

A Thesis  
1859

On the Medical Topography

of the

West Coast of Africa

including

Sketches of its Botany

by

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Native of

West Africa

The plants described in these pages are  
much extensively employed in the W. Guinea

## Topographical and Botanical Records

In presenting the medical topography of the West Coast of Africa, I shall endeavour to confine myself chiefly to the principal description of the principal places visited for commercial and other purposes, their natural features and peculiarities; their localizing effects in deteriorating the vigor and vitality of life; the stratification and composition of their soils; their meteorological phenomena as influencing tropical disease, as far as our knowledge of meteorology extends; together with the morphological state of the weather & the Barometrical pressure and humidity of the atmosphere.

I shall describe primarily the topographical condition of the different places along the coast, without entering into any political matters, or matters the consequence of which does not produce or prevent disease.

On a voyage to West Africa after leaving the mountainous regions of the Canaries, drifted by the N.E. Trade Wind the voyager first beholds that point in the Senegal Empire called by the Portuguese, Cape de Verde. The greater part of this empire is under the French Government; its principal town, St. Louis numbers a population of about 10,000 inhabitants, 1050 of whom are Europeans and the rest, including 300 soldiers are natives. Among their exports, Gum Arabic is the only one of medical importance; it forms the principal article of Commerce in Portcinder, a small port on the south of Louis.

Gum Arabic obtained from the exudation of the bark of *Acacia Arabica* and belonging to the order of the Mimosae or  
Cereat

according to the Linnæan system *Polygamia Muvacia* is common in the forest of Senegal. It is brought in the market in large masses, irregular & mixed with particles of wood & other impurities having a conoidal fracture.

Goree is a small arid Island situated about eighty miles from Senegal, & containing a population of from 6000 to 8000 inhabitants; on the south side of which, on a high ground is built a fort which is the great depot for the French military force in West Africa.

The soil is sandy & contains a species of rock, composed of Argile & Felspar, of a prismatic structure with grains of Magnetite or titanite iron which is called basalt, & if this be the same as that in the account of Pliny, who informs us that the Egyptians found in Ethiopia a species of marble called basaltis, of an iron colour & hardness we might easily see the derivation of the name.

Another species of gum is also exported here called gum-Copal which in point of fact is no gum at all, as it is not soluble in water; for it derives its name from the Mexican Copalli, a generic name for resin; but it differs however from resin in not being soluble in spirits of wine in which respect it resembles amber. It is shining transparent, citre-coloured, inodorous & hard; dissolved in linseed oil at a heat below the point of ebullition.

South of Goree is the river Gambie, the mouth of which lies on the north in lat  $13^{\circ} 40' N$  and long  $16^{\circ} 40' W$ ; on the south in lat  $13^{\circ} 30' N$  and long  $16^{\circ} 22' W$  extending by many sinuosities about 500 miles into the interior.

The river is very muddy & thickly overgrown with mangroves & other aquatic shrubs. During the wet season, its depth is greatly increased & large trees may occasionally be seen hurled down by its rapid current.

The country around is very woody, covered with immense variety of trees thickly crowded together united by a vast

amount of shrubs which render it impenetrable. The soil being composed also of clay, receives & retains the putrefied animal and vegetable matter which is left a shore by the tides and which forms a mass of alluvia which on being excited by the heat and moisture of the warm weather give out those insensible pernicious exhalation which is detrimental to the constitution, not only of the Europeans, but also of the natives. Like a great many places in Africa vegetation here grows very luxuriantly which is favoured both by the fertility & humidity of the soil.

Further along the river, the banks which in its mouth was low, swampy & unhealthy, become more elevated, the woods more open, the stream more rapid & consequently the parts become healthier.

Bathurst, a port of no inconsiderable importance is built on the mouth of the River Gambia; it was established, as a British settlement in 1816 by Lieut. Colonel Beere-ton. The soil is sandy and clayish intermixed with alluvial swamps which is accumulated during the rainy season and left at the bank in the dry season. The country all around is flat which during the rains is inundated by rivulets many of which are even to be seen along the streets.

Among the market produce of botanical importance are 1<sup>st</sup> a nut from a species of plant in the natural order of Sterculiaceae; this is the *Sterculia acuminata* or Kola nut. 2<sup>d</sup> The seed of the *Arachis hypogaea* a leguminous plant whose seed or edible portion lies buried in the ground, called by the natives, ground-nut. It will be interesting to the naturalist to state that the country around Bathurst and all the coast from Gambia abounds with mosquitoes and sandflies, and I may here state that wherever the coast is overgrown with mangroves, mosquitoes

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seem to delight themselves in profusely developing those morphological phenomena which is characteristic of their species; and thus we see that these places abound with countless numbers of them & their inhabitants suffer from the surgical operation of phlebotomy which they practice on them.

Mosquitoes of the genus Culex belong to that order of the Insecta called Diptera, in the group of the Culicidae; their mouth is peculiarly adapted for sucking the blood of other animals, which in the larval state is prolonged as to constitute an organ of prehension, differing greatly from the mouth of the larval dragonfly. "Conceive" says Spence and Kerby, "your under lip to be horny instead of fleshy, and to be elongated perpendicularly downwards, so as to wrap over your chin, and extend to its bottom; that this elongation is then expanded into a triangular convex plate attached to it by a joint, so as to bend upwards again, and fold over the face as high as the nose, concealing not only the chin and the first mentioned elongation but the mouth and part of the cheeks: Conceive, moreover that to the end of this last mentioned plate are fixed two other convex ones, as broad as to cover the whole nose & temples; that these can open at pleasure, transversely like a pair of jaws so as to expose the nose and mouth, and that their inner edges, where they meet, are cut into numerous sharp teeth or spines or armed with one or more long and sharp claws; - You will then have an accurate idea as my powers of description can give of the strange conformation of the lip in the larva in question, which conceals the mouth and face precisely as I have supposed a similar construction of your lip would do yours. You will probably admit that your own visage would present an appearance not very engaging while concealed by such a mask: but it would strike still more awe into the spectators were they to see

you first open the two upper jaw-like plates, which would project from each temple like the blinkers of a horse; and next, having by means of the joint at your chin, let down the whole apparatus and uncover your face, employ them in seizing any food that presented itself, and conveying it to your mouth. Yet this procedure is that adapted by the larva provided with this strange organ. While it is at rest, it applies close to and covers the face. When the insects would make use of it, they unfold it like an arm, catch their prey at which they aim by means of their mandibuliform plates, & then partly refold it so as to hold the prey to the mouth in a convenient position for the operation of the two pairs of jaws with which they are provided."

The metamorphosis of the culer is both strange and interesting, the female mosquito deposits its egg in the water and in order to ensure its safety, glues them together by her two hinder legs so that they form a perfect life-boat; the form of each individual egg is conical, closed at one extremity, having inferiorly a sort of lid which is well adapted to give access to the embryo when in full maturity. The head of the larva is large, and contains two prehensile organs which by their constant vibration bring food towards the mouth; they are limbless, having no wings but contain on the sides of their body more especially their hinder part a number of fins by which they keep themselves buoyant. The respiratory trachea are connected with the air by two tubes placed in the abdomen with which they are enabled to exchange carbonic acid for oxygen.

After a time the larval animal passes into the pupa state here we observe a more complex development; the head & thorax are fused into one, the abdominal respiratory

lateral disappears and are replaced by <sup>3 dorsal</sup> ~~the~~ thoracic tubes. For the animal which is still aquatic to get rid of this incasement and not be drowned by the surrounding water would appear impossible, but here nature interferes, for in the pupa state the animal becomes more buoyant, raises its back above the surface of the water, which on being exposed to the air becomes dry and splits longitudinally, from which the animal escapes and ready to perform its aerial operations. If a drop of the almost stagnant water in which there are a great many mangrove trees, be examined microscopically a vast number of these larval insects will be found.

The audacity of this insect is thus fantastically described by our late Niger expedition explorer Dr Baikie, "mosquitoes crowded on board possibly to welcome us on our return, but the pleasure of meeting was not reciprocal, nor could we persuade them to take a quiet hint & retire."

I detected one settling in the most cool & impudent manner on the back of my hand, preparing to enjoy an extemporaneous banquet. I fancied I recognized this savage intruder as being the same which had during our ascent committed on me an assault to the effusion of blood

but in the heat of my indignation I sacrificed this sanguinary goal, without allowing time for mutual recognition, so that this question of identity must remain for ever a doubtful point in history."

Along the banks of the River Gambia are to be found those curious animals called the Lepidoceræ which amongst many others seem to prove this general law in nature, nilhil per saltum. This variety is called the Lepidocera annelata & forms the transition stage between the Pisces and Amphibia or Batrachia.

All the islands near to & belonging to Bathurst present the same composition of soil and unhealthiness

of weather produced by dead vegetable accumulation so that it will be useful for me to give special descriptions of each but suffice it to say that they are MacCarthy's Island - St James' Islands & Birds' Islands.

The coast from Bathurst to Sierra Leone is still low & unindented covered with thick forest composed of various kinds of intertropical woods much watered by the numerous rivers that open into the Atlantic, which are separated from each other by many islands, formed according to Dr Blyden, by the deposits of earthy matter from the waters of the several large rivers which empty themselves into the sea in their neighbourhood. The principal of these rivers is the "Rio Grande" said to be navigable 150 leagues above its mouth, swells greatly during the rainy season but in the dry season it is muddy; along its banks are numerous mangrove trees or Rhizophora Mangle whose aerial roots descend into the mud. The bark of this tree may be used medicinally with advantage as a febrifuge & for tanning. It is very astringent; some species are used for dyeing; it belongs to the natural order of the Rhizophoraceae.

The most important of the places from Rio Grande to Sierra Leone are Rio Pongas or Pongas - situated in lat:  $9^{\circ} 55' N$  & long  $13^{\circ} 46' W$ . Rio Nuney; Isles de los among which is Runa or Crawford Island in lat  $9^{\circ} 37' N$  & long:  $13^{\circ} 48' W$ ; Island of Matacong; Mella Coree & Scarries.

The River Sierra Leone at its mouth is bounded on the north by Leopards' Islands, & on the south by Cape Sierra Leone, running S by W.  $\frac{1}{2}$  W & N by E.  $\frac{1}{2}$  E; interrupted at its embouchure by an extensive sand bank called the middle ground, & is easily navigable by vessels from Cape Sierra Leone to the distance of about 25 miles. Its southern boundary is formed

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by the evergreen peninsular of Sierra Leone, extending to a considerable distance inland; receiving several rivers and affording facility for trade with several towns, amongst which are Robump, Tasso, Tombo, Braunce Island, in timber, rice, & ground-nut.

Sierra Leone is built on the mouth of this extensive river, by which it is bounded on the north; on the south & South West it is bounded by the Atlantic, on the East & North East by Braunce river & on the South & South East by the Shabo Territory.

This peninsular whilst approaching it by sea present on a summer's day presents the most lovely picturesque & lovely scenery that ever eye beholds in a tropical world. Its lofty concatenate mountains extending from its most southern boundary Westward to the north, clothed with every variegated tint of nature's verdant & richest colour; its extensive and commodious river receiving at anchor vessels of every description, cannot but excite in the mind of the beholder the idea of those fairy lands which he perhaps had been accustomed to read in some romantic stories. Viewing towards the left the eye is greeted with a vast extent of low land, "covered with luxuriant & richly coloured bush" whose engaging colours vie with the clear blue sky above. But turning to the right, the traveller is enchanted with scenes of grandeur and nature's imposing magnificence, the lofty peaks & declivities, displaying alternately hills covered with verdant green and sky with a light blue tint; the coast with its several indentations presenting a towering light-house, the beacon for approaching vessels, make the voyager forget his home & wish ever to dwell in this "seeming Paradise." In front lies Freetown whose streets are not in adequately described as laid out with mathematical precision, ostensibly protected by a fort and a magnificent line of Barracks whose gun muzzles

point in every direction bidding defiance to any menacing foe. In its further end the Freetown Free Institution stands prominently out, as a master piece of architecture where a sound education is given to the young men of the Colony in Greek, Latin, Hebrew, Arabic, Mathematics and every branch of English studies under the super-intendency of its eminent and learned principal the Revd.

E. Jones.

Freetown the Capital is situated in lat-  $8^{\circ} 39' N$  and long  $13^{\circ} 14' W$  containing from 24,000 to 30,000 inhabitants composed of Eboes, Yorubas, Mandingoes - Soosvos, Jaloofs or Yaloofs, Limnehs, Krees and Dahomians which by their intermarriages are destined to produce the finest race in Africa.

Freetown is divided into subtowns which are these - Kree - Maroon - Settler - Soldier and Mahomidan towns. But the emancipated Africans & their offsprings possess excellence properties & houses in all these subtowns. The two principal tribes are the Yorubas & Eboes. the proportion being as one Eboe-man to a hundred Yorubas. The houses are built principally of stones and board & are of four sets; the first comprises those built entirely of stones, two or three stories high with shingled or slated roofs. The second class are called "Framehouses" built of boards mounted on a circumference of stone wall, about from 3 to 6 ft high; the roofs are either covered with bamboos or shingles. The third class are called "Quarter-Frames" differing from the preceding in being raised from the ground by four or more stone pillars, and the roofs always covered with bamboo. The fourth or last class is known under the general name of 'Ground-floor-houses', their walls are made

entirely either of mud or board; when of the former they are very substantial; the roofs are covered either with grass or bamboo.

The houses are placed on either side of the street, detached, many of which have beautiful promenades and flower gardens around them which reminds me always of that portion in Tacitus where he describing the habitations of the Germans of his days said ne patet quidem, inter se junctas sedes. Colunt discreti ac divisi, ut fons ut campus, ut nemus placuit. vis eos locant, non in nostrum morem connexis et coherentibus aedificiis, suam quisque domum spatia circumdat.

Sierra Leone is divided into three districts viz. Mountain, River, and Sea Districts. The Mountain district and by far the healthiest comprises Gloucester, Leicester - Bathurst - Regent and Charlotte. The temperature is very moderate being sometimes 69° Fah. Always refreshed with a mild breeze & very cold at night in the harmattan season. The towns are built in slopes of red clay-stone hills, moderately populated having the lands around the towns moderately well cultivated.

The following vegetables are principally found in this district.

<u>Citrus Aurantiq</u>	or	sweet orange
<u>Citrus Bigaradia</u>	"	<u>Sour</u> orange
<u>Limon Vulgaris</u>	}	Common lime
<u>Citrus medica</u>		
<u>Bromelia Ananas</u>	}	Pine apples
<u>Ananassa Sativa</u>		
<u>Coffea Arabica</u>	"	Coffee
<u>Dioscorea Bulbifera</u>	"	Yam
<u>Croton Legium</u>	"	Purging nut.
<u>Jatropha Sierra Leonica</u>	}	Cassada.
<u>Jamipha</u>		

Urginea Scilla or squill X  
Anacyclus Pyrethrum " Pyrethrum  
Maranta Arundinacea, Arrow-root.

Citrus Aurantia is a very important dietetic article in Sierra Leone; in the height of its season about fifteen are sold for one penny. It is much cultivated at Leicester and some varieties throw blossom all the year round so that the fruit can be had at any time of the year. I have always observed when the old oranges begin to blow ripe & be ready for use, new blossoms are thrown out & before all the old ones are consumed the new ones are ~~the~~ <sup>new</sup> ones are almost ready for use. They are perennial trees attaining to about 20 or 30 feet in height, the odour of the flower is very fragrant, depending on some volatile oil which it contains & which is very abundant in those in Sierra Leone, so that many bees are to be seen hanging on the flowers. The fruit an hesperidium is very juicy containing several ounces of liquid which nature so providentially provided as an antidote against the urgent thirst produced by a tropical sun; a single tree can produce in one season from 800 to 1000 oranges.

Citrus Bigaradia <sup>is not</sup> cultivated at all. A peculiar phenomenon has been observed with respect to the nature & growth of this species of orange viz that when sweet orange is made to grow in very unfavourable circumstances - e.g. barrenness of land; dryness of soil; much exposure to the burning rays of the sun & constant mutilation the orange fruit that is produced partakes more or less the nature of

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Citrus Byzantina. The sweetness of the orange fruit deteriorates in some cases with the age of the tree but in rare cases it is developed with the growth of the tree.

Citrus medica <sup>limon</sup> is smaller than the ordinary English lemon; it grows uncultivated, developing thorns at certain distances so that it cannot be climbed with impunity. The fruit is oblong with ridges on its surface & very acid. It is very useful in preventing seasickness & is the best hygienic means I am acquainted with.

Ananassa Sativa grows to a great large size in the mountain district; it belongs to the natural order Bromeliaceae; the leaves are rigid & spiny; the fruit is polygynaeal & formed by the union of numerous succulent ovaries & bracts. They are sold in great numbers to the officers belonging to the Coast Squadron who buy them unripe; when ripe they form a very wholesome article of diet, sweet & finely aromatic.

Coffea Arabica was formerly cultivated to a great extent in the mountain district but it is now almost altogether abandoned. At Gloucester it was planted in Phelps' Farm on the way to Brasher; at Regent in Regent's Farm, and at Brasher in the Missionary's Farm. It grows from 8 to 20 feet high bearing a great number of berries which when ripe are reddish-brown containing two seeds in their interior enclosed by an endo-carp; between the <sup>Peri</sup>endo-carp & the seeds is contained a small quantity of brownish red fluid, transparent which has a neutral-sweetish taste. They grow very slowly, some that I planted took about 5 years to attain the height of 4 feet although every care was taken to supply it with manure.

An attempt was lately made by Mr. Richardson, Professor

of oriental language in the Fournals Brgy College to transplant the young trees from the Missionary farm at Bathurst to the open-ground before that College but he failed as all withered in the next season through the action of the sea as he said.

*Dioscorea* <sup>July 22</sup> ~~*Bullifera*~~ forms one of the most important articles of diet in Sierra Leone; planted in the beginning or latter end of May at the onset of the rainy season, it sends off its ascending axis which rises above the surface of the ground and winds round an erect pole which is placed near its bed. From the axils of all the leaves haunches are produced which entangle with one another until in the month of June & August, they become so thick, full, & impenetrable that they form nests for birds. The leaves are cordate, acuminate, furnished with thorns near their axils. The yam itself is a rhizome & is sometimes very large being about 3 feet long and about  $1\frac{1}{2}$  ft broad; containing a large quantity of starch, & an acid principle which in some variety as the *Ospigany*, stings as a nettle when applied to the cutaneous surface, it is however destroyed by boiling. The best variety is the *dioscorea alba* or white yam. Curious to state that the period of maturation is indicated by the development of some larval insect which appears as a caterpillar on the surface of the earth near the beds. I shall allude to these creatures again in the naturalistic account.

*Croton Tiglium* is to be found in great abundance and is used in making fence. Vegetation in this plant is very active for by cutting a branch and carelessly throwing or thrusting it into the earth during the rainy season, roots are developed which pierce the ground. It belongs to the order Euphorbiaceae &

and produces an albuminous seed which is enclosed by three elastic monospermal carpels. It is not used medicinally by the natives. Lately a small quantity was imported to Mr. Clegg of Manchester by my father.

Jathropa vel Janipha Serraleonica is amongst the most important article for food. It differs from the Janipha Manihot of writers in not containing those narcotic principle which is said to exist in the latter variety for I have many a time seen a large quantity eaten unwashed without any narcotizing or injurious effect produced.

The Cassada or Cassava is a perennial shrub from 4 to 6 feet in height having an oblong acuminate leaf growing on the stem which seldom have branches. The edible portion is a rhizome which in some instances is very large. The largest I have seen was about 5 feet long & 2½ feet thick called "Limbeck Cassada". When so large, it contains less quantity of starch but a greater quantity of water.

From it are prepared: 1. Tapioca - By drying and heating the fecula of the root. 2. Toofoo - By depriving the root of some quantity of starch & drying what remains over the fire, then well pulverised & fan the mass. This is put into a pot (over the fire) containing hot water and kept turning for some time until it forms a paste; in this shape it is ready for the epigastricum. 3. Farina - By parching the Cassada after it has been well pulverised & fanned. 4. Cassada Bread - Instead of parching the mass it is baked in a round or circular form exactly like the Scotch "short Bread". The narrow Cassada head is considered the best.

Scilla, the <sup>bulb</sup> bulb of Urginea Scilla of the natural order Liliacea is found in great number in the mountain district. It grows about in the fields unnoticed & uncared for by the inhabitants, although it is one of the most potent medicines in our pharmacopoeia. It is called by the natives "Hog Yaws" probably from its being generally the prey of pigs who eradicate & leave them about. The bulb varies in size - pear-shaped & made of a series of scales which overlap

each other; the outer one is thick and more or less reddish brown; the inner thin & membranous. It is considered by the natives as poisonous from its power of producing severe nausea and vomiting if taken internally.

*Anacyclus Tethystrum* of the natural order *Compositae* is found in great abundance in the woods; - of very little value; brown externally, mottled with black shining spots internally - radicated & yellow. When fresh chewed it is insipid but afterwards produce a burning sensation over the parts leading to a great flow of saliva.

Many other medicines, officinals in our *Pharmacopoeia* are to be found in the forest of Sierra Leone, which for want of able investigators are still unknown.

*Marantā Arundinacea* <sup>Ar</sup> is cultivated to a great extent at Gloucester and Regent. It is a perennial plant which has its stem underground & if left, produces successive flowering stems, rising above the ground during the rainy season & dying down again in the height of summer. It forms a tuberous rhizome about a foot long covered with scales and contains a large amount of starch, which when prepared forms Commercial Arrowroot.

Commercial arrowroot is prepared by removing the scales of the root & pulverizing the tubes in a wooden mortar, then well washed the mass and the residue subjected to a second pulverization until all the starch is removed, this is washed again. The water is strained so as to free it from all chaff; After the starch is settled in the bottom of the vessel it is collected & subjected to a second straining & to have it very pure it is subjected to a third straining. The arrowroot thus obtained is very white; it is then spread either in a white linen or a mat & exposed to the direct rays of the sun until it is perfectly dry. The number of straining produces that difference in the quality of the arrowroot which is so

constantly observed in commerce.

In the River district - are comprised, Freetown the Capital, Kissy, Wellington, Hastings and Waterloo. Of these Wellington is considered the most unhealthy for reasons which will be found in the Etiology of the disease of West Africa.

The soil of this district and of the Colony generally is ferruginous, gravelly in some localities & sandy in others. Specimens of dust taken up at the rising of the hill below Melville Farm, <sup>was</sup> examined by Professor Bowman of King's College London & his report was that "they are all remarkable for the large quantity of ferruginous matter which they contain: -

No 1.	Contains	8.84	per cent	Oxide of iron
2.	"	26.00	"	"
3	"	11.48	"	"
4	"	23.20	"	"
5	"	29.00	"	"
6	"	46.12	"	"
8	"	6.92	"	"
9	"	11.56	"	"
9	"	12.48	"	"

In and round about Freetown are cultivated the

Vitis Vinifera or Cape Wine

Convolvulus Batatas " Sweet Potatoes

Psidium Guava

Psidium <sup>Fig</sup> Preperum } " White and red Guava

et " Pomiferum

Cocos Butyracea

vel Guineensis

" Palm Tree

Cocos Nucifera

"

Coco-nut

Cucurbita Tilobata

vel Cucurbita Citrullus

"

Water melons.

Vitis Vinifera belongs to the order Vitaceae or Ampelideae.

It is not much cultivated by the inhabitants and therefore the fruit obtained is not of sufficient quantity for

making wine; its leaves which in some cases are simple, in others compound, are very astringent; its flowers are arranged in racemose; it climbs by tendrils which when examined closely are found to be abortive branches. The juice of the grape contains a large quantity of tartaric acid in the form of bitartrate of potash.

Convolvulus Batatas belongs to the Nat. order Convolvulaceae; it is a rhizom, very smooth externally and contains a large quantity of mucilaginous albumen and saccharine principle; its leaves are alternate & cordate; inflorescence unifloral calyx unilobed persistent, extensively cultivated by the inhabitants.

Psidium Guava is to be found in almost every garden in Freetown; of the two varieties, Psidium Pyroperum & Psidium Peruiferum, the former is <sup>very</sup> the common; some variety of which contains an excess of acid which renders it very sour. It belongs to the natural order Myrtaceae; some of its leaves are entire cordate, the calyx generally adherent sometimes operculate. The fruit is succulent and very wholesome, it is frequently used in making jellies which are called Guava Jellies."

Cocos Butyracea grows luxuriantly in Fournal Bay, Cline Farm and the Brannana Island; it belongs to the natural order Palmae, the leaves are pinnate, each pinna having a midrib; the flowers are hermaphrodite; the stem endogenous, composed entirely of cellular tissue having vascular bundles in different parts. From this tree the palm wine, the ordinary beverage of the natives is made. Preparation - a small hole is bored into the softened or younger part of the stem & a receiving vessel attached to it, into which the saccharine matter is allowed to flow. It is generally left for twenty four hours before removed; the wine thus obtained when first taken down is very sweet, thick and unintoxicating, it is then mixed with a small quantity of water & then sold; but sometimes they are left until vinous fermentation has taken place, Alcohol

and carbonic acid formed & then sold, so that the individual who drinks it, becomes intoxicated & suffers from severe headache. It is employed by bakers as a ferment in making bread & is said to answer admirably well.

Cocos Nuceifera is cultivated to a limited extent in Sierra Leone. It grows to about 60 or 70 feet in height and its fruit serves for food & luxury, and supplies a kind of sugar called Jaggery. Its fibres are used in making door mats and scrubbing brushes. From the nut is expressed a peculiar oil called Coco-nut oil which has been proposed to be a substitute for Cod liver oil in the treatment of phthisis, but which fails in practice.

Cucurbita Citrullus vel Anguria Trilobata was much more cultivated in former years than now; it grows principally in marshy places; its leaves are alternate and palmately veined; its fruit is a pepo covered laterally by a firm rind consisting of three carpels united.

In the River District the following articles are found in abundance.

Capaicum Frutescens vel Guineensis or Cayenne Pepper

" Medicum " larger

" Minimum " smallest (loupe)

Hypogea Arachis " Ground-nut.

Musa Sapientum " Banana

" Paradisica " Plantain

Lamarindus Indica " Tamarind

Zingiber Officinale " Ginger.

Capaicum Frutescens - Medicum and Minimum are species of the same plant belonging to the order Tiperaceae. They grow (cultivated) in large quantities in Sierra Leone and are principally used as condiments and stimulants.

by the natives; a small quantity as Cayenne pepper some years ago formed one of the exports of the Colony. The plant is a shrub furnished with nodes and internodes <sup>at</sup> regular distances; the leaves are verticillate having stipules; the ovary one-celled & the ovule orthotropal. They owe their pungent and aromatic properties from containing an acid principle or resin, peperine, a crystalline matter & a volatile oil.

Hypogea Arachis belongs to the natural order Leguminosae or Fabaceae. Its seed is a legume which is produced underground; composed of one a pericarp which is rough and rugose when dry, but smooth when raw opened by ventral & dorsal sutures. It runs along the ground sending rootlets through it & at the end of each of which a small knot is formed which becomes thickened presenting an external thick covering which in the early state is entirely mixed up with an albuminous tenacious substance. When it arrives at the state of maturity, the seed recedes from the pericarp, leaving a space between them which contains air; the testa is smooth, shining & sometimes reticulate. The quality of the seed depends entirely on the quality of the leaves & the amount of surface thus presented for vegetable respiration. From this seed is expressed a very useful oil called in India Katchung oil but which we in the West Coast of Africa call Ground-nut-oil. In Sierra Leone this oil is prepared extensively in the establishment of Mr. Oldfield, a merchant, who was one of the earlier explorers of the Niger. He supplies the ~~the~~ inhabitants with a clear oil and the steamers with a substantial lubricating oil.

Musa Sapientum is a well known equatorial plant, having an underground endogenous stem from which proceed numerous rootlets; the leaves have a midrib from which parallel veins diverge. The stem

is succulent and herbaceous & belongs to the natural order Musaceae. It serves as a cooling nutritious food; the fruit should be taken of the plant when "quite full" & be kept in a warm room or better, covered in a cask with its own leaf perfectly dried & <sup>allowed to</sup> remain until it is quite ripe.

Musa Paradisiaca belongs to the same genus but the fruit is larger, longer & takes a much longer time to come to maturity. When ripe it is not so soft as the Musa Sapientum.

Tamarindus Indica belongs to the suborder Casalpiniaceae of the natural order Leguminosae and attains a very great height in Sierra Leone. It has imbricated petals; & Calyx hypogynous; the fruit is a legume having a dorsal and a ventral suture. The pods are from 5 to 6 inches long flattened & concavo-concave, divided into three or four cells containing convex seeds surrounded when young with a pulp which is whitish but when fully formed is of a brownish red colour and an acidulous taste; which acts as a refrigerant & a laxative allaying thirst. It contains bitartrate of potash, tartaric & malic acids, sugar & pectin.

Zingiber Officinale is much cultivated in and about Wellington; the market produce is now inferior to what it was about 9 years ago; From the fact of the merchants offering the same market price for the well-grown and the indifferently grown quality, farmers are obliged to cease paying much attention to its cultivation & so the quality of the produce degenerates every year.

Zingiber belongs to the order Scitamineae or Zingiberaceae. It is an herbaceous plant having leaves with parallel veins, diverging from a midrib; its calyx is three lobed; corolla & stamens three parted. The rhizome or root is sometimes about a foot long, yellowish internally, covered by a thin pericarp externally which

has a brownish yellow colour. It is not so white as it is exhibited in the shops; for after the rhizomes have been dug up, their external covering is scraped off, then they are bleached either by exposure to the fumes of burning sulphur or by washing it in solution of chloride of lime, after which it is dried by exposure to the sun. It is acrid aromatic, stimulant, sialogogue and carminative. It contains volatile oil & soft resinous matter.

York, Kent, and Banana Islands form the principal places in the sea district and are very healthy. The last of these requires a more special notice.

Banana Islands are situated in lat.  $8^{\circ}30'N$ , south of Cape Sierra Leone and consists of two islands the largest of which was originally called by the Sherbroes, Yel-ab-Bana or Banana Proper, & the other the Plantain Islands. These islands are evidently of volcanic origin, & this view is probably strengthened by the fact that within the last five years Sierra Leone has been visited by two successive subterranean vibrations. Banana proper is about four miles long & nearly one & a half broad. In the

part which faces the mainland is Dublin, & consists of an extremely gradual ascent of unbroken table land, but but little varying in its breadth to an extent of about 2 miles; a hill or mountain then occurs, the highest part of which is about seven hundred and fifty feet above the level of the sea, and an inferior elevation upon it, of the height of about five hundred feet above the level of the sea is called Mount Seew.

The quantity of the soil on the table land is good it being a deep, rich, dark loam, with occasional patches of red clay.

The maximum temperature according to Fahrenheit's scales in the hottest day under shade is about  $85^{\circ}$ .

and the temperature is seldom known to vary more than one or two degrees at a given hour and never more than four round the year. I would strongly advise that foreigners who reside in Sierra Leone especially in Freetown instead of toiling in the pursuits of wealth all the year round, year after year to the great detriment of their health should take a summer's holiday once a year to this place as is done in a more civilized portion of the globe.

The most useful vegetable production in the sea district are

- Corica Papaya            or    Papouan
- Oryza Sativa            "    Rice
- Panicum scabrum        }
- "    Pyramidalis        }    "    Guinea Corn (different varieties)
- "    Tenellum            }
- ✓ Ricinus Africanus       "    Casta oil tree
- Saccharum officinale    "    Sugar cane
- Zea    Maiz            "    Indian Corn

Corica Papaya is extensively employed as a dietetic article in Sierra Leone; Authors have ascribed

to the juice of the unripe fruit the medicinal property of vermifuge, a property which I think is due principally to the seed as I have employed it for that purpose. It belongs to the natural order Papayaceae & grows to a large tree, bearing succulent fruit, many of which contain a peculiar volatile oil which renders the flavour rich and agreeable when chewed.

Oryza Sativa belongs to the most important order in the vegetable kingdom the Gramineae. To this order belongs also Zea Maiz, avena Sativa or oats

Triticum vulgare or common wheat & all those grains which supply food to man and beast. It is an herbaceous plant with thin, tall brownish hollow stem with nodes and internodes. The flowers are considered as composed of a series of bracts; the outer, called glumes, alternate, often unequal, usually two, sometimes one, rarely absent; the next called pales or glumeltes usually two, alternate & the outer one being simple, the upper and inner having two dorsal or lateral ribs and supposed to be formed by two pales united, sometimes one or both are wanting.

Panicum Scabrum, P. Pyramidale, P. Tenellum are varieties of the genus Panicum; it grows in different localities, one variety is mostly employed by the Galoos who call it Chooschoos from the sound which it makes in its dried state when agitated by the wind. The Zea may belong also with the Panicum to the order Gramineae.

Phaseolus Africanus or Palma Christi grows to a great size in West Africa, having alternate leaves which are deeply divided into lobes - Palmetto. They resemble and are of the same as the French kidney beans, differing however in having its hilum at one end whilst the French beans have theirs hilum at once in the middle of one side. The seed is covered externally with a husk or testa containing within its interior a white nucleus. Sometimes the natives extract the oil and use it as oleum purgans, the process being by first separating the husk & then heating it in a vessel containing water to above the boiling point of water, then taken & crushed & afterwards leached in a small quantity of water, the oil

distills over & it is gathered.

In Cape De Verde Islands under the name of *Bofarura* the leaves of the white green leaf stalk variety of Castor oil plant are used to promote the secretion of milk in women who have not been mothers, in those who have not suckled for years & in those in which it is slow in appearing after delivering. A decoction is made of a handful of these leaves which the patient uses to foment the defective breast; some of the boiled leaves are then laid over the parts & retained until all the moisture has been evaporated. Experiments were made by Dr. Taylor Smith from leaves of the Castor oil plant obtained from the Chelsea, Regents Park & Kew Gardens which corroborate the efficacious nature of the remedy.

Saccharum officinale belongs to the important order *Gramineae*, it is one of the sugar forming plants and grows luxuriantly in alluvial lands of tropical climates; it is not much cultivated in Sierra Leone, rarely attains to the height of 10 or 12 feet; we do not make sugar from it.

Natural History. With respect to the Zoology of Sierra Leone, I need not enter into details as time and space will not allow me but suffice it to say that Sierra Leone possesses great many animals of interest which will amply pay the naturalist should he make his researches there.

Whilst describing the *Dioscorea bulbifera*, I mentioned that its period of maturity was indicated by a larval creature which appeared as a caterpillar; this species of insect from the circumstances of its appearance I have called the *Dioscoreidese*.

Each of the dioscroides consists of annular segments exactly like the annelids, so that they are called by the natives, "Yam-worm". The mouth is strong & cornuous, well adapted for cutting the leaves of vegetables which form its food. Its whole body is filled with a fatty or adipose substance, anatomically called relé or Eysiploon which serves for food during the ~~formant~~ or pupa state exactly like the fat of the hibernating mammal. They make their appearance in great clusters, twisting one upon the other, consisting of from 100 to 300 in a mass. The dioscroides lays from 200 to 500 eggs at a time & this most probably at the end of the ~~end~~ of the dry season, which it embeds in the soft and newly raised earth prepared by the horticulturist for his yams called yam-beds. Here the ova lie buried during the whole rainy season until by the heat of approaching summer (lowest) in the month of September they are hatched, given rise to a wingless multipod larva. The larva attains its food from the green leaves of the luxuriant vegetation, with which it is surrounded & after the common metamorphosed it pursues life either as a winged or a wingless insect; the real nature or product of the metamorphosis for want of fit opportunity at present will be a subject of future investigation.

Seeward Portion of West Africa. Leaving Sierra Leone, running W. S. W. the plantain islands present themselves, near which from the Sherbro Bay the mouth of the Sherbro River is to be seen. It is easily navigable by vessels of heavy burden

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 to from 20 to 25 miles inland. On or near its bank  
 is built the Sherbro Island which is a fertile tract of  
 land covered with wood & vegetation, & forms the  
 seat of a British Consul - Consul Hanson.  
 Cape Monck is about eighty or ninety miles from  
 the Sherbro Island & lies in lat:  $6^{\circ} 15' N$  and long  
 $10^{\circ} 34' W$ . It projects far into the sea & may be  
 seen in a fine day about thirty or forty miles  
 distant, the coast is low and marshy but covered  
 with verdant trees. The country about this cape is  
 called Gallinas and here we find a great number  
 of Feminae Chirurgicae, who perform the operation  
 of circumcision on the young females, exactly  
 in the same way as that described by Shabo in  
 Lib 17 Page 284 as practiced by the Egyptians  
 Καὶ τοῦτο δὲ τὸν Ἰηδοῦν ἐν τῷ  
 γέννηματι ταῖς καὶ τὸ περιτέμνειν  
 καὶ τὰ Ἰηδοῦν ἐκτέμνειν. Ὅτι καὶ  
 τοῖς Ἰουδαίοις νομίζον καὶ οὕτως  
 δὲ εἶσιν Ἀγυπτιῶν.

The young patient from four to seventeen years  
 of age having been placed in a proper operative  
 position, an aged female with a history, takes  
 hold of her clitoris & cut it off with a sweep: some  
 times this is followed by a copious haemorrhage from  
 the pudic artery. The parts are then washed with  
 cold water & the patient put in a recumbent  
 position; sometimes dangerous inflammation takes  
 place in the parts around so that the labia majora  
 nymphæ, Mons Veneris & in fact the whole  
 vulva becomes so tumefied that the contents  
 of the bladder could with very great difficulty and

pain be emptied through the almost occluded meatus  
urinarius externus.

This excision (ꝛꝕꝗꝛ ꝑꝛꝛꝛꝛꝛ) operation is practiced  
also in some parts of the Linnels Country; in  
the Iwora Eboes; Galla tribes of Abyssinia  
old Kallabar, Arabia, Darfour, Foulahs and  
Mandigo Countries.

Extending from Cape Mount to Cape Palmas is the  
Liberian Territory established in 1822. South of  
Cape Anne is Cape Mesurado near which a river  
of the same name runs far into the interior. On its  
bank, Monrovia the capital of the Liberian  
Republic is built.

Monrovia is built on an elevated land, & numbers  
a population of from 2000 to 3000 inhabitants; its  
salubrity is doubtful, since it is "deprived of  
the northern sea breeze in its purity by the long sandy  
beach & bushwood which stretches from Cape Mount  
to Cape St Pauls' River, across which it must  
pass before reaching the place, & of the westerly wind  
by a high peak of land, intervening between the  
town & Sea."

The next important place is Cape Palmas which lies  
south of Cape Mesurado. The soil about this  
coast is well watered by many unimportant ~~rivers~~  
creeks, & is well adapted for growing rice & other  
farinaceous productions which in fact is to be  
obtained here in great abundance hence the name  
Spain Coast. The staple commodities of latter are  
ivory, gold dust, hides, Malaguetta pepper & rice.  
The towns about this Cape one of the principal of

15  
of which is Grand Lestros, are inhabited by Kruenos -  
the most important sea faring crew in the West  
Coast.

From Cape Palma to Cape Lihou or La hou is the  
Ivory Coast, comprising a tract of land running  
E. N. E. to about 180 miles. This coast is monotonous  
presenting no elevations or indentations of any im-  
portance unless "two shallow bays of unequal di-  
mension." The land is low but covered with a great  
number of evergreen woods & palms. The soil is  
clayey containing some masses of granite rock; well  
watered & grows cotton, indigo, rice, & many  
farinaceous dietetic articles.

The River Lihou or Lahou, near Cape Lihou is in lat-  
5° 17' N and long 4° 30' W. About this river are few  
towns of native importance which trade with European  
merchants in palm oil.

The coast between Cape Lihou & Cape St Paul  
vel St Paul forms the Gold Coast. About 80 miles  
from Cape Lihou is the River Assinon which extends  
inland to a considerable distance. Remnants of a  
French fortification could be seen on its banks; the  
soldiers of which were compelled by the natives to  
abandon it in 1706.

The Gold Coast is so called from containing a considerable  
quantity of that noble metal which is obtained by merely collecting  
the sandy or alluvial earth and washing it; it is conveyed  
to England annually to the amount of from 70,000 to 80,000  
pounds weight.

There is very little difference in the soil along the Coast  
from Cape Palmas to the River Volta, within four or  
five miles from the shore it is of a silicious nature

the chumps of hills, which are to be met with in every direction, are composed of gneiss and granite. Mica is found to enter into the composition of some. The rocks, from containing large portions of felspar and mica are rapidly passed into decomposition, such more especially as are ~~composed~~ exposed to the influence of the air, rain, & water. The result of this decomposition is the foundation of argillaceous clay. On receding from the sandy shore, the soil is silicious, mixed only with some decayed vegetable and animal matter, where no granite or mica ceous rocks intervene. It is in the valleys that the rich alluvial soils is to be found, formed of decomposed material of the surrounding hills, washed down by the heavy torrent of rain, which are deposited with the matter of vegetable decomposition and afford great richness to the original mould.

There are no mountains within several miles of the Cape Coast, the highest land not being above two hundred feet above the level of the sea; nor are there plains of great extent. The country however is not without beautiful scenery; Chumps of hills are to be seen every where with their corresponding valleys covered with a most luxuriant foliage throughout the year. The whole of the country, as far as the eye can see, is one continued flat forest, untill you reach the boundaries of the Urenehals and Aera countries. Here extensive plains with chumps of trees and bushes are beautifully interspersed. These plains, however are not without their evil consequences to Europeans; for during the rains, when any rivulet is filled with water to such an extent as to overflow its original boundaries, it bursts forth and covers the plains, presenting an extensive

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watery surface for the action of the powerful rays  
of a vertical sun.

About 85 miles from the river Assina is Axim a  
small town containing an old Dutch fort which stands  
on a rock. The country around is low, moist & thickly  
wooded; the soil consists of a mixture of lime, clay  
and oxide of iron which is readily dissolved in water.

The town and country around are very unhealthy,  
the atmosphere impregnated with those miasmatic  
exhalations <sup>which</sup> are pernicious to European constitution.

The river Axim contains a large amount of gold dust.

Fifteen miles from Axim running E. by S.  $\frac{1}{2}$  S is Cape  
Three Points which contains the Dutch forts Antonio  
and Brandenburg; the land is hilly and the soil  
composed of red & sandy clay. Further on from the  
Cape is the town of Dix Cou, a British settlement  
which contains a good landing place. On an elevated  
portion of land, at the extremity of a creek is built  
a fort.

Cape Coast Castle is situated in lat.  $5^{\circ} 6' N$  and long  
 $1^{\circ} 5'$  founded by the Portuguese, but became a British  
possession in 1672. Cape Coast Town is a low angular  
point of barren sandy land, washed on the south and  
east by the sea, and the adjacent tract is dry and  
sterile and the country inland consists of sandy  
hills, with occasional narrow, swampy but productive  
valleys; there is a great want of water in the town  
no river being in its immediate neighborhood; but  
water is obtained for domestic purposes from tanks  
which furnish a limited and haphazard supply; and  
also from some stagnant, nauseous & mouldy pools  
which collect the water during the rainy season.  
Commerce is carried on in gold and other produce

but one great and inevitable disadvantage to its progress is the difficulty of landing.

The soil is very variable being in some places black and rich, in others composed of a brownish or brownish yellow clay. The country around is thickly wooded and in many parts almost impassable; the natives are clean and their habitations for the most part is properly ventilated.

Awamambo about 12 miles from Cape Coast next claims our attention; when that inhuman traffic, the slave trade was in its acme it was in the zenith of flourishment but since the abolition mandate was promulgated and Majesty Briton, manacled by her ocean row every unfaithful ally, it gradually loses its influence. It contains a Dutch and an English fort which are separated by the river Cormantien. The town itself is low and contains a few natives but it has a better anchorage than Cape Coast Town.

Akra is situated in the south and south east of Cape Coast and is divided into British and Dutch Akra. British Akra lies westward of Dutch Akra in lat  $5^{\circ} 30' N$ , its fortification is called James' Fort & is serviceable in keeping down the warlike spirit of the surrounding nation; the streets are properly laid out and the government now takes some interest in the education of the people. In April 1852 a proclamation was issued by the Governor and Council of Cape Coast, that a poll tax, of a shilling a piece should be levied on every man, woman and child and "that the revenue derived from the tax after the payment of stipends of the Chief & other expenses attending its collection, be devoted to the public good, in the education of the people, in affording greater

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facilities of internal communication; in increasing medical aid, and in such other measures of improvement and utility as the state of the social and progress may render necessary and that the chiefs be informed of the mode of its application, as well as entitled to offer such suggestions on this point as they may consider necessary."

The soil is sandy in some parts but if dugged a little distance below the surface a black fertile mould is reached; Akra extends from several miles along the coast; the inhabitants live on rice, cassava, poundnut, yams, foofoo (made of pulverised plantain) and kookoo; sheep, goat, pigs, fowls, turkey, ducks, antelopes, hares, deers & pigeons; they trade principally in gold which they obtain from Ashantee, in ivory, cotton (small quantity); & in return they receive rum, tobacco, blue bapp, and other articles of Manchester & Glasgow manufacture.

Dutch Akra is placed on the back of British Akra & is protected by a fortification which is called Greve Caer, it is less healthy than British Akra on account of the narrowness of its street, & the improper ventilation of its buildings.

The Rights of Benue extends from Cape St Paul to Cape Formosa comprising about 300 miles of coast running E. by S.  $\frac{1}{2}$  S. The coast which has a concavity - N. N. E. is low, swampy & well watered by numerous creeks and rivers which open into the Atlantic. Cape St Paul is situated in lat  $5^{\circ} 45'$  N and long  $1^{\circ} 52' 18''$  E. The country about this Cape is low and unattractive, covered in many places with rice but uncultivated vegetation. About fifteen miles from the Cape is Quitta containing

a demolished Danish fort; it is occasionally visited by vessels in the coast for provision. About nine miles from Quitto is Paurey which is eight miles north of Aegujab; these places are unimportant & need only to be mentioned.

About 45 miles south west we arrive at the Popo (nationally pronounced Paw-paw) Country which is divided into two states viz Little and Great Popo. Little Popo is about 45 miles from Quitto and formerly contained a Dutch Colony. During the rainy season, it is very swampy and all the rivers are greatly swollen and the atmosphere very damp and consequently prejudicial to health. Here formerly the Dutch were mostly engaged in slave trade and shipped vast numbers of captured Africans, who were doomed to life long servitude in the brutal transatlantic shore.

Great Popo is about twenty to thirty miles eastward of Little Popo and about sixty five miles from Quitto. When the slave trade was carried on with a high hand in this part of the world by all the European powers, the English, Dutch and Portuguese had factories in this place; the natives are honest, industrious and well built; they trade in Palm oil ivory (which they obtained from the interior) and grains. The soil is made up of red clay and sand & in many places very fertile; near it a small river empties itself into the Ocean; it is muddy & overgrown with a number of aquatic plants which render it impassable in some parts even for the native canoes; it was formerly called by the Portuguese Rio do Paupore but now geographically known as the Popo River.

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The coast from Great Popo to Whydah presents one monotonous sameness, marshy & covered with trees, reeds and grass; it occupies a space of about 16 miles. Whydah or the Franco-Dutch freedah is situated in lat  $6^{\circ}19'N$  & long  $2^{\circ}51'E$ . and forms one of the most important palm oil sea port towns in the Western Coast of Africa. It is a town in the Kingdom of Dahomy which for many years had been one of the principal slave marts in this coast and under the quasi-emigration act of the French Government it is now a seat of slavery in the garb of emigration.

The Government of Dahomy is monarchical and the soldiers of the realm are composed of men & women but principally of the latter who from their natural quickness are the chief investigators for war. Some years ago, after the Abeokuta engagement in which he was worsted, when he thought that the British Government was meditating an expedition against him, he coolly but pertinaciously said, "Should Britain send ten thousand men against me, five thousand will die by the way for want of water & with my Amazons I will cut to pieces the remaining five thousand."

The name of this Despotie monarch is Geyzo & his Amazons of whom he is very proud cry before him Daily Geyzo, ahezo ahezo ... Geyzo the king of kings.

Whydah became the possession of the sovereign of Dahomy in 1773; it is low & flat with sporadic undulatory elevations and hills; the town contains several large baracoons built of clay and capable of holding several hundred slaves. The soil is black in some parts & brown in others & well adapted for growing farinaceous articles.

Many of the plants which are found in Sierra Leone

are also indigenous here such as

<u>Citrus Aurantia</u>	sweet Orange
<u>Ananassa Sativa</u>	Pine Apple
<u>Guava Psidium</u>	Guava
<u>Musa Sapientum</u>	Banana
<u>Saccharum Officinale</u>	Sugar Cane
<u>Capicum Frutescens</u>	Guinea Pepper
<u>Dioscoria Bulbifera</u>	Yams

Besides these we find the

<u>Masturtum officinale</u>	Walu Cresses
<u>Citrus Limetta</u>	Lime tree
<u>Kibiscus Esculentus</u>	Ochros
<u>Cassia Panicum Miliaceum</u>	Millet
<u>Olymum Basilicum</u>	Common basil
<u>Indigofera Quercifolia</u>	Species of Indigo.
<u>Indigofera Tinctoria</u>	
<u>Indigofera herculina</u>	

Thirty miles from Whydah is Port Novo, a sea-port town of the territory of Ardrab, it is well situated for commerce & was one time occupied by the Portuguese. Has

The town Ardrab forms the Capital of the whole territory & is situated on the bank of Lake Crado, the entrance of which lake is formed by the River Lafos or Ossa.

Bradagy is about fifteen miles from Port Novo & about a mile and a half from the sea; about 8 years ago it was invaded by the army of Geyo, the King of Dahomy & its population which then was about <sup>ten</sup> five thousand is now reduced to five thousand; it is situated on the banks of the river Ossa. Eastward of Bradagy about eighty or ninety miles; the white granite rocks of Abeokuta show themselves. Abeokuta contains a population from eighty to ninety thousand inhabitants; it was originally built under a rock hence its

19 name Abe' under and Okuta a stone, but now it extends to a great distance enclosed by a wall made of thick clay about fifteen miles in circumference. The inhabitants are very industrious and the land in its neighbourhood is well cultivated.

Lagos is situated on the mouth of the River Lagos or Ossa, in lat  $6^{\circ} 34' N$  and long  $3^{\circ} 32' E$ . It is a small island about 6 miles in circumference, comparatively healthy; the soil consists of a dark loam intermixed with sand and silicious matter; it is a very flourishing place, but its landing is very dangerous, containing a great number of the plagiostoma division of the Chondropterygii, <sup>of curious</sup> which play havoc on any unfortunate boat. The surf here is very high, rolling and disagreeable.

The Bight of Biafra extends from Cape Formosa in lat.  $4^{\circ} 5' N$  & long  $6^{\circ} E$  to Cape Lopez in lat.  $36' 10'' S$  & long  $8^{\circ} 40' E$ . The famous and long known river the Niger opens by its numerous mouths into the Atlantic in this Bight. The distance between Cape Formosa and Cape Lopez in a straight line is about three hundred miles but the distance by coast line is about five hundred miles and fifty miles. Cape Formosa, which forms the northern boundary of the Bight of Biafra is intersected by numerous rivers which are branches of the River Niger or "Mother of Waters," the soil about it is alluvial & very unhealthy. Within this Bight are included the Islands of Fernando Po, St Thomas & Ponce, the rivers Niger with its disemboguing branches Nun, Moung & Bap; old Kalabar and Kameroun. The tribes or nations which inhabit this Bight are the Eboes, Kalabars & Kameroun & the country along the coast belonging to the Eboes

are Oree, Brap & Ebane. Running through the territory of Ebane are the rivers New Kalabar and Brony which are separated at their mouths by an extensive bank of sand called Break Island, between which two rivers lies Okrika, its King Amakee's residence is about ten miles from Louche' Town and he is described to be the "most independent King to be met with any where on the coast" from "the fact of his not taking goods on trust from any super-cargo, nor allow his people to do it.... all the people met with in the town have an air of sturdiness in their walk."

The River Brony leads to the town of Ebane or Brony of traders; this town was one of the most flourishing and famous place of traffie at the time when slave trade was in its zenith; it then exported twenty thousand slaves per annum, but since the abolition of that nefarious traffie European merchants are engaged here in trading with the natives in Palm oil. The market towns around Brony are Igwanga, Sebratonne, Ourague, Kufe, Egbavage, Orala, and Oreaute.

The coast between Brony and Old Kalabar is low and muddy and extends about 63 miles; the River Old Kalabar was formerly notorious for being one of the chief roads of slavers in Africa; it is about twelve miles wide at its mouth, & the country on either side are for the most part low & unattractive.

The river Rio Del Rey is about twelve miles from

Old Kalabar, monotony of scenery & irregularity of coast line are the principal characteristic features of the countries around. From this River to the extensive Kameroun River we observe several elevated lands, one of which rises about 13,760 feet above the level of the sea, called Kameroun Peak but known in the native or Duwalla language as the Mougou - ma - lobab. Another the lesser Kameroun Peak is about 5820 feet high. The towns around are inhabited by the Iseebu tribe and the mountain side are very dry and attractive especially when compared with the low alluvial of old Kalabar. The River Kameroun is very extensive, having several branches at its embouchure called Hogs Head, along the river are Josses Town, King Bells Town, King Agnas Town & Didos Town.

Next is the River Balmibia which forms an exception in the characteristic features of West African Rivers in not containing any Mangrove swamps; the left bank along which stretch rows of hamlets are from four to six feet above the water surface - abundant in cocoa nut, plantain & cooco trees. On the opposite banks are plantations where the slaves reside & where they cultivate. Interior to their country is the Woorree race, who speak the same language as the Balmibias or are supposed of the same race or descent being entirely different from the Duwallas of Kameroun and Isebus of Bimbria. The Balmibia has several mouths, one of which is called Boreah. From this river to Cape St. John the country is low and thickly wooded; further south we meet

the Elabey and Couseo Islands and the River Rio-da-Angua; this river forms the northern boundary of lake Couseo which is bounded on the south by Cape Esterias.

In lat 37' 48" N and long 9° 30' 30" E lies the river Lyaboo and in lat 36' 0" S and long 8° 40' E is situated the town of King Pooel and travelling 10" southward we arrive at Cape Lopez the Southern limits of the West Coast of Africa.

The soil of the Bay of Biafra is composed principally of a deep clay & mud with a rich dark loam very marshy and densely wooded, the effect of clayey soil in enhancing disease will be treated in the Etymology of tropical Malaria.

We find now in great luxuriance plants of the natural order Solanaceae, Cucurbitaceae, Convolvulaceae, Leguminosae, Melastomaceae, Gramineae, Compositae and Cyperaceae out of these I may here enumerate

<u>Symplocarpus</u> <u>Africanus</u>	Hay Plant
<u>Anacardium</u> <u>Occidentale</u>	Cashew nut
<u>Clerodendrum</u> <u>Africanum</u>	Cocao
<u>Convolvulus</u> <u>Batatas</u>	Sweet Potatoes
<u>Abrus</u> <u>precatorius</u>	wild legume
<u>Cucurbita</u> <u>Pepo</u>	Pumpkin
<u>Cucurbita</u> <u>Lagenaria</u>	Ground Plant
<u>Coriaria</u> <u>Papaya</u>	Pawpaw
<u>Blighia</u> <u>Sapida</u>	Soap berry
<u>Mangifera</u> <u>Indica</u>	Mango
<u>Abelmoschus</u> <u>Esulentus</u>	Ochro
<u>Hibiscus</u> <u>et</u> " }	
<u>Arachis</u> <u>Hypogaea</u>	Ground nut
<u>Ananassa</u> <u>Sativa</u>	Pine Apples
<u>Sapum</u> <u>Vinifera</u>	Wine Palm

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Parkia Africana Locust tree  
Pterocarpus Erinacea Red Wood tree  
Sterculia Accuminata Kola nut  
Achras Zapotilla baseberry

Besides these we find the

Dioscorea Bulbiferas  
Jathropa Sierrabonica  
Gnava Psidium  
Musa Sapientum  
" Paradisica  
Oriza sativa  
Saccharum officinale

I need only describe, in details form of the principal of these plants which are in constant use in West Africa

Anacardium occidentale of the natural order Anacardiacea is a perennial plant with alternate serrulate leaves and grows in rich luxuriance in the west coast of Africa; the flowers are unisexual, presenting united sepals and imbricated petals; its stamens are polygamous; ovary one-celled and ovule solitary; it blossoms once a year from each flower of which an indehiscent fruit is produced, the edible portion of which is a soft species of drupe, which instead of containing the seed in its interior supports it on its excavated peduncular base. The drupe portion is a perfect cone, having its small end attached to the tree and supported by its excavated broad base, the nut or seed; it is covered externally by a soft smooth, pulpy pericarp which incloses a reticular spongy mass, <sup>which</sup> almost resembles the trabecular tissues of the spleen, consisting of a soft whitish mass, a network of interlacing fibres & a milky white, somewhat

transparent juice. The nut is covered externally by a hard woody pericarp in the interior of which is the edible kernel which is somewhat brownish white.

For a pabulum it is first well dried, then roasted with the pericarp which afterwards is removed.

The pericarp is very acid especially when raw, and contains a large quantity of resinous matter which is expelled during roasting.

Some writers aver that the fruit of the *Anacardium occidentale* produces cerebral affection, this I firmly deny both from personal experience and from observations in more than a hundred individuals.

The bark contains astringent and resinous matter and has been employed by tanners in Sierra Leone & have been employed by tanners to produce

*tannofelatinae* proving it to contain tannin.

*Clerodendrum Africanum* is an herbaceous plant belonging to the natural Order *Araceae*; its leaves are sheathy or spatulate at the base, the others having long spongy petioles; the flowers are monocious; perianths entirely absent; the fruit an underground

rhizome or corn consists of a thickened portion of the stem. From the difference observed in the corn I have divided it into two groups *Viz*

*Clerodendrum Hortoniense* and *Clerodendrum Hirsutum*.

*Clerodendrum Hortoniense* is the larger and more wholesome of the two; when planted in a soil rich in nutritive matter e.g. the effete of the cow, it grows to the height of from five to six feet. From the corn or underground bulbiferous stem, lateral branches shoot out which in some instances are continuous, <sup>with</sup> or as it were fused

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into the parent trunk but in others are united to it by a moderately thick pedicle.

Each of these branched tubes is oblong ovate, prolonged on both sides; with one of which it is continuous with the another tube but with the other is made up of a number of buds. The external covering is generally pelose but sometimes glabrous.

Clerodendrum Viridulum is comparatively small, rising only to the height of from  $2\frac{1}{2}$  to  $3$  feet in a very favourable spot; it contains an acid irritating principle which is destroyed by boiling; the leaves are cordate and deeply veined; the corolla is small & shoots out small lateral branches, more from the top than from the bottom of the body; these offshoots are small and globular; it is covered by a layer of scaly epidermis beneath which is the true pericarp.

In Sierra Leone these two species are distinguished by the ill-founded names of Jamaica and Country cecoes.

Cucurbita Pepo belongs to the natural order Cucurbitaceae; it is a climbing plant with palmate-veined, cordate leaves which are covered with tendinous asperities; the corolla is five-parted and marked with reticular veins; the calyx is five-toothed; ovary succulent, exalbuminous and crowned by a leaflet of calyx with three parietal placentae; globular or somewhat oval; the pericarp is few, smooth but marked by indentations from above downwards.

Abelmoschus Esculentus of the natural order Malvaceae is a shrubby plant with alternate, stipulate leaves and showy flowers; the carpels are separable; sepals five, valvate having external involucre

bracts; petals twisted; stamens united into one bundle by the union of their filaments; anthers entire; reformed, one celled and open transversely; fruit contains polyspermal carpels; a starchy transparent mucilage and an acrid, irritant-principle which is destroyed by boiling. The polyspermal carpels are continued but united to a central stalk by dissepiments which thus divides it into several and separate cells each containing from five to eight-seeds. When dry the polyspermal carpels separate spontaneously and the seeds discharged. Used generally in making Calaver occurs; it is first cut into small pieces and then put in the saucers whilst boiling. It helps in supplying respiratory food to the system.

The Island of Fernando Po lying N.N.E. and S.S.W. is situated in lat.  $3^{\circ}$  and  $4^{\circ}$  N. long  $8^{\circ}$  and  $9^{\circ}$  E. and is about 35 miles in length & of 15 in breadth. It was originally discovered by the Portuguese in the year 1471 but it became the possession of Spain in 1778.

The volcanic nature of this island is ably described by Dr Daniel, basaltic scoriae, in different stages of decomposition with aluminous and other stratification conglomerates, intimately blended with and based on the results of igneous action, fully determined the geological features of Fernando Po, and attest its volcanic origin; while the recent exploration of Clarence Peak in confirmation of the correctness of these views of its physical formation, has been satisfactorily proved to be an extinct crater of considerable magnitude. Throughout the Isle, the land is generally rises somewhat abrupt from the sea, exposing to the eye faces of basaltic and other rocks embedded in the soft friable masses of scoriae, the crevices of which are frequently filled up by tufts of plants and brushwood. In other places, where the declination of the land is of

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a less precipitous character, and becomes more easy in its descent, beaches of fine black sand, with large rounded fragments dislocated from the encumbrant cliffs, are found at their base, the acclivities seemingly which are uniformly concealed by a dense underwood of shrubs and young trees. On the inferior slopes, these volcanic vestiges are covered with superficial crust of dark red clay, mixed with the loam of decayed vegetation, which being clothed with extensive woods of bombax, palm, red wood, and other trees of gigantic dimensions, presents a very imposing and beautiful effect. Like all mountainous regions in equatorial Africa, the upper plateaus and heights are diversified by the mingled links of a varied vegetation, which partly corresponding with those formed on the lower or maritime districts of the island, are of a less exuberant growth and do not assume the gorgeous richness so peculiar to African landscapes within the tropics. Adjoining the limits of these woods, the ground is conjointly strewed by a thick jungle of dwarf bushes and trees, interspersed with occasional specimens of the arborescent fern (*Felix arborescens*). Beyond this a verdant sward of grass ascends within a short distance from the more lofty peaks, and is selected by game, numerous herds of deer and wild beef calves, as their ordinary pasturage. In the dry months, the natives set fire to the long withered stems, in order to drive these animals into their power and it is possible that from this circumstance the report has originated, the volcanic eruptions of flame, said to have been noticed on the summit of the mountain. The distant range of highlands as they rise from the flat and undulating terraces that constitute the extensive periphery of the island,

proportionately increased in altitude, and finally converge into two terminal peaks, joined by a continuous ridge some miles in extent. The highest of them called Clarence peak is almost constantly enveloped in fleecy clouds.

Fernando Po contains two lofty mountains one of which Clarence peak is about 10,160 feet above the level of the sea.

Of the principal places in Fernando Po we have the following account from Dr Daniel. Midstone Bay comprehends that intermediate line of coast between Cape Buller to the westward, and Port William, on the northwest. It is shallow, with a regular with a regular gradation of soundings commencing at twenty four fathoms, and from its smooth waters and sheltered position, affords a secure anchorage to ships of any tonnage. Although it is not heaped four or five miles in width, Port William is a remarkably long and narrow promontory, running out for some distance sea-ward, half a mile to the south-west of which is another and slighter extension of the shore called Adelaide Point. Enclosed by these two projections is a semicircular indentation of the land, known as Clarence Cove. In close proximity to the latter point are two detached rocks, thickly sprinkled with vegetation, and connected by a reef; they are also denominated Adelaide Islets. A strong and useful wharf formerly stood in the centre of the cove and constitutes the landing place of the town; it has now partially disappeared, and the black sandy beach on either sheds and storehouses once the property of the defunct African Company, lie around it; and to the left of them on the

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strand, is a clear space on which the trading  
causes of the natives are drawn up.

The road leading to the town obliquely winds to the  
summits of the almost perpendicular declivities,  
~~at~~ near one hundred feet in height, the ascent of  
which, from their steepness is extremely convenient.  
Commanding a prospect of the bay is a range of  
seven or eight substantial and well built houses  
whose sand-like exterior may be discerned many  
leagues distant. These edifices are built within a  
dozen yards of the cliff, a commodious and neatly  
constructed road fringed by the Cactus Opuntia, or  
prickly pear, lapsing in front of them. They are now  
inhabited by the Missionaries and more opulent  
Colonists. Paradise, Government and long field houses  
(the latter recently pulled down) were erected at the  
expense of the British Crown and originally formed  
the residences of the executive and commissariat  
officers. Attached to Government House is an ex-  
tensive but neglectfully cultivated garden, in which  
orange, lime, soursoy, coffee trees, and various esculent  
vegetables grow in profusion.

Midway on Point William is the building that once  
was reserved for the hospital of the settlement and  
the sickly crews of vessels, but now ignobly dese-  
crated by mercenary uses wholly in opposition to  
the humane intention of its founders; its position  
is tolerably well chosen for the requisite ventilation  
by its exposure to the full sweep of an invigorating  
sea breeze, whose delightful and salutary coolness,  
in combination with the lulling sound of the surf  
beneath, and the beautiful mountain scenery around  
contributes to produce a good effect on the languid  
patient, and assists in the removal of that despondency

and depressing languor which exerts such baneful influence on the frames of fever-worn seamen and others.

In the recesses of the hospital may be traced the ruins of the Magazine (built of stone), blacksmith's shop and other buildings; and further to the northward may be seen inscriptions recording the melancholy fate of those persons who perished in the ill-fated Niger expedition.

The town of Florence is erected on a clear and level area gently declining as it approaches the base of the chain of woodland hills that skirt it on the west. It is located in latitude  $8^{\circ}47'$  East. Its geological conditions are in all respects conformable to those of the strata of the sea cliffs and are of the same elevation. The plan of the town is that of a square, whose longest diameter exceeds three quarters of a mile, from the lateral prolongation of the houses at regular intervals. Two or three principal avenues pass from one common thoroughfare on the verge of the beach, and are intersected at right angles by a number of lesser streets all of which are uniformly wide and spacious but disgustingly dirty. The native dwellings composed of pieces of wood & roughly fastened and put together, and roofed either with shingles or palm-leaf mats, seldom rise above one story in elevation, except in a few instances, such as those of the more respectable inhabitants and the government edifices previously alluded to. They occupy in picturesque arrangement both sides of the street the majority of them being white-washed externally,

which gives the whole an air of neatness and comfort. Attached to each is a small garden of fruit trees and plants, enclosed by fences of the *Jatropha Curcas* and other shrubs, the bright glossy verdure of which confers a pleasing & lovely charm on the total ensemble of the place. The greater portion of these habitations, however are falling into a state of decay, and presents a very dilapidated aspect, while from indifference and natural indolence their occupants have suffered a rank vegetation to pervade their gardens and even their public thoroughfares.

The population of Clarence varies from eight hundred to one thousand, and the houses, included those in the course of erection, amount to one hundred and eighty. The negro inhabitants are admixtures of most of the races of Western Africa, and include those of Haussa, Dahomy, Popo, Gold coast, old Kalahar, Ibo - Benin, Kameroun, Sierra Leone, Couyo, Bornes, Yoruba, Brantaria - adyab Jahoon &c. with these are amalgamated a few Whites and semi-coloured offspring of a blended parentage.

## The Seasons and Meteorology of West Africa.

There are four seasons in West Africa viz the Rainy, Harvest, Harmattan and Summer. The Rainy season commences in the beginning of May and terminates in September; the Harvest commences in October and terminates in about the 14<sup>th</sup> or 15<sup>th</sup> of December about which time the Harmattan season commences & ends in about the 15<sup>th</sup> of Dec<sup>r</sup> February; the Summer begins in about the 15<sup>th</sup> of February, and terminates in the end of April. So that the Rainy season comprises three full months & is the longest season; whilst the Harmattan the shortest extends only to two months; the Harvest and Summer each comprises two months and a half. It will be desirable for me to describe each season in details & we commence with the Rainy which as we have seen commences in May and terminates in September. The meteorological phenomenon shows itself by a cloudy, heavy and misty atmosphere with occasional lightening and one or two peals of thunder; the evenings are very dark or if the moon be present, it is seen through a misty atmosphere; shooting stars are occasionally to be observed running in every direction at a distance apparently of about 2000 ft. proving that the whole atmosphere is <sup>highly</sup> impregnated with electric fluid; there are occasional showers of refreshing & cooling rains; the thermometer and barometer instead of being almost stationary present a great degree of variation; now everyone begins to prognosticate "what kind of a weather it would be"; the Europeans are particularly glad

for a more refreshing weather but they spread the idea of the sequela of the rains; the middle ranks of society are filled with unpleasantness at the anticipation of a draw back in their trade especially with the neighbouring nations; the horticulturist sharpens his hoes and other garden implements with delight & the agriculturist with avidity, that is delightful to behold firs, oaks and prepares his field; looking out for an abundant harvest. The average maximum of thermometer according to the observation of Mr Poole is  $82^{\circ}$ , medium  $29^{\circ} 8'$  and minimum  $29^{\circ} 8'$

The rains gradually increases from May until in July and August when it comes down with terrific rapidity, swelling large streams to navigable rivers; brooks converted into rivulets sweeping away every thing that is planted near its bank, and small streams overflow their banks; the gardens are inundated so that in many places water is to be seen oozing from the ground; the grass roofed houses are worn out by its tremendous, rapid and unremitting torrent, so that in some houses the occupant are washed whilst enjoying the invisible caloric emanating from a blazing fire; bridges built pseudo-substantially, disclose the unskillfulness of its architects; the sea sometimes swells and washes far into the land sweeping houses and furniture along with it, reminding one of the Egyptian Deluge, & man obliged to shelter himself under the canopy of some cloth of Manchester and Glasgow manufacture

supported by curiously worked whale-bones and pine wood.

Vegetation grows rapidly, the leaves are of deep green colour; every thing in the vegetable world seems pleasing and the agriculturist views with delight <sup>his</sup> growing plants whilst promenading through his fields.

At the beginning of the season fever is very pernicious which is enhanced by the heat & moisture of the soil; but the pouring rain of the latter part of June, July and August inundates the vast extent of land covered by dead vegetable and animal matter putting at obedience the existing malaria which is destructive to the constitution, and fever scarcely exacerbates the system; but catarrh and bronchitis are of frequent occurrence.

In the latter part of August & during September the rains become less frequent but descend with great rapidity and violence as if precipitated, forced down by a steam machine; the winds are high; and one or two visits of tornado are occasionally experienced. Vegetation now begins to come to maturity but are rather watery & the birds begin to raise their tuneful voices in the morning.

The Harvest commences at the beginning of October, every thing in nature now seem to put on a more pleasing & beautiful appearance; the birds vociferating their musical tunes and the sun shining through the crevices of the doors and windows <sup>in the morning</sup> curtains, inform the recumbent individuals that it is "dawn of day." The thermometer "at its maximum, averages about  $83\frac{1}{2}^{\circ}$ , at its medium,  $80\frac{1}{2}$ , and at its minimum  $78\frac{1}{2}^{\circ}$  and the barometer at its maximum  $30^{\circ} 15'$ , medium  $29^{\circ} 84'$  and minimum  $29^{\circ} 30'$ "

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At this season, the weather is very changeable and invariably visited by four or more tornadoes. The word tornado is derived from the Portuguese travado which means a thunder-storm; it gives to the inhabitants premonitions of its coming; at first a cold breeze is felt which is followed by a clear white heavenly canopy which gives the whole atmosphere a kind of high airy appearance; at once a dusty white spot is observed which in Sierra Leone generally points to the E. S. E. of Freetown and sometimes due E. at a high altitude, and gradually descends spreading at the same time until it reaches the horizon forming as it were a cone the base on the horizon & the apex above; this spreads laterally until a half or a quarter of the visible horizon is covered with impenetrable darkness. Nature now seems to lie in dormant vitality, and its functions to be seized with a paralytic stroke; the most profound quietness pervades the whole heavens earth, the leaves are perfectly in a stand still; not a creature is to be seen about in the shade; the whole system becomes oppressed with a mingled sensation of awe and apprehension of some stupendous phenomena, at once a blast of lightning vividly flashes from sky to sky & then ~~ashes~~ darks into the negatively electrified ground followed immediately by a <sup>distant</sup> tremendous, reverberating explosion which startles every terrene animated being; a slight whirl-wind is afterwards observed whirling round with some velocity the light ponderable material found in the streets. At length a vehement irresistible gust of wind rushes from the gloomy horizon with immense impetuosity sweeping

every unsubstantially fixed substance before it; uprooting trees; carrying away slates & bamboos from the top of houses & sometimes even the roofs themselves and chimney tops; & fill the atmosphere with immense quantity of Infusorial parotzoa. then follows thick pellets of rain which as it were retreats for a time and then returns and terminates with a "fervent deluge which falls in one vast sheet rather than in drops."

There are repeated occurrence of faulted and penetrating lightning which occasions a peculiar sensation in the bare exposed sentient surface: Mr Hutchinson describes it as "a dash of increased heat simultaneous with a vivid flash of lightning" and Dr Backie as "a feeling of warmth in the face". This feeling I believe is due to the increase - development of ozone in the atmosphere which being a powerful and energetic oxidizable substance, oxidises the oxidizable insensible transpiration emanating from the surface of the body.

After the tornado the most pleasing sensation is felt; the air is refreshingly cold, clear & exhilarating containing a large quantity of oxygen; usually no mist is to be seen for some days; the constitution is much invigorated & invigorated.

During the rest of the season the fruits are gathered and the leaves wither & fall to the ground, & there are occasional showers; the dead vegetable matter undergoes putrefaction enhanced both by the moisture of the soil and the heat of the sun which becomes a fruitful source for the exhalation of malaria so that at this season fever rages to a fearful extent.

The Harmattan season commences about the middle of December and terminates in the middle of February occupying a period of two months. The name harmattan is derived from the Fantee Aharamanta, a designation of the season when this wind blows, from Aharama to blow and ta a tallow or grease; it blows along the whole Western Coast of Africa extending from Cape de Verd in lat.  $15^{\circ}N$  and Cape Lopez in lat  $36^{\circ}10''S$  and long.  $8^{\circ}40'E$ ; having its origin from the Desert of Sahara, it blows in Sierra Leone generally E. S. S. in Gold Coast N. E. and at Lopez N. N. E.

The approach of the Harmattan season is generally indicated by the dropping of the leaves from the trees which does not putrefy as in the preceding season but are dried up so that they are prevented from being the source of malaria; vegetables of every kind suffer; all the tender plants and most of the productions of the garden are destroyed; the grass withers and becomes dry like hay; vigorous evergreens feel the pernicious influence; the branches of the lemon, orange, & lime trees drop, the leaves become bleached & so parched as to be easily rubbed to dust between the fingers, should the harmattan blow for several successive days." It generally commences with a deep fog or haze not inaptly compared with the characteristic London November fog, differing however from it in its physical effects on the lungs &

system generally. An idea of the nature of the fog may be conceived when I state that in the heights of the harmattan season in Tropical Africa I have frequently seen the sun at 11 o'clock in the morning through the fog as white as the moon so that an inexperienced observer would at the first sight think that it was the moon as yet unsheltered by the powerful rays of the sun.

Another peculiarity of this wind is that of extreme dryness; all nature seems to feel this effect, the ground is dry, parched & cracked, the trees lose their green foliage; chimneys are open in the roofs of houses, the doors and windows become dried up, forcibly split and cannot properly fit; the furniture loosened, looks bent & concave. In the human body it produces great dryness of throat; a sensation of thirst which is to relieve the parched & dried up pharynx; the lips are chapped and bleed occasionally; the surface of the body crimps and the whole system suffers pro temp. from great uneasiness; the temperature of the atmosphere is considerably low especially in the morning and evening and this in Sierra Leone is observed to a greater degree at Gloucester & Seicester, and the badly clad population suffers greatly from its effects.

The salutary effect of this season is not to be overlooked; during the previous season we have seen that the exhalation of dead vegetable and animal matter are enhanced by the heat & moisture of the weather and that consequently fever spreads

rapidly & is very destructive to the constitution, but  
 its progress is now arrested by Nature's stupendous  
 interference; the harmattan cold, dry wind from  
 the desert, place a veto on animal and vegetable  
 decomposition and consequently on malarious exhalations,  
 and the result surpasses all the malarifuge that  
 is in the power of the medical practitioner; the  
 air is perfectly purified - fever is no longer to be heard  
 of; those suffering from convalescence are stored to their  
 proper & wanted health; all malignant diseases as if  
 by magic disappear; ulcers quickly cicatrize; and  
 cutaneous eruptions arrested. "In the year 1770 there were  
 on board the Unity, at Whydah about 300 slaves;  
 the small pox broke out among them, and it was  
 determined to inoculate; those who were inoculated  
 before the Harmattan came on got very well through  
 the disease. About seventy were inoculated a day  
 or two after the Harmattan set in; but not one of  
 them had either sickness or eruption. It was  
 imagined that the infection was effectually dispersed,  
 and the ship clear of the disorder; but in a very  
 few weeks it began to appear among those seventy.  
 about fifty of them were inoculated the second time;  
 the others had the disease in the natural way; An  
 Harmattan came on and they all recovered except  
 one girl who had an ugly ulcer in the inoculated  
 part & died some time afterwards of a lock jaw."  
 The harmattan therefore produces some peculiar  
 physiological change in the system by which it is  
 enabled to resist diseases even of the most malignant  
 type.

Birds undergo several metamorphosis in their feathers;  
 some become perfectly black having very long tails;

this condition lasts for a month & then the feathers either drop off or changed into gray; the tails drop off. These appearances always precede storms so that they are called by the natives of some parts of Africa - Storm Birds; Others have red feathers developed around their necks but which also disappears with the season. Reptiles especially the Ophidian group to use a more familiar language generally "change their skins" and appear in new ones; so that all creation physically suffer from its effects.

The summer commences as we have seen from the middle of February and "the average maximum of thermometer from February to April is about  $85^{\circ}$ , the median  $80^{\circ}$ ; and the minimum  $79^{\circ}$ ; of the barometer the average maximum is  $30^{\circ} 40'$  median  $29^{\circ} 95'$  minimum  $29^{\circ} 87'$ ."

The weather as may be imagined is very continuously hot, close and unpleasant but not unhealthy, since putrefaction is prevented. Hence it is to be observed that there are two special sickly seasons in West Africa, viz the beginning of the rains and the Harvest.

Sierra Leone being about the centre and principal part of <sup>the</sup> West Coast of Africa I have made the observations of the season more particularly as it occurs in it, for each season occurs earlier as we recede from Cape Lopez to Sierra Leone and later as we leave Sierra Leone for Cape de Verde.

The following description of the weather in August 1838 is thus briefly stated in the "African" a weekly news paper of Sierra Leone. "The weather has been very trying lately, and a great deal of sickness is prevalent especially among new residents. The rain has set in right good earnest. According to the gage gauge kept at Fourah Bay we find the quantity of rain which fell during the preceding three months is as follows: -

Register of Thunderbolts from the 8<sup>th</sup> of June to the 31<sup>st</sup> August 1839  
 kept at Sierra Leone (Borbo)

Date	Morn		Even		Total	Remarks	Date	Morn		Even		Total	Remarks
	Inches	Inches	Inches	Inches				Inches	Inches	Inches	Inches		
June 8	1	1.10	1	3	4		Aug 5	3	1	4			
9	1	1.10	2	2	4.5		6	2.15	2	4.15			
10	2	2.20	2	3	6.40		7	2.15	2	4.30			
11	2	2.10	2	7.5	10.5		8	2.10	2	4.10			
12	3	3.10	2	10.5	14		9	3	3	6			
13	1	1.10	2	1	4		10	3.25	2	5.25			
14	1	1.10	2	2	4.25		11	3.10	1	4.10			
15	2	2	2	2	5.10		12	3	1	4			
16	2	2.10	2	2	9.5		13	3	1	4			
17	3	3	1	1	11		14	1.10	2	3.10			
18	1	1.10	2	1.25	1.25		15	2.25	4	6.25			
19	2	2.75	1	1	2		16	7	4	11			
20	1	1.10	1	2.25	3.35		17	2.25	2	4.5			
21	1	1.25	1	2.25	3.5		18	2.25	1	3.5			
22	1	1.10	2	2.25	3.35		19	2.25	1	3.5			
23	2	2.25	2	1	3.25		20	3	1	4			
24	1	1.25	1	1	2.5		21	4.10	1	5.10			
25	1	1.25	2	2.25	3.5		22	3	7	10			
26	2	2.25	2	4	6.25		23	2.15	2	4.15			
27	3	3.25	1	1	4.5		24	1.10	2	3.10			
28	2	2.25	1	2	4.25		25	2.15	3.10	5.25			
29	1	1.25	1	1	2.5		26	1.10	3.10	4.20			
30	3	3.25	1	2.25	5.5		27	1.10	1.10	2.20			
July 1	2	2.10	1	1	3.20		28	1.10	1	2.20			
2	1	1.25	1	2	3.25		29	1	1	2			
3	1	1.25	2	2	4.5		30	2.10	2.10	4.20			
4	2	2	4	3	5		31	1	5	6			
5	3	3	1.25	1	5.25								
6	1	1.25	1	2.25	3.5								

Months	Quantity	Remarks.
May	8 in. 95	In 15 Days of rain with strong tornado, thunder and lightning on the 3 <sup>rd</sup> 19 <sup>th</sup> 28 <sup>th</sup>
June	1 1/2 in. 27	In 15 Days of rain; with strong tornado, thundering & lightning on the 4 <sup>th</sup> 7 <sup>th</sup> and 11 <sup>th</sup>
July	23 in. 50	19 Days of rain..

Meteorological table kept at the Military Hospital, Freetown  
 Sierra Leone for the year 1820 (Boyle)

	Thermometer		Barometer		Hygrometer		Weather		Remarks
	Max.	Min.	Max.	Min.	Max.	Min.	Wet	Fair	
January	80	79	29.99	29.80	9.2	1.2	2	25	E. or N. N. W. occasionally cloudy morning, 13th & 14th rain fell.
February	87	80	29.91	29.81	8.6	1.1	2	24	Do. little sea breeze, two tornadoes wet & sultry.
March	86	79	29.95	29.87	10.3	1.7	4	23	N. N. W. no regular sea breeze but sultry.
April	84	79	29.83	29.81	4.2	2.0	2	28	Frogs. W to N W fine weather.
May	85	79	29.80	29.82			10	15	Fine S. E. to N. W. Close & sultry, 4th & 5th.
June	80	78	29.86	29.81			11	15	Do. to Do.
July	84	78	29.87	29.81					Hot and usually fine for S. W to N. W.
August	82	75	29.91	29.82					Hot & sultry end of month, with heavy rain.
September	83	78	29.93	29.84					Close and sultry, heavy rain light & dry.
October	83	78	29.87	29.80					Heavy rains in the night & hot & sultry during day.
November	83	79	29.86	29.80					Do. Tornado close.
December	85	77	29.80	29.60					Do. N. N. W. Tornado.

In consequence of the temporary absence of the officers the account was not kept.

The instrument was accidentally broken.