenty pieces of kola nut. When the bridegroom has agreed to pay this price, he sends the cow in advance, and the girl is then taken to his house and the marriage is consummated in the way already described—namely, during much feasting, dancing, and playing of music. The remainder of the marriage price is paid in instalments, which sometimes are protracted over a considerable period. Of course if the man fails to complete the marriage price, the girl may be taken back to her home by her parents.

On the death of a husband—amongst the Mandingo and perhaps most other Liberian peoples—the wife or wives become the property of his eldest brother. On the death of this brother they would pass to the brother next in age, but if there are no brothers of the original husband to take over his wives, they become free women, widows in the strictest sense of the word, and these widows play a somewhat important part in Liberian village life.¹ They are the licensed women of pleasure, and public opinion permits them to dispense their favours in return for an emolument. Sometimes these women attain quite a local vogue, they lead the “smart set,” so to speak. When they decide to leave one man for another, their

¹ Apparently amongst the Vai any male *relative* may propose to a widowed woman. This is done by sending her a slip of the bark of the raphia palm (“fara”) about six inches long. If this is accepted, it indicates willingness to marry; if rejected, then a refusal of the proposal.

• Anthropology: Social

new favourite “fires guns, and his lawful wives rejoice with him, because they regard it as adding importance to their husband.”¹

Infidelity after marriage is *not*—at any rate nowadays—regarded as a very serious offence. In the case of old men



417. THE “FEMBA” BEGINS TO RUN

(who in Liberia, as in the rest of the world, seem, the older they grow, to be more and more anxious to marry) the infidelity of their wives with the young men of the town is an almost admitted custom, all society being on the side of the young wife and ready to laugh at the old husband. Amongst the

¹ The Rev. Mr. McConnell, in his account of the Kru people.

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Kru people it is thought hospitable to offer a stranger-guest the society of a wife when the stranger is staying in the village, or the same favour might be granted almost anywhere in Liberia (amongst the aboriginal natives, *bien entendu*) upon prior payment.

But *illicit adultery*, so to speak, is still condemned by native law. There are traces in their customs of its having been punished with death at no very distant period. It is doubtful whether the death penalty is ever inflicted nowadays. In the Kru country, if a man surprises a lover with his wife in his own or the woman's hut, custom obliges him to bow the man out: the law of hospitality forbids him to strike or injure the man whilst he is actually by his own hearth. But once the adulterer is outside the threshold, the injured husband may proceed to attack him. This means, of course, that the guilty person takes to flight with all possible speed, and the husband if he can—assisted by all the friends he can summon to his aid—catches up with him and inflicts a severe beating. The wife also gets her share of blows, and finally the two are tied together, forehead to forehead, and exposed to public derision in the village square, after which no doubt some present or indemnification finally sets the matter right. But it is doubtful whether at the present day (except perhaps in the remote interior) any fuss at all is made. The matter would generally be immediately compounded by the offer of a present on the part of the woman's lover.

Amongst the Mandingo the illicit lover is rarely called upon to do more than pay the equivalent of a few dollars as indemnity. Should he, however, be a man of notoriously bad character, constantly caught out in his interference with other men's wives, a large payment is enforced, and if he refuses to comply with the demands of the husband, the chief of his country or district will decree that he be sold into slavery;

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in which case the proceeds of the sale go to the chief, who presents a portion of the same to the injured husband.

Divorce is simply the sending away of a woman for repeated acts of infidelity, but most of all for barrenness. After she has been sent back to her own people or taken over by another



418. THE "FEMBA" IN PURSUIT

man, her dowry or a portion of it must be recovered from her relations; and this is a fertile source of wrangles and even quarrels that lead to internecine strife. A woman who is ill-treated will often take up her abode with another man.

Polygamy, of course, is a universal custom, but as a rule

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the men amongst the common people have at most two legitimate wives, and even the chiefs seldom maintain a household of more than ten. A big chief, nevertheless, especially if he is the head of a tribe, may put no limits to his harem—a hundred, two hundred, and so on. Still, in this country large establishments of wives are not the custom, nor are they really necessary to the peasants. No boy or man need look far for female favours, nor need any husband who yearns for variety fear to be seriously repulsed in any direction, especially if he is sufficiently well off to distribute presents. From this it may be argued, and with truth, that the sexual morality of Liberia is a little lower than that of average Europe and America, and perhaps much lower than the morality of India.¹

The *birth customs* are usually simple. In all cases the woman works in and out of doors at her accustomed tasks until the pangs of labour begin. In some tribes it is customary then for the women to go into the bush to be delivered, or

¹ Most of the tribes do not consider it wrong to continue sexual intercourse with their wives after pregnancy up to within a short time before the birth. But in no tribe (except of course amongst the Christians on the coast) is it permissible to resume sexual intercourse with the wife until after the child has been weaned. This long period of separation between husband and wife is at least eighteen months in duration, and this custom makes polygamy as an institution absolutely necessary to uncivilised Negroes. Authorities like Dr. Blyden have discussed whether for this reason it may not be necessary for a civilised State or a Christian Church to recognise polygamy as a lawful institution. Dr. Blyden maintains that children reared under these circumstances—namely, the mother remaining apart from the father, and suckling the child as long as possible—produce a stronger and healthier race. It is doubtful whether there is validity in Dr. Blyden's arguments, as the physique of the American and West Indian Negroes does not seem to have suffered by their cleaving more or less to one wife and resuming sexual intercourse soon after the birth of a child. One reason of the fine physique of most of these aboriginal Negroes in Liberia is the rude law of the survival of the fittest. The mortality of their young children is as great as in other parts of Africa, and only the strongest can survive the experiences they go through. Deformed or defective children are no doubt usually put away more or less quietly.

● Anthropology: Social

to go into another house in the same village or in one adjoining that in which they ordinarily dwell. Amongst the Kru people, however, women are generally confined in their own homes. Those that go out into the bush for delivery are frequently alone and unattended, but where the birth takes place in a hut there



419. DANCE FOLLOWING ON THE "FEMBA'S" RETREAT

is generally present some old woman as a midwife, usually one of the old women connected with the girls' bush school, or else a companion or friend of the wife who was her school-mate in those institutions. No man is ever permitted to be present at child-birth or (in most cases) to see the woman for several

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days after the birth. The Mandingo women are delivered in their own houses, and immediately the child is born the woman attending to them goes out to the village and shouts to the people stating whether it is a boy or a girl. Amongst the Mandingo, women remain in their own houses without going out for seven days after child-birth. On the eighth day they go abroad, and the father of the child generally provides a feast for his fellow-villagers. The baby's head is shaven, it is clothed and washed, and a small cap placed upon its head, in full view of the people. It may not be taken away from the village for forty days after the birth, nor is the mother allowed to leave the village during that time. In the Kru countries the husband sends a present to his wife soon after the birth, which consists of two or three pieces of new cloth and one or more brass rings. Elsewhere than in the Mandingo countries, the attentions of the mother to her newborn child generally consist of rubbing its body all over with palm oil. As a rule, however, they take great pains throughout this land to keep the children clean and wholesome.

Twins are regarded with suspicion and superstitious distrust. They are thought to be unlucky, but I have not heard of any instances so drastic as the customs prevailing, for example, in the Efik countries of the Cross River, where the mother of twins is ostracised and driven out into the bush, whilst the twins themselves are destroyed. Usually when twins are born in Liberia and they are boy and girl, the boy is destroyed and the girl kept. This at any rate is the Kru practice; in which tribe girl-children are thought to be more valuable than boys. Giving birth to twins seems to be a not uncommon event in Liberia. When triplets or quadruplets are born, the natives probably destroy them all, as it is thought to be a horrible reversion to beast customs. Nevertheless, the *fecundity* of

the West African Negroes is noteworthy, and a case occurred last year (1905) in which *six* children were born alive at one birth from a Negress of the Gold Coast.

After the birth of a child it is, as already mentioned, the invariable custom throughout the aborigines of Liberia that the husband shall have no further connection with this wife until the child is fully weaned. This means an interval of at



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least eighteen months ; but amongst the Mandingo the practice is pushed even further, for it is stated by Mr. Braham that sexual intercourse between husband and wife is absolutely prohibited for three years after the birth of a girl-child and for four years in the case of a boy. If this practice was rigidly adhered to it would of course limit the issue from one woman to quite a moderate number of children, as the women probably

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cease to breed after the age of thirty-two or thirty-three. The custom, at any rate, entails polygamy or marriage with more than one wife as a necessity for all these Negro men. Whether it is as rigidly carried out as all observers insist is sometimes a matter of doubt to myself when I have compared the successive ages of one woman's children. Still, it would seem to be a valuable hygienic measure. It is doubtful whether in Negro Africa any such case exists as may be witnessed by the hundred thousand in all large European communities of unfortunate women done to death by incessant, unremitting child-bearing; or dragging out the life of an invalid as the result of twelve to fifteen exhausting years of married life. But although women in Liberia are punctilious about not returning to their husbands till their children are able to run and to eat ordinary food, they do not leave them for more than about three months after birth without any addition to the mother's milk. When they are three to four months old the mothers begin to give their children pellets of pounded banana or mashed manioc (a sort of tapioca). When the infants are a year old they are feeding themselves on rice and other food prepared for their parents.

Children are very rarely ill-treated. As a rule they may commit many small offences without any punishment. There is great affection between children and parents, the fathers seemingly being quite as fond of the children as the mothers are.

Mr. Whyte writes from the interior of the Basā country: "The farther one goes into the interior, the better is the physical development of the native tribes, and the larger are the families of children reared by the women. This I believe can be accounted for in two ways: the abundance of good nutritious food, and the fact that the boys are not called upon



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to perform work of any kind till they arrive almost at the age of puberty. I have heard big lads slanging their mothers when asked as a favour to fetch a pail of water." Nevertheless, the little boys soon begin to frequent the society of the men of the village, and pick up from their father or his friends a great deal of information about bush life, so that when they are twelve years of age most of them can find their way easily about the forest for miles around the village in which they dwell. The girls go to work rather earlier, being taught to bring in firewood, fetch water, prepare food for cooking, and so on. Where the bush schools exist, no doubt a good deal of the children's education and discipline is carried out by these institutions in the way already related.

So the life of these forest Negroes passes by in what would be the idyllic happiness of the superior beast, if it were not for the cruel customs connected with the belief in witchcraft and the inter-tribal wars. These communities have arrived at the state of fidelity to the family and even to the clan, but have scarcely conceived of any wider human relations. A big town headed by a big chief brings under its sway the surrounding villages, and this creates a "country." But this country is ready and willing to go to war with the next congeries of human habitations if by so doing it may capture slaves, wives, cattle, goods, or accumulated produce. Even if there may be no great loss of life in these wars, if by chance one party gets the other at a disadvantage it kills and spares not. The Mandingo, of course, are far more civilised, but after all they are only just recovering from the massacres and conflicts incident on Samori's bloody rule and widespread dominion. *If* one could combine a scrupulous respect for law and order and an administration of law (without the engine of ferocious customs connected with the use of "devils," secret societies, or

witchcraft ordeals) with a *minimum* of interference on the part of European civilisation, a minimum introduction of European clothing, theology, hypocrisy, and daily labour, these people might arrive at the leading of a life of great material happiness. But to them, as to us, death must come in due



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course, and death still seems to them an outrage, an unnatural breach of continuity.

Nearly all these people, except those who have become sincere Muhammadans, consider *death* to be "unnatural" if it occurs after puberty, in child-birth, or from any wild beast, or sudden accident or particularly rapid disease. However it comes, death is greeted with as keen a sorrow as amongst other races of men, and the nature of these people being much more frank and open, their sorrow is displayed to all in public, not

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only as a testimony to the affection they felt for the deceased, but in some way as an appeal to the deceased, whom without reasoning very clearly they still imagine to be alive and about somewhere as a spirit. The corpse of man, woman or child (except in the case of slaves) is usually exposed in public for one or more days after the death (sometimes in a temporary grave in the house). The women of the family or of the town spend several days in wailing and crying, and they or one or two men connected with the deceased by family ties will probably deliver at intervals disjointed addresses to the spirit of the deceased, asking him or her to declare who bewitched them and caused their death, or calling on the as yet unrevealed witch or wizard to stand forward and attest their innocence by drinking "sauce wood." A certain amount of drum-beating or other rough music may accompany these lamentations. In many cases the weeping and wailing are absolutely genuine. There can be no question of the agony of mind that death will cause amongst these West African Negroes when the deceased was a child, lover, friend, sister, brother, or parent.

With regard to slaves, their death excites far less commotion—little more, in fact, than if they were beasts of the field. They are generally buried at night, and with no ceremony, the body often being merely thrown into the forest or bush at a sufficiently great distance from the village to ensure the putrefying remains not poisoning the air.

In the interior of the Kru country—such as, for example, the district of Sikoñ—if any man's wife dies suddenly and her parents belong to another village, the parents make a claim on the husband or the chief of his town for a considerable payment as "damages" for the loss of their daughter. When the amount of the payment is settled after much disputation, they take no further action; but if the husband of the deceased



423. KRUBOYS PRACTISING A MARRIAGE DANCE

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woman or the chief in his place does not agree to the payment demanded, the woman's parents are apparently allowed by custom to slay all the domestic animals of the town in which their daughter died, and they even go further—pillaging rice and other food-stuffs or stored-up property, finally burning down the town. In this district it is stated by Mr. Gow that the townsfolk keep up a continual howl for forty-eight hours after the death of any person of mature age (not a slave) occurring in their midst, while the near relatives of the deceased are supposed to howl and lament almost without intermission for a fortnight. In this country it is generally the custom to give presents to the relatives of the deceased so that they may be supplied with the means for holding a good "wake."

Amongst the Vai, a *widower* must, after the death of his wife, redeem his children by sending a present in goods. Otherwise they will leave their father and go to the mother's family. If, however, the present is sent, the father-in-law sends another daughter (if he have one) to be wife and step-mother in the dead woman's place.

The *corpse* of a deceased person is kept more or less exposed to view from one to five days, according to the rapidity with which putrefaction sets in. When the relatives are ready to proceed to the burial, the corpse is sewn up in a mat, and after being laid within the grave a varying quantity of cloth, according to the wealth of the deceased, is piled on top of the body. Usually they bury with the dead person all the cloth found in his possession at the time of his death, and much else of the trade goods that were his property.

Amongst the Vai and Gora peoples the *graves* of all but slaves are very often dug in clusters near the entrances or exits of the villages. A chief here and in all parts of the country may sometimes be buried temporarily in his own hut. Or there

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may be sites set apart not far from towns or villages as regular cemeteries. Not infrequently islands in rivers or just off the sea coast are used for cemeteries, very often being dedicated to ruling families of chiefs, or to medicine-men or castes or orders of any native hierarchy. There is a celebrated cemetery island in the tidal channel of the Cestos River, and another—Russwurm Island—just off the promontory of Cape Palmas. Even if the use of these islands or islets is now forgotten and they are overgrown with trees and bush, it will be found generally on examination that nearly all the islands in the rivers or off the coast are still, or have been at one time or another, burial-grounds. For this and other reasons they are constantly regarded as “tabu” (to use a South Sea Island expression) or “fetish.” This partly arises from the native’s instinctive horror of dead bodies, whether it be the scarcely defined spiritual existence after the dissolution of the body—an existence which may result in evil-disposed as well as friendly ghosts—or the lurking belief in *ghouls* that frequent the cities of the dead, or of wizards who may be there for similar and equally nefarious circumstances connected with the concoction of charms. In several of my previous works on other parts of Africa I have described the most loathsome form of cannibalism which exists more or less in the eastern half of Africa from the equator down to Basutoland. This is the disinterring and devouring, cooked or uncooked, of dead bodies by men and women of horrible morbid tastes, who besides the pleasure which they take in consuming putrefying flesh, believe at the same time that by this disgusting act they are acquiring supernatural powers. Traces of this horrible practice are met with here and there in the traditions of the Liberian natives. Besides this, there is something very ghastly in these West African forest regions connected with human burying-grounds. The graves are very

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shallow, and the corpses are sometimes disinterred by animals, or, in the case of chiefs, they may not be buried at all, but put in rough wooden coffins with no top, and allowed to decay, exposed to the air in dense thickets. A faintly fetid smell rises from these places, the vegetation has a luxuriance that is no longer pleasing, but diabolically lush. Nasty beasts, birds, and worst of all, insects, haunt the surroundings, and the visitor has a sensation that disease is in the air, even though he may not be able to supply scientific reasons for his apprehension.

The *graves*, as above remarked, are usually shallow, from two to five feet in depth throughout the whole country. The grave of a chief is sometimes lined with blue and white cloth or drapery of other colours. With a chief will be buried articles in use by him in his lifetime, such as a pipe, a stick, silver or brass ornaments, and quantities of cloth. In the countries near the coast the contents of the grave—corpse and piled-up mass of worldly goods buried with it—are soaked in huge libations of alcohol—rum or trade gin, or, in default of anything else, palm wine; but this proceeding is discontinued amongst the Vai and Gora where Muhammadanism has taken root. It is probable that besides a desire to do honour to the manes of the departed, this practice is also adopted in order to render valueless the cloth which is thus soaked in alcohol. Most of the favourite objects of the deceased that are buried with him are broken, partly in order to “kill” them and send their spirit forms to the Land of the Dead, and also to remove temptation from lawless people who might rob the graves for the sake of the wealth they contained. The grave is filled up with earth to the height of several feet above the surrounding level. A number of men then jump and dance on the soil, treading it down on the corpse and his buried possessions till, when the job is thoroughly

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done, a very tight mass of earth secures the grave from being easily rifled.

The Kru people generally put an empty bowl on the top of each grave, into which from time to time are poured libations of palm wine or trade gin, or handfuls of cooked rice are put in it. The Vai peoples often mark the graves with a stick, to which is tied a wisp of cloth, possibly an imitation of the Moslem system of planting flags or standards over the grave.

As a sign of *mourning* in many parts of this country rings of dried grass or of palm bark are worn on the fingers, or round the forehead, or as a neckband. The body, especially with the women, is often painted more or less hideously with indigo or some dark green dye, varied with the grey of wood ash or the white of kaolin. In some tribes the hair is allowed to grow untended and undressed, or on the other hand men and women will shave as a sign of mourning. In the Sikombe country after a death the relatives of the deceased are not allowed by custom to eat rice already garnered. They must wait until the new crop of rice is harvested, and in the interval live on manioc or any other vegetable food. Also a few weeks after the death of any person of importance a great assemblage is held of all the relations and friends, and a feast takes place, to which each guest contributes a quota. These feasts are followed by drinking bouts (except amongst the Muhammadans) and dancing.

I have already stated that there is a vague but sincere *belief in existence after death*. As amongst the Bantu in Eastern Africa, the duration of this existence no doubt is considered to depend a great deal on the importance of the person when alive. Perhaps it is rather this way, that an individual spirit may only be considered to linger in another

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existence according to the strength with which he or she is remembered. Gradually this belief crystallises itself into a religion of *ancestor-worship*. A chief of very great importance and power may be considered to exist as long as any remembrance of him is associated with a definite locality. In time his spirit may acquire permanent existence as a definite tribal god, or a demon haunting a stream, a mountain, a cavern, a clump of woodland, or an island. But one way and another, to the mind of these aboriginal Negroes, earth, air, water, and woodland are permeated with spirit beings, who in fact direct all the minor operations of nature and some of the major. Far up, above them all, is a great Supreme Being, who will be more or less identified with the thunder and lightning.¹

The essence of true Negro religion is *ancestor-worship*, a belief in the ghosts of the departed, and if asked to define their views as to the Supreme God they would probably imagine that he was the sum and substance of all ghosts, reigning above the skies, aloof from any interest in this world. Occasionally moved to wrath, this Being speaks with the thunder and slays with the lightning.

The use of *fetishes*—grigris, *buli*, idols—is widespread throughout this country. Where the tribe has been Muhammanised they cease to depict objects with any likeness to living things, but transfer their belief and their affections to verses of the Koran or other talismans encased in leather: the greatest fetish of all being a copy of the Koran slung round the neck in a leather binding. These fetishes, however, are not essentially sacred in themselves: they merely represent the temporary dwelling-place, the *point de mire* of a spirit; or an essence into

¹ I have never yet encountered a purely Negro race that attributed divinity to the sun. The moon is worshipped or revered to a certain extent by Hottentots, Bushmen, and some East African races. The Krubos on the coast of Liberia are said to accord the moon some reverence.

which spirits may, so to speak, infuse themselves and from which they may diffuse more easily their influence for good or bad.

There is a belief in the validity of *sacrifice*, some of which is distinctly owing to the infiltration of Muhammadan ideas. In fact, amongst the Vai people a sacrifice is known as *Sadaka* or *Saraka*, which is a scarcely altered form of the Arabic word. It is thought in most parts of this country that the spirits of the deceased can be attracted to the living in dreams by throwing down some sacrifice—a handful of beads, a strip of cloth, possibly a libation. Amongst the Kru peoples of the coast, fowls or even oxen are used for sacrificial purposes, as will be seen later in an account of the social institutions amongst the Grebo and Kru. Amongst the Kru people the favourite grigri or amulet is a small sheep's horn filled with a nasty amalgam of chopped herbs, palm oil, and filth that is best left unanalysed, but that is furnished by the witch doctor. Amongst the tribes of the interior behind the Kru coast, the horns of small antelopes and the skins of genets, squirrels, rats, mice, etc., and the red wing feathers of the turacos are used for *fetishes*; as well as leopards' teeth, the tusks of the Pygmy hippo, finely made iron chains, little blocks of wood, the bones of small beasts, and even gun flints.

A *leopard's tooth* throughout the whole eastern part of Liberia, perhaps nearly all through the non-Muhammadan tribes, is an object of great reverence. It is frequently used as a sign of freedom, and the presentation of a leopard's tooth to a slave woman or man at once sets them free.

A *belief in spirits* leads naturally to the conception of exceptionally endowed men and women who by intercourse with supernatural agencies can cause death, illness, or misfortune to their fellow human beings whom they may wish to injure. In

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short, belief in *witchcraft* is universal throughout the Negroes of Liberia, as elsewhere in Africa. To it is united an equally firm credence in medicine men or women, persons who might be styled "white witches," doctors who use their occult powers for beneficent purposes (it is hoped), or merely for destroying enemies of the tribe or community.

The native men and women avowedly given to the study of *medicine* are doctors in the real sense of the word, in that they become learned in the application of local remedies. They know by acquired or inherited knowledge the virtues of many leaves, roots, barks, seeds, and fruits, or of animal or even mineral substances. They have practised from time immemorial a kind of hypnotism. They can not only hypnotise others, but can throw themselves into trances in which they see visions and practise clairvoyance. Amongst the Vai and Mandingo, the Arab practice of *divination by sand* (sifting or sprinkling the sand and drawing some deduction from the figures it assumes) has been introduced, evidently through Muhammadan influence, as it is widely practised through Muhammadan Africa, from the Senegal to the Red Sea, and from Egypt to Nyasa. Amongst the Pagan peoples of Liberia, the wise men or women divine by the study of the entrails of freshly killed animals, by administering poison to fowls or goats, and waiting to see whether they die or survive, by interpreting the cries of birds or the behaviour of tame and sacred snakes (generally a python).¹

Throughout this country concurrently with the belief in witchcraft as being the origin of most deaths and misfortunes runs the crude idea of justice that persons suspected of this

¹ In the eastern parts of Liberia, behind the Kru and Grebo people of the coast, practices exist in many villages strikingly like the snake-worship of Dahome. This is referred to and illustrated in Captain d'Ollone's work.

and other crimes who will not confess, and whose guilt cannot easily be proved *in flagrante delicto*, should submit themselves to an *ordeal*, the result of which will determine their guilt or innocence. It is scarcely necessary to remind my readers that trial by ordeal lingered even in Caucasian Europe as part of the juridical system, or as a custom having the force of law down to within three or four centuries ago.

In some parts of Liberia, the west especially, persons accused of crime such as witchcraft or theft will sometimes go through the ordeal of plunging the hand and arm into boiling palm oil. If they come out of this without anything worse than a severe scalding of the skin, they are innocent—at any rate, public opinion is satisfied with having given them a nasty bout of pain, even if by accident or design the wound is only skin deep. But by far the most prevalent and favourite ordeal is the drinking of a violent “medicine” or poison, a decoction of the bark of *Erythrophlœum guineense*.

This is a fine tall tree of the papilionaceous order (Beans), which grows abundantly in West Africa, and perhaps right across the continent through the well-watered regions of the East. It is apparently only in the bark that the poisonous element resides. The wood of the tree is much used for canoes, and even for the wooden mortars used for pounding corn or manioc.

The decoction thus obtained is generally known in the pidgin English of the Liberian coast as “sass-wood.” This is a corruption of the Anglo-French word “sauce,” a term which seems to have been much in use by the seamen of the seventeenth and eighteenth centuries to describe something pungent or spicy either in taste or behaviour. The Kruboy, therefore, may use this word with two meanings : either as a violent purgative measure, or as “cheek,” riotous behaviour, etc.

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The decoction made from the bark of the *Erythrophlaeum* tree is usually pounded by the local medicine-man or one of his assistants (a female). It is quite conceivable that the medicine-man is not adamant against bribery, and that he may so deal with the strength of the liquor that it ranges under his preparation from a deadly and certain poison to a mere emetic. Also he may be guided in his discretion not only by a bribe or absence of bribe, but by a personal conviction, or the reverse, of the guilt of the accused. It is almost impossible in native society to avoid recourse to the poison ordeal when one is accused of witchcraft or any other crime. The alternative is to flee for one's life, and take refuge beyond the reach of one's accusers. The medicine man or woman who conducts the ordeal may know or hope that so-and-so is not guilty of the charge, and may persuade them to stay on for the ordeal with a wink and a nudge as to the certainty of a favourable result.

According to Mr. Gow, who made careful observation of the Sikoñ people behind the Kru coast, there are three stages in the ordeal in that part of Liberia. If the person undergoing the ordeal dies almost immediately from the draught, that is clear evidence of his or her guilt, and the matter is ended, except that the body is probably burnt for a witch.¹ If, however, death does not ensue, but the patient remains horribly ill, the medicine-man administers another kind of emetic, which relieves the system of the poison. After this, the "non-proven" accused is advised to leave the village and find a habitation elsewhere. But if after drinking "sassa-wood" the patient immediately vomits, he is clearly not guilty,

¹ In some parts of Liberia a further test is applied to secure final evidence of guilt or innocence. The spleen of the accused is cut out and thrown in water. If it sinks, it is clear the dying person is a witch; if it floats, the accused is innocent, and dies without a stain on his or her character.

and a tremendous ovation occurs in his honour, guns being fired. If the accused be of the male sex, flattering attentions are bestowed on him by the females of the town, attentions singularly unwelcome at that moment, as after the first spasms of delight at his acquittal he probably retires to the shelter of a hut, a prey to horrible nausea and severe pains.

The sass-wood in the Grebo country is called "gedu." More will be said about the administration of this ordeal in the Grebo country when the various divisions of the social hierarchy in that part of Eastern Liberia are described.

Amongst the Kru people ordeal by "sassy-wood" was formerly very frequent, though it is disappearing now that the young men of that nation go out so much into the world to earn their living and return imbued with so many wholesome European ideas. Amongst customs connected with the administration of this ordeal in the Kru country is that of the accused walking about excitedly after his drinking the decoction, shouting "Am I a witch? Am I a witch?" In these gyrations he is followed by one of the medicine-men, who dances behind him, replying "Yes, you are a witch." Rapid motion to and fro is supposed to assist the working of the poison. If the wretched sufferer succeeds in vomiting the liquid, he is at once pronounced innocent, and the usual rejoicings supervene. But if it proceeds to act on him with a purgative effect or he merely becomes stupefied, he is compelled to take a second dose, and as he is now rapidly qualifying as guilty, the assistants proceed to administer an increasing series of cruelties, which probably cause his death before it can be brought about by the poisonous draught. In the case of innocence, the medicine-man returns his fee to those who employed him. Amongst the Kru people the ordeal already mentioned may sometimes be lessened in its virulence.

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Weaker decoctions of "sassy-wood" are administered for accusations of theft or disputes affecting the person's honour. In the case of theft, if the medicine acts as a purge instead of as an emetic the accused is guilty, and is then liable to be killed, but it is usual in such cases for the friends or relatives to subscribe together and buy him off by paying up the value of the goods stolen, plus a "fine" to the Court.

Mr. Gow states that in the Sikoñ countries there is another form of ordeal, which is conducted by the medicine-man squeezing into the eye of the accused the acrid juice of a plant, probably a species of *Euphorbia*. If this poisonous juice is of a certain degree of strength, it is supposed to break or snap the eyeball and blind the patient, whereas if it is less virulent it merely causes a cruel inflammation which may eventually become cured.

The *medicine-men* play a very important part in the social hierarchy. Sometimes, as amongst the Grebo people, their duties seem to be divided amongst different classes of the community, or they form associations or secret societies known as the *Kwi-iru* and *Deyabo*. The latter would seem to be in embryo a corporation very like our Royal College of Surgeons or Physicians. The following is a summary of the account of the *Kwi-iru* and the *Deyabo* given by the late Bishop Payne of Cape Palmas.

"There is a curious secret society to be found in every Grebo community, styled *Kwi-iru*, or 'children of departed spirits.' Though it is attempted to keep everything connected with this association concealed, it is known to be composed of persons of all ages in the community, except children. They have a 'father,' as he is called, but he is never visible or known, except to members of the society. When, as is

rarely the case, the Kwi-iru appears in the day, the 'father' is always so masked as to be perfectly disguised. The night is the usual time for this strange association to go abroad; often at midnight, on the outskirts of the town, or in the adjoining bush, a sudden discordant shrieking, whistling, yelling, hideous noise bursts forth. In a tumultuous body they run around and through the town. Women and children fly affrighted into their houses and close them up, for a heavy fine would be the penalty of their seeing and being seen by the mysterious visitors. If in their wild revelling they fancy they want something from any person, they surround his house, and there remain yelling, dancing, screaming, and threatening until their demand is granted.

The avowed object of the association is to seek and to punish witches and wizards. These are said to be particularly active in practising their arts at night. They strip themselves naked and go to the houses of those whose lives they seek; and especially is it their delight to visit and dance on the graves of those whom they have succeeded in killing by their enchantments. Woe, then, to the man or woman who is seen walking about or through the towns in the night! The Kwi-iru pounce upon them, carry them to a house prepared for the purpose, put them in the top of it, where they are smoked until next day about ten o'clock, the usual time for subjecting them to the universal African test, "gedu" or sassy-wood. Early in the morning an official of the Kwi-iru is dispatched to the forest to get the bark of the gedu tree. This arrived, the accused person is taken by the Kwi-iru to the field, there, in the presence of the assembled townspeople, to be subjected to the test. The officer of the society beats the bark in a mortar, pours water into it, then turns it out into a wooden bowl, and calls for the accused to come forward and drink.

Holding the bowl in his hand, he looks towards the east, and says, in substance; 'Oh, God! oh, God! oh, God! God! I invoke thee four times! If this person be innocent, cause him to vomit this gedu. If he be guilty, may it kill him.' The accused takes the bowl and repeats the same words. He then takes the potion and starts to town, escorted by one or two members of the Kwi-iru, followed by the multitude. The former keep near the accused and force him to walk incessantly until it is ascertained that the gedu does not affect him, or he falls down suddenly dead, a victim to the poison. As soon as this takes place a fiendish shout rents the air: 'The witch is found—he is killed.' Tied by the feet, the dead body is dragged on to the beach, where it lies for some hours exposed to the insults of the populace. Before the relations are permitted to bury it, they must purchase it from the Kwi-iru for a bullock or something equivalent."

"The Kwi-iru, as a kind of police, are often employed by the Sedibo to administer gedu in cases where persons are accused of witchcraft either by them or by the Deyabo.

"This last word—Deyabo—designates the most remarkable class among the Grebo: the *doctors* or *devil-men*. They suppose themselves possessed by a demon or spirit under whose inspiration they act and give their responses. They exhibit the peculiarities of those mentioned in Scripture as 'possessed.' They are 'thrown down on the ground,' they 'gnash with their teeth,' they appear dead, and they 'pine away.' Whenever any of the above marks appear in an individual he is said to be possessed; and is at once placed with an old 'Deyā' to be instructed in the arts and mysteries of the profession. The novitiate lasts from one to three months according to circumstances. During this time the candidate wears no other covering than grass tied with a cord round the loins. He does

not wash. He has no connection with his wife ; he sleeps and eats apart. When the instructing Deyā is satisfied with his proficiency, the candidate's family get a bullock ready to pay for his education, and a day is appointed for inducting him into office. This is quite a long ceremony. The test of the reality of his possession is very singular. A fowl or duck is killed and the head cut off ; some of the blood is put on the candidate's eyes, and the head is then thrown away into the bushes. The candidate is now sent to find it. If he succeeds, his possession is real ; if not, he is deceived. The latter case seldom occurs, as good care is taken that the head shall be found, and the candidate is escorted by his relatives (usually on the back of one of them) to the place of ceremony. There he is divested of his filthy hair and habiliments, is clothed in the usual dress of his class, furnished with a stock of grigris and charms, and taken home.

“Established at home, he is a most wonderful character. Under the inspiration of his demon, there is nothing which he cannot find out or do. For hundreds of miles the secrets of hearts are known and revealed. Hidden acts of witchcraft are brought to light. The potent spells and charms of the Deyā control winds, rain, pestilence, health, wealth, life and death. There is no good sought nor ill deprecated for which he does not at once provide a specific grigri. But it is especially in reference to witchcraft that the powers of the Deyabo are invoked. To guard against this, the Deyabo make charms for the persons of individuals, for their houses, for the town, for the country.

“By consulting their demons they are supposed to be able at once to designate the witch or wizard in any particular case, and the word of a Deyā is taken ordinarily as sufficient proof that the party accused is guilty, or rather as sufficient ground for subjecting him to trial by gedu. This fact, in con-

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nection with the popular belief that death in all cases—except those of infants and very aged men—is caused by witchcraft, causes a general fear through the whole community whenever any one dies ; for any one in town is liable to be arrested at any moment and subjected to the dread ordeal of gedu upon the mere *ipse dixit* of a Deyā.”

As regards the Kru people, the Rev. Mr. McConnell reported some years ago that their witch-doctors (who make a great deal of money out of the sale of amulets) are a distinct class of men, who come into the profession hereditarily, each witch-doctor teaching the business to one or more of his children. The children whom he destines to follow him in his profession begin their studies as early as seven or eight years old, and are marked off from the rest of the community by wearing a peculiar dress made of straw or reeds. The Kru witch-doctors profess a knowledge of herbs and roots, and certainly have the means of healing diseases, but their greatest reputation is derived from their supposed supernatural knowledge.

Though the adviser of the king in each country is probably a medicine-man, or though the chieftain may in the exercise of his office have to perform certain duties associated elsewhere with the work of priests or medicine-men, I can find no record in Liberia of the *priestly* and the *kingly* office being actually held by one and the same individual—a prince-bishop. As a rule the *constitution of each community* is *monarchical* rather than republican, but actual despots, ruling without reference to councils of elders, are not popular, and seldom last long. There are, of course, many chiefs and “kings” throughout the two million aborigines of Liberia, but scarcely one of any cardinal importance in the politics of the state. For example, there is no one supreme chief over all the Vai people, or over all the Mandingo,

Kru, Kpwesi, Grebo, etc. Perhaps the Buzi tribe comes nearest to being under the dominion of one powerful chief. As a rule a tribe of about one hundred thousand individuals will be divided into about four principal chieftainships, each represented by a cluster of towns, and quite conceivably each at war with the other. The kingly office is hereditary, and amongst most of the tribes from father to son. But if the son be a minor or be not greatly liked by the people, his uncle (father's brother) will rule as regent, either until he reaches his majority or until he conveniently dies, leaving a son, also to continue under the guardianship of the popular uncle.

In the case of the Kru people, they seem to be divided into a number of *clans*, at the head of each of which is a hereditary chief, generally known on the coast as "king." Alongside the king appears a sort of perpetual prime minister or mayor of the palace, whose function is also more or less hereditary, and who is known by the coast people as "governor." In each Kru tribe or community of towns there is a *council of headmen*—about a dozen or fifteen. As a sign of their office or their membership of an oligarchy they are entitled to wear an iron ring round the ankle. In war time a kind of generalissimo is elected by the council, who is known as the war king. Whilst the state of war lasts he is omnipotent both as commander-in-chief and as administering a kind of martial law in his own community. When there is no active warfare in progress, he probably assumes the position more or less of head of the police. In addition there is another community of "palaver men," of perhaps eight individuals, chosen for their powers of speech and knowledge of native custom. These also form part of the general council of the community.

It is stated by the Rev. Mr. McConnell that the Kru people on the coast were composed of a succession of interior

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tribes arriving one after the other from the hinterland, each tribe or clan retaining (to the present day) its own hereditary chieftain ; but that from out of these numerous chiefs was chosen a supreme chieftain from the Kru people, this office being held in succession by the head chief of each of the clans in turn. This hardly seems to be in force at the present day, when the Kru communities are coming so much under the general control of the Liberian Government.

The general council in each of these Kru communities preserves in oral tradition the body of country customs which constitutes the *Code of Law*. The council is also empowered to enact special and new laws when these are required. Mr. Gow writes that in the Sikoñ country at the back of the Kru Coast new laws are promulgated at any time by the king of the tribe or some other responsible person going round the town shouting out the law at the top of his voice—literally a “proclamation.”

The constitution of the Grebo people was thus described by the late Bishop Payne some fifty years ago. It remains much the same in theory at the present day, though on account of so many Grebos having become Christian and civilised, and having thus assumed the status of Liberian citizens, their old tribal customs are rapidly disappearing.

“The *constitution* of the Grebo tribe is patriarchal, although the government is almost purely democratic. There are in it twelve families . . . deriving their names from the emigrant patriarch or father. Their appellations are Nyambo, Grebo, etc. In nearly every one of the Grebo settlements . . . there are parts of these families, having in each case their distinct head-man or patriarch, who usually occupies a particular portion of the town, with his sons, grandsons, and relatives round him. The male members of these deposit with the

patriarch a portion of the money which they accumulate, and the latter in return pays the betrothal money (about twenty dollars) for their wives, as well as the fines and expenses to which they may be liable from any source.

“ Besides these duties to their relatives, the patriarchs collectively constitute an upper court or senate. To this body belongs the right of originating plans for promoting the public weal; to them are referred questions involving international rights. In all matters of grave interest, whether domestic or foreign, the voice of the patriarchs must be heard.

“ But the most influential class in every Grebo community is the *Sedibo*. This is most emphatically ‘the house of representatives,’ the *popular* house, for it is composed of all males beyond the age of twenty, except the patriarchs. Usually, as soon as a young man is married and has a home he pays into the treasury of the *Sedibo* a bullock, a goat, half a bushel of rice, and thenceforth, unless convicted of witchcraft, he is entitled to all the rights and privileges of the *Sedibo*. These combine the legislative and executive powers, for although the patriarchs may originate and advise, the *Sedibo* must discuss and resolve before any action can be had or law passed, and they meet and make laws at any time, and in relation to almost anything. They meet and decide that a man has stolen something, and for the offence make him pay a fowl, or all that he possesses, according to their temper towards him. They determine that a man has been guilty of witchcraft, and give him *gedu* (sassy-wood) to kill him. The fines imposed by this body are *divided according to hereditary right*. Thus, for example, if a bullock is slaughtered (fines are almost always paid in something to eat), one man by hereditary right takes the shoulder, another the neck, etc. These rights owe their origin to the same causes as titles in Europe: they were given

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to ancestors for some services rendered, and have come down in lineal descent to posterity.

“The same principle prevails in respect to offices, of which there are four principal ones in every Grebo community. These are the Woraba, Bodia, Ibadia, and Tēbawa. The former two are taken from the class of ‘Nyekbade’ or patriarchs—the latter from the Sedibo.

“The *Woraba* (literally *town's father*) is the oldest or most influential patriarch, lineally descended from the founder of the town. In the assembly of the patriarchs he takes precedence of all others, and has the largest share of all the perquisites of this body.

“The *Bodia* appertains to one family; but this is by appointment of an ancient oracle. The Bodia, and the other two offices of which I am to speak, though belonging to particular families, are only conferred upon those designated by some oracle consulted in reference to the appointment. The Bodia resembles the office of high priest among the Jews. The individual having been designated who is to fill the office, on the appointed day he is installed by a long ceremony, the leading features of which are as follows: There is a sacrifice of a goat to the Kuru (demons and departed spirits), the blood of which is *sprinkled* around and inside the door-posts of the Bodia's house. The Bodia is shaven, clad in a new garment, has a leopard's tooth tied around his head (this is a common ornament of gentlemen), has a monkey's skin prepared to be placed always beneath him when he sits, and he is *anointed*. The house in which he lives is called from this circumstance the Te-kai (anointed house). During the ceremony, the patriarchs of the several families, in order, give the Bodia-elect their respective charges. In substance these are: ‘Let trade be active; cause the earth to bring forth

abundantly ; let health prevail ; drive war far away ; let witchcraft be kept in abeyance,' etc. During his continuance of office the Bodia resides in the Te-kai house, built by all the people. He keeps the public grigris and idols, and *feeds them* with rice and oil every new moon. In making sacrifices for the town to departed friends and demons, he officiates as high priest. He cannot sleep in any other house but his own ; he may not drink water on the highway ; he may not eat while a corpse is in the town ; he must not mourn for the dead. If he dies while in office (the ring put on his ankle at his inauguration having been previously taken off and placed on that of some member of his family), he must be buried in the stillness of night, none but the most important public functionaries hearing of it, and none mourning for him when his death is made public. All Grebo Bodias, too, must be buried on the island off Cape Palmas if they have died a natural death. If they have been killed by gedu (sassy-wood), they must be buried beneath a running stream of water.

“The *nominal power* of the Bodia is very great, but in practice is very limited, for he dares not act contrary to the public will, which he is, therefore, very careful to ascertain. Whenever adversity of any kind befalls the country, the Bodia is held responsible for it—‘he has made witch’—and many a poor incumbent has paid the penalty with his life.

“The two remaining offices, *Tēbawa* and *Ibadia*, appertain to the Sedibo, and on a vacancy occurring are filled in the same manner as that of the Bodia. These, too, are hereditary in families. In the assembly of the Sedibo their assent must be obtained to any measure before it can be carried into effect ; though, as in the case of the Bodia, this assent is rather the expression of the popular will than the direction of it. The most important duties of these officers devolve

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upon them in time of war. Then the *Ibadia* must always *lead*; and in case of retreat or defeat, the *Tēbawa* must bring up the rear. In reward for their services they have by hereditary right a large share of all the perquisites of the *Sedibo*.

“The third class into which every Grebo community is divided is the *Kedibo*. This is composed of youths between the ages of eighteen and eleven. A small fee admits any one of initiation age to this class. They have a treasury, a kind of head, usually selected from among the elder *Sedibo*, to take care of their property. They have meetings, at which they discuss subjects of which they have the control, but are subject to the direction of the *Sedibo* in all important matters.

“The *Kimbo* includes children from six to eleven years of age. Theirs is a separate organisation, although their rights and privileges are of more limited character. Their chief perquisites are those obtained for their collective services in busy seasons. It is wonderful to witness the stormy debates of this little society, and amusing to see them punishing each other for real or alleged offences, by putting pepper in the eyes, beating, etc.

“In the meetings and councils of the *Sedibo* and people which I have attended I have been struck by the order, decorum, and mental acumen displayed. In grave assemblies each man has his place and his time to speak; when this arrives he stands up, usually holds a long staff in his hand, and asks attention by saying ‘*Batea*’ (Attend all); the assembly responds ‘*Bate*’ (We attend). In examining evidence they are most thorough; and keen indeed must be the foreign casuist who can get the advantage of them on matters coming within the range of their experience.”

Slavery is still in force as a social institution throughout Liberia, except in the regions near the coast which are under the effective administration of the Liberian Government. Needless to say, it is not recognised by the Liberian Government as a legal condition; but it would only involve the Government at Monrovia in a long series of costly and bloody wars if they commenced too soon a crusade against the Slave Trade in the far interior. It is clear, for example, that a considerable traffic in slaves still goes on between Western Liberia and the civilised blacks of Sierra Leone, "who take over the war captives of the Buzi and Mandingo tribes as labourers and domestic servants at a price of about £4 each" (Mr. Conrad Viner's report).

Amongst the aborigines, the farther one retreats from the settled coast belt the more evident is it that slavery is still a powerful institution. According to Mr. Gow, who travelled amongst the Kpwezi people on the Dukwia River in 1904, there is constant civil war between various Kpwezi tribes or communities, in the course of which prisoners are made. As it would be easy for these prisoners to run away back to their own homes, the desire of their captors is to dispose of them for large or small sums to Mandingo traders, or to hire them as apprentices to Americo-Liberian settlers. At one time, no doubt, the Mandingo did a very good business in the Liberian hinterland. They bought hundreds—possibly thousands—of slaves every year, and took them to the Mandingo Plateau, whence they were dispersed amongst the Arab, Fula, and Hausa traders who frequented Samori's empire before it was conquered by the French. But there has been a marked decrease in the demand for slaves by these Mandingo merchants since the whole of the Upper Niger Basin was occupied by the French Government. No doubt the simultaneous British

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occupation of Northern Sierra Leone will equally react on this condition, since in all directions the market for slaves is being closed. There does, however, remain—it must be admitted—a great temptation to the Americo-Liberian planters, but one which it is difficult to stem. Undoubtedly the system of apprentices does not differ markedly from a legalised slave-buying. The Liberian planter, we will say, goes inland and is offered boy and girl or adult slaves by some native chief. He pays perhaps from £2 to £3 value in trade goods for each human being, and to satisfy his own conscience calls them apprentices. These people are then conveyed—usually very willingly on their part—to his own plantation or place of business, where they settle down as cultivators. He may, if he likes, take advantage of the existing law of apprenticeship and bind these people, if they are under age, as apprentices for a short term. But this is the only legal control he has over them, and that amounts to very little. If he does not treat his apprentices well and they run away to some one who will treat them better, the employer has practically no redress. Therefore, although in theory this is not a proceeding without its objections, in practice it serves to people the coast regions, to increase the future number of civilised Negroes growing up under Liberian laws, and to give these unfortunate outcasts at any rate a life of tranquillity and safety; whereas if they remained as slaves in the interior they would be liable to ill-treatment and death on small provocation. A good many of these apprentices become porters, retaining all or nearly all their earnings, and a good deal of the transport between the coast and the interior is carried on by ex-apprentices, who if they do chance to revisit the former place of their slavery, do so as men of the world, not at all inclined to put up with any aggression from their former masters.

In the Vai and Kondo countries, and also in the interior of Eastern Liberia, there are often slave towns, villages inhabited by nothing but slaves. In some cases these people are only slaves by tradition, having regained their liberty of action to all intents and purposes through the inability of their former masters to compel them to re-enter servitude.



424. EUROPEANS AND NATIVES ON THE BANKS OF THE ST. PAUL'S RIVER

The "king" of Twidi, for example, in the Sikoñ country behind the Kru Coast, has a special town for his slaves, who live there under no restrictions, except that they may not leave the king's district or country without permission. These slaves are not only of Kpwesi origin, but in some cases are actually Mandingo who have been captured by the chiefs of the interior and sold as slaves, or more likely have been born

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in captivity of slave parents. Mr. Gow writes that these Sikoñ slaves are well treated, "much better so than many free-born people. Should a free boy wish to marry a woman from amongst the slaves, he has simply to give her a leopard's tooth (which is a sign of freedom) and she is then a free woman and can go away with him."

Though it may seem wrong in principle that a Sierra Leone negro trader or an Americo-Liberian planter should under one guise or another recruit labourers by "redeeming," "hiring," or "apprenticing" war captives, there is no question that the result has been beneficial for the time. Mr. Conrad Viner, who visited the Buzi country in the early part of 1906 (when this portion of Western Liberia was recovering from civil war), reported that the adult prisoners not disposed of under these pretexts were slaughtered, and their bodies thrown outside the clay walls of the town to be devoured by leopards. In consequence of this all the leopards in the vicinity had become bold man-eaters.

What is wanted as a corrective to the Slave Trade is the construction of roads, and the creation of a legitimate commerce in the forest products of the country.

CHAPTER XXX

FOLKLORE

THE folklore of the Liberian peoples is that of all Negro Africa. It is perhaps most luxuriant amongst the Vai.

It is not my intention in this book to deal with this subject at any length, because it has already been illustrated to some extent by Koelle in his writings on the Vai people, by Miss Cronise in her stories of the Temne and Mende people,¹ and by the Rev. C. F. Schleuker in his translations from the Temne language of Sierra Leone.² The stories given by these authors can many of them be recognised in similar tales from Western and Eastern Liberia.

There is a remarkable similarity in these beast stories throughout Negro Africa, from the Senegal to Zululand and from Cape Colony to Somaliland and the Egyptian Sudan. Of course, to a certain extent they link on (I believe) with fables that are still told in North Africa, and they are of one family with the beast stories of mediæval (and no doubt prehistoric) Europe, with Æsop's fables of the Eastern Mediterranean region, and with the beast stories of the American and Australian aborigines. There is a considerable resemblance in structure and subject between the African beast stories and the folk-tales of Northern Europe which have come down to us through their

¹ *Cunnie Rabbit and the other Beef.*

² *A Collection of Temne Traditions*, Church Missionary Society, 1861.

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delightful versions in Low German and Walloon French which we know as "Reynard the Fox."

In Africa, of course, the rôles are played by animals different from those of Europe, and also different from those which were adopted by the transplanted Negroes in America as equivalent symbols in the "Brer Rabbit" stories. In West Africa the part of "Brer"¹ Fox is generally taken by "Mr. Spider," who is the emblem of more or less successful cunning and unscrupulous rapacity. The wolf of European legends is represented by the fierce leopard. Brer Rabbit in the American version is nothing but the African hare. Throughout all the open lands of Africa the hare is the emblem of cunning or wisdom, generally of a genial type, and not always turned to wicked purposes, as are the fox or spider. There is, however, no hare—or no hare that is much noticed by the natives—in the densely forested regions. Here this character in the story is assumed in some countries by the Royal antelope (*Neotragus pygmaeus*),² or perhaps occasionally by the water chevrotain (*Dorcatherium*), both of which animals have been described in Chapter XXIII. The other parts in these West African stories are played by the elephant (a most important personage), the tortoise, the antelope (using a term to describe all horned ruminants larger than the little *Cephalophus*), the buffalo, manis (scaly ant-eater), monkey, chimpanzee, hyæna, lion, python, bird (any small bird), eagle, and rat. The spider being the emblem of wicked cunning; and either the tiny, dainty Royal antelope or the not much bigger water chevrotain the representative of genial wisdom; the part of the stupid person

¹ It is scarcely necessary to explain that "Brer" is merely an abbreviation of Brother. The Negro transplanted to America carried out the quaint practice of his own country, in which most of these animals were mentioned with some preliminary title, such as Father, Mother, Brother, or Mr. This tendency was further intensified in America by the spread of Methodist Christianity, which introduced into common parlance the terms of Brother and Sister

² In Vai known as "sañ" or "sando."

(the sheep of European legend) is generally played by the antelope.¹ The leopard represents the audacious robber.

Mr. Wilfrid Kanga, a Liberian school-teacher of Maryland County has kindly furnished me with two typical folklore stories, one of the Vai people in Western Liberia and the other from the Grebo, a Kru race in the eastern part of the republic.



425. THE ROYAL ANTELOPE (NEOTRAGUS PYGMÆUS). AFTER A DRAWING BY J. WOLF

STORY OF THE MAN AND THE LEOPARD

(From the Grebo Tribe)

A MAN once had for his personal friend a leopard. As times became hard and the financial condition of the town more

¹ No doubt the Cobus or waterbuck and the allied reedbucks, or some of the tragelaphs may be included under this term.

strained, he moved his little family out on to an elevated tract of land nearly fifteen miles from every neighbouring community. Though it seemed at first sight a rugged mountainous region, there were to be seen many fertile parts dotted here and there with forest and yielding nice rich pastures. Here all the wild deer and other herbivorous animals were found to repair every morning till mid-day, the time when they would retire under some large tree to wait until the cool of the day. Having discovered the time of their grazing the Man placed a noose at the mouth of each of their paths. Before dawn, however, a convention was agreed to by the deer that they should all at daylight proceed to the pasture in one great body. The Bushbuck was then made the leader. Just before day, early in the morning, they all arose and went to the field ; but when they arrived at the entrance to the road where the snare was, the Bushbuck got caught. When the others saw the buck kicking and jumping and unable to get out, they all got frightened and ran.

When daylight came, the Man went to his noose and on approaching it found it had caught a large buck. Then he took it to his wife and charged her that, as he was going for fire, should the Leopard come before he got back, or in case she heard him clear his throat and say "Ku Ku!" she should hide the meat ; for this was the sign of the Leopard's coming. He then went to Leopard's house ; and Leopard asked him what luck he had had. Man replied, "I got nothing." But Leopard said, "I shall, however, return with you, if for no other reason than the stroll." When they reached the Man's residence, the Leopard passed quickly to the front premises, where the deer had been imperfectly concealed by the woman, and exclaimed, "Hallo ! here I have found my buck." But the Man said, "No ! this is *my* buck I have just caught in my noose," and he refused to give it up. Thereupon they all consented to have

it cooked and the whole eaten together. The Bushbuck having now been cooked and dished in a large bowl, they again agreed that before eating each be tied against a post and that he only should eat who of himself was able to break the string. The Leopard was then tightly tied with great cords against a tree, and in spite of all his force and strength the cords still held him firmly lashed to the tree. But the Man and his wife having tied themselves with a thread soon broke the strings and ate up all the meat. And when the meat had been eaten up, they washed the bowl with pepper and water, and then dashed it in the Leopard's face, and left him there tied against the tree.

But a Rat passing by was hailed by the Leopard and entreated to come and loose him. Mother Rat consented; and brought her two children to gnaw the strings. Then the Leopard having been loosed, quickly seized her young ones and ate them up.

In serving the wicked expect no reward, and be thankful if you escape injury for your pains.

MR. SPIDER AND THE BONI GIRL¹

(*A Vai Story*)

As time went on the farm season soon came round and everybody was seen putting forth some efforts towards making plantations, first in the low marshes and then on the highland or mountainous regions; all except Mr. Spider, who was said to have been at the time very ill. Everybody in the town turned out to work but he. Spider laid in bed ailing from the time the bushes were cut down and burnt, and rice began to ripen. When rice was now fully ripe and the people had commenced gathering it, Spider's case became serious; his decease was momentarily expected. But just

¹ "Boni" is the designation of a girl in an initiation school.

before dying he requested the people, when he was dead, to bury his body in some large rice farm. Spider then died, and his body was accordingly interred in his uncle's largest farm. Now every morning after this, when the people came out to the farm, they would perceive that either rice or some other articles had been stolen away in the previous night. This thing was carried on every night for a week. Several attempts were made to lay hands on the thief, but without the least success. There was no one who could for a single moment guess who it was. So they repaired to the More man,¹ to seek his priestly advice, or if possible to have the person described to them. The priest, however, told them to go and make a wax doll in the shape of a young girl, and place it near the corner in the kitchen, and in the morning on their return they would find the burglar had been caught.

As the shades of night gradually fell, the disheartened labourers began to retire from their daily toil. There was a perfect stillness—all the farmers had gone home—and when it was nearly midnight, Spider crept out easily from his grave and went into the kitchen on a hunt for some rice. He hurried over his search, got everything he wanted, and commenced cooking. When the blaze became brighter and he looked around for a spoon to stir his rice, his eyes suddenly fell on the beautiful-looking Boni girl standing in the corner. So he laughed and said, "Ha! ha! Are you here seeing me burn my hands, and won't come to my assistance?"

Mr. Spider was puzzled because the figure did not reply, and now dropping the spoon on the ground he stepped up boldly to her and laid his left hand on her shoulder.

The pots soon began to burn; he made several attempts

¹ Muhammadan diviner.

to go and look after his pots, but the Boni refused—he was stuck to the wax. So Spider got vexed and commenced cursing and swearing; he told the Boni girl that if she did not speak or allow him to go and look after his pots, he would slap, kick, and knock her all over her face. Here a deep silence ensued for a quarter of an hour. The girl seemed to have refused to do either. It was now almost day—the rice in the pot had burnt to cinders—and there Spider was hanging with his hands, feet, and teeth stuck on to the beeswax coating of the Boni girl. When it was day, and the people had come to their farms, there they found old Spider hanging. So they yelled and shouted at him while some oiled him and set his body on fire. He was burnt to cinders, and his ashes were thrown into his old grave.

Never expect an easy life : laziness is a crime.

From these stories the natives easily pass into legends of devils,¹ water-spirits, elves, and bogeys. The devils are very often (as in the Cameroons region and Sierra Leone) described as being cut in half—that is to say, they have a front which resembles a man, but if one succeeded in getting behind them they would be found to be hollow, empty like a mask. The water-spirits have about them the characteristics of our legendary syrens. They may owe their origin to the crocodile or the python, or even further back to some creature, no longer in existence, which dwelt in deep pools and seized human beings on the shore, luring them first by curiosity, until they came within reach of its jaws or grasp. The stories of ghouls, as already noted, seem here, as in other parts of Africa, to be based on real incidents of morbid cannibalism.

There is no decided clear *totemism* now remaining in the

¹ *Nyāna* in Vai.

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Liberian peoples, though in one district and another there are animals that men or women may not eat, such as the black *Cephalophus* antelope, elephants, monkeys, fowls, cat-fish, or goats. Children, too, at birth are often dedicated to some animal or vegetable, and may not eat or destroy the same during their lives. On the other hand, totemism, according to Binger and other authorities, was at one time well marked amongst the Mandingo on the north, and through them had penetrated to the coast of Western Liberia with the Vai tribe. Muhammadanism seems to have killed out this practice to a great extent, in Liberia at any rate. Binger gives the following list of animals and plants that were regarded by the Mande peoples as totems, as things considered more or less sacred in the clan which adopted the particular totem: Crocodile, hippopotamus, elephant, snake (in general), "broken calabashes or gourds," lion, dog, milk of wild animals, the green monkey, leopard, paradoxure or palm civet, monitor lizard, ground-rat, python, and puff-adder.

It is said that the word *Mali* or *Madi*, which sometimes seems to be the root of the word Mandingo (the name, which is really pronounced Madiña or Mandiña), is really the word for hippopotamus; that the original Mandingo people took the hippopotamus of the Upper Niger as their totem. The word is certainly the term for hippopotamus in several of the Mandingo languages, but it is not yet certain that *Mali* or *Madi* is the same word as Mande, Mende, or Melli (the Melli Empire), though it seems probable.

CHAPTER XXXI

THE LANGUAGES OF LIBERIA

THE native languages of Liberia—so far as they are known—fall into five groups :—(1) KRUI ; (2) KPWESI ; (3) MANDINGO ; (4) GORA ; and (5) BULOM.

The three first groups have perhaps more fundamental relationship than is the case with the two last. Gora is an almost isolated language, with a very slight resemblance in its vocabulary, here and there, to the Kru group, to the Mandingo, or even to the Bulom. This last-named is only represented in Liberia by the *Kisi* language, spoken to the west of Boporo near the Sierra Leone frontier. *Kisi* is obviously related to the *Bulom* group of South-eastern Sierra Leone in its word-roots, but it has developed a very different grammatical construction, its nouns changing from singular to plural by an alteration in the termination, and not by the application of a prefix, as in Bulom and the Sherbro dialects. *Bulom* belongs to a large, scattered group of languages (which includes Temne) along the coast-line of Northern Guinea, between Sherbro on the south and the Gambia on the north. An illusive resemblance to the Bantu family is offered by the feature they have in common of pronominal prefixes. All the other language-groups west and south of the Niger (so far as we know) change the number and signification of the noun by suffixes or alterations in the terminal syllable.

Yet although the *Fula* language (for example) is a suffix-

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employing speech, its use of these suffixes recalls very closely the Bantu concord.¹ In fact, in studying these very diverse West African languages, one comes to the conclusion that grammatical structure may vary greatly, while fundamental relationships in word-roots remain. A conquering race may more readily impose on the people it enslaves its own ideas about syntax and arrangement of words and particles than it can eradicate from the minds of the subject people the attachment to certain vocables expressive of familiar and common ideas. Thus, there might even be an agreement between Fula, Bulom, Wolof, Mandingo, Temne, and Kpwezi in certain word-roots or numerals while the grammatical structure employed in connecting and building-up these radicals differed very widely; just as in the Keltic tongues of Britain and Ireland the vocabulary is mainly Aryan while the structure of the language is more of an Iberian—North African—type. In this last instance the discrepancy arises no doubt from the early Aryan

¹ It might be of use at this stage to give some idea as to what is meant by the term "concord." In the purer forms of Bantu, such as Uru-nyoro of North-west Uganda, it is something like this:

Iki - toke niñ - *kyo* - *ki* - kunda *ki*-gwa; tu *ki* dya.

It banana I which it like it falls; we it eat.

(The banana which I like has fallen; let us eat it.)

Throughout this sentence, which is thoroughly characteristic of Bantu construction in its typical form, the word "banana" (*Ikitoke*) is of the root *-toke*, to which, in the special sense of an individual fruit, the pronominal prefix *Iki* is applied. This word *Ikitoke* must be accompanied throughout the sentence by its corresponding particle, *ki* or *iki* (relative form *kyo*). In the *Temne* language of Sierra Leone, a very representative example of the Western Pronominal-prefix group, there is almost exactly the same "concord." This sentence in *Temne* will illustrate the point:

Añ' ña - mi *ã* - set *ña* fumpo (My house falls).

The the my the house it falls.

E - *ye* - mi *e* - set *ye*- fumpo (My houses fall).

The the my the houses they fall.

Here *aña* (shortened sometimes to *ã*- or *ña*) stands for the definite article and pronominal prefix of "house" (*set*) in the singular. In the plural the similar prefix is *Eye*, shortened to *E*- and *-ye*.

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(Fair-haired) Keltic invaders of Britain finding in possession of the country an Iberian race akin in origin to the Mediterranean peoples. The dark-haired Iberian spouse of the red-haired Kelt would adopt her husband's vocabulary and arrange it to suit her own Iberian ideas of grammatical construction, and so bring up her children to speak a language of mixed relationships.

In West Africa, as in other parts of the Dark Continent, sometimes the invading race brings a new vocabulary which is woven into an older grammatical system, or, *vice versa*, it imposes on the conquered race its own ideas of grammar while accepting the vocabulary of the conquered. Moreover, these African languages are in such a state of flux that it is quite conceivable some relatively slight revolution might cause a system of prefixes to become a system of suffixes, and *vice versa*.¹ I do not therefore lay much stress on the grammatical differences between the West African languages if I can find any trace of agreement in root forms and even in phonology. There is, for example, one distinguishing feature of the *true Negro speech* from the west bank of the White Nile westwards to the Atlantic coast of Senegambia, an area also including the northern parts of the Congo Basin and the Cameroons. This region has in phonology the peculiar and distinguishing feature of the guttural-labials, the combinations of *kpw* and *gbw*.² There is also a great liking for the nasal *n* (*n̄*). This last feature is shared by the great Bantu group to the south and by the Hottentot-Bushman, but is practically foreign to the Hamitic and Semitic languages on the north and

¹ See how the English tongue has changed in this respect, as regards the place of the qualifying preposition. Our ancestors, following the Teutonic system, spoke of an "up-bringing"; the modern arrangement is a "bringing-up." Compare "on-set" with "set on," "up-lifted" and "lifted up," "off-set" and "set-off," etc.

² These generally appear in European transliteration as *gb* and *kɸ*; but there is nearly always a *w* sound at the end of the combination.

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east. But the *gb* and *kp* combinations are the peculiar feature in the speech of Central and Western Africa between the Equator on the south and the 12th degree of north latitude on the north.¹

The MANDINGO² family of West African languages is a very well-marked group, employing suffixes in its grammatical changes. It seems to have its centre of origin about the Upper Niger and the sources of the Senegal and Gambia. Physically, the Mandingos vary somewhat in type, but appear to be the result of an early infusion of northern Hamitico-Caucasian blood into a pure Negro stock. Perhaps they were created by the ancestors of the Fula mingling with the pure-blooded Negroes of Western Africa. However that may be, at one time they must have formed a tribe which had the leisure and isolation necessary to the development of a very well-marked form of speech, so far as grammatical structure is concerned. They then prospered, increased in strength, and early adopted the Muhammadan religion and Arab civilisation. Overflowing their original bounds, which were perhaps those of the highland country immediately between the Upper Senegal and the Niger, they pushed their way south-eastwards to the interior of what is now known as the Ivory Coast, or on to the highlands of Liberia, or they reached the sea coast through (what is now) Sierra Leone. On their way south, by various

¹ There may have been some trace of indeterminate guttural-labial in the original Aryan language, afterwards to be represented by *qu*. Thus *bos* and *gau* (cow), *quinque* and *pente* may have arisen from root-words of which the initial consonant was like the African *gb* and *kp*.

² I am fully aware that this rendering of the name is not in strict accordance with its pronunciation amongst the Mandingo people; but the exact form of the word seems to be somewhat in doubt, and as Mandingo has long been accepted it is best to leave it undisturbed. The word seems to be composed of a root *Mande* or *Mendi*, and a suffix *nka* and *nga*. But as often as not it is pronounced *Mandina*.

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combinations with the indigenous tribes, they formed the *Susu*, *Kondo*, *Mende*, *Gbandi*, and *Vai* peoples.

The *Vai* must have reached the Atlantic seaboard several hundred years ago, perhaps even before the arrival of the Portuguese. Another branch of this same people penetrated to the coast of the Sierra Leone peninsula, where they were once to be found under the name of Landogho. The *Susu* also pushed their way through the Temne and Bulom peoples to the vicinity of the Atlantic seaboard at the River Pongo, or Pongas. Other Mandingo tribes colonised the banks of the River Gambia. Northwards, they appeared on the Upper Senegal as the *Serekhule*¹ and *Bambara* (*Bammana*) on the Upper Niger.

The true Mandi or Mandingo race at the present day is most strongly represented along the Upper Niger, from its source as far east as Segou. There is a slight but obvious connection in word-roots and grammar between the *MANDINGO* group and the *KPWESI-BUZI* languages of Central Liberia, and a still slighter relationship with *GORA* and with the *KRU* tongues; while there are hints of an underlying relationship of a most remote kind with the fundamental mother-tongues of the Fula and Wolof.

The phonology of the *Mandingo* languages is harmonious and relatively easy for European pronunciation. It resembles that of the Bantu group in its love of vowels and desire to place as far as possible a vowel between each consonant, excepting of course the use of semi-vowels like the nasal *n*, *m*, and *r*. As in Bantu, no word can end with a consonant.

¹ Various authorities have doubted the linguistic connection between the *Serekhule* or *Gajaga* (called by the Moors, *Aswanek*) and the Mandingos; but although their dialect is much farther from pure Mandingo than is (for example) *Vai*, its distinct affinity is undoubted.

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In the form of the *Negative Particle* (which is generally *ma*)¹ they recall a similar feature which is found in many of the Sudan languages from Senegambia right across to the speech of the Nile Negroes and Masai. This *ma* negative particle even appears in some of the Semitic and Hamitic languages.

In *grammatical structure*, except for the use of suffixes instead of prefixes, the Mandingo, like other West African groups, offers resemblances to the *Bantu*. As in the last-named family of African languages and all other forms of purely Negro speech, there is no distinction of gender between male and female. In *Fula* and in some of the *Temne-Bulom* languages there is a distinction between what is human, or even what is living, and what is lifeless or merely vegetable. But the Mandingo family has dropped this distinction, if it ever possessed it. Some of the *Nilotic Negro* languages, even such as are found far to the westward of the main seat of the family, in the region of the Bahr-al-Ghazal, preserve that distinction of *masculine* and *feminine* which is so characteristic of the Aryan, Semitic, and Hamitic languages. This distinction, for example (though very often degenerating into two classes, "strong" and "weak"), is found in the *Masai*. It may possibly be explained by the direct influence of the first Caucasian invaders on the ancient Negro stock in the Nile Valley. It is curious, however,

¹ In my vocabularies the negative particle in Mandingo proper appears usually as *de*. This is represented in Vai by *re*, applied often in connection with the auxiliary verb "to be." But the commonest and simplest negative in Mandingo and Vai is *ma*. *Ma* also reappears in Bulom as a sign of negation, though the verbal negative is *kē, kēñ, ēñ*. Fula is altogether outside this group. Its most common negative particle is *ta*. Wolof, also, has no share in this negative use of *ma*; it employs as prefixes or suffixes to express negation *du-, de-, -u, ùl*. In Dē, Basā, and Kru the negative particle is *si-, sed-, or ser-*; in Grebo it is *yi-*; in Kpwesi, *fe-* or *fu-*; in Buzi, *ɪv-*; and in Gora, *fə-*. In Bantu the negative particle is *ka (k-), ta, sa,* or *si*; sometimes as an adverb, *ve, pe*.

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that a division of nouns—masculine, feminine, and neuter—(similar to what obtains in Masai) is characteristic of the *Hottentot* language, a form of speech which several writers have thought might have been created somewhere in East Africa or Somaliland by the early impact of Hamites on a people of Bushman stock, already partially hybridised with the Nilotic Negroes. The *Mandingo* group in its numerals exhibits another interesting feature. Half its dialects have *tamu*, *tam*, *tañ* as the word for “ten” and the other half *fu*, *pu*, *pugo*, or some variant of *pu-*. This recalls the similar feature in the *Nilotic Negro* or even the *Western Hamitic* languages of the two rival roots for “ten”—*tam-* and *pa-*, *par-*, or *puto*.

It is rather remarkable that in the FULA language there should be absolutely no trace whatever of Caucasian influence, such as is so marked in that of the far more Negroid race of the *Hausa* or of the numerous branches of the Nile Negroes already referred to; for the Fula, as already stated, in physical appearance are almost more a Caucasian than a Negro people. Yet their language is fundamentally a Negro tongue, with literally no more trace of original Caucasian influence than the quite recent interpolation of words derived from Arabic and connected with the Muhammadan religion. An analogous influence to this is that remarkable *Gala* aristocracy of *Eastern Equatorial Africa* to be found still living amongst a purely Negro Bantu population. This aristocracy never speaks anything but the purest forms of the Bantu dialects, and these last are just as much Negro types of speech as are the languages of West Africa. It might be said, however, that the Bantu language family came into existence somewhere in the Nile Basin by the influence of some Hamitic invasion which accepted the language of the conquered Negroes though it cast it into a new mould, impregnated with some Hamitic ideas of grammar.

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Some of these ideas, in a different form, it is true, appear in Fula, but in a less recognisable way.

The GORA language is somewhat of a problem. It is one of those West African languages that are comparatively isolated, offering no distinct relationship in its roots with adjoining forms of African speech. No doubt it is an old descendant of the original mother-tongue of West Africa, which was the basis of all the other West African groups alluded to. There is, perhaps, most resemblance in word-roots and grammatical construction to the Kru group, Kpvesi, and Mandingo, with an occasional suggestion of far-off affinity in numerals and some word-roots to Fula and even to Bulom.

The KPWESI dialects are less isolated in their structure than the Gora. They show a decided affinity to the Mandingo group, while at the same time offering slight resemblances in some of their roots to Wolof, Fula, and Bulom. These resemblances, if they are real, are undoubtedly due to the Kpvesi, in common with all the other families mentioned, being derived from an ancient—a very ancient—West African mother-speech.

The KRU languages cover much of the eastern half of Liberia, beginning in the west with *Dē*, which is spoken on both banks of the Lower St. Paul's River, chiefly, however, to the west of that stream. *Dē* links on with *Mamba*, and *Mamba* is little else than a dialect of the *Basā-Gibi* language which occupies much of South Central Liberia. The *Kru* speech in many dialects begins on the coast about the River Sanguin, and extends eastward to Garawé, where it merges into *Grebo*. The speech of *Sikoñ* and *Putu* has a considerable resemblance to the *Kru* language between the River Sanguin and the coast, but with a trifle more affinity to *Mandingo* and *Kpvesi*. *Padebu* represents the type of language of the interior of Eastern Liberia behind *Grebo*. The *Grebo* group is a relatively large one, and its range

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extends over the western portion of the French Ivory Coast, especially in the littoral region. It includes, no doubt, Padebu, and all dialects which use as a tribal designation the suffix *-bo*, *-bu*, *-pwe*, *-po*, *-wo*, etc. (The original name of the Kru people seems to have been Krawo.)

All the KRU languages are very *nasal* in pronunciation; they employ an aspirate before several consonants, rather clip their vowel sounds, and evince a liking for the conjunction of a trilled *r* with a dental, guttural, or labial without an intervening vowel. In these two last features their phonology differs from the Mandingo and Kpwesi groups.

But all the known Liberian languages (MANDINGO, KPWESI, GORA, and KRU) except, perhaps, KISI, *differ* from the FULA, BULOM, and WOLOF families, and *agree* amongst themselves (1) in their use of *suffixes exclusively* in construction, (2) in their *prefixing* the possessive pronouns, and (3) in their objection to ending any word with a *consonant* (a nasal *n̄* excepted). KISI shares some of these features, but, from the very little we know about it, seems related to the *Bulom* group in its vocabulary.

KISI is spoken in Western Liberia. It would seem to be an outlying member of the Temne-Bulom group, so far as the roots of its words are concerned, though in grammatical structure it approximates more to the suffix-using groups such as Mandingo.¹

We are feeling our way gradually, slowly, with difficulty, towards a classification of the NEGRO languages. To the present writer they seem to be falling into groups somewhat after this order:

1. The BUSHMAN languages of South-west Africa.
2. The HOTTENTOT group in the same region. Possibly

¹ The present writer has not been able to obtain a vocabulary of Kisi. The only one existing is given by Koelle in his *Polyglotta Africana*.

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allied to this is the *Sandawi* speech which lingers in the northern parts of German East Africa, and which is said to contain clicks like those of Hottentot and Bushman.

3. The clear-cut BANTU family, which has occupied all Africa, more or less, south of the Equator, excepting the diminishing area retained by the Hottentots and Bushmen. The Bantu family is essentially a Negro speech, remarkable for the use which it makes of pronominal prefixes with their corresponding particles and pronouns. It may or may not have been created (not very anciently) by a Hamitic invasion of the southern parts of what is now the Egyptian Sudan, of the regions on either side of the Mountain Nile. It is possible that hereabouts a language of West African type existed, allied in its vocabulary and phonology to some of the great groups still existing in the region of the River Benue, on the Lower Niger, and thence westwards to the Gold Coast. This speech was taken hold of and remoulded by invaders of some superior race, possibly allied to the Ancient Egyptian or Gala. Once created, the original Bantu mother-tongue resembled somewhat closely the existing languages of Ru-Nyoro, Lu-Ganda, and the Bantu dialects on the western slopes of Mount Elgon. The Bantu mother language must have been the speech of a most powerful and vigorous Negro race, slightly tinged with Hamitic blood. From somewhere in the region between the Victoria and Albert Nyanzas, Mount Elgon and the White Nile, the Bantu Negroes with their harmonious and logical type of language swept in a vast tide of conquest over the southern half of Africa, at a period not perhaps more than three thousand years ago. They rushed down the eastern section of this southern projection of Africa, and attacking the Congo Forest firstly from the south, they penetrated to the Atlantic coast, and so worked their way up till they were in the region of the Cameroons, from which

some of them migrated to the opposite island of Fernando Po. Then later they penetrated up all the affluents of the Congo from west to east, and later still pushed their way, though much more faint-heartedly, into the Congo Forest from the north-east. Racially they have not completely absorbed the Congo regions yet, since there still exist the Congo Pygmies and the short-legged Forest Negroes.

4. The MADI group. This would include a great many of the non-Bantu Negro languages immediately to the north of the Congo Basin—forms of speech such as the Madi, Momvu (?), Lendu (?), Nyam-Nyam (?), Mañbettu, etc. These languages offer slight resemblances in their phonology to the Bantu, and occasionally in their grammar, or even in the roots of some of their principal words. Yet they are emphatically outside the Bantu family, and present but little resemblance to each other. It can only be said that they differ less from each other than they resemble the surrounding language groups to the north, east, and west.

5. The NILOTIC family. This also, like the Bantu, is rather clearly marked in its features and in the relationships of its various members. The forms of Nilotic speech extend almost as far west as Lake Chad in some directions, as far east as the confines of Galaland and Abyssinia. On the north they reach to within two hundred miles south of Khartum, and on the south and south-east in the form of the *Masai* group they extend into the Bantu language-field south of the Equator.

6. The NUBA family. A group of Negro languages spoken by people that are much more Negroid than Negro—the present inhabitants of Nubia, Kordofan, and Darfur. This group merges into the next.

7. The BAGHIRMI group. This in a loose way includes most of the languages of Wadai, of Baghirmi, and the valley

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of the Shari River; perhaps, also, the Musgu, and it may also be related to—

8. **KANURI**, or the language of Bornu. This group perhaps includes the *Teda* of the Tibbu Negroids.

9. **HAUSA**. This language has undoubted affinities in the form of its word-roots with outlying dialects of group 7, which are absolutely Negro in their character. But in its grammar and in some other features the Hausa speech is distinctly connected with the Libyan or Hamitic tongues spoken by races that are rather more Caucasian than Negro. Hausa, like some of the western and eastern members of the Nilotic group, distinguishes *gender*, an idea borrowed from the Caucasian peoples.

10. The languages of the **BENUE** region. These offer marked resemblance in their word-roots and in some of the numerals to the Bantu family, but are in construction of an extremely degraded, broken-up type of language, and are very far from the parent speech which was moulded into Bantu. This Benue group may perhaps extend southwards from the south bank of the Benue River to the Cross River and the interior of the Cameroons and Fan country.

11. The **Ijō** or **BONNY** group. This is a small isolated family of languages in the eastern half of the Niger Delta, between the main Niger and the Opobo River. They are perhaps distinctly connected with, but older than, the succeeding group.

12. The **LOWER NIGER** languages. A web of tongues stretches along the last third of the Niger course from the country of Nupe to the sea, eastwards along the north bank of the Benue, southwards to Old Calabar and Benin. This group includes such prominent languages as Nupe, Bini, Efik, Jekri, and Ibo. It also offers vague indications of affinity

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with the original basis of Bantu speech, and is connected with groups 13 and 14.

13. The YORUBA or Aku group, which is found to the west of the Lower Niger and thence to the boundaries of Dahome.

14. The EHWE-CHWI languages of Dahome and the Gold Coast. These form two distinct sub-groups, named respectively Ehwe and Chwi, but they have certain indications of a common origin. The Chwi language in its many dialects is the principal speech of the Gold Coast and Ashanti. These languages extend into the northern and eastern portion of the Ivory Coast, where they are conterminous with the easternmost extension of the Kru languages of Liberia; they also seem to be connected with the *Borgu* or *Barba* language spoken north of Dahome and west of the Niger rapids.

15. The SONGHAI or Central Niger languages. These include the speech of Mose, Dagomba, and most of the regions between Timbuktu and the northern borders of Ashanti, Dahome, and Borgu.

16. Westwards of these begin the languages of the great MANDINGO family, which viewed in its broadest aspects may include all the *Kru* and *Kpwesi* languages of Liberia, as well as, possibly, *Gora*. The Mandingo family also offers faint evidence of ancient fundamental connection with groups 17, 18, and 19.

17. The FULA. There seems to be a little evidence of relationship in word-roots between Fula and *Wolof*, but not enough to justify the association of these two well-marked and isolated tongues in one group.

18. WOLOF. This is the language (sometimes called Giolof or Jolof) which is spoken in Lower Senegal and to the south of that river.

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19. The TEMNE-BULOM. Occasionally in its word-roots this group indicates an extremely distant affinity with Wolof, Fula, and Mandingo, but it is widely separated from all this group by its use of pronominal prefixes instead of suffixes. Still, as already pointed out in the earlier part of this chapter, this need not be the real cause of separation, since there may have been an interchange of system between the employment of suffixes and prefixes, while the principle of the "concord," familiar also in Bantu, and a feature of the Temne and its allies, also reappears in Fula. *Perhaps* this group may also be stretched so as to contain the other languages of the West African coast in Senegambia, such as *Felup*, *Serer*, and *Papel*. Amongst these, however, there is extraordinary dissimilarity in vocabulary, though a general agreement in the principle of changing nouns from singular to plural by an alteration in the initial syllable.¹

If the *Gora* language of Liberia is to be associated with any group, it is probably nearest related to the Mandingo-Kru section. *Felup*, *Serer*, and *Papel* amongst the western prefix-using languages may be the isolated remains of one of the oldest developments of African speech, stranded on the Atlantic limits of the continent. Putting these aside, it is possible to conceive of an extremely remote common origin for all the other forms of Negro speech (except those languages related to Hausa and Kanuri) between the districts west of the White Nile (outside the limits of the Nilotic group) and the mouth of the Senegal, including the hypothetical parent of the Bantu

¹ This division of nineteen groups still leaves in an isolated, unattached condition several languages of the Central and Egyptian Sudan such as *Buduma*, *Mundu*, *Lendu*, *Mañbettu*, *Momvu*, and *Makarka*, though I have provisionally classed the five last with *Madi*, a little because of geographical proximity. There are also *isolated* languages in German East Africa and in all parts of West and West Central Africa *not yet classified*.

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languages. This extremely ancient African speech might have possessed in its syntax a distinction between what was living and what was dead matter, or even between what was human and what was non-human; but it had nothing like sexual genders. The numerals 2, 3, and 4 were represented by such forms as *ba* or *bali*, *ta* or *tato*, and *nai*.

The foregoing sketch must only be taken as a rough plan of the divisions of African speech. We are yet awaiting the philologist who after making a profound study of the representative forms of all these families shall see if he can find a common denominator, or at any rate succeed in tracing back the development of African speech to not more than four or five language births. No doubt the western third of Africa has been longer inhabited in time and far more completely populated by the human race than Africa south of the Equator. But invasion after invasion of emigrants and conquerors has broken up old languages into new jargons, which in time have become stately and intricately-developed forms of speech. The contrast is striking with the southern third of Africa, where, apart from the extremely ancient Bushman speech and the more recent Hottentot compromise,¹ you have only one language family to consider, the remarkably homogeneous Bantu. But as regards language, the Negro seems to be in a state of flux. Normally, he can acquire languages totally foreign to his own with far more facility than the average European. Many of the Negroes of Liberia are quadri-lingual. They speak some form of English, their own native tongue, and perhaps two other totally distinct Liberian languages. It is quite easy therefore to understand how a new speech can be

¹ As before mentioned, the Hottentot language has possibly been formed by an early union between the Nilotic Negroes and the Bushmen aborigines of Eastern Africa.

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created in two generations of Negro humanity, while in one generation a dialect may differ as much from its parent or sister language as, for example, does Portuguese from Spanish. Already the Vai language as written and exemplified by Koelle fifty years ago is quite old-fashioned in the ears of the present generation of Vai-speaking people.

Most of these *Liberian* languages are destined to disappear. VAI will probably become the dominant form of native speech. Its great similarity with Mandingo will make it unnecessary to cultivate that language also. It is a harmonious tongue, relatively easy to pronounce, and with a grammar that is reasonable and far from difficult. The phonology of the KRU languages is too difficult for their pronunciation by their African neighbours or by Europeans. The only rival to Vai in Liberia during the next hundred years will be ENGLISH. This is spoken by the Americo-Liberians with a more or less American accent, but it is as intelligible to an Englishman as is the language of the United States. The Grebo, Kru, and many of the coast natives speak a well-known form of "pidgin" English. This dialect is quickly mastered by a European, and it will probably become the trade language of the whole country.

The VAI people excited much interest in the middle of the nineteenth century by the discovery made in 1849 by Lieut.-Commander F. E. Forbes, R.N., of H.M.S. *Bonetta*,¹ that there was an alphabet in use at Cape Mount which was neither Arabic nor Roman—a native invention, in fact. The Rev. Sigismund Koelle (the celebrated missionary-philologist of Sierra Leone) went to the Vai country behind Cape Mount

¹ Lieut. Forbes's discovery was communicated to the world in a pamphlet by E. Norris (Librarian to the Foreign Office and an early student of African languages).

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in the same year (1849). He afterwards wrote the following account of his investigations (I summarise):

“Doalu Bukere, the inventor of the Vai alphabet, was about forty years old when I paid him this visit in Bandakoro. He was the real originator of the alphabet, assisted by five of his friends. The first impulse to attempt it was given him in a dream (about fifteen years ago), in which a tall, venerable-looking white man, in a long coat, appeared to him saying: ‘I am sent to you by other white men . . . to bring you a book.’ Doalu asked what was the nature of this book. The white man answered: ‘I am sent to bring this book to you in order that you may take it to the rest of the people. But I must tell you that neither you nor any one who will become acquainted with the book is allowed to eat the flesh of dogs and monkeys, nor of anything found dead, whose throat was not cut; nor to touch the book on those days on which you have touched the fruit of the To-tree (a kind of pepper).’ The messenger then showed Doalu his book, and taught him to write any Vai¹ words in the same way in which the book was written. This made a deep impression on Doalu’s mind, and he described it to me most graphically. He said: ‘The man thus addressed me: “Look, Doalu, this sign (writing with his finger on the ground) means *i*.” Then he wrote close to it another sign, saying, “And this means *na*. Now, Doalu, read both together!”’ Doalu did so, and was delighted to have learnt to read the word *ina*, which means ‘Come here!’ In the same way the messenger showed him how a great number of other words could be written. At last Doalu asked his instructor concerning the contents of the book he had brought. But the answer was, ‘Wait a

¹ For some unexplained reason, Koelle, ordinarily so accurate in his orthography, writes this word “Vei,” though it is most distinctly pronounced *Iai*.

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little, I will tell you by-and-by.' After this Doalu awoke, and, as he told me in a sorrowful tone, was never afterwards informed of what was written in the book. In the morning he called his friends together, in order to tell them his dream—viz. his brother Jara Barakora, and his cousins Jara Kali, Kalia Bara, Fa Gbasi, and So Tabaku, the latter of whom died about three years ago. They were all exceedingly pleased with the dream, and quite sure that it was a divine revelation. A few days after, Kalia Bara, also, as he himself told me, had a dream—the reality of which, however, I doubt—in which a white man told him that the book had come from God, and that they must mind it well.

“Perhaps it may not be amiss to state here what, in my opinion, will account for Doalu Bukere’s dream. Doalu Bukere was a thinking man; and what once occupied his mind seemed to occupy it altogether and constantly: all his thoughts and energies seemed to be concentrated on this subject. Now there was once a white missionary in the country, with whom Doalu, when quite a little boy, had learnt to read for about three months, till the missionary’s departure. This, in some measure, awakened his desire for learning. He could still repeat some verses from the English Bible, which he had learnt from that missionary. Afterwards he was employed as a servant by slave-traders and common traders on the coast. They often sent him on an errand to distant places, from which he had generally to bring back letters to his master. In these letters his master was sometimes informed when Doalu had done any mischief in the place to which he had been sent. Now this forcibly struck him. He said to himself: ‘How is this, that my master knows everything which I have done in a distant place? He only looks into the book, and this tells him all. Such a thing we ought also to have by which we could speak

with each other, though separated by a great distance.' The want of a mode of writing seems to have been felt even more generally. This I conclude from a passage in Kalia Bara's book, in which he speaks of the time when that art was invented. He says: 'At that time my father Doalu Worogbe began to write books. And the people said: "The Poro (Europeans) have long heads. Nobody has such a long head as the Poro."' But some of our people did not believe this. Then said I to Doalu (Worogbe): "Why do you call what I maintain a lie? Can any Vai man write a letter and send it to his friend, and could he read it?"' But Doalu Bukere's mind especially was so entirely wrapped up in his ardent desire to be able to read and write that it occupied his thoughts night and day, and this formed the natural basis of his curious dream, which seems to have been the reflex of his waking thoughts.

"Though Doalu had been well instructed in his dream, yet, as he told me, in the morning he could not remember all the signs which had been shown him by night. Therefore—these are his own words—he and his friends had to put their heads together in order to make new ones. And on this ground we are fully justified in speaking of a real *invention* of the Vai method of writing.

"But these six men, being then only from twenty to thirty years of age, feared lest the people might not pay them proper attention, so they agreed to take one hundred salt sticks, *i.e.* parcels of salt as thick as an arm and three or four feet long, and to bring them to King Fa Toro, or Goturu, in Tianimani, in order to make him favourably disposed to their object. Their present had the desired effect. The king declared himself exceedingly pleased with their discovery, which, as he said, would soon raise his people to the level of the Poro (white men) and Mandingo, who hitherto had been the only book-people.

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He expressed the curious opinion that this was most likely the book of which the Mandingo (who are Muhammadans) say that it is with God in heaven, and will one day be sent down upon earth. He requested them to teach this new art in Jondu, where they resided, and to make known his will that all his subjects should be instructed by them. Accordingly, they erected a large house in Jondu, provided it with benches and wooden tablets, instead of slates, for the scholars, and then kept a regular day school, in which not only boys and girls, but also men, and even some women, learnt to write and read their own language. So they went on prosperously for about eighteen months, and even people from other towns came to Jondu, to become acquainted with this 'new book.' But then a war broke out with the Gora, in which Jondu was taken by surprise, and committed to the flames, with all the goods and books it contained. The destruction of Jondu forms a crisis in the history of the Vai writing. By it the literary zeal of the people was so much checked that they have never had any schools since. After the destruction of Jondu the bookmen, *i.e.* people who can read and write, were scattered throughout the country, and it was only about five years ago that many of them collected together and built a new town, some miles distant from the place where Jondu stood. The name of this new town is Bandakoro, literally *cotton-tree ground*, from the abundance of cotton trees¹ which are growing thereabouts. At the time I first visited it, it appeared to me that a great proportion of the male adults in Bandakoro were more or less able to read and write, and that in most other Vai towns, near Cape Mount, there were at least some men who could likewise spell their 'country-book'; but a few days before my second visit, Bandakoro also was taken in war, burnt, and its population scattered.

¹ *Bombax*.

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“Doalu Bukere was a very interesting man, and distinguished from his countrymen, not so much by a greater intelligence, as by an altogether nobler spirit. The Vai people in general I call a very sensual and carnal people, the females especially unchaste and shameless. Idols they have none. I saw no mode of worship among them except the Muhammadan. But all the nominal Muhammadans I saw drink wine and spirits whenever they can get them; they also take as many wives as they can afford to buy. Amongst such a people, to meet a man like Doalu Bukere was an indescribable pleasure to a missionary. I always felt very happy in his company, and he also felt attached to me: so that once, when he was called to another town, he said to me on his return: ‘My heart did not lie down the whole day, because I could not be with you; but now it has lain down again.’

“Doalu was an open, upright, and honest man. His modesty and humility surprised me the more, as these are virtues of very rare occurrence among the Negro race. He was grateful for kindness received, and could value disinterested motives. When I was lying sick of fever in Bandakoro, he said to me in one of his visits: ‘My heart troubles me much because you have come amongst us, not in order to trade or to make any gain, but merely to tell us the true road to life; and now you have also to suffer sickness for our sakes. But never mind, God will soon make you well again.’ His mind appeared to have been frequently engaged with metaphysical and divine things. In our walks which we took together, and in which he often had to walk behind me, from the narrowness of the paths, I not infrequently heard him ejaculate, with deep emotion, words like the following: “Ever—lasting! God Almighty! Jesus Christ! Alakabaru!”¹ He seemed to have

¹ The Arabic “Allah Akbar!”—H. H. J.

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been under real concern for his soul's salvation, and earnestly seeking to secure it. In a conversation I had with him he once said to me : ' My heart seeks after God. Once I thought to find God in our book-palaver, but it was not so. Afterwards, I believed that I could find God in Muhammadanism, and have now been praying after the Mandingo fashion these seven years ; but my heart has not yet found God. Now if you can help me, so that I may really find God, I shall be very thankful to you.' I was of course delighted to point out to him the new and living way which leads to God and heaven. He was very attentive to, and much pleased with, what I said to him on this subject. . . .

"In order to ascertain, as I conceive, whether I should be able to refute the objections of his Muhammadan guide, he introduced this Malam to me. I then told the latter that I was sorry to see him walking on a road which could not lead to heaven. He returned the same compliment to me. Therefore I showed him, in a long conversation, that he neither knew my road nor had a thorough acquaintance with his own, and that, consequently, he had no reason to pity me. At length he could gainsay no longer, but ran away, the bystanders saying : ' This time palaver caught him.' Even Doalu appeared to be pleased with the defeat of his schoolmaster. Before I left the country, I offered to take Doalu Bukere with me to Sierra Leone, in order to instruct him more fully in the Christian religion. But he declined the offer, on the ground that there was then war in the country ; ' for,' said he, ' if I were to go now, the people would say on my return, " He left us while we had war in the country ; so he must now pay a large sum of money." '

"I regretted that Doalu could not make up his mind to accompany me to Sierra Leone, the more so when I afterwards found that his remaining days of grace were to be so

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few. On my second arrival at Cape Mount, November 2nd, 1850, when I wanted to visit him again, I was informed that he had departed this life several months previously. Thus, however, he was spared the grief of seeing Bandakoro taken and laid waste by his enemies: he was permitted to descend to the grave in peace, whereas his brother, Jara Barakora, one of his assistants in the introduction of the new mode of writing, fell at the capture of Bandakora, in the night of October 27th, 1850, after a brave resistance, in which he himself killed four men with the sword. Doalu died of a cutaneous disease, called in their own language 'konje-kira,'¹ *i.e.* ball-sickness, which produced in him such extraordinary drowsiness that he often fell asleep while taking his meals."

The syllabarium which follows is copied mainly from the forms given by Forbes and Koelle, which in all probability are more exactly those invented by Doalu Bukere and his friends than are the cursive characters still in use after some sixty years amongst the Vai of Liberia. A close inspection of these characters will reveal the fact that many of them are clumsy adaptations of Roman letters or of conventional signs employed by Europeans: only two or three bear any resemblance to Arabic characters.

There was little "logic" about this invention, and the tax on the memory and patience in using this syllabarium to write a language so easily rendered in Roman letters must be somewhat severe; yet, as already mentioned, the Vai people obstinately cling to the invention of Doalu Bukere and use it increasingly for literary correspondence (they have taken to letter-writing as much as the Baganda). But they have improved on Doalu

¹ This phrase means sickness of the glands (? scrofula) or of the kidneys. It was, however, probably an early case of "sleeping-sickness."—H. H. J.

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Bukere's system. Apparently, instead of more than one type of character to be used at will for each syllable, modern teaching restricts very wisely the use to one single sign, and the form of these syllabic letters is simplified and better adapted for cursive writing. Their addiction to this system is somewhat of a protest against "Christian" or missionary influence (the Vai are Muhammadan), and it is also due to their desire to carry on a correspondence not readily deciphered by the American Negro who rules their country. The Liberian Government can only combat this movement by adopting a simple and logical orthography in Roman letters for rendering Vai and other native languages, and then by spreading the knowledge of reading and writing in the Roman character among its native races as part of a secular education carried on by the State, and not associated with the teaching of doctrinal religion.

In the following pages I have added to the old syllabarium of Forbes and Koelle the modern types of the letters as accurately as I could obtain them from Vai scholars. I also reproduce specimens of Vai script to illustrate the cursive form of the alphabet.

It would seem as though the Vai were not the only Liberian people to attempt the invention of a system of writing. Captain d'Ollone in his book *De la Côte d'Ivoire au Soudan*, etc. (p. 302), describes inscriptions of Greek and Roman character on the walls of huts in the Palube country (western bend of the Cavalla River) more than one hundred and fifty miles from the coast. But the explanation given by the natives was probably the true one, that these signs had been reproduced by young men of the tribe who in working with Europeans on the coast had imitated letters and signs in use there. Probably these were nothing more than the trade marks and signs on boxes and bales : and the Greek delta which so much puzzled Captain d'Ollone is in common use for this purpose.

APPENDIX IX
THE ALPHABET OR SYLLABARIUM OF THE
VAI LANGUAGE

ENGLISH LETTER OR SYLLABLE	ORIGINAL SYMBOL	MODERN SYMBOL
a		
e		
i		
u		
o		
ō		
wa		
we, wē		
wi		
wu		
wō		
va		
ve, vē		

The Alphabet of the Vai Language

ENGLISH LETTER OR SYLLABLE	ORIGINAL SYMBOL	MODERN SYMBOL
vi		
vu		
vω		
vō		
fa		
fe		
fi		
fu		
fω		
fō		
pa		
pe		
pi		
pu		
pω		

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ENGLISH LETTER OR SYLLABLE	ORIGINAL SYMBOL	MODERN SYMBOL
pō	Ɑ, N	Ɑ
ba	Ɑ, Ɱ, Ɐ = bañ, Ɒ = bai	Ɑ, bai = ⱮⱯ
be	ⱱ, Ⱳ, ⱳ, ⱴ, Ⱶ, ⱶ	ⱱ; Ⱳⱳⱴ; Ⱶ
bi	ⱷ, ⱸ, ⱹ	ⱷ
bu	ⱺ, ⱻ, ⱼ, ⱽ, Ȿ	ⱺ; ⱻ; ⱼ
bω	Ɀ, ⱽ, Ȿ, Ɀ	ⱽ; Ȿ = bwě
bō	Ɀ, ⱽ, Ȿ, Ɀ	Ɀ
ma	Ɀ; ⱽ = m	ⱽ = m; Ɀ, ⱽ = ma
me	Ɀ	Ɀ
mi	Ɀ	Ɀ; ⱽ
mu	Ɀ	Ɀ
mω	Ɀ, ⱽ	Ɀ
mō	Ɀ	Ɀ
n, m Initial nasal sound	Ɀ	Ɀ
na	I	I; naña = Ɀ

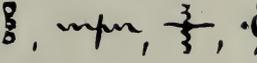
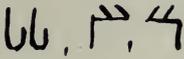
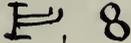
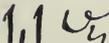
The Alphabet of the Vai Language

ENGLISH LETTER OR SYLLABLE	ORIGINAL SYMBOL	MODERN SYMBOL
ne		
ni		
nu		
nɔ		
nō		
ñ		
ña		
ñe		
ñō		
ga		
ge		
gi		
gu		
gɔ		
gō		

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ENGLISH LETTER OR SYLLABLE	ORIGINAL SYMBOL	MODERN SYMBOL
ka	⓪,  , 	h
ke	→ Ⓡ,  ,  , 	u
ki	⓪, ⓪	⓪
ku	 , ⓪, 	⓪
kω	⓪, 	 
kō . . . . .	, , |	
keñ		koñ =  
ha	 ,  , 	h =  ; ha = 
he	 ,  , 	
hi	Ⓡ, Ⓡ	
hu		
hω		
hō		
hañ	Ⓡ,  , 	
sa	 ,  , 	

The Alphabet of the Vai Language

ENGLISH LETTER OR SYLLABLE	ORIGINAL SYMBOL	MODERN SYMBOL
se	 nasal	
si		
su		
sō		
sō		
za		
ze		
zi		
zu		
zō		
zō		
ʒa <small>Same as sa.</small>		
ʒe		
ʒi		
ʒu		

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ENGLISH LETTER OR SYLLABLE	ORIGINAL SYMBOL	MODERN SYMBOL
ca		𐏊
ci		𐏆
ja	𐏚, 𐏛, 𐏜	𐏁
je	𐏞 𐏛	𐏛:
ji	𐏞 𐏛 𐏜	𐏞
ju	𐏛 𐏛	𐏛
jw	𐏛	𐏛
jō	𐏛, 𐏛	𐏛
da	𐏛, 𐏛, 𐏛, 𐏛	𐏛; 𐏛
de	𐏛, 𐏛	𐏛
di	𐏛, 𐏛, 𐏛	𐏛, 𐏛, 𐏛
du	𐏛, 𐏛	𐏛; 𐏛
dω	𐏛	𐏛; 𐏛
dō	𐏛, 𐏛, 𐏛	𐏛
ta	𐏛, 𐏛, 𐏛	𐏛

The Alphabet of the Vai Language

ENGLISH LETTER OR SYLLABLE	ORIGINAL SYMBOL	MODERN SYMBOL
te	𐒗, 𐒗, 𐒗, 𐒗	𐒗
ti	𐒗; 𐒗 = tiē	𐒗
tu	𐒗, 𐒗, 𐒗	𐒗
tō	: 𐒗, 𐒗	: 𐒗
tō	𐒗	E
ra	𐒗	𐒗
re	𐒗, 𐒗, 𐒗, 𐒗	: 𐒗
ri	■	■
ru	𐒗, 𐒗	𐒗
rō	𐒗 (also dō)	𐒗; 𐒗
rō	𐒗, 𐒗, 𐒗	𐒗
ya	𐒗	𐒗
ye	𐒗, 𐒗, 𐒗	𐒗
yi	𐒗	𐒗
yu	𐒗	𐒗

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ENGLISH LETTER OR SYLLABLE	ORIGINAL SYMBOL	MODERN SYMBOL
yω		𐞂
yō		𐞁
nya	𐞃	𐞄𐞅
nye	□ →, 𐞆 →	𐞄𐞇
nyi	𐞈, 𐞉	𐞅𐞆
nda		𐞅𐞈; 𐞉
nde	𐞊, 𐞋	𐞅𐞉
ndo	𐞌	𐞅𐞇; 𐞈
mba	𐞍	𐞅𐞊
mbe	K	𐞅𐞋
nga	𐞎	𐞅𐞌
nge	𐞏	𐞅𐞍
ngi		𐞅𐞎
ngu		𐞅𐞏
ngω	𐞐	𐞅𐞐

• The Alphabet of the Vai Language

ENGLISH LETTER OR SYLLABLE	ORIGINAL SYMBOL	MODERN SYMBOL
kpa, gba . .	B, ▽	△
kpe, gbe . .	X, T, ○○	○○
kpi, gbi . .	⊕	⊕
gbω, gbu . .	□, 𐞀, 𐞁, 𐞂	𐞃 𐞄 𐞅

SPECIMENS OF VAI WRITING

Fa to ma! hi na hñ w̄

lo wa mbe hi s̄ω ka ñ

[*Fatoma!* hina n̄ w̄slowa mbe hi s̄ω kañ
 Fatoma! thou come; I want something thee send place]
i.e. Fatoma! come here; I want to send you somewhere with something.

Fatoma! hi b̄ū fa ha } *Fatoma!* thy sack
 Fatoma! thy sack
 thy sack full } is full.

Momoru ta ha fi la ha lo
 Momoru went bush he says

• Specimens of Vai Writing

te le sagba
days three

Momoru went to the bush country, he says,
three days ago (and met a man and said)

Ya ha ku ne i nda ya
Thy morning yes friend thy

ku ne me ko be ya gbwana a
morning where art thou coming from ?

nyama gbi be le nu
distant all good there ?

Ke le ni ye zi a nyama gbi
War that place only far off all

be le we ni ye
good now in that place

Ya ha mbe wa do hñ sa ha
Thou what thing thou eat morning

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ma me he la

 since and where?

Hm mbe hi su nda ha fi ye

 I something thee send fowl

dwo ndo la he

 one

Hm ta ha Wakoro na musa

 I go Wakoro to wife

dwo ndo je

 one marry

nu a mu na ke ni so nu

 there and the new house build there

[" Good morning! Yes, friend, good morning; whence art thou coming? Is all well afar off?" " War is here, only far off all is good now yonder." " What hast thou eaten since morning, and where? I will send you something to eat, a fowl. I myself am going to Wakoro (Cape Mount) to marry a wife, and to build a new house there."]

• Specimens of Vai Writing

H̄ or *N̄*
I

ta ha
go

ji
river

ba ha
big

ma
near

ni
by

na kω
clothes

la

kω na
wash

a-

mu
there

n̄ā
I see

fa li
crocodile

ba ha
big

fe le
Behold!

a
he

la
is

mu su
woman

ye bi
catching

la
and

a-
he

be
is

a dω
eating

h̄ na
her

[I went to the big river near at hand, to wash clothes, and behold! there was a big crocodile in the act of catching a woman and eating her!]

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Handwritten symbols for the words: Hñ nyw mw ñe ta ha se ne

Hñ nyw mw ñe ta ha se ne

Handwritten symbols for the words: hē lw gba sa bw na a mu ka ha

hē lw gba sa bw na a mu ka ha

Handwritten symbols for the words: ta ha ki h nda

ta ha ki h nda

NUMERALS

Handwritten symbols for numerals: One, two, three, four

Dw ndo
One

fe la
two

sa gba
three

nā ni
four

Handwritten symbols for numerals: five, six, seven

sw lu
five

su n do ndo
six

su n fe la
seven

Handwritten symbols for numerals: eight, nine, ten

su n sa gba
eight

su n nā ni
nine

ta ñ
ten

• Specimens of Vai Writing

WORDS IN COMMON USE

𐄂 𐄃

kai
man

𐄂 𐄃 𐄄 𐄅 𐄆 𐄇

diñ kaima
boy, young man

𐄂 𐄃 𐄄 𐄅 𐄆 𐄇

dehñ bese
small boy

𐄂 𐄃 𐄄 𐄅 𐄆

kai koro
old man

𐄂 𐄃

masa
table

𐄂 𐄃 𐄄 𐄅 𐄆 𐄇 𐄈

musu
woman

gbeñbwe
bed

𐄂 𐄃

nih
cow

𐄂 𐄃

kiñ
house

𐄂 𐄃

gbeñ
chair

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koñ
tree

Binda
spoon

bukpara
stockings

boda
jug, cup

bula
ashes

buru
trumpet, bugle

fasi
brass kettle

bwrw
hand or arm

Bwndo
guinea-fowl

da
mouth

doñ
cooked rice

dora
anchor

jaäa
mangrove

duma
ground

fra
wind

hi na
come here!

na kira
I am sick

mbää
very well

• Specimens of Vai Writing

mfa
my father

mba
my mother

ba
goat

bana
banana

bū
gun

bē
uncle

Ja Ba-ki-le
Mrs. Barclay

jara
hammock

difi or rifi
night

karo
moon

vivi
thunderstorm

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toti
frog

tuŋgbe
walking_stick

tiye
fowl

kɔli
leopard

sĩ
buffalo

sese
wild duck

sande
crayfish

samba
basket

pakai
papaw

pē
civet cat

nyiñ
tooth

nyī
beautiful

nunu
otter

nē
tongue

gbañ
sugar cane

• Specimens of Vai Writing

Δ 8

gbasa
cassava

o-o 8 8

gbēsa
scorpion

∴

gbi
all

δ 4

dω
little

Pa 1

diamo
friend

6 L 11 =

wala
mat

ω

we
now

4 11 7 10 11

auma Vai
Vai country

5 E 11

Fatoma
Fatoma¹

0 0 5

bū fā
belly full

(has his)

i.e. Fatoma is satisfied!

¹ The author's Vai teacher.

CHAPTER XXXII

VOCABULARIES OF LIBERIAN AND OTHER WEST AFRICAN LANGUAGES

THE following vocabularies have been written down direct from the natives by the author—namely, *Grebo*, *Kru*, *Basā*, *Dē*, *Kpwesi*, *Buzi*, *Vai*, and *Mandiña*. The Kru dialects of *Sikoñ* and *Padebu* have been contributed respectively by Mr. John Gow and Mr. Maitland Pye-Smith. The author has composed the *Bulom*, *Fula*, and *Wolof* from the most accurate sources obtainable, but almost entirely from books published about the middle of the nineteenth century. This was done purposely, so as to secure forms of these languages relatively free from more recent mixture or corruption.

The *Fula* dialect here given is derived mainly from Reichardt, Barth, and Koelle, and is as nearly as possible that which is spoken in Futa Jallo, the nearest Fula-speaking district to the north-western corner of Liberia. In giving these examples of Fula the author has striven after etymological points of interest rather than the attempt to present the Fula words as they are spoken with varying suffixes. In fact, the Fula vocabulary is only given for purposes of comparison, and therefore many of the suffixes have been removed from the end of the word-root so as not to confuse the reader who merely wishes to get at the *essence* of the word as apart from removable particles, and thus compare it with the roots of other African forms of speech.

Vocabularies of Liberian and other African Languages

ORTHOGRAPHY EMPLOYED IN THESE VOCABULARIES

<i>a</i> or <i>ǎ</i>	sounds as	'u' in 'fund' or 'a' in 'Bella.'
<i>ā</i>	„ „	'a' „ 'rather.'
<i>æ</i>	„ „	'a' „ 'fat.'
<i>e</i> or <i>ě</i>	„ „	'e' „ 'met,' 'berry,' 'lessen.'
<i>ē</i>	„ „	'a' „ 'cake,' 'plate.'
<i>i</i>	„ „	'i' „ 'hit,' 'fill.'
<i>ī</i>	„ „	'i' „ 'ravine,' or 'ee' in 'feet.'
<i>o</i>	„ „	'o' „ 'not,' 'bother.'
<i>ō</i>	„ „	'o' „ 'store,' or 'aw' in 'bawl.'
<i>ω</i> (Greek 'omega')	„ „	'o' „ 'bone,' 'cold.' <i>ō</i> is a shorter sound.
<i>u</i>	„ „	'u' „ 'full,' 'put.'
<i>ū</i>	„ „	'u' „ 'rule,' or 'oo' in 'fool.'
<i>ü</i>	„	like the French 'u' or German 'ü.'
<i>ö</i>	„	the German 'ö,' or like 'u' in 'hurt,' or 'i' in 'dirt.'
<i>ai</i>	„	'i' in 'wine,' or 'i' in 'bite.'
<i>au</i>	„	'ow' in 'how.'
<i>ea</i>	„	'ea' in 'bear,' or 'e' in 'there,' 'a' in 'care.'
<i>ei</i>	„	'ei' in 'vein,' or 'ey' in 'grey.'
<i>oi</i>	„	'oi' in 'join,' or 'oy' in 'boy.'

Among the consonants, *b*, *d*, *f*, *h*, *j*, *k*, *l*, *m*, *n*, *p*, *r*, *s*, *t*, *v*, *w*, *y*, and *z* are sounded as in English; *c* only is used for the English 'ch'; *g* is always pronounced hard, as in 'get,' 'give'; *ñ* represents the nasal 'n' in 'bang,' 'singer,' and 'ringing'; *q* is only used for the strong Arabic 'kof'; *kw* represents the sound of 'qu'; *χ* represents the guttural Scotch or German 'ch' or Spanish 'j'; *γ* (Greek 'gamma') is the Arabic Ė [sometimes expressed by 'gh' in English—like the German and Northumbrian 'r,' or the French 'r' *grassé*]; and *‡* the Arabic ʕ [a gasping sound]; *š* = English 'sh'; *θ*, *θ* = English 'th,' and *Δ*, *δ* = English 'dh,' or 'th' in 'there'; *ẓ* represents the French 'j,' or the sound of 'z' in 'azure.' Nasalisation is marked by *˜*. *˘* shows where the accent falls; in the absence of any mark the accent falls on the penultimate syllable.

In spelling the native or other African words [place names, tribal designations, etc.] in this book the Author has conformed more or less exactly to the system approved by the Royal Geographical Society, Indian Government, and leading Missionary Societies. But in rendering the sounds of the native languages greater exactitude is necessary. The orthography given above is practically that of Lepsius and of Barth, Koelle, and most transcribers of African languages.

DĚ. BASĀ. KRU. SIKOŇ. GREBO. PADEBU. KPWESI.

DĚ is spoken in Western Liberia, behind Monrovia and up the St. Paul's River to near Boporo.

BASĀ is spoken in the coast region from Grand Cestos to Junk River and in the vicinity of the Mamba country behind Monrovia.

KRU is spoken in the coast region from Garawé to Grand Cestos.

SIKOŇ is spoken in the Sikoň country, behind Sinô in Eastern Liberia.

GREBO is spoken in the coast region of Eastern Liberia, and on both sides of the Lower Cavalla River (Cape Palmas).

PADEBU is spoken in Eastern Liberia, in the Kelipo, Padebu, and Sapo country south of the River Duobe.

KPWESI or GBELĚ is spoken in much of the interior of Liberia, and is the most widely-spread language of the central parts.

BUIZI is spoken in North-western Liberia, west of the Upper St. Paul's River.

ENGLISH.	DĚ.	BASĀ.	KRU.	SIKOŇ.	GREBO.	PADEBU.
Ant	Nyô	Sewē	Sĕnĕ	Kwizĕ	Suĕ	Nyô
Antelope — <i>Cobus</i> ...	Gbwĕ	Drĭ	...	...	Ba-tô	...
<i>Boocercus</i>	Gĕ	Nabubu	Bodebe	...	Bô-lĕ	...
Big <i>Cephalophus</i> ...	Boww	Dūwĭ	Nyabwĕ	...	Nyĕbĕ	...
Small „	Kŭrĕ	Kwĕ	...	...	Kudā	...
Ape (Chimpanzee) ...	Wĕ	Wĕ	Tuāwĕ	Pawĕ	Tuāwĕ	Tuāwe
Arm	Sô	Sô	Sô	Suň	Sô	Soň
Arrow	Pnā	Dĭ	Prôsĕ	Sĕ	Piĕ	...
Axe	Gw, or Gŭ	Djuĕ	Kwitwĕ	Kwitawĕ, Tô-wĕ	Tuĕ	Towe
Baboon	Bĭ	Kwamfākā	Gyegiri	Wĕ	Gĭ	Plā
Back	Kĕ	Kô	Nakĕ	Kuň	Kĕ	Koň
Banana	Banā	Bw	Kūw	Pable	Mene-kū	Banā
Beard	Vĕ	Vĕ	Fĕ	Fe	Hinā	Feň
Bee	Bw	Lŭ	Dô	Dô	Dw	Dô
Belly	Kŭri	Kŭri	Kŭri	Kŭri	Kŭri	Kwri
Bird	Bambaro	Nā	Vĕwā	Flŭlu	Nombarā	Ňoa
Blood	Nyemw	Nyŭmmô	Nyenô	Pā	Nyenô	Nyemo
Body	Nafwĕ	Ned-yô	Nafwĕ	Gāowe	Nafwĕ	Tunu
Bone	Gbwā, or Bwā	Kwā	Prôsĕ	Dĕgwā	Kŭdā	Kabpa
Borassus-palm ...	...	Kô	Bugô-tu	...	Sô-tŭ	...

Vocabularies of Liberian and other West African Languages

BUZI. MANDIÑA. VAI. GORA. BULOM. FULA. WOLOF.

MANDIÑA is spoken in the north and north-west of Liberia, on the Mandingo Plateau, and beyond in the adjoining French and British Territories.

VAI is spoken in South-western Liberia, from Cape Mesurado westwards to the Sierra Leone frontier, and beyond as far as the River Sūlima.

GORA is spoken in Western Liberia, along the east and west banks of the Lower St. Paul's River, and also near the eastern bend of the River Mano.

BULOM is spoken in the Sherbro country of Sierra Leone, in the south-eastern parts of that colony.

FULA. The dialect given of this language is spoken in the highlands of Futa Jallo, and about Timbo and the Niger sources.

WOLOF is spoken in Senegal to the south of the Lower Senegal River.

KPWESI (GBELĚ).	BUZI.	MANDIÑA.	VAI.	GORA.	BULOM (for comparison).	FULA (for comparison).	WOLOF (for comparison).
Wēwē-wēwē	Wēwē	Bayaya, Melilo	Zuma	Azuma	Iṣafi	Horendolde, Metellu	Melēnt, Korondom
...	...	Mina (<i>Hip- potragus</i>)	Kīla	Otuω (<i>Hippo- tragus</i> ?)			
...	...	Gūšū (<i>Bubalis</i>)	Gusu ?	Oguda (<i>Bu- balis</i>)			
...	...	Sereani (<i>Ce- pholophus</i>)	Ůwī	Otē (<i>Cephal.</i>)			
Wulu, Wuru	Guru	Wuru	Wulu	Ωnyi			
Iye	Zē	Būrō, or Muro	Būlū	Okūāmω	Ukant, <i>pl.</i> Si-kant	Dyungo, Wokude	Lōχω, Pωdeg
Tōñω	Meña	Bīña	Bē	Kekbe	Sor, Kē	Kurral	Fēt
Yωwa	Kbwēléya	Kōno	Tière	Egbū	Bera	Jambere, Tenirde	Şeminy'
Tuwa	...	Sura	Gboñ	Ωgange	Itiñ, <i>pl.</i> Sitiñ	Yibkiru	
Ipulu	Puru	Ngoma	Akotē	Eteumwa, Jēbētē	Wiliñ	Bao	Genao
Gwē	Máza	Nasa	Bāna	Gbana	Poiōth, Santu- mir, Banna		
Gbwēlē	Ebērē	Mumu	Bwea	Ωya	Uṣā	Ware	
Kwē	Kweñ	Li	Kūmū	Agwe	Ulw	Nyakel	Yamb, Leni
Kō	Kω	Ngono	Bu	Esuā	Kur, or Kun; Kunnē = <i>Bowels</i>	Redu, Dedi	Bir, or Bid
Ñwani	Ñoni	Kōnnō	Kunde	Ωwē	Ivē	Sondu, <i>pl.</i> Jolli	Mpic, Perat
Ñama	Ñama	Djūri	Wúri	Masē	Nkoñ	Jijam	Dērrēt
Nākōrō	Dωtωsu	Vali	Magbūna	Ekpūna	Dial	Bandu, Jadi	Yarām
Kaii	Kae	Ngúru	Kuru	Egwā	Pā	Nyial, Gial (<i>pl.</i> Yie)	Yaχ
Būbūlá	...	Kōō	Djωgāi	...	...	Dugbi	

ENGLISH.	DĚ.	BASĀ.	KRU.	SIKOŇ.	GREBO.	PADEBU.
Bow	Pló	Pló	Pp'	Puloñ	Piě	...
Brains	Drūsēñě	Pluni	Nemane	Flāmlī	Somúľě	Sosomoni
Breast	Ně	Ně	Nyitiě	Asyēñ	Nyidě	Kiki
Brother	Nakū	Ni	Diejū Di = <i>Mother</i> Bieju, Bi = <i>Father</i>	Feñ	Diěyŭ Diěy ^m	Nyěū
Buffalo	Zū	Djūĩ	Tūi	Tāweñ	Niñwe	Tūweñ
Bull	Bri-bó	Bri-beō	Bri-beō	...	Birri-beō	
Buttocks	Bwegbwū	Gbwō	Gbwó	Bwālō	Ilō	Mōpweñ
Canoe	Gwě	Kwō, or Gwō	Tó	Tū	Tō	Tō
Cat	Blí	Sora	Kūbwe	Kēbioi	Pōwe	...
Chief	Māfω	Nyofle	Budió	Anōklābwa	Nyéhwe	Budía
Child	Wūgě, Wūgŭ	Dyū	Djū	Niatě	Iyābwe	Δū
Child, small ... ..	...	...	Djū-prūbwe = <i>Infant</i>	...	...	Δū-bwei
Cloth	Hwí	Dó	Daro	Gidíe	Daro	Dāro
Cock ... ..	...	...	...	...	...	Kokwa
Coconut palm	Kwidě	Kwīwě	Kwitatū	Kwī-tāb-dū	Swai-tu	Sōtu
Country	Abri	Abri	Bórró	Sionω	Búří, or Bři	Abeli
Cow	Briñyenó	Briñenó	Bri-dě	Bli	Birri-kwa	Bli
Crocodile	Ůgruwě	Ůyuwě	Bwāurωpě	Kolā	Urōbě	Wuru-pe
Day	Ůwě	Ůwě	Wě Wōdwe = <i>One day</i>	Durobaba	Ňyenādω	Kěni
Devil ... ..	...	...	Kū, Mumāwi	...	Kú	Ku
Dog	Gbwě, or Gbě	Gbwě, or Gbě	Gbwě, or Gbě	Bwe	Gbwě	Buě
Donkey	Jakāsi = <i>Jackass</i>	...	...	...	Kasūrā	...
Door	Bukayě	Bukě	Kayu	Bwaba	Miū	Kinū
Doorway	Būwě	Būwó	...	...	Mwāiyidi	...
Dream	Injá	Injá	Dyādyě	Su	Yiě, Yě	...

Vocabularies of Liberian and other West African Languages

KPWESI (GBELÉ).	BUZI.	MANDIÑA.	VAL.	GORA.	BULOM (for comparison).	FULA (for comparison).	WOLOF (for comparison).
Kěráñ	Ka, <i>or</i> Kagi; Tɔkpwa	Siákürü, Kalañ	Kara, Tungbwa	Kekã, Kã	Kērē	Lanyal, Le- bol	Xala, Kala
Ñbötɔ Innini	Ñkporo-gi Ññēñā, <i>or</i> Iñēñē	Gúngurō Zi, <i>or</i> Zĩ	Mafílí Susu	Fěfiě Eyā	Kíth, Umɔ	Endu, Yendu	Wien, Far
Ndiědū	Deu, De-yu?	Madě	Inyómō	Okbao	Pintre	Musido, Mau	Mak, Rak
Teū	Tēu, <i>or</i> Tɔ Teuflegɔ = <i>Two buffa- loes</i>	Siyi	Si	Odyi	...	Eda	
Ulā Kelle Nyaleñ Kalū Lúpaně	Pině Kě (Kegi) Nyalū Āso Du	Nyu Dendě, Kurū Nyūngoni Masákě Dĩni	Gbarro Dendě Manyai Mandja Dindĩ	Ebwā Ogó Obri Ωkanda, Kanda Ωdjwā	Utot, Purre Wom Mūs, Yari Sukwono, Bě Uhiant	Woru Lana Musuru, Mus Horejo Bi	Gat, Tat Lotkiɔ, Gal Mūs, Undū Borom, Wai Xarel, Dɔm
Siyi	Seye, <i>or</i> Sëyè	Fani	Kura	Dě	Kutā	Koltu	Serɣ
Tɔlɔlu Dōě Niña, Niñá-sěñě Fali	... Zū, Gaiyū Nika Fali	Teñgolosū Vaso, Dū Nisi Baña	Konyakoñ Buru Nĩ Fali	Saakwĩ Jawa, Fūñō Di Kū	Upok Inar-i-lakan; Inar, <i>p/l.</i> Sinar Kīū	Ledi Nagge Gilenyaro, Noda	Reɔ Nāg, Nag- mugigen Maimaidɔ, Jasi
Sā, Fūlo	Gla	Bĩ, Tili, Du- seyegbwe	Těřě, Samakpwe	Dūa	Pal, Līpal	Balde	Bes, Fān
Gófā	Sě	Suetana (Sheitan)	Suǎ	...	Tittĩ		
Fīla	Grēū	Urini, Wuli	Ulu	Sū	Tumoi	Rawa, Dawa, Kutū	Xagiō, Kagi
Sɔdwō	Sɔluɔ	Sofainĩ	...	Dɔsw	Sofali	Babba, <i>p/l.</i> Bamde	Mbamsöf
Kpū ... Asa-gewɔ	Pělělá ... Gesiwɔga	Kū Bunadara Sūɔ	... Bweñbwere Kě-da-gbwiñ- bwiri, Keu	Sā Saeñgbwe Gwǎ	Bet-ufōmfōl Ufōmfōl Sou	Dambe, Bafal Koid	Bünt, Hubed Géñt

Liberia

ENGLISH.	DĚ.	BASĀ.	KRU.	SIKOŇ.	GREBO.	PADEBU.
Drum	Fūwě	Dú	Dudu	Tuo	Dúdú	Bulu
Ear	Dó	Něddó	Nukwi	Nauñ	Nōā	Nyoɣu
Egg	Sogě	Sogě	Swa-nyě	Suoñ-kek	Ñě	Suaki
Elephant	Gbwě	Dyūwě	Duwě	Duwainye	Tódwě	Dwe
Excrement	Enyini	Nyini	Nyini	Nini	Nyine	Nyini
Eye	Dyidě	Dyidi	Dyi	Gidie	Ye	Nyi
Face	Madyúa	Dyūwā	Dyibwe	Dūbau	Yigbwa (Yiba)	Gībwa
Fat	Kmā (N)	Kinna	Tyírá	Me	Kende	Nyofu
Fear	Fō	Fāyū	Fanu	Amplio	Xōāno	...
He does not fear anything	...	...	...	...	...	Oropi-fāno
I fear ... ..	...	...	...	...	...	Epi ,,
Finger	Gbwěyūwā	Dyiywa	Dyě	Ki	Dyie	Gyika
Fire	Naí	Inyě	Ně	Nek	Nā	Ña
Fish	Zimmi	Zūñi	Sóá	Simie	Ně	Ība
Foot	Bōwe	Bōpeō	Bwě	Bubo	Bōpūró	Bo
Forest	Kurākū	Kūrākū	Kuráide	Klali	Kulede	Mai-aide, Kōra
Fowl	Sū	Sú	Soě	Suñ	Ihabe	Soñ, <i>pl.</i> Swé
Ghost	Sumū	Súm ^u	Tcērēnyó	Me-ku (<i>Die-</i> <i>man</i>)	Siū	Egīō-susu
Goat	Uri	Wuri	Bokró	Bahwuru	Wudi	Wri ; Wria = <i>Many goats</i>
God	Gepró	Gripó	Nyeswá	Musawa	Nyeswa	Ni-swa
Gold ... ..	...	...	...	...	...	...
Grass	Pi	Pi	Piti	Peli	Pidi	Kōra, Pidi
Ground	Buru	Blu	Būú	Bru	Boddō	Brua
Ground-nut	Gende	Blundi	Dare	...	Borro-tě	Komati
Guinea-fowl (<i>lit.</i> Bush-fowl)	Bākrū	Mmā	Čirókí	...	Māū, <i>or</i> Mwāū	Kōra-kuka
Gun	Bū	Bū	Pū	Pume	Pū	Pū
Hair	Mi	Mi	Nūi	Mi	Luprimi	...

Vocabularies of Liberian and other West African Languages

KPWESI (GBELĚ).	BUZI.	MANDIŃA.	VAI.	GORA.	BULOM (for comparison).	FULA (for comparison).	WOLOF (for comparison).
Sañwa	Badě	Sañgbwa, Bala	Sañgbwa	Sañgwa	Ibimbi	Dandu	Ndende
Ewulí	Gwina	Ndulow	Turu	Nū	Nūi	Nofuru, <i>pl.</i> Nobi	Nop
Teñalu	Teñe	Sekri	Chěkėri	Kutw	Pil ; Tipel, <i>pl.</i> Šipel	Ojonde	Nėn
Sėrė	Sena	Sāmā	Kama	Nya	Ipi	Nyiwa	Nyei
Bw	Pw-na	Bw	Gbw	Hin	...	Jilli, Bui	
Ńaigau	Ńai-na	Nyade	Dyā	Fe	Fol	Yitere, <i>pl.</i> Jite	Böt, <i>or</i> Bot
Iñai	Gazu	Nyao	Njaro	Afen	Fol	Yeso, <i>pl.</i> Jese	Kanam, Get
Ńákėtė	Urō	Kė	Turu	Nadė	Liyā	Neba, Haidan	Duf, Dāk, Dū
Naiyan	Gilūā	Sia, Nene	Miyā	Ju	Wei	Hull, Full	Ragal
Yegbwo	Ze-bėyā	Murukoni-ze	Bwdoli	Kiė	Usū	Kulli, Kohe	Baram
Ńoñ	Ńobu	Ta	Ta	Mó	Dyom	Yite, Jai	Safara, Saḡar
Nie	Nie	Jeyė	Nie	Kei	Yū ; Iyū, <i>pl.</i> Sisū	Lingi, <i>pl.</i> Lidi	Giėn, Jen
Kow	Kwōna, <i>or</i> Kōna	Nze	Kė	Gurw	Peñ	Koi	Lahap-tank
Ula, <i>or</i> Wūla	Gwea, Gwea- na	Urā	Ula	Ngura	Tw, Tofoi	Bullūre	Nḡer, Hala
Tė	Tė	Sisė	Tie	Tō	Isok	Gerto	Ganar
Gofė	Gofė	Dyina	Nyana	Nyūmfa	Pomul, <i>or</i> Pamol	...	Gine (?)
Buli	Bli, <i>or</i> Būli	Bani	Bā	Di	Ikuluñ	Be'e, Damd	Mbei
Xālā, Fālā	Gara	Allah	Kamma, <i>or</i> Kañma	Daya	Foi	Jomam	
...	Wale	Sano	Kani	...	Nloñ	Kañe	Wurus
Tūmw	Tuma	Bī	Bī	Dė	Upñe	Genal, Hejo	Nnyax
Lūeyi, <i>or</i> L'ei	Zu	Dū	Duma	Dī	Gbum	Ledi	Sūf
Teyañ	Teña	Tiyā	Genderi	Gėrė	Ukantr	Birio, Hols	Haren
Soñw	Swkė	Kami	Kambi	Dīye	...	Jan	Nat
Gbwana, <i>or</i> Bāna	Kpwadė	Mweifa	Bū	Gbwāma	Pinkar	Fingari	Fetal
Ńündėya	Ūndėya	Guzi (<i>often</i> <i>sounding</i> Gbuzi)	Kundi	Didū	Idiriñ	Gasa, Suku, Juku	Kawar

ENGLISH.	DĚ.	BASĀ.	KRU.	SIKOŇ.	GREBO.	PADEBU.
Hand	Kúwā	Kwa	Kwā	Kwída	Kwā	Kwítā
Head	Drū	Dru	Debω	Dru	Lu	Dru
Heart	Fōi-yúwā	Hrūidyúwā	Wākā	Polo	Woddō	Pwā, Purā
Heel	Buzi	Bωkre	Bušta	Bute	Bēyakiē	...
Hide	Kmó	Kru	Dēku	Sie	Kó	Kwa
Hippopotamus ...	Gbwēwē	Gbwēwē	Nimwē	...	Nihuriē	Niīma
Honey	Gbwǫmā	Dωkerā	Dωkpwē	Dō	Dωkerā	Dω
Horn	Gbó	Ugmwē	Mwē	Mō	Mwē	Gmω
Horse	Sω	Sω	Sω	...	Sω	...
House	Gbū	Gbω	Será	Bu	Kāē	Kāsū
My house	Nagbǫ	Ne-gbwω				
Hunger	Kō	Moyo	Mǫ	Mōwe	Kano	Saro
I am hungry ... ..	...	...	...	...	...	Sāna-nimo
Hyena ... ..	...	...	...	...	Buwi, <i>or</i> Bugbwi = <i>Civet cat</i>	...
Iron	Ůrē, ;Ůrē	Nyekpwa	Prē	Kinē	Prrē, <i>or</i> Peddē	Prwda
Island	Tūǫkwǫ	Tokwω	Tremwē, Tωkpwǫ	...	Lēwē	Du-bwo
Ivory	Gbwēnyē	Dyūēny'nē	Dōnyē	Dωwaini	Dōnyē	Dwaŋgi
Knee	Kodru	Kodrū	Kūrūdēbó	Kwadru	Kūrā-lu	Kwana
Knife	Zā	Dda	Faka	Fākā	Fa	Fuka
Leg	Gbǫ	Gbū	Bǫ	Bo	Bǫ	Pwan
Leopard	Gbwí	Dyi	Dyí	Gí	Dyí	Kē
Leopard's teeth ...	...	...	...	...	...	Kē-ya
Lion	B'í	...	...	...	...	...
Lips	Wēkmwǫ	Uñwakwǫa	Wōtrō	Mwā	Unakpubi	...
Magic	Gwē	We;	Wē	...	Wē;	Kiri
Maize	Bai	Gbū	Pamū	Baduwe	Yūbwó	Bwasū
Man	Gae	Gā	Nyimēyu	Yunbye	Nyimēyu	Giba
Meat	Sae	Sōale	Soá	Nimie	Minnē	Nimi

Vocabularies of Liberian and other West African Languages

KPWESI (GBELĚ).	BUZI.	MANDIÑA.	VAL.	GORA.	BULOM (for comparison).	FULA (for comparison).	WOLOF (for comparison).
Iyekwana Ñu	Ze-wadá Uñgi	Murokana Gumbe	Mbuijaro Kũ	Kũã Dí	Pĩa Bul, <i>or</i> Bol ; <i>pl.</i> Tibol	Jungo Hore, <i>pl.</i> Koe	Loχω Bωp
Di, Ní Kwópωdri Kúró	Mafófō Kwōnlu Kóró	Fófō Vasakoma Buro	Vōvō Kinjamǎ Gburo	Fōfō Gūrōdí Fei	Gbol, Ubol	Berde Tepe Gurri, <i>or</i> Nguru Ngabbe	Xol Teşdan Der
Yasiri Kwēüló MílĚ, Míná Sω	Siaze Kweñúrō Míná Sω	Basamani Líturu Bĩa Sǎ	Malǐ Kúmütürü Bina Sω	Nyake Gwei Si Sω	... Şilw ... Sue, Kabālu (<i>Portuguese</i>) Kil	... Luel, Waladu Puju	Lēm Bĕgin Fars (<i>Arabic</i>)
Pĕlĕ	Pele	Bũ	Keñ	Sā		Sudu	Kōr, Nĕg
Pulu, <i>or</i> Puru	Pŭlŭna	Kō	Kō	Dyie	Nrik	Welo, Hĕge	Xĕf
Yāāsuru	Djālā	Djawa, Siru- kũ, Djani	...	...	...	Juro(<i>Striped</i>), Buro, Wasendu (<i>Spotted</i>)	Buki, Safandu
Kwāli Piwi	Kwōrrũ Tigi	Nĕñĕ Ti	Kundu Tiñ	Kai Ti	Ntũ ...	Njandi Dunde	Vĕn Dŭn
Serenyiñ Ñumbe	Senyi Ñubi	Samagbwe Gumani	Kamanyĩ Kumĕ	Sianyá Gĕ	Riñ Nlŭnk	Nyire, Alladi Hofuru, <i>pl.</i> Kopi	Bōn-u-nyie Hom
Bwa Sáñúnó Kwoli	Bwa Kōγō Kwĕ	Münũ Zĕ Sōli	Mie Kĕñ Kŭli	Kwĕa Guru Bĕnănă	Kin, <i>pl.</i> Le-kin Lŭnk, Ubeñ Ugbo, <i>pl.</i> Igbo, Igbel	Labbi Koi Buturi, Ten, Suldu	Paka, Gobad Tank Sĕg, Tĕnĕ
Ndyara Naŭlŭ, Daŭlŭ Ulu Gbai	Sulŭbũ Daŭlŭ Sĕ Gbwazi	Djāră Dagbŭrũ Gbwāya, B'aya Nyō	Djara Dăkpŭrũ Suā Nyoro	... Nyākó Sĕ Di	Sonlă Nkañ-ntol	Nyabi Tondi ... Butali, Kaba, Masara	Gaende Wende, Mbogi
Sŭnó, <i>sing.</i> <i>and pl.</i>	Zunu	Kĕ, <i>sing.</i> <i>and pl.</i>	Kai	Flă	Nω (<i>Human being</i>), Pω, Pωkan, <i>pl.</i> Anω, Apω	Gor-ko, <i>sing.</i> , Wor-be, <i>pl.</i> ; Mau	Gur
Sŭā	Suω	Sŭ	Suyĕ	Yiri	Vis, Nvis	Ten	Yap

ENGLISH.	DĚ.	BASĀ.	KRU.	SIKOŇ.	GREBO.	PADEBU.
Monkey	Gbrī	Girřě	Gyēyirě	Kobē	Yirě	Gidi
Moon	Sŏ	Drě (N)	Tcō	Kyō	Hobbó	Gioχ
Mountain	Sūwě	Trū	Trŏ	...	Tebéhwě	...
Mouth ... ..	...	...	...	...	...	...
Nail (of finger or toe)	Kwě	Hwe	Jiěkōně	Konu	Jiekó	Kōnu
Name	Ňenně	Nyenne	Nyěně	Añyinea	Nyěně	...
Neck	Brū	Brū	Prū	Punu	Póddó	Dō
Night	Tiyě	Mā	Witie	Wie	Tō	Witie
Nose	M'uná	Mlá	M'nā	Mela	Meā (N)	Mla
Oil palm	Gwesu	Weityu	Dyōnyā, Búsūnyā	...	Yōmā	...
Ox	Brii	Bli, or Blii	Bri, Blii	...	Būrrí	Bli-bao
Palm wine	Dyŏ	Dyū	Jūnumó	Du-numo	Yōnó	Nomo
Parrot	Māmbw	Tyā	Tcāurěbūti	Kea	Kyā	Kia
Penis	Bóllw	Sirē	Siri	Keri	Kirě	Kēra
Pig (Bush-pig) ...	Bě	Bi (Gbi)	Bwě	Bea	Bōtyw	Būcū
Pigeon	Zōlw	Pŏpŏ	Pwpw	Pābo	Hūnūbě	Ūnbwe
Place	Māmŏ	Ninó	Abri	Blewuro	Tedčě, Tedčě	...
Rain	Nyádōbai	Niyédōbá	Dyākú, Ni	Nī	Nū	Nu
Raphia palm	Deboŋgō	Dyoŋgō	Debonyá	...	Děmě	...
Rat	Vě	Būčě	Pwě	Kuwī	Prrě	Pre
Rhinoceros ... ..	...	...	...	...	...	...
River	Nigbwō	Niwa	Niwā, Nibwā	Nuwi	Nigba	Ne-foe (<i>lit.</i> Big-water)
Road	Nifū	Wiyě	Wiübwā, Wie?	Wia	Tidě	Sunū
Rubber	Gbōsiañ	Keñkeñ	...	...	...	Tañ
Sheep	Blá	Bla	B'rab'řě	B'able	Blablě	Blabra
Shield	Nākūñā, Lakma	Dākúřā	...	...	Urae, Wurae	...
Sister	Nakfwi	Ni-má	Diejū-yeněju	Wuruigo	Diayū	...
Skin	Nakhmō	Kmwōā	Fwě	Neku	Gbwāmě	Fo, or Fomote
Sky	Dyae	Dyā	Dyā, Tūčě	Gau	Yū	Yūū
Sleep	Mwāmŏ	Nyīŏ	Nyinnū	Yino	Nyúnó	Nimo
I am sleepy	Momra-nimo

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KPWESI (GBELĚ).	BUZI.	MANDIŃA.	VAI.	GORA.	BULOM (for comparison).	FULA (for comparison).	WOLOF (for comparison).
Kwără	Kwēa	Sōrā	Kpoñ	Gaŋge	Kil	Wandu, Badu, Kula	Golow
Ńalu	!Aru	Kālō	Karu	Wā	Ipañ	Leuru, <i>pl.</i> Lebi	Ver, Wiar
Ťie	GizĚ	Kūni	Kō	Tō	Iroñ	Wamle	Tünd
...	...	...	...	...	Nyeñ	Hondu	Geminý, Gemei
YeñanĚ	Zeñe	Zōni	Keñji	Kōmō	Sentañ	Fede	VĚ, WiĚ
Koñam	LābĚ	Twō, Itwō	ItwĚ	Deu	Iilil	Inde	Tur
Ńgoñ	Kōgi, Kō	Ngā	Nkañ	Gbe	Tumak	Dande	Bad
Bwinni	Widdĭ	Sū	Diffi	Dūñ	Culn, Urtil (Darkness)	Jema	Gudi
Sūa	Sōkpwa	Nū	Suñ	Mia	Mín	Kin	Bakan
Tūlú	Tū	TĚ	Kumāle	Suku	Wā, Nṣā	Teñ	Tir, Teñ
Niña	Tōra, Nike	Nisi; Tōra	Ni; Nikaema	Diwōwō, Di = Cow	Nar, or Inar	Nage, Deba, Kolṣe	Nag, Lōw
Dó	Dō	B'āñ, Gbwāñ	BañkpwĚ	Jumwa	Mui, Mkalem	Sorowu,	Ntkioi, Joi
Vabw	Fabw	Konnw	Kunde	Mambw	Upal	Mbonno	
Tōγw	Tōwí	JākāřĚ	Ikelle	Bō	...	Soldo	
Boi	Būĭ	Bwi, or Buĭ	Kōnia	Nyūā	Pyr, or IpĚr	Lejo, Kose	Mbam
YañwĚnĚ	...	Blini	Pwō, Pūw	Pwopw	Pw	Kambw, Tanta	Katahet
BĚdĚlĚ	VĚ	Jāno	Nie	Kia	Yin	Noku	
Tōnā	Tūna	Sā	Sōnā	Dyiri	Porr	Tober, Tabi = It rains	Tao, Tou
Ulūkūle?	Gbāzi	...	Jōgarō	Gbwrrie			
Ńinna	ŃinĚ	Nyina	Tōrā	DĚ	Ubel	Ndō, Yilifu	Jēnaḡ
...	...	Kówūrū					
Iyā, or Yā	Zie	Kō	Ji	Kwei	Ṣal	Dabol, Mayo	NdĚḡ
PĚlĚ	KpĚlĚ	Siyā	Kirā	Dōma	Nā	Lawo	You
Kbwō	Pwoseñ	Pwoseñ	Pwoseñ	Pwōsiañ			
Gbāla	Bala	Sāa	Bawa	Bawa	Loñkobe	Bali, Mbali	Nḡar
Bwātā	Gizó	Lā	Kā				
NĚyĚbĚ	DĚlu	MadĚ	Inyōmō	Jā ^m	Wantim	Bandirao	Māk, Jojigen
Kōllō, or Kōrrō	Kōrrō	Gbürrō	Gbürrū	Fei	Korr	Band, Ńgurru	Der, Sedid
ĚyĚgbwānā	Ťetiā	AbbĚ	Agbwi	Gbi	TukĚ, Foi	Kamu	Asaman
Ńí	Nyi	Sūnō	Ki	Jāwe	Lul	Noñre, Doiñgō	Nelao

Liberia

ENGLISH.	DĚ.	BASĀ.	KRU.	SIKOŇ.	GREBO.	PADEBU.
Smoke	Natru	Nyesdwo	Nāsró	Digūro	Nāsōnō	...
Snake	Sēwé	Sé	Srě	Sane	Siré	...
Son	Nāžū	Nědyū	Omwane	Nio	Nyimayu	...
Daughter ... ..	...	...	...	...	...	...
Song	Blě	Blě	Blě	Bli	Brrě	...
Spear	Zī	Di	Di	Di	Di	...
Spoon ... ..	...	...	...	...	...	Mina
Star	Děně	Děnějū	Dyatěně	Kwoteni	Neyō ; Toddō = <i>Southern</i> <i>Cross</i>	...
Stick	Sū	Tyu	Tū	Tu	Tū	...
Stone	Sōkpwo	Sō	Sōbō	Sobo	Siō	Sia
Sun	Gū	Dyirwo	Girō	Aguro	Ňwě	...
Tear	Nitě	Mityě	Mitě	...	Mě	...
Testicles	Bō-dě	Dě	...	Muro	Mōnnōtě	...
Thief	Glimā	Odyirri	Girio	...	Yidiō	...
Thigh	Fō	Pō	Posswo, Bōbe	...	Pwō	...
Thing	Yekbō	Dēsě	Dě	...	Dă	...
Thorn	Wī	Ůwī	Wū	...	Wō, <i>pl.</i> Wi	...
Tobacco	Tāwā, <i>or</i> Taba	Tā	Temā, Pō	Puda	Teñā	Tema, <i>or</i> Pū (<i>occasionally</i>) Temaura-do, <i>etc.</i>
Tobacco-leaf ... ..	...	...	...	...	...	...
To-day	Kāe	Zō	Nyeta, Señyironati	...	Nyennă	...
Toe	Gbēyūwa	Biēyūwa	Bwēyě	...	Bēyě	...
Tongue	Miā	Miwo	Mě	Menu	Mă	...
Tooth	Ňěně	Ňěně	Nyě	...	Nīye, <i>sing.</i> , <i>Nyě, pl.</i>	...
Town	Gū	Uγrō	Kúrō	Krī	Wodō, Wurrō. <i>pl.</i> Wuddě	...
Tree	Sū	Kiū	Tu	Kūla	Tū	Dubu
Twins	Ziāū, <i>or</i> Ziō	Nizre	Nyusó	Osāgwā	Girūwō	...
Urine	Dūni	Dōně	Dibū	Eki	Lō	...
War	Two	Tō	Tō	Two	Tō	...
Water	Ni	Ni	Ni	Ni	Ni	Nei

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Dūli	Dulu	Sisi	Sisi	Kwĩnǒ	Igbim	Konnul, Jurk	Sayar
Kaalē	Kali	Sǎ	Kā	Kae	Kirr	Bod, Bol	Gian
Dū, <i>or</i> Dǔ	Dūzū-mwi	Dēngē	Deñ-kaima	Ga, Flagyá	Trāk	Bi, Bido	Dom-gur
...	...	Dēmūsǒ	Deñ-musuma	...	Wañ	Biñgel	Dom-gigen
Ule	Gwǐ	Dōni	Doñ	Nēdyē	Tun	...	Wei
Gbala	Kpē	Tāmá	Tamba	Gbē	Sor, <i>pl.</i> Sisor	Labo	Keg, Fēt
Pēlēmēngāo	Tēmüléká	Lulu	Tūma	Nyanjora	Ulūi	Hōdere, <i>pl.</i> Kōde	Bidwu
ǎUlu	Gūrrū	Kōromā	Koñ	Kū	...	Sauru	Het
Kwonni	Kwǎti	Kawa	Siñ	Tūǒ	Pē	Haire, <i>pl.</i> Kaje	Dwgiō, Doei
Furu	Fūrō	Tērrē	Tēřē	Dua	Pal	Nañge	Jagat
Ñaya	Gazu-yē	Nyadyi	Jēri	Fēmai	...	Gondi	Gyōit
Būrūrā	Pōrrō	Fōrrō	Fōřō	Bōsā	...	Jōke	
Ñūmǒ	Mmá, Mūmá	Swiñya	Kāke	Ūa	Dūino	Gujo, <i>pl.</i> Wibbe	Satkiō
Wellē	Kbwála	Wullu	Wüllū	Wōmω	Latañ	Dañgo, Bual	Lup
Jāñe	Ni	Mini	Fiñ	Nale (Enale)	Irik, Din	Kuju, Fije	
Ñanī	Ñe	Mēyē	Bē	Sāna	...	Yuma	Dēk
Tā, <i>or</i> Tā	Tawa	Tawa	Tawa	Tawa (Etāwa)	...	...	Tamaka
Sā	Za	Bi	Welle	Nā	Inañ	Haude	Tei
Kōō	Koñē	Zenzōni, Ze	Keñ-duli	Kiω (Kekiω)	Uwem	Hondu, <i>pl.</i> Koli	Barām
Nāñ	Ne	Nē	Ne	Milē	Muliñ	Dem	Lamei, Laminý
Ñiñ, <i>or</i> Nyiñ	Niga	Nyi	Nyiñ	Sia (Esia)	Icañ, <i>pl.</i> Ncañ	Nyi	Bei, Bōn
Ta	Tā	Sǔ	Sandya	Jāwǎ	Turrt	Sare, Jud	Dōk, Dāk
Ulu, <i>or</i> Ņuru	Gūrrū	Kōrōmā	Koñ	Ku (Eku)	Rum	Tamaro, Leʒel	Garap, Bant
Yūña	Iyω, Yω	Fla-ni	Flandeñ	Sēwi	...	Sinto	
Wōlea	Guwi	Dyilási	Serri	Suǎ	...	Jalbe	Mberu
Kō	Kǒ	Kerrē	Kēřē	Dūa	Upem	Konnu	Kare
Iyá	Zie	Dyi	Ji	Mamae, Mae	Men	Diañ, Mayo, Niam, <i>pl.</i> Die	Ndox

ENGLISH.	DĒ.	BASĀ.	KRU.	SIKOŇ.	GREBO.	PADEBU.
White man	Kwipā	Kwipū	Nye-pūrū ; Kwipí (<i>European,</i> <i>civilised</i>)	Nu-opula	Nyepāddū	...
Wife	Nañw	Neñmwa	Nyenó	Anuno	Nyenně	...
Wind	Pě	Peō	Popóro	Pobwā	Dūgyūdū	...
Witch	Gbwě	Ůwě, Uwwě	Wě	Odiwu	Wě	...
Woman	Ňonno	Mā	Nyenó	Anuno	Nyenne	Nyero
„ Unmarried ... ..	...	Mayu = <i>Virgin</i>	Nyene-dyū- bwe = <i>Virgin</i>			
Wood	Ňonógwa	...	Ně	Nabī	Nā	Na
Yam	Símí	Sí	Sí	Bie	Kī	...
Year (thirteen moons)	Lā	Zō	Sō	Suñ	Yěrrō, <i>pl. Yerrě</i>	...
One	Gbw	Dw	Dw (Duě)	Dō	Dw	Dw
Two	Sō	Sō	Sō	Sō	Só	Sañ
Three	Tā	Tā	Tā	Tā	Tā	Ta
Four	Ňnyě	Nyě	Nyě	Nīa	Hā	Ha
Five	Mhm	Hm	Mū, <i>or</i> Hmū	Mūi	Hm	M
Six	Mlegbw	Mlenw	Munyendw	Melō	Hmeledw	Mbrut
Seven	Mlēsō	Mlēsō	Mnyésō	Metā	Hmelēsō	M'sā
Eight	Mletā	Mletā	Mūnyetā	Mesā	Bēhābēhā	Nya
Nine	Mleñnyě	Mlennyě	Sopādw	Minyā	Siyedw	Sīro
Ten	Vū	Blabwe	Pñě	Pūi	Pw	Pu
Eleven	Vū-swegbw	Blabwesidw	Pñē-nyadw	Pūi-dō	Kūnadw	Puto-dw
Twelve	Vu-swesō	Blabwesisō	Puenyasō	...	Kūnasō	...
Fifteen	Vusw-ēmhm	Blabwewo- gbwe	Puenyamū	...	Punahm	...
Sixteen ... ..	...	...	...	...	Punahmēlēdw	...
Twenty	Blāma	Brañnyw	Uró, Ůró	Pui-pui, <i>or</i> Wuro- kweda-sō	Wōdw	Woro
Thirty	Blama-swefu	Blainyw- blabwe	Urōnyepūe	Pui-pui-pui- kweda-tā	Wōrōnapū	...

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Nu-kule	Ñu-wule	Mō-gbwe	Mω-kwēma	Kwifwa, Ñufwa	Putω-nω, Pu- twno	Porto	Tubab
Nenu	Ñaza	Mωsw	Musu	Joñ (O-joñ)	La, Lakan, Nōma	Gentu, Dekω	Giabar
Faņa	Faga	Fōyě	Filá	Foe	Heñ	Hendu	Ngelao
Ulu	Gullu	Gbaya	Suā	Sě (Esě)	Serainω	...	Döm
Nēñü	Ñaza	Mωsw	Musü	Joñ	La, Lak, Lakan	Debo, <i>pl.</i> Reube	Jigen
Kwae	Kwoi	Lō-koromā	Só	Mđ	Utok	Ledde	Mat
Bündün	Bωtω	Kū	Jambí	Sě	Idi, Anei	Dauē, Kap	Nyambi
Kunañ	Kuna	Sā	Sā	Dǔá	Nen	Dūbi	At
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Tonó	Gla	Kirre, <i>or</i> Kēlē	Dondó	Gun	Bul	Gω	Bēn
Fera	Fēlēgó	Fla	Ferá, Felá	Tie	Tiñ	Didi	Nyar
Sawa	Saagω	Sawa	Sakpwa	Tāe	Rā, Nīnrā	Tati	Nyet
Nani	Nane	Nanē	Nane	Tina	Hyül, Ninhyül	Nai	Nyanent
Dōlu	Dωlūw	Lulu	Sulu	Nono	Mēn	Jωwi	Girom
Maidā	Dωseta	Wōrō, <i>or</i> Wölló	Sunandó	Diegun	Mēnbul	Jego, Jωwegō	Girom-bēn
Maifire	Dωfera	Wuruña	Sū-ferá	Detie	Mēntiñ	Je-didi	,, nyar
Maisawa	Dωsawa	Sě	Sū-sakpwa	Detāe	Mēnrā	Je-table	,, nyet
Mainañ	Ta:ñ	Konnω	Su-nāne	Detina	Mēnhyül	Je-nai	,, nyanent
Pū	Pū	Ta	Tā	Zia	Wwañ, Wañ	Sakpo, Sapo, Sap, Jap	Fük
Pugāütónó	Pu-kae-glā	Ta-ni-kiri	Ta-nandó	Ziadia-wa-gun	Wañ-nebul	Sakpo-egω	,, akben
Bufira	Pu-fēlēgó	Mūa	Mωbande	Gbēū	Twn, <i>or</i> Utwn	Japande-didi, Nwgai	Nit
Busawa	Pu-sagω	Bweñsawa	Mωbande- akotā	Gbēū-wa-zia	Twn-nuwañ	...	Fanver, <i>or</i> Nyet-i-fük

ENGLISH.	DĒ.	BASĀ.	KRU.	SIKŌŃ.	GRFBO.	PADEBU.
Forty	Blamasō	Blā-sō	Uresō	Pui-pui-pui- pui-kweda- nia	Wode-sō	...
Fifty	Blamasō- søefu	Blā-sō-blabw	Uresō-nye- pue	Pui-pui-pui- pui-pui- kweda-mūj	Wodesō-mna- pū	...
Sixty	Blamatā	Brātā	Uretā	Kweda-melō	Wudetā	...
Seventy	Blamatāsøefu	Blañta-bla- bwe	...	Kweda-metā	Wudetā-nena- pū	...
Eighty	Blāmahnye	Blāhnyē	Urenyē	Kweda-mesā	Wude-hē	...
Ninety	Blamahnye- søefu	Blāhnye-bla- bwe	...	Kweda-minya	Wudehē- nena-pu	...
Hundred	Blamafu (Honda)	Brā-blabwe	Uremū, Urečūm	Kweda-pūi	Wure-hm, Wure-pū	...
Thousand ... ..	...	...	Urepwete	Kome	...	...

I, Me, Mine	Mō	Mō	Mō	Mō	Mō	Mōh
Thou, Thee, Thine ...	Mo	Mo	Mōe	...	Mó	Mau
He, Him, His	Mawe	Nyōna	Nyounā, Nyō?	...	Nyōnōné	...
We, Us, Our	Amω	Amω	Amω	...	Amω	...
You, Your	Amω	Amω	Amwe	...	Amω	...
They, Their	Mē, or Meñē	Nyω, Nyose	Umñ	...	Ωnω	...

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Bunane	Punane	Bwe-nane	Mɔferabande	Gbeũ-tie	Tɔn-nutɔn, or Titɔn	...	Nyanent-i-fuk
Budõlu	Pu-lɔlu	Bwẽ-lulu	Mɔferakotã	Gbeũtie-dyawa-zia	Tɔn-utɔnu-wañ, or Titɔn-uwañ	...	Girom-i-fuk
Bũmenda	Pulɔsetã	Bweñ-awõrõ	Mɔsakwabande	Gbeu-ta			
Budolmaifira	Pulɔfela	Bweñ-awũ-rũya-awũrũa	,, akota	,,			
Budolmesawa	Pulɔsawa	Bweñ-a-señ	Mɔnanebanda	,,			
Budolmenã	Putawu	Bweñ-a-konnɔ	,, akotã	,,			
Keme	Zegla	Kũnẽ, Ulukele	Hondodandɔ	Hondo-agun	...	Temedere, Wulure	Temer
...	...	...	Tauzan (ENGLISH)	---	---	---	---
Nya	Na	Ne, N', M-	Ngã, N', Na	Mia	Yañ, Ya-, Me, Me	Mido, Mi-, Miñ, 'A, Am = <i>My</i>	Man, Ma ; Na (<i>verbal</i>), Suma (<i>My</i>)
Ya	Ya	Ile, I-, Ya	Ya, Iwa, I-	Mũa	Mun, Moa, Moa	Añ, Mada, 'Ade, Da; Mã, Mada = <i>They</i>	Yo, La, Le, Nga (<i>verbal</i>), Sa = <i>They</i>
Yiti	Ni	Ate	Awa, Ā	Nyungwi, Mɔawi	Won, Woa, Woa	Kɔ, Makɔ, Ω; Makɔ = <i>His</i>	Mu, Le, Nõ (<i>verbal</i>), Em = <i>His</i>
Kukẽrẽ	Gi	Mu	Muanu, Mura, Mwa, Mu	Yabi	Hi, He	Medoñ, Meñ, Meneñ ; Medeñ = <i>Our</i>	Nun, Nu ; Nanu-sunu = <i>Our</i>
Kakẽleñẽ	Ami	Wu	Wuanu, Wura, Wu	Yɔnyi	Ngã, Nɔ, Nɔ	Onom, Oñ ; Mɔofi = <i>Your</i>	Yen, Lẽn ; Ngen (<i>verbal</i>), Sen = <i>Your</i>
Nũiti	Ami	Anu	Anura, Anda, Ānu	Anyu	Nga	Be, Beñ, Kambe ; Mabe = <i>Their</i>	Nyu, Nyom Sunu = <i>Their</i>

ENGLISH.	DĚ.	BASĀ.	KRU.	SIKOŠ.	GREBO.
All	Ňně	Sě	Mwe (Nemwe, Amwe)	Keri-kwe	Pĕpĕ
This man	Mawe	Gaidyŭa	Nyimejunŏ	Myonā	Nyi-be-nŏ
That man	Ma-nyěbě	Gaiyu-niaye	Nyŏnyě	...	Nyanŏ-nide
This tree	Sŭgbŵ	Tyu-yuaru	Tunā	...	Tu-nŏnŏ
That tree	Su-anyěbě	Tyu-nyaye	Nu-nyě	...	Tu-nonide
My house	Nagbŵ	Ňe-gbŵ	Na-sĕrĕ	...	Nakae
Thy house	„	„	Nā-sĕrĕ	...	Nākae
His house	„	„	O-sĕrĕ	...	O-kae
Our town	Abli-gu	Abliŭhŭrŵ	A-krŏ	...	A-wurŏ
Your country	Dě-bli?	Ňe-bli, or Mbli	Na-blě	...	A-bri
Their children	Mawe-wŭ	Nyŭe-adyu	Wejŭrŭ, Ye-jŭrŭ	...	Oayuru
Bad	Onyini	Onyinekle- nekwe, Onyiniŭye	Enyiniŭdě, Nyiniŭdě	Waur, or Anenigidi	Ku, Mŏnyibe-kŭŭ = <i>You are bad</i>
Female	Ňonnŵ	Nyenŵ	Dě	Nu	Nyině
Good	Nŏmŵni, Nŏmā	Nŏmŵji	Siě, Siě-bokrodě = <i>Good fe- male goat</i>	Onomigiri	Hā ; Hā-kae, Hā- dyi-bade = <i>Good house</i>
Great	Őbwě	Obwě	Fwě	Yoŭklaba	Hwě, Nye-hwě = <i>Big man</i>
Little	Őnāni	Obiĕyi	Bwě, or Bŷĕ, or Gbě	Ntātě	Tyemě, Wě
Male	Blŏ	Vā, Beŏ	Brrŏ, Beŏ (Beŏ is the <i>commoner</i>)	Kĭa	Gbā
White	Pā	Pŭ	Pŭrŭ	Oplu	Pŭrŭ
Here	Dabwe	Dāwe	Tānā	...	Dyi
Black	Tni	Gbwi, Gbi	Dĕyirĕ, Edyirikpwŭ, Eyirikpwŵ, Deyirepwŵ	Obwenmu	Irikbŵwŵ

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Kélé	Pe (Buli-pe)	Abé	Gbwi	Gbi (Uyagbwi)	Bulēñ	Fū	Giop, Yöp
Zunoñē	Eñene	Ke-mini	Kai-mē, Zu- ni	Flawe			
Zunoñti	Zu-nini	Ké-miwērē	Kai-kē	Flā-wi			
Ñuriñē, Ulu-iñe?	Guli-ñene	Kóroma-mini	Koñ-mē	Ekú-iyē			
Ñuriti	Guli-eño	Kóromá-mi- were	Koñ-kē	Ekú-ijawω			
Ñapélé	Na-pélé, Pele = <i>House</i>	Na-bō	Na-keñ	Sa-mwe			
Ipélé	Nina-pélé	Ya-bō	Ya-keñ	Sa-yuwi			
Ñωpélé	Zu-niñe- napélé	Miabω	A-keñ	Sa-furāwi			
Kutae	Ga-lae	Nua-sω	Mura-sandya	Jawa-wile			
Ipωtae	Ga-yuwi (?)	Wua-dū	Wura-buru	Ofω-wiω			
...	Due dwi (?)	Anua-dē	Anura-defñ	Ja, or Jwa- nyonyi			
Yoñe, or Nyōñē	Inyo-vě	Adyō, Ajō	Djao, Nyama	Kωnana	Bañ		
Sā	Ñaza	Musω	Musuma	Jawe	La, Lakan	Dewa, Wañtse	
Nelle	Pagě, Wagě	Nyě, Bērē	Nyi	Kω-siā	Kēlēñ		
Gettē	Bwólo, Bóro	Bā	Kuro, Bā	Ω-dě	Bωmu		
Galētě	Pene	Ní	Dōma	Jwa	Jōn		
Sēñě	Zine	Kě	Kaima	Wωwω	Pokan, Pω	Wane	
Galě	Nūūrě	Gbě	Gbēma	Fūa	Linte	Rau-, Ran-	Wiaχ, Wek
Be	Ve	Djǎ	Mē, Ja, Mie	Kia	Ka, Cē		
Děyě	Těyie	Afi	Fima	Edie	Ti	Bal	Nyol

ENGLISH.	DĚ.	BASĀ.	KRU.	SIKOŇ.
Pienty	Dađu	Ófwi	...	Yantiabo
There	Pödě	Pore	Taniě	...
No, Not	Sĕwǒ	Sĕwǒ	Sĕwω	Sāwā
I am	Mω	Mω	...	Mo-geli
I am not ... ..	...	...	...	...
I bring	Njä	Ndyā	Nedyě	...
I come	Enidyā	Nidye	Ne-dyi	Mo-angide
Come!	Dyi!	Dyi!		
I come not	Nsedāyi	Nsedadyi	Sekedyi	Mo-angide-sāwā
I dance	Enidyira	Nedyě	Nadyě	Mo-adaili
I dance not ... ..	...	...	...	...
I die	Enakūa	Namě	Nemě	Mo-obineke
Die! ... ..	...	...	...	...
I die not ... ..	...	...	...	...
I drink	Nanae	Nenǎ	Nenǒ	Mo-ona
I drank	Naná	Naná	Nenāmó	Mo-one
I drank not	Ěnsēnā	Ěnsēnā	Somωnā	...
I eat	Nasie	Nadide	Nedidě	Mo-andide
Thou eatest ... ..	...	...	...	...
He eats ... ..	...	...	...	...
We eat ... ..	...	...	...	...
You eat ... ..	...	...	...	...
They eat ... ..	...	...	...	...
I eat not	Ěnsĕyĕsi	Nsededi	Sekededi	...
I give	Egiō	Enyωni	Nenyω	Mo-inehwa
Give! ... ..	...	...	Nyω!	...
I give not ... ..	...	...	...	...
I give you	Enāgi	Nānyi	Siōnyi, Nenyĕm'	...
I give you not ... ..	...	...	Siemnyi	...

• Vocabularies of Liberian and other African Languages

GREBO.	KPWEŠI (GBELĚ).	BUZI.	MANDIŇA.	VAI.	GORA.	BULOM (for comparison).
H ω hwe	Tama	Tamā (-we)	Asiā	Bamba	ZiñbĚ	Gbir
TinĚdĚdĚĚ	...	Liwe	Taajan ω	Ek, Nū	Kwiw ω	Kul
Ūnd ω	Gbelle	Bā	DekĚ	Mā	Gbele, GbĚrrĚ	An, Ma
Mó	...	...	Ne ?	Mbe	...	Ya-c ω , or A-le
...	...	...	...	Mbe-re	...	Ya-ke-c ω , or Ya-kele
Neyā	Ňa, or Anafā	Gawala, Gawaga-la	Me-nale	...	Mihyae	A-ceā
Kedy ω	Ňapai	Gawazo	Menā	Nanā	Miānana	AmwĚ
ŪrĚđí	Fupaina, or Ňafe	Gerewāz ω	Denā, or MĚ- māna	Na-mā-nā, or Mbe-re-nā	Foihindia	AmwekĚn
NĚyinĚ	ŇapelekĚ	Ga- γ a-us ω - γ a	Me-turu-nā, or Me-nd ω	Na-doñkĚa	Miā-fowo	YayĚ
...	...	Gere- γ a-us ω	...	...	...	...
Nekore	Ňasā	Gezā	Me-fāra	Na-fā	Miā-kafa	A, or Ya-wu
...	...	...	...	...	...	Wu !
...	...	Gere-za-ne	...	...	...	...
Nenāne	ŇaŇpūli	GedōgbwĚrrĚ	Me-gbwĚmĚ, M'mi	Nami	Miā-katia	Ya-kulu
Nenānone	ŇāwĚlōkpūli	Gekbwerreā	Meāmí	Namia	Kakpweyatia	...
Neyrōna	Ňafūkpeleni, ŇafūgbĚlĚni	Kerekpwōeni	M'mā ami, De-mi	Na-māmia	F ω tie	Ya-kĚ kulu-re
Netāne	Nalame	Gemiā	Medō, Dō, or Dū	Nadoñ	Miā-jia	Ya, or A-jō
...	...	Yamūmi	...	...	...	...
...	...	Nimi	Mi-adō	...	...	...
...	...	Gimi	Nūadō	...	...	...
...	...	Ami	Aluadō	...	...	...
...	...	Ami	Aluadō	...	...	...
Ye-tā	ŇafĚlame	Geremi	Dedō, or M'madō	Namādoñ	F ω jie	A-kĚ-jō
Ne-nyine	Ňa-vĚ	Gefa	Medi	Nkō	Miā-namkia	A-kā
...	...	...	...	...	...	Ka !
...	ŇafĚ-veniye, Ňalie	...	De-di	Naikō	...	...
Nehímūne	Ňa-veiya	GefĚĚwe	Me-adi-ma (I give thee)	...	Kamkia	A-kaen
Neyīmūhi	...	GĚrĚfĚniwĚ	Me-madi-ma (I give thee not)	...	...	A-ka-mo (Mo = Thee)

Liberia ☞

ENGLISH.	DĒ.	BASĀ.	KRU.	SIKOŃ.
Give me ... ..	...	...	Nyēmū, <i>or</i> Nyēm	...
I gave him	Egiō-kwi?	Enyōni	Nenyumō, Neniumō	...
I go, am going	Namwě	Nemuč	Namu	Mo-amu
I go not ... ..	...	...	...	...
Go!	Mu!	Mu!	Mū! <i>or</i> Mūč!	...
I went	Namū	Namū	Nemūω	...
I went not	Nsedamū	Ensedāmū	Seremū	...
I kill them	Ndabāni	Ndabāni	Nedūbō	...
Kill! ... ..	...	...	...	...
I know	Ndyubōni	Endyuīni	Nedyīpwě	...
I know not	Ngēdyūbω	Ensidyū	Siedyīpwω	...
He does not know ... ..	...	...	...	...
Thou lovest ... ..	...	...	Něgyirě	...
We make	Anu	Anyu	Amunōnū	...
We make box ... ..	...	...	...	...
I make bread ... ..	...	...	...	...
We say ... ..	...	...	...	...
We sold not ... ..	...	...	...	...
He stinks ... ..	...	...	...	Amoani
He stinks not ... ..	...	...	...	...
He steals ... ..	...	...	...	Obogidi
He steals not ... ..	...	...	...	...
They laugh	Okeni	Okič	...	...
You weep	Nafiñ	Navī	...	...
Why art thou sleeping! ... ..	...	...	...	...
Where did he go? ... ..	...	...	...	...
Who comes in? ... ..	...	...	...	...
What do you say? ... ..	...	...	...	...
How do you make palm wine? ... ..	...	...	...	...
What shall we drink ... ..	...	...	...	...

Vocabularies of Liberian and other African Languages

GREBO.	KPWEŠI (GBELĚ).	BUZI.	MANDIŇA.	VAL.	GORA.	BULOM (for comparison).
...	...	...	...	Namaikō		
Nehínone, Ne-yi-nohi	Ňa-věmě	Gefea	Me-adi	Na-akō	Goñ-kia	A-ka-re-woa
Ne-mine	...	Gedi	Nda, <i>or</i> Mba- ra-tā	Na-ta	Kaká	A-kōn
...	Ňafedine	Gereria				
Mū!	...	...	...	...	Kwa!	
Ne-munone	Ňadi	...	...	Na-ta, <i>or</i> Ntā	Kakpweya-ka	A-kōn-re
...	...	Galizu	Me-ta			
Ne-la-nōně	...	Gepā	Me-afāra	Nanufā	Mamjiwa	
...	Ňa-ti-pa!					
Ne-bōnōně	Ňagollw	Gekwōnni	Me-aló (? <i>I knew</i>), Ngaló	...	Kanyima	
Ne-yi-ne-yibw	Ňafegōlō	Gerekwōnni	Deló	...	Fōnyima	
...	...	...	Ke-me-maló			
Nuaněně	...	...	Nekadia			
Anune	...	...	Mwoka			
Anu-brāũ						
Ne-nu-foro						
Amutuni						
A-yikpuru	...	...	Mwōnafūrā			
O-pěnō	...	...	Mwōmafō			
Oyipěnō	...	...	Asuma, Asumate			
O-yirini	...	...	Asi			
O-yi-yiri						
O-tyāne	...	...	Mw-ve-dyerri, Mwōmw-a-vě- dyěrrě			
A-wini	...	...	I-wekasi			
Da-ta-mwa?	...	...	I-su-nómīnī?			
Te-nō-ō-muě?	...	...	Ke-mitato-me?			
Nyōō-dīw?	...	...	Dyiune-we?			
Hā-pěyě?	...	...	Yaku-dī?			
...	...	...	Igbwe-ke-la- mīnī?			
...	...	...	Mwai-mindě- mi? (Mwe- mindemi?)			

Liberia

ENGLISH.	DĚ.	BASĀ.	MANDIŇA.
When art thou coming?	Gawe-ndyi?	Debla-ndyie?	Enani-sā-min-dēro?
Give me food	Nyisie	Nyi-dide	Nzō-dōmīnī-fīna
Cut me a small stick ...	...	...	Tere-kōrōmā-ni
I want a little stone ...	Nāgbō-sokpo-ū	Nemwō-sobo-jūe	Ngaka-wa-ni-dia
Which (fowl) will you give me? ... ..	...	...	Sise-minde-dumuru?
He is inside the house...	Onyie-gbwó	Onyiegbwó dēkúri	Ai-bu-rā
The birds flew away ...	...	...	Kōñō-we-ta
He is taller than I ...	...	...	Adyaña-ni
The parrot screams ...	Mamu-agble	Tca-ble	Konnō-awe-kūmmā
The rotten tree falls ...	...	...	Kōrōmā-tuini-wēbē
Can you see me?... ..	Nsendyiebe?	Nsēndyie-be?	Inyē-nē-la?
No, I cannot	Nse-odyie	Nsē-bē	Gbwēlē
I see you	Enāndyē	Nandyē	



426. GERMAN "FACTORY" AT HARPER, CAPE PALMAS,
WHERE SOME OF THESE VOCABULARIES WERE
WRITTEN DOWN

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